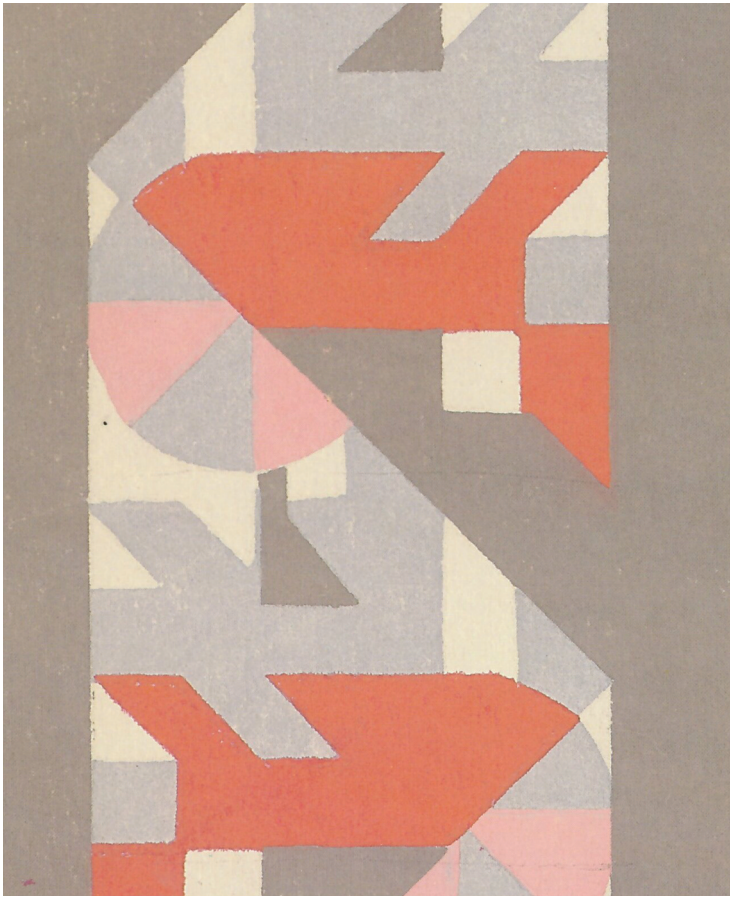
REGIONAL DEVELOPMENT TRAJECTORIES BEYOND THE CRISIS

Percorsi di sviluppo regionale oltre la crisi

a cura di
Marco Bellandi, Bianca Biagi, Alessandra Faggian, Emanuela Marrocu, Stefano Usai



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Introduction

*Marco Bellandi**, Bianca Biagi*[§], *Alessandra Faggian*[♦], *Emanuela Marrocu*[°], *Stefano Usai*[°]

The XXXVIII AISRe Conference, held in Cagliari in September 2017, was specifically aimed at stimulating the scientific debate on the Regional Science issues related to the analysis of both the local and global factors that have influenced the regional development process after the recent Great Recession. Regions, territories and urban areas have experienced quite unevenly the negative effects of the economic crisis. Such effects have been exacerbated by the costs induced by the globalisation process and the still incomplete economic integration and, in certain cases amplified by international trade imbalances and the destabilising effects of the financial sector. Moreover, also the still feeble signs of the economic recovery seem to be very diversified across territories.

A number of conference contributions have investigated regions' structural features in terms of innovation potential, human capital and openness to distant markets. Such features are deemed to be the sources of their resilience, adaptation and regeneration capabilities. Coupled with good public policies, regional characteristics could play a key role in triggering the mechanisms that will allow to recover, not only what has been lost in a ten year period of economic downturn, but also in identifying the new trajectories for a more effective, sustainable and inclusive regional development process.

The theme of new trajectories of local development was also specifically addressed in two roundtables dedicated to the memory of Giacomo Becattini, who passed away in January 2017. The relevant topicality of Becattini's thought

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could still inspire novel research avenues in regional science and serve as a basis for sound policy proposals.

The book is organized in three parts. The first one, edited by Emanuela Marrocu and Stefano Usai, is on innovation and international openness. The second part, which focuses on human capital and migration, is edited by Bianca Biagi and Alessandra Faggian. Marco Bellandi edited the third part, a tribute to Giacomo Becattini's work.

Part I

This part of the book collects 8 chapters that focus on the role of regions' structural characteristics, innovation and openness to distant markets as key factors in influencing the capabilities at the local level to overcome the negative effects of the crisis. A special attention is dedicated to Italy, which was hit by a strong negative demand shock and a subsequent severe credit crunch with worsening effects on the long-standing North-South divide. The last three chapters offer methodological contribution to adequately measure productive specialization and degree of embeddedness and relatedness of regional technological domains with respect to the Smart Specialization Strategy.

The contribution by Cainelli, Giannini and Iacobucci investigate the issue of firms' survival during the crisis. Their results point out that Italian firms belonging to a local cluster or to a group had higher survival rates during the Great Recession than independent companies. However, the latter show higher levels of performance in terms of growth and profitability. The most relevant implication of this result is the market selective mechanisms, although useful over long horizons, in the short run could determine the loss of productive resources and the erosion of the knowledge base, which are crucial to overcome the negative effects of a widespread economic crisis.

Guy, Filippetti and Iammarino analyse to what extent employee training has been effective in securing continued employment in Italy during the recent economic crisis within a local demand side perspective of the labour market. Their results highlight that the effects of training on continued employment are more pronounced in the South than in Centre-North areas of the country. This is fundamentally due to the fragile Southern productive system, where firms tend to internalise most of their functions as they are less likely located in specialised agglomerations or in external networks. The authors claim that this has very relevant implications as it reduces the scope for innovation, job creation and inter-firm workers' mobility, which in the long run deprives Southern firms from the beneficial effects that a Marshallian pool of skilled labour could have for all firms in the area.

The chapter by Brancati, Marrocu, Brancati and Usai focus on Italian firms trade activities during the crisis. They analyse similarities and differences in

interregional exchange strategies with respect to international trade ones. Main results indicate that the probability of entering interregional markets is enhanced by learning processes, as firms benefit from past experiences (both on international and domestic markets) and from the positive traits of the surrounding environment in which they are located. The authors provide evidence of heterogeneous effects across the Italian macro-regions, especially as far as sunk costs are concerned: firms located in northern regions have to cope with smaller sunk costs than the ones located either in the Centre of Italy or in the Mezzogiorno area. Thus, regional policies oriented to break this path dependence are more necessary in some areas rather than others.

The contributions by Ascani and Gagliardi and Chapman and Meliciani focuses on the role of Foreign Direct Investment (FDI). Ascani and Gagliardi provide evidence on the positive effect that FDI has on the labour productivity of Italian provinces during the period 2003-2009 and emphasize how such effects are predominantly concentrated within territories endowed with the highest level of absorptive capacity. This, in turn, creates spatial imbalances across the country and calls for policies that, while pursuing the attraction of foreign multinational companies, should also aim at strengthening the knowledge base and the competences of the local production system.

Chapman and Meliciani, on the basis of a study on Central and Eastern European Countries, argue that FDI could be a valid instrument in favouring the process of restructuring obsolete industrial areas and integrating peripheral ones. Coordinated innovation and industrial policies could improve investment conditions locally and lead to the upgrade of existing plants, increasing levels of human capital and productivity.

The first of the three methodological chapters, is the study by Macedo and Guy, who propose a new method to measure regional specialization. Their new method overcomes the limits of a number of indicators proposed in the literature, which are mainly based on the spatial concentration of firms in a given industry. The authors argue that to provide a sound measure of specialization it is necessary to take into account the manifested advantages of Marshallian localization (firms' proximity to resources such as appropriate specialist labour, suppliers, customers, and knowledge). They operationalize this concept by giving weights to co-location of industries based on the propensity of workers to move between the industries. An empirical analysis applied to 558 Brazilian micro-regions shows that the new specialization index is significantly correlated with both per capita GDP and human capital.

Iapadre discusses some statistical indicators used to measure the general features of an economy's specialization pattern. Focusing on the structural characteristics of export specialization patterns, Iapadre discusses the importance of the degree of polarization of export specialization, defined as the average intensity

of comparative advantages and disadvantages. As polarization is related to the concept of concentration, it is necessary that the latter is accurately measured. He proposes a new method, based on the notion of dissimilarity with respect to a suitable reference distribution, which is expected to overcome the limits of the traditional measures of export concentration. These have been proved biased due to the inadequacy of the equidistribution assumption on which they are built.

D'Adda, Iacobucci and Pelloni propose a novel methodology to measure the degree of embeddedness and relatedness of the technological domains selected by Italian regions within their own Smart Specialization Strategy. The authors identify two indicators that allow to assess how the regions have chosen technological domains in which they show an effective innovative capacity (indicators of coherence) and how these domains are connected and complementary (indicators of relatedness). These measures could help regions to be more aware of the choices made during the planning phase, to monitor the policies implementation and to evaluate the results of these policies.

Part II

The second part of book focuses on human capital and migration. Local economies with better educated individuals are expected to be more innovative, efficient, socially cohesive, inclusive and open. The presence of high human capital individuals generates local spillovers and positive externalities triggering cumulative growth. The consequent attraction of peers from outside further reinforces local economic growth. The case of Italian regions is emblematic in this sense. Findings from a wide array of contributions demonstrate that the divide between the richer North and the poorer South in Italy has recently increased, alongside the gap between their respective human capital endowments. These differences have dramatically grown in the last decade also as a consequence of the continuous regional brain drain from the South to the North due to the migration of students, recent graduates, and individuals with high levels of education and skills. The territorial impacts of this phenomenon are expected to reinforce and enlarge in the future.

The present collection of contributions investigates various issues linked to this topic and can be divided into three main sections. The first two include chapters investigating the determinants and impact of interregional migration, the third consists of papers analyzing more general issues related to human capital.

The first three chapters, Fiaschi and Tealdi; Fratesi, Gagliardi, Lenzi and Percoco; Fazio, Maltese and Piacentino, focus specifically on interregional migration determinants.

Notwithstanding the numerous contributions on determinants at interregional level, this issue needs further investigation for at least two reasons. First, most studies on migration drivers investigate overall flows irrespectively of individual characteristics of migrants, despite both theoretical and applied research demonstrate that migrant self-selection – in terms of age, education and gender – is a key issue. The increasing availability of micro and longitudinal data for the Italian case allows a more in-depth analysis to tackle the self-section problem.

The descriptive analysis by Fiaschi and Tealdi on interregional migration in Italy by age and education from 1992-2005 goes in this direction. Specifically, computing a migration intensity index à la Shorrocks (1978) and a long-distance migration index à la Bartholomew (1967), the study confirms that high human capital individuals have a higher propensity to migrate, as well as individuals in the age cohort 15-44. On the contrary, individuals in the age cohort 45-64 shows a time-invariant trend not related to the human capital content of the flow. This is interpreted as a signal of return migration for this age cohort. Contrary to expectations, results suggest that individuals with a low-level of education are those who migrate longer-distance. Overall, the work points out the need of disentangle working age migration determinants from those affecting return migration.

In a similar fashion, the chapter by Fratesi, Gagliardi, Lenzi and Percoco investigates the behaviour of younger and recent graduates in Italy. In their work, the authors focus on how migration decisions of recent graduate depend on the probability to obtain a better match between individual skills and jobs. The econometric application is based on data from the Survey on Professional Status of Graduates issues by Istat (year 2013) and from Excelsior survey of UnionCamere. The theory underlying the hypothesis is that, in deciding whether to migrate, recent graduates compare the matching probability at the origin and destination. Migration occurs when the former is lower. Job matching turns out to be the strongest determinant of the decision to move.

The third contribution by Fazio, Maltese and Piacentino offers a descriptive analysis of values and beliefs that might affect the future propensity to migrate of students enrolled in the second year of secondary school. The work is based on a survey performed in 2015 to a representative sample of second-year high-school students in the city of Palermo (Sicily) divided by school-type. It emerges how the vast majority of students do intend to migrate after the completion of their studies, especially if female and/or studying classics or scientific subjects in a lyceum-type school, or attending a teacher training school. Furthermore, higher propensities to migrate are found for students showing better school performance.

The next three chapters analyse the territorial impact of human capital migration on local areas, a topic that, despite the bulk of literature produced, still needs further research.

Etzo, Massidda, Mattana e Piras focus on the productivity impact of international migration on Italian regions by using channel output decomposition by sector for the years 2008-2011. Specifically, the value added per worker has been decomposed in the capital to value added ratio, average hours worked per worker, total factor productivity and a productivity-weighted skill-intensity index. Their findings suggest a positive economic impact of immigrants on productivity and a negative impact on skill-intensity index. This means that Italy is attracting non-skilled workers. Results also indicate that the types of impacts change according to the economic sector in which the immigrants work. Overall, the work points out that the positive impact of immigrants in the host economy depends on the match between skills and tasks.

The chapter by Vecchione analyses the impact of interregional South-North skilled migration in Italy on human capital accumulation in the South. The main aim of the work is understanding whether, and to what extent, brain drain prevails in origin regions (Southern ones). To do this, the author tests a model in which skilled migration in each Italian region depends on human capital accumulation of the region over the period 2001-2016. Following the literature, human capital accumulation is measured by using enrolment rate after completion of upper secondary education (the data come from the Anagrafe Studenti of the Italian Ministry of Education and University, MIUR). The findings confirm that the increase in skilled migration of the last decades has negatively affected the human capital accumulation of the Southern regions.

By using a dynamic panel approach on Italian inter-provincial migration for the years 2004-2014, Di Berardino, D'Ingiullo and Sarra investigate whether international skilled immigration affects institutional quality of the destination provinces. Following previous works, institutional quality is measured by means of various indicators such as corruption, government effectiveness, regulatory quality, rule of law, voice and accountability, as well as an overall index of institutional quality. The main explanatory variable is represented by human capital migration proxied by the average years of schooling of immigrants. Even though the results confirm the persistency of institutional quality over time, the authors interestingly find a positive and significant effect of skilled international immigration on the institutional quality of destinations.

The last group of chapters focuses on more general matters directly or indirectly linked to human capital and migration. One of the commonalities of the majority of the contributions of this third section, is that they investigate various types of "divides". The only exception is the paper of Compagnucci, Cusinato, Fois, Mancuso and Mazzoleni that joins the debate on the role of agglomeration versus location

economies in a knowledge-driven society. The authors investigate whether the importance of agglomeration economies holds also in the knowledge-driven economies and, more specifically, in cities where Knowledge-Creating Services (KCS) predominate. Using a spatial lag model, they test the role of urban agglomeration economies as a whole (proxied by the average urban rent), Marshallian external economies to KCS sector (proxied by distance by main infrastructures and the main City Hall), and urban economies on the density of KCS of two local labour systems in Italy, Milan and Cagliari. The dataset based on the Register Enterprises of the Chamber of Commerce is represented by the universe of enterprises operating in KCS in 2017. The author's findings confirm the role of agglomeration economies also in KCS.

On a different line, De Falco discusses whether in a globalized world the paradigm of the digital divide still matters. His descriptive analysis confirms that the digital divide can still be interpreted as both source and consequence of the increase in inequalities among countries. Factors such as GDP, education and the share of intangible economies are listed as essential to obtain digital convergence. However, convergence is going to take place in the future when the "digital natives" characterized with very high technological skills will completely substitute previous generations.

The chapter by Lima also focuses on innovation. Specifically, the author discusses whether the capacity of skilled workers to embed innovation in the era of big data is enough in helping lagging regions to catch-up. Analysing economic growth in Sicily over the period 1970-2011, the author finds that the recent frontiers of innovation have not intervened in closing the gap of the region. Conversely, at a national level, the development of R&D has facilitated the reduction of the gap between Italy and Germany, the latter considered as an innovative country benchmark innovative country.

The chapter by Caramis, Arosio and Mazziotta focuses on measuring cultural capital in Italian regions using a composite index. Following the UNESCO approach, culture is defined as a multidimensional concept, and cultural development interpreted as a process that involves a set of dimensions (divided in core dimensions and individual dimensions). Eventually, the authors end up with 27 indicators. The final cultural index is calculated for the period 2010-2014 and Italian regions are ranked accordingly. Results indicate that with few exceptions, on average, the geography of cultural development follows the economic North-South divide of the country.

Di Liberto and Sideri using data on Italian schools provided by MIUR (school year 2010/2011), investigate the regional geography of absenteeism. They find evidence of a negative relationship between the regional social capital endowment and regional absenteeism rate. Moreover, after distinguishing between high and low skills workers (i.e. teachers versus technical and administrative staff), results indicate as this relationship holds for high skills only.

Part III

The third part of this book is a tribute to Giacomo Becattini (1927-2017) and his contribution to the interdisciplinary debate on regional science. It collects 11 chapters prompted by the speeches of the authors in two roundtables at the 2017 AISRe Conference: "Becattini, the districts, and the research on models and policies of development", and "Becattini and the dialogue between different disciplinary fields". The roundtables had the auspices, together with AISRe, of *Centro di ricerche economiche e sociali Rossi-Doria* and of *Società italiana di economia e politica industriali*. The contributions are aimed not so much at presenting memorials as at discussing research perspectives and interpretative nodes, relevant to contemporary regional science, and inspired by this great Italian economist, who passed away in January 2017.

We thank all the authors, who have crossed the human and scientific route of Becattini in various ways along their research and institutional activities related to regional science and to some sister disciplines. Five of them – Roberto Camagni, Fiorenzo Ferlaino, Gioacchino Garofoli, Fabio Mazzola, and Fabio Sforzi – have played an important role in the history of AISRe; the latter was also one of the closest collaborators of Becattini. Two others – Francesco Silva and Anna Giunta – represent the tradition and the current stand of the industrial economy and policy in Italy. Italian studies of agricultural economy and policy are intersected thanks to Anna Carbone; Adam Asmundo contributes with his deep experience of economic studies on the South of Italy; Rafael Boix, together with the *Asociación Española de Ciencia Regional – AECR,* takes the tradition of regional science in Spain, and André Torre, together with the *Association de Science Régionale De Langue Française – ASRDLF*, takes the tradition of regional science in France.

The section adds to a number of papers appeared in the last months, considering the figure and the works of Becattini from various and different angles, which suggest the wide horizon of Becattini's scientific activity and his role as a true political economist. The chapter by Bellandi, at the end of this section, lists some of such recent memorials, and recalls that Becattini found his theoretical ground in the works of classical and Victorian economists, as well as of great Italian thinkers on social and economic questions. He was one of the most important contemporary experts of Alfred Marshall, whose writings revealed to him, together with deep analyses of the economic systems between the ninetieth and the twentieth century, a lively attention to the value of the human beings within the places and times of their social and economic life. In Becattini, this combined in an original way with enduring left-wing political passions and youth experiences in contact with entrepreneurs and workers in Tuscany small cities. The

inner key of his thought is actually a civic humanism aware of the contradictions of the capitalist economies.

Becattini met celebrity among quite extended national and international circles of scholars and policy-makers by proposing the concept of "industrial district", retrieved from "his" Marshall, as a general model useful to single out alternatives to the industrial organization led by footloose large firms in contemporary economic systems. For Becattini, the industrial district and its empirical counterparts, featured by populations of specialized Small and Medium Enterprises (SMEs) embedded in an industrial atmosphere and a reproductive social life, were not just an interesting problem of industrial economics. They intersected his more general and evolving views on the relations between economic sciences and other social sciences, around the dialectics of economic structures and subjective motivations, framed within circles of theory and empirical research, and under the search for realistic interpretative models of the inner dynamics and the variety of capitalisms and market economies. Becattini presented the concept of the industrial district on the shoulders of Marshallian premises at the end of the 1970s. In the following decades, the industrial district became for Becattini the core of his civic humanism.

The first three chapters of this section start precisely from the "industrial district" notion in Becattini's thought and its relation with regional science. Sforzi argues on the intersections recalled just above. In particular, he stresses the importance of the district not just as a model of industrial organization and spatial agglomeration of firms, but more as an approach to economic change that has its foundation in the reproductive relations of local societies. He also points out the difficulties of reception of such approach among industrial and regional economists. Garofoli comes back to related conceptual structures, like the external economies of industrial development, as well as the public goods and the policies that drive the success or the crisis of industrial districts in face of various external challenges. Such concepts and approaches may be enlarged to models of local development different from the industrial districts. This was an important and quite early passage in Becattini's search ("from the industrial district to the local development"), expressing the possibility to generalize and identify territorialized bottom-up drivers of the dynamics of capitalist societies. Camagni agrees that the passage opens to a new scientific paradigm in territorial economy, based on "relational and identitarian capital", but sees the industrial district as an intellectual cage imprisoning the elaboration of Becattini, and not allowing him to consider appropriately the main territorial model, i.e. the city. This point is touched also in other chapters that follow (*viz*. Silva.'s, Boix's, Torre's, and Bellandi's).

It is true that the industrial district always remained at the core of Becattini's elaborations after its introduction, and was used by him has a bridge to broad interpretative, policy, and institutional implications also relevant for regional sciences. Important cases in point are discussed in the next three chapters. Ferlaino reconstructs the interrelation with the surge and activity of two of the main regional research institutes in Italy between the 1970s and the 1990s (IRES Piemonte and IRPET), and how they supported legislative and statistical definitions of the industrial districts, as well as various policy measures concerning SMEs. Actually, in the same period, Becattini expanded his national and international networks of scientific collaboration around not only the concept but also the use of the industrial district as the key of in-depth empirical research on territorialized paths of industrialization. Asmundo and Mazzola discuss the contradictory results of this application to Southern Italy, and argue that the industrial district never had and still does not have a large empirical field of direct application there. Nonetheless, it helps focussing on the need of a progressive relational capital supporting the competitiveness of local firms in various sectors of territorial specialization, not necessarily centred on manufacturing. Giunta recalls some passages relating the district with the research on the Italian industry. In particular, she points to the contemporary challenges brought to the Italian industrial districts and the related "made in Italy" sectors by the phase of globalization emerged in the 1990s and expanded thereafter. She maintains that the heterogeneity of paths of reaction points out the need to understand better different models also for future policies of productive development.

The views presented in the first six chapters open to various threads of reflection on the role of Becattini's work on regional science. The next four chapters help to look at this role from different disciplinary and national angles. Silva retraces various important contaminations that shaped Becattini's research on the industrial district, in particular referring to contemporary institutional, industrial, and heterodox economists. He also points out the not easy relation of Becattini's thought with the implications of industrial policy, much more cultivated by his friend in district campaigning, Sebastiano Brusco. Carbone comes back to the "reciprocal interest and influence between Becattini and a group of Italian agricultural economists", also recalling the opportunity of collective discussion that Becattini launched in the 1990s, and organized for many years with Fabio Sforzi, i.e. the "free" (from rigid disciplinary borders) School of Artimino on local development. She illustrates the contaminations bringing to a new view of the role of the territory in shaping agro-food systems. Boix analyses in great detail the penetration of Becattini's thought in Spanish and Latin America regional science, and the influence "on industrial policy and local development initiatives" in Spain, also thanks to his participation to a large network of industrial, labour

and regional economists working in or with some Spanish regions and cities. Torre presents the penetration of Becattini's thought on French regional science from the 1980s, according to waves of reception, distancing, and renewed attention that follow the evolution of the research in France on the joint consideration of spatial and productive problems. The "opening of the black box of local relations" supported the emersion of research programs on the innovative milieu, local productive systems, and proximity.

Bellandi concludes the section with a chapter where the passage from the district to broader models of local development is inserted within a common field of methodological problems. This also opens to the intertwining, in Becattini's late thinking, between the so-called capitalism "with a human face" and the future of the industrial districts.

Prospects of development and variation of district approaches are hinted at the end of this chapter, and add to other interesting hints for future research that concludes all the previous chapters.

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Part I

Innovation and International Openness

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Sopravvivere durante una crisi. Il ruolo dei cluster locali e dei gruppi d'impresa

Giulio Cainelli, Valentina Giannini°, Donato Iacobucci°*

Sommario

Lo scopo di questo lavoro è analizzare come e in che misura le relazioni esterne, come l'appartenenza ad un cluster locale o ad un gruppo di imprese, influenzino la probabilità di sopravvivenza e la performance economica delle imprese dopo la Grande Recessione del 2008. L'ipotesi principale del lavoro è che l'appartenenza a un gruppo di imprese o a un cluster locale tende ad attenuare gli effetti di selezione determinati da shock reali e finanziari e che solo le unità più efficienti tra le imprese "isolate" sopravvivono. Ciò significa che le imprese che fanno parte di un gruppo o che si trovano all'interno di un cluster locale evidenziano una minore probabilità di fallimento, ma anche performance inferiori rispetto alle imprese indipendenti. Utilizzando un ampio dataset relativo a 155.841 società italiane manifatturiere, di cui 28.167 appartenenti a gruppo, testiamo queste ipotesi per il periodo 2005-2012. I risultati confermano le aspettative. Le imprese localizzate in cluster locali o appartenenti a un gruppo mostrano tassi di sopravvivenza più elevati durante la Grande Recessione rispetto alle imprese indipendenti. Tuttavia, queste ultime mostrano livelli più elevati di performance in termini di crescita e redditività.

1. Introduzione

Le performance aziendali dipendono non solo dall'organizzazione interna e dalle scelte strategiche, ma anche dalla rete di relazioni che un'impresa è riuscita ad instaurare nel tempo con altre unità. Queste relazioni possono influenzare la capacità dell'impresa di acquisire conoscenze, informazioni per l'innovazione e specifici input e di accedere alle risorse finanziarie. Le due tipologie più importanti di networking sono i gruppi di imprese e i cluster locali. Nel caso

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dei gruppi, i rapporti tra imprese sono basati su legami di proprietà. Un gruppo è definito come un insieme di imprese giuridicamente indipendenti controllate dalla stessa persona(e). Il vertice del gruppo può essere un individuo o un gruppo di persone, spesso membri della stessa famiglia (Almeida, Wolfenzon, 2006a). L'appartenenza ad un gruppo può facilitare l'accesso ai finanziamenti, grazie al funzionamento di un mercato interno dei capitali (Hamelin, 2011). Questo tipo di network può anche facilitare gli scambi di input produttivi e di risorse manageriali tra le unità del gruppo. Di conseguenza, le imprese che fanno parte di un gruppo possono avere capacità di investimento e di innovazione superiori rispetto ad imprese indipendenti (Belenzon, Berkovitz, 2010).

Nel caso dei cluster locali esiste una vasta letteratura di economia regionale e di geografia economica che ha enfatizzato i vantaggi agglomerativi delle imprese appartenenti alla medesima industria o catena di produzione (Glaeser *et al.*, 1992; Porter, 1998). L'idea base di questi lavori, che si rifanno al fondamentale contributo di Marshall (1920) sui distretti industriali, è che le imprese localizzate vicino ad altre unità e che operano nello stesso settore beneficiano di minori costi di trasporto, di economie esterne, della disponibilità di lavoratori e fornitori specializzati e di *spillover* di conoscenza (Glaeser *et al.*, 1992; Duranton, Puga, 2004; Baldwin *et al.*, 2011). Inoltre, diversi studi sui distretti industriali italiani suggeriscono l'esistenza di un altro vantaggio per le imprese localizzate all'interno di questi sistemi produttivi locali: la complessa rete di relazioni verticali e orizzontali che si realizzano tra queste imprese e che possono avere un'influenza positiva sulla loro performance economica.

Questi due tipi di networking – gruppi di imprese e cluster locali – possono coesistere e rafforzarsi. Alcuni studi suggeriscono infatti che l'agglomerazione spaziale delle imprese può favorire la formazione di gruppi di imprese (Brioschi *et al.*, 2002). Questa tipologia di gruppi situati all'interno di distretti industriali sono definiti "gruppi distrettuali" e ciò per sottolineare l'idea di un gruppo in grado di beneficiare degli effetti agglomerativi.

Agglomerazione e partecipazione ad un gruppo di imprese dovrebbero svolgere un ruolo rilevante sulla performance aziendale in presenza di shock reali o finanziari. Tuttavia, la direzione di questo effetto non è univoca. L'improvvisa diminuzione della domanda interna e internazionale, iniziata nell'autunno del 2008, a seguito della crisi finanziaria, e la conseguente stretta creditizia, offrono una cornice ideale per valutare i diversi effetti dell'appartenenza a un gruppo e a un cluster locale. I gruppi di impresa possono beneficiare delle diverse attività svolte dalle società del gruppo e della possibilità di condividere le risorse finanziarie del gruppo tramite il cosiddetto mercato interno dei capitali. Le imprese che fanno parte di un cluster locale sono caratterizzate da meccanismi di tipo cooperativo con altre imprese, che favoriscono relazioni a lungo termine lungo

la catena produttiva (Dei Ottati, 1994). Per queste ragioni, ci aspettiamo che le imprese appartenenti ad un gruppo o ad un cluster locale abbiano una maggiore probabilità di sopravvivenza durante periodi di shock finanziari e reali. Tuttavia, quando si considera la crescita dell'impresa e la redditività, le imprese appartenenti a gruppi potrebbero sopravvivere nonostante le scarse performance, mentre le imprese indipendenti, soggette alle stesse condizioni, potrebbero essere costrette ad uscire dal mercato. Per questa ragione, analizzando le imprese sopravvissute alla Grande Recessione, mostriamo che le imprese indipendenti sopravvissute hanno registrato generalmente migliori performance rispetto a quelle che fanno parte di un gruppo o di un cluster locale.

La nostra analisi empirica si riferisce all'Italia. Questo paese rappresenta un contesto interessante per questo tipo di analisi per due ordini di motivi. In primo luogo, per il forte shock della domanda che ha colpito il sistema industriale all'inizio della crisi (2009) e per la gravità della stretta creditizia negli anni successivi che hanno favorito la stagnazione della domanda interna nel 2011 e 2012. In secondo luogo, i gruppi di imprese e i cluster locali (identificati nel nostro lavoro con i distretti industriali) sono rilevanti per l'organizzazione della produzione manifatturiera in Italia.

Per verificare empiricamente queste ipotesi, nel lavoro utilizziamo un nuovo *dataset* a livello di gruppi di impresa, sviluppato utilizzando le informazioni sulla proprietà di società per azioni, estratte dal database AIDA. Ciò ci consente di mappare i gruppi di impresa manifatturieri italiani nel corso del 2012. Il database AIDA fornisce anche informazioni finanziarie ed economiche per le società del gruppo e non per il periodo 2005-2012. I dati si riferiscono a 155.839 società per azioni, 28.168 delle quali fanno parte di un gruppo. Vengono utilizzati modelli econometrici del tipo *Instrumental Variables* (IV) per identificare le determinanti della probabilità di sopravvivenza a livello d'impresa e la performance economica (*Return on Assets* (ROA) e crescita delle vendite). Per comprendere in che modo le due forme di networking (appartenenza a un gruppo o a un cluster locale) hanno reagito alla Grande recessione del 2008, vengono poi confrontate le società indipendenti con quelle appartenenti ad un gruppo e si analizzano le caratteristiche dei gruppi all'interno e all'esterno dei distretti industriali.

Nel complesso, i nostri risultati supportano l'ipotesi che l'appartenenza ad un gruppo o ad un cluster locale aumenti la probabilità di sopravvivenza in condizioni difficili come quelle registrate durante la Grande Recessione del 2008 anche se le imprese mostrano performance di crescita e redditività inferiori.

Il lavoro è organizzato come segue. La sezione 2 esamina la letteratura sull'effetto dei gruppi e dei cluster locali sulla performance aziendale. La sezione 3 descrive il *dataset* e la metodologia econometrica utilizzata. La sezione 4 discute i principali risultati. La sezione 5 conclude il lavoro.

2. Letteratura e ipotesi di ricerca

La letteratura sui gruppi di imprese mostra come tale fenomeno sia diffuso in tutte le classi dimensionali e in tutti i paesi (Bae *et al.*, 2008; 2002; Fan *et al.*, 2005; Ferris *et al.*, 2003; Gopalan *et al.*, 2007; Khanna, Yafeh, 2007), tra cui molte economie emergenti (Gorodnichenko *et al.*, 2009; Hamelin, 2011; Khanna, Yafeh, 2005; Samphantharak, 2003).

Sono state sviluppate diverse giustificazioni teoriche per la presenza dei gruppi. La letteratura che si riferisce ai paesi emergenti spiega la presenza di gruppi (soprattutto di grandi dimensioni) come risposta alla debolezza delle istituzioni di mercato, in particolare dei mercati finanziari. Ad esempio, una delle caratteristiche più importanti del gruppo è la possibilità di trasferire risorse finanziarie tra società affiliate (mercato interno dei capitali).

I mercati dei capitali sono imperfetti e queste imperfezioni del mercato sono più evidenti nelle economie emergenti, dove i mercati finanziari non sono pienamente sviluppati e le imprese sono più soggette a vincoli finanziari. L'appartenenza ad un gruppo può aiutare a superare questi vincoli. Inoltre, la presenza di un mercato interno dei capitali è una delle ragioni principali della maggiore propensione innovativa delle imprese appartenenti ad un gruppo rispetto alle imprese indipendenti (Belenzon, Berkovitz, 2010).

Ci si aspetta che il più facile accesso alle risorse finanziarie aiuti gli investimenti e la crescita da parte delle società affiliate, ma ciò potrebbe non comportare performance finanziarie superiori. Diversi studi mostrano infatti performance inferiori delle imprese affiliate rispetto alle imprese indipendenti (Bae *et al.*, 2002; Claessens *et al*., 2002; George, Kabir, 2008; Joh, 2003; Lins, 2003) e questo è più evidente nel caso di grandi gruppi. Alcuni autori (Almeida, Wolfenzon, 2006b) sostengono che una delle ragioni della minore performance delle imprese affiliate potrebbe essere che le imprese indipendenti, che hanno meno risorse disponibili, le investano in progetti più redditizi, mentre le imprese affiliate che beneficiano di maggiori quantità di risorse interne, investono anche in progetti meno redditizi.

Hamelin (2011), considerando un gruppo di PMI francesi, ritiene che le imprese affiliate ottengono risultati migliori rispetto alle imprese non-affiliate. Khanna e Yafeh (2007) sostengono che le performance delle imprese affiliate dipendono anche dalle caratteristiche del paese in cui operano: nei mercati emergenti è più facile trovare gruppi diversificati in cui le performance delle imprese affiliate sono sacrificate a favore del mantenimento della stabilità del gruppo. In generale, in questo lavoro si sostiene l'idea che l'appartenenza ad un gruppo favorirà l'innovazione e la continuità piuttosto che la redditività. Ciò vale soprattutto in un contesto di crisi reale e finanziaria. Ci aspettiamo che le imprese

del gruppo, anche quando registrano performance negative, hanno una maggiore probabilità di sopravvivenza grazie al supporto fornito dalle loro controllanti, mentre le imprese indipendenti meno performanti potrebbero essere costrette a uscire dal mercato.

Nel breve periodo, il sostegno finanziario fornito dal gruppo potrebbe determinare la sopravvivenza di imprese inefficienti, producendo così un effetto negativo sul benessere (Almeida, Wolfenzon, 2006a). Tuttavia, l'effetto complessivo non è chiaro poiché, nel lungo periodo il gruppo potrebbe evitare la dispersione delle risorse produttive che derivano dal fallimento di un'impresa. Questo ruolo del gruppo risulta particolarmente rilevante nei periodi di crisi economica. Le imprese affiliate potrebbero essere in grado di sopportare l'effetto di uno shock reale o finanziario per un periodo più lungo, grazie al supporto fornito dalle altre società del gruppo.

In questo lavoro testiamo questa ipotesi confrontando per l'Italia l'andamento delle imprese indipendenti e di quelle appartenenti a gruppi nel periodo 2008-2012. Il caso italiano è rilevante perché, dopo lo shock economico-finanziario del 2008-2009, il paese è entrato in un triennio (2010-2012) caratterizzato da una recessione interna e da un forte razionamento del credito. Secondo Landini (2016), tra il 2008 e il 2012, migliaia di aziende sono uscite dal mercato.

Quando si considera la performance delle imprese durante la crisi, l'effetto di appartenenza ad un gruppo potrebbe non essere facilmente identificabile e ciò a causa della presenza di effetti contrapposti. Da un lato, il supporto del gruppo può aiutare le imprese a ottenere performance maggiori rispetto alle imprese indipendenti: ciò potrebbe essere dovuto alla condivisione di risorse, all'accesso facilitato al finanziamento o al supporto sotto forma di scambi inter-aziendali di beni e servizi. Allo stesso tempo, questa attenuazione dell'effetto di selezione può comportare in ultima analisi la sopravvivenza di imprese affiliate con scarse performance in termini sia di crescita che di redditività. Quale di questi due effetti sia prevalente è una domanda che può trovare una risposta solo a livello empirico.

È noto che le imprese nei cluster locali possono beneficiare non solo delle esternalità di natura agglomerativa, ma anche di relazioni verticali e orizzontali. Tra i benefici agglomerativi, le imprese traggono vantaggio dalle tre fonti "tradizionali" di esternalità locali proposte originariamente da Marshall (1920): condivisione degli input, effetti legati al mercato locale del lavoro e *spillover* di conoscenza. Inoltre, diversi studi sui distretti industriali italiani hanno suggerito l'esistenza di un altro vantaggio per le imprese situate all'interno di cluster locali: la peculiare miscela di comportamenti competitivi e cooperativi. Un esempio di queste relazioni può essere identificato nella gestione delle relazioni commerciali (Dei Ottati, 1994). Questi due meccanismi – esternalità agglomerative

e relazioni di natura cooperativa-competitiva – possono avere un effetto generalmente positivo sulla probabilità di sopravvivenza delle imprese. Per questo motivo, ci aspettiamo che durante la Grande Recessione le esternalità derivanti dall'agglomerazione e i comportamenti collaborativi tra le imprese distrettuali abbiano aumentato la probabilità di sopravvivenza di queste imprese rispetto a imprese simili non-distrettuali.

Come nel caso dell'appartenenza ad un gruppo, l'attenuazione dell'effetto di selezione nei cluster locali può determinare la sopravvivenza di imprese meno efficienti che altrimenti sarebbero uscite dal mercato. Rispetto all'appartenenza ad un gruppo, ci si aspetta che entrambi gli effetti – l'attenuazione dell'effetto di selezione e l'effetto di supporto – siano minori. Tuttavia, non è possibile ipotizzare *ex-ante* quale dei due effetti sia prevalente.

In generale, ci aspettiamo che l'appartenenza ad a un gruppo o a un cluster locale abbia un effetto positivo sulla probabilità di sopravvivenza durante la Grande Recessione. Nel caso della crescita e della redditività non abbiamo un'aspettativa *a priori* poiché il ruolo di supporto fornito dall'appartenenza ad un gruppo o da un cluster locale può essere compensato durante la crisi dal più forte effetto di selezione sulle società indipendenti e dall'attenuazione di questo effetto sulle società appartenenti a un gruppo o un cluster locale. Di conseguenza, potremmo osservare che l'appartenenza a un gruppo o a un cluster locale potrebbe avere un impatto negativo sulla performance media delle imprese.

3. *Dataset* e metodologia

3.1. Il dataset

Questo lavoro utilizza un nuovo *dataset* sui gruppi di impresa, sviluppato utilizzando le informazioni sulla proprietà delle società per azioni estratte dal database AIDA. Questo database fornisce informazioni finanziarie ed economiche per le imprese manifatturiere, appartenenti o meno a gruppi di impresa, per il periodo 2005-2012. I dati si riferiscono a 155.841 società per azioni manifatturiere, di cui 28.167 imprese appartenenti a gruppo. Questo ci consente di identificare l'intera popolazione dei gruppi italiani con almeno una delle loro imprese operante nel settore manifatturiero. In particolare, il nostro *dataset* comprende 55.909 imprese appartenenti a gruppi: 28.167 imprese manifatturiere, 17.267 di altri settori e 10.475 imprese straniere. Il numero totale di osservazioni è di circa 600 mila.

Per identificare i cluster locali utilizziamo i Sistemi Locali del Lavoro (SLL) identificati dall'ISTAT sulla base delle informazioni tratte dal censimento della popolazione italiana del 2011. Nello specifico, l'ISTAT identifica 611 SLL, definiti

come aree geografiche sub-regionali nelle quali la maggioranza della popolazione residente pendola al suo interno per motivi di lavoro e 141 distretti industriali.

Le Tabelle 1, 2 e 3 mostrano le principali caratteristiche del nostro *dataset*. La Tabella 1 riporta l'elenco delle variabili utilizzate nell'analisi empirica. La Tabella 2 e la Tabella 3 presentano alcune statistiche descrittive per le variabili incluse nell'analisi empirica: si noti che le imprese appartenenti a gruppi sono di solito più longeve delle aziende indipendenti. Inoltre, le imprese del gruppo mostrano valori più alti per la durata del debito e la produttività dell'impresa.

3.2. Metodologia

Esaminiamo gli effetti dell'appartenenza a un gruppo di impresa e a un distretto industriale, in primo luogo, sulla sopravvivenza e poi sulla loro performance economica.

3.2.1. Gli effetti sulla sopravvivenza delle imprese

Il primo effetto viene analizzato utilizzando due diversi modelli: un modello Probit e un modello Lineare di Probabilità con Variabili Strumentali (IV-LPM). Innanzitutto, stimiamo il seguente modello Probit:

$$Pr(Y_1 = 1 \mid distretto, gruppo, X) = \phi(\theta_0 + \theta_1 distretto + \theta_2 gruppo + X\theta) \qquad [1]$$

Tabella 1 – La lista delle variabili

ROA	profittabilità: *return on assets*
tasso_vendite	variazione annuale delle vendite (%)
Sopravvivenza	dummy=1 se un'impresa è sopravvissuta per almeno tre anni consecutivi
distretto	dummy=1 se un'impresa è localizzata in un distretto industriale
gruppo	dummy=1 se un'impresa appartiene a un gruppo
lun_deb	lunghezza del debito verso fornitori (in giorni)
output	valore della produzione (migliaia di euro)
età	differenza 2012 – anno di fondazione dell'impresa (anni)
bank_debito	rapporto tra i debiti bancari e il totale attività
cost_out	rapporto tra il costo dei beni e servizi e totale costi produzione
SP	Specialized suppliers
SB	Science based
SI	Scale intensive
DS	Dominated supplier

Tabella 2 – Statistiche descrittive

Variabile	*Media*	*Std. Dev.*	*Min*	*Max*
ROA	0,026	0,135	-1	1
tasso_vendite	0,009 0,009	0,644	-9,54	10,05
sopravvivenza	0,713	0,452	0	1
gruppo	0,180	0,384	0	1
distretto	0,368	0,482	0	1
età	17,6	14.1	0	158
output	7.726,6	103.189,4	1	21.000.000
cost_out	0,633	0,229	0	1
bank_debito	1,072	17,31	0	5.731,9
lun_deb	48,93	230,9	0	7.265

Table 3 – Statistiche descrittive dal 2005 al 2012 (pooled obs)*

	Imprese autonome				*Imprese appartenenti a gruppo*			
*Variabili***	*Mean*	*Std, Dev,*	*Min*	*Max*	*Mean*	*Std, Dev, Dev,*	*Min*	*Max*
ROA	0,0	0,1	-1	1	0,0	0,1	-1	1
tasso_vendite	0,0	0,7	-9,5	8,3	0,0	0,6	-9,5	10,1
sopravvivenza	0,7	0,5	0	1	0,8	0,4	0	1
distretto	0,4	0,5	0	1	0,4	0,5	0	1
età	16,8	13,5	0	158	20,9	16,2	1	148
output	2.524,6	17.480,2	1	5.100.000	27.668,3	225.325	1	21.000.000
cost_out	0,6	0,2	0	1	0,7	0,2	0	1
bank_debito	0,5	0,3	0	8,7	0,5	0,3	0	7,4
lun_deb	33,5	204,7	0	7.265,2	109,4	306,0	0	7.230,9

Note: * Pooled obs: 1.021.368 imprese autonome; 225.336 imprese appartenenti a gruppo; ** Vedi Tabella 1 per le unità di misura.

dove ϕ (·) è la funzione di distribuzione cumulativa della variabile casuale normale standard e *X* è il vettore delle variabili di controllo che comprende: (i) 19 *dummy* geografiche; (ii) 6 dummy temporali; (iii) 3 *dummy* settoriali alla Pavitt (*SS*, *SB* e *SI*; *DS* è la *dummy* di riferimento); (iv) l'output (*output*) che misura il livello di produzione dell'impresa; (v) l'età (*età*) che misura il numero di anni dalla fondazione dell'impresa; (vi) *lun_deb* che misura la lunghezza dell'indebitamento dell'impresa verso i fornitori; (vii) *bank_debito* misurato come il rapporto tra prestiti bancari e totale dell'attivo; (viii) *cost_out* misurato come rapporto tra beni e servizi acquistati e i costi totali di produzione, è utilizzato come indicatore del grado di esternalizzazione esterna (il contrario dell'integrazione verticale).

La variabile dipendente, Y_1, è una *dummy* che assume valore 1 se l'impresa è sopravvissuta per almeno tre anni consecutivi nel periodo 2005-2012 e 0 in caso contrario. Il modello Probit stima le determinanti della probabilità di sopravvivenza dell'impresa assumendo che le variabili esplicative – in particolare, le variabili distretto e gruppo – siano esogene. Se queste due variabili sono endogene saranno correlate con il termine di errore. Ciò richiede un approccio IV. Per tenere conto della potenziale endogeneità di queste due variabili esplicative stimiamo un modello IV-LPM:

$$Pr(Y_1 = 1 \mid X, Z) = \theta_0 + \theta_1 distretto + \theta_2 gruppo + X\theta + \varepsilon \qquad [2]$$

dove Z è il vettore degli strumenti e ε è il termine di errore. Utilizzando questo secondo approccio, è necessario identificare strumenti validi per le variabili gruppo e distretto. Per i gruppi, utilizziamo le quote di maggioranza (%) per le imprese appartenenti a gruppi. La quota di maggioranza si riferisce al proprietario finale con una percentuale minima del 50,01%. L'idea alla base di questa scelta è che, nelle imprese controllate, cioè nelle imprese appartenenti a gruppi, questa quota è significativamente più alta rispetto alle società indipendenti. In questo senso, questa variabile può essere considerata come una sorta di "marcatore" della forma gruppo. Inoltre, la variabile non è correlata alla probabilità che l'impresa sopravviva.

Per il distretto industriale, utilizziamo la storia come fonte di variazione spaziale esogena nella distribuzione geografica dei distretti industriali. Nello specifico, selezioniamo due tipi di dati storici per prevedere la variabile distretto. Il primo è una misura dell'intensità distrettuale a livello provinciale. Questa variabile è data dal rapporto tra il numero degli addetti occupati nelle imprese manifatturiere distrettuali e l'occupazione totale manifatturiera a livello provinciale nel 1991 (Arcangelis, De Ferri, 2003). La seconda serie di dati storici consiste in informazioni sulle dominazioni storiche nel passato. L'idea di fondo è che le diverse tradizioni politiche e istituzionali che si sono avute nel passato

potrebbero aver stimolato l'accumulazione di capitale sociale, favorendo dunque lo sviluppo di cluster locali. Nello specifico, usiamo come strumenti le informazioni sulla dominazione storica a livello provinciale durante i 700 anni precedenti la costituzione dello stato unitario (Di Liberto, Sideri, 2015). Come è noto, questi dati misurano il numero di anni durante i quali le province italiane sono state governate da Normanni, Svevi, Savoia, autorità dello Stato Pontificio, Angiò, Spagnoli, Austriaci, Borboni e Veneziani. Controlliamo la bontà della nostra strategia di strumentazione utilizzando diversi test statistici. La Tabella 4 presenta i *p-value* per la statistica J di Hansen, i test di Wu-Hausman e di Durbin-Wu-Hausman che confermano tutti la bontà dei nostri strumenti.

3.2.2. Gli effetti sulla performance delle imprese

Per analizzare gli effetti dell'appartenenza a un gruppo e ad un distretto sulla performance economica delle imprese sopravvissute stimiamo la seguente equazione:

$$Y_2 = \beta_0 + \beta_1 distretto + \beta_2 gruppo + X\gamma + v \qquad [3]$$

dove Y_2 è la performance economica dell'impresa misurata come ROA (una misura di profitto) e come variazione annuale delle vendite (una misura della performance di crescita). Come nell'analisi precedente, l'appartenenza ad un distretto è catturata tramite una *dummy* che assume valore 1 se l'impresa è localizzata in un cluster e 0 altrimenti, mentre l'appartenenza ad un gruppo è catturata da una *dummy* che assume valore 1 se l'impresa appartiene a un gruppo e 0 altrimenti. Infine, X è un vettore di controlli e v è il termine di errore. Partendo dal presupposto che E [v|*distretto, gruppo,* X]=0, l'equazione può essere stimata in modo consistente utilizzando uno stimatore dei Minimi Quadrati Ordinari (OLS). Se le due principali variabili esplicative – distretto e gruppo – sono endogene, OLS fornirà stime inconsistenti. Esistono due fonti di (potenziale) endogeneità: (i) selezione del campione (un problema di variabili omesse) e (ii) simultaneità.

Trattiamo questi problemi di endogeneità utilizzando un approccio a Variabili Strumentali (IV). Nello specifico, adottiamo una procedura in tre stadi (Adams *et al.*, p. 142, 2009). Nel primo, stimiamo due modelli Probit per le determinanti dell'appartenenza a un distretto industriale e a un gruppo. Nel secondo stadio, regrediamo distretto e gruppo su X e sui valori predetti delle variabili distretto e gruppo ottenuti nel primo stadio. Nel terzo stadio, regrediamo Y_2 su X e sui valori predetti delle variabili distretto e gruppo ottenuti nel secondo stadio.

Vi sono alcuni vantaggi nell'adottare questo approccio econometrico (Adams *et al.*, 2009). Innanzitutto, tiene conto della natura binaria delle variabili endogene: nel nostro caso, le variabili dicotomiche gruppo e distretto. In secondo luogo, non richiede che il modello binario nel primo stadio sia specificato

correttamente. Per implementare questa procedura econometrica in tre stadi, è necessario identificare strumenti validi per le variabili gruppo e distretto. Adottiamo gli stessi strumenti già utilizzati per analizzare le determinanti della probabilità di sopravvivenza dell'impresa.

4. I risultati empirici

La Tabella 4 presenta i risultati delle stime delle determinanti la probabilità della sopravvivenza delle imprese durante il periodo in esame.

Dopo aver controllato per una serie di variabili che potrebbero influenzare la probabilità di sopravvivenza, troviamo che l'appartenenza a un gruppo e a un cluster locale hanno un effetto positivo sulla probabilità di sopravvivenza. Questo risultato è coerente con le nostre aspettative. Inoltre, come previsto, otteniamo che l'appartenenza a un gruppo ha un effetto molto più forte sulla probabilità di sopravvivenza rispetto all'appartenenza a un cluster locale. Le altre variabili considerate nell'analisi mostrano i segni attesi. L'età è positiva e statisticamente significativa, mentre il coefficiente di output è positivo e significativo solo nelle stime probit; nelle stime IV-LPM questo coefficiente perde di significatività. Ciò significa che le imprese più vecchie hanno una maggiore probabilità di sopravvivere, mentre il ruolo svolto dalla dimensione d'impresa è ambiguo. La variabile di *outsourcing* è positiva e statisticamente significativa, a indicare la migliore capacità delle imprese disintegrate di reagire a shock esterni come una crisi economica. Questo risultato non è sorprendente dato che la disintegrazione verticale consente alle imprese un più alto grado di flessibilità organizzativa e produttiva.

Infine, le variabili finanziarie, come la lunghezza dell'indebitamento dell'impresa nei confronti dei fornitori e il rapporto tra i prestiti bancari e il totale attivo, hanno un impatto negativo sulla probabilità di sopravvivenza. Ancora una volta, questo risultato è come previsto. La debolezza finanziaria è uno dei fattori principali che aumenta la probabilità che un'impresa esca dal mercato. Nel caso delle determinanti della performance aziendale, i risultati sono meno univoci a causa, come discusso in precedenza, di due effetti contrastanti (Tabella 5).

Da un lato, l'appartenenza a un gruppo o a un cluster locale fornisce all'impresa numerosi vantaggi e supporta le performance dell'impresa. Allo stesso tempo, l'effetto positivo sulla sopravvivenza che abbiamo osservato nella stima precedente attenua l'effetto di selezione, che è stato particolarmente forte durante la crisi. Di conseguenza, nel caso di imprese indipendenti, solo i migliori in termini di risultati sopravvivono, mentre l'appartenenza ad un gruppo o a un cluster locale consente anche alle imprese meno performanti di sopravvivere. In particolare, nel caso di imprese appartenenti a un gruppo, le stime mostrano un effetto positivo sulla redditività, ma un effetto negativo sulla crescita delle vendite. In

Tabella 4 – Le determinanti della probabilità di sopravvivenza

Variabile dipendente	*Probabilità di sopravvivenza*	
	Modello Probit (1.)	*Modello IV-LPM* (2.)
gruppo	0,195 *** (0,016)	0,477 ** (0,201)
distretto	0,061 *** (0,012)	0,041 *** (0,011)
ln(bank_debito)	-0,497 *** (0,023)	-0,030 *** (0,011)
ln(lun_deb)	-0,049 *** (0,002)	-0,024 *** (0,007)
ln(cost_out)	0,099 *** (0,009)	0,031 *** (0,008)
ln(età)	0,586 *** (0,007)	0,089 *** (0,007)
ln(output)	0,124 *** (0,003)	-0,021 (0,015)
SS	0,082 *** (0,013)	0,0007 (0,006)
SB	0,077 *** (0,026)	-0,020 (0,016)
SI	0,052 *** (0,012)	-0,001 (0,004)
DS	Ref.	Ref.
dummy regionali	Yes	Yes
dummy temporali	Yes	Yes
N. Obs.	597.585	520.457
R^2	0,187	…
Hansen J statistic (p-value)	…	0,505
Wu_Hausman test (p-value)	…	0,000
Durbin-Wu-Hausman test (p-value)	…	0,000

Note: *** significativo al 99%; ** significativo al 95%; * significativo al 90%; gli *standard error* sono clusterizzati.

altre parole, nel caso della redditività, il supporto fornito dall'appartenenza a un gruppo prevale sull'effetto di selezione. Tuttavia, nel caso di una crescita delle vendite, l'appartenenza a un gruppo consente la sopravvivenza di imprese con uno scarso rendimento.

Al contrario, l'appartenenza a un cluster locale ha un impatto negativo su entrambi, la redditività e la crescita delle vendite. I lavori sul ruolo dei cluster locali mostrano che, in periodi stabili, l'effetto di "supporto" generato

Tabella 5 – Le determinanti della performance aziendale

Variabile dipendente	*ROA*	*Tasso_vendite*
	Modello IV	*Modello IV*
Gruppo	0,288 ***	-0,934 ***
	(0,032)	(0,022)
distretto	-0,069 ***	-0,026 ***
	(0,016)	(0,008)
ln(bank_debito)	-1,545 ***	-0,201 ***
	(0,022)	(0,007)
ln(lun_deb)	-0,043 ***	0,003 ***
	(0,001)	(0,001)
ln(cost_out)	0,033 ***	0,077 ***
	(0,005)	(0,003)
ln(età)	-0,248 ***	-0,221 ***
	(0,003)	(0,002)
ln(output)	-0,009 **	0,160 ***
	(0,003)	(0,002)
SS	0,147 ***	0,037 ***
	(0,004)	(0,002)
SB	0,165 ***	0,090 ***
	(0,008)	(0,004)
SI	0,0005	0,011 ***
	(0,004)	(0,002)
DS	Ref.	Ref.
dummy regionali	Yes	Yes
dummy temporali	Yes	Yes
N. Obs.	384.472	412.577
R^2	0,092	0,129
VIF	…	…
N. repliche	500	500
Hansen J statistic (p-value)		
Wu_Hausman test (p-value)	0,000	0,000
Durbin-Wu-Hausman test (p-value)	0,000	0,000

Note: *** significativo al 99%; ** significativo al 95%; * significativo al 90%; gli *standard error* sono clusterizzati o boostrappati.

dall'agglomerazione spaziale ha un impatto positivo sulle prestazioni dell'impresa. Tuttavia, durante periodi di crisi finanziaria, l'attenuazione dell'effetto di selezione produce un effetto negativo sulla performance, consentendo la sopravvivenza di imprese con performance deboli. Come previsto, l'entità dell'effetto sulla performance determinato dall'appartenenza a un cluster locale è molto inferiore all'effetto dell'appartenenza ad un gruppo.

Quando consideriamo le altre variabili esplicative, scopriamo che il loro effetto è simile agli effetti già osservati sulla probabilità di sopravvivenza. La debolezza finanziaria delle imprese, misurata dal livello dei debiti finanziari sul totale delle attività, ha un impatto negativo sia sulla redditività sia sulla crescita. Le stime confermano l'impatto positivo dell'*outsourcing* sulla performance aziendale. Le imprese che hanno concentrato il proprio investimento in attività *core* e hanno esternalizzato fasi della catena del valore sono state più abili non solo a sopravvivere, ma anche a migliorare le proprie performance durante la crisi.

È interessante notare che, in queste stime, l'età delle imprese ha un impatto negativo sia sulla redditività che sulla crescita delle vendite, ma un effetto positivo sulla probabilità di sopravvivenza. Analogamente al meccanismo discusso in relazione al ruolo dei gruppi e del *clustering*, anche in questo caso, la maggiore resilienza alla crisi delle imprese più longeve produce un compromesso tra sopravvivenza e performance.

5. Conclusioni

Le relazioni esterne sono importanti non solo per la sopravvivenza delle imprese ma anche per una solida performance economica. Concentrandosi su due tipi di relazioni esterne – la localizzazione di un'impresa in un cluster e l'appartenenza ad un gruppo – questo studio ha esaminato come e in che misura queste due tipologie di networking hanno influenzato la probabilità di sopravvivenza dell'impresa e la performance economica dopo la Grande Recessione del 2008.

Si prevedeva che la forza delle relazioni esterne avrebbe avuto un impatto positivo sulla sopravvivenza durante la crisi, ma un effetto ambiguo sulle prestazioni. Ciò è dovuto al fatto che l'attenuazione dell'effetto di selezione fornito dall'appartenenza a un gruppo o a un cluster locale consente anche alle imprese meno performanti di sopravvivere, mentre nel caso delle imprese indipendenti restano sul mercato solo le unità con le migliori performance.

I nostri risultati sono in linea con le aspettative. Le imprese ubicate nei distretti industriali e che fanno parte di un gruppo hanno infatti mostrato tassi di sopravvivenza più elevati durante la Grande Recessione rispetto alle imprese indipendenti. Tuttavia, le imprese autonome hanno mostrato tassi di crescita più elevati rispetto alle società del gruppo o dei cluster, dimostrando che, durante la crisi, l'effetto di attenuazione ha prevalso sull'attenuazione dell'effetto selettivo. Nel caso di gruppi di imprese, ciò si applica alla crescita delle vendite, mentre il ruolo di supporto dell'appartenenza a gruppi o a cluster locali prevale nel caso della redditività dell'impresa.

Questo meccanismo è simile se consideriamo l'età delle imprese. Infatti, l'età ha un effetto positivo sulla sopravvivenza durante la crisi; le imprese più longeve

sono state più resistenti di quelle più giovani. Ciò significa che sono sopravvissute solo le imprese giovani con le migliori performance, il che ha portato a una relazione positiva tra età e rendimento.

Questo lavoro ha alcune interessanti implicazioni di carattere generale. Forme di networking come essere ubicati in un cluster o appartenere ad un gruppo di imprese riducono gli effetti di selezione prodotti dal mercato e consentono la sopravvivenza di imprese poco performanti. Ciò è particolarmente rilevante durante i periodi di crisi economica e finanziaria. Ciò significa che i meccanismi di mercato e le forme organizzative possono avere effetti opposti sul livello di efficienza di un sistema produttivo. Nel breve periodo, gruppi e cluster possono avere un effetto negativo sull'efficienza, consentendo alle imprese meno performanti di sopravvivere. Al contrario, i meccanismi selettivi del mercato possono determinare la perdita di conoscenza e di risorse produttive, che potrebbero essere utili in una prospettiva di più lungo termine. In altre parole, la mano visibile delle diverse forme di networking nelle quale le imprese si organizzano sembra soffrire di una minore "miopia" rispetto alla smithiana mano invisibile del mercato. O detto in altro modo un po' di inefficienza nel breve periodo può produrre vantaggi nel lungo. Ma su questi aspetti come su altri legati a questi temi la riflessione economica deve certamente tornare.

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Abstract

Surviving During a Crisis. The Role of Local Clusters and Business Groups

The aim of this work is to analyse how and to what extent external relations, such as belonging to a local cluster or a business group, influence the likelihood of survival and the economic performance of firms after the Great Recession of 2008. The main hypothesis is that belonging to a group or a local cluster tends to mitigate the selection effects caused by real and financial shocks and that only the most efficient units between "isolated" firms survive. This means that firms that are part of a group or that are within a local cluster show a lower likelihood of bankruptcy, but also lower performance than independent firms (stand-alone). Using a large dataset relative to 155,841 Italian manufacturing firms, of which 28,167 belonging to groups, we test these hypotheses for the period 2005-2012. The results confirm the expectations. Firms located in local clusters or belonging to business groups show higher survival rates during the Great Recession compared to stand-alone firms. However, the latter show higher levels of performance in terms of growth and profitability.

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Does Training Help in Times of Crisis? Training in Employment in Northern and Southern Italy

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Abstract

The spatial dualism of the Italian economy – the long standing and stubborn differences between South and North – is complex in its causes and varied in its consequences. In this chapter we address one particular aspect of that difference, the relative effectiveness of employee training in securing continued employment in the context of the recent economic downturn. We find that the effect of training on continued employment is notably stronger in the South than in the Centre-North; this result is robust to controls for various macro-economic, human capital, institutional and cultural variables suggested by the literature.

1. Background of the Study

A considerable body of research has addressed the relationship between training and earnings and/or productivity (among many, Blundell *et al*., 1996; Dearden *et al*., 2006; for a review see Leuven, 2005; for Italy see, for instance, Conti, 2005; Colombo, Stanca, 2008); a somewhat smaller body has addressed training and employment outcome (e.g. Ok, Tergeist, 2003; Sanders, De Grip, 2004; Budría, Telhado-Pereira, 2009), but almost none of this latter has addressed sub-national differences and territorial specific patterns. Yet, from the evidence we do have on territorial variance in labour market structures – as between the North and the South of the UK (e.g. Turok, Edge, 1999; Sunley *et al*., 2001; Gardiner *et al*., 2013), or the South and North of Italy (e.g. Brunello *et al*., 2001; Contini, Trivellato, 2005; ISFOL, 2014) – we should expect a substantial influence of

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geography on the provision and effect of training, even more so in a context of severe economic crisis, which is likely to display its effects particularly with respect to employment and labour market outcomes (Fingleton *et al*., 2015).

By training, we mean relatively short-term instruction in some well-defined set of employment related skills. Training provides human capital after schooling, and is often associated with sets of skills useful for a particular occupation or industry, or complementary to a particular set of technologies (Nelson, Phelps, 1966). It can be easy to think of training as something which compensates for deficient human capital. Yet, the literature has consistently shown that there is a positive correlation between prior education and training while employed (e.g. Acemoglu, Pischke, 1999; Heckman, 1999; Kuckulenz, Zwick, 2003; Hughes *et al*., 2004; Fouarge *et al*., 2013); that firms with a more highly qualified workforce and advanced work organization train more (Lynch, Black, 1998; Zwick, 2004); and that training incidence is higher in countries with more educated labour forces (Brunello, 2001).

Training while employed is clearly correlated with job characteristics, such as the type of employment contract. By and large, permanent or long-term contracts are associated with a greater amount of training compared to temporary contracts. In a comprehensive study on lifelong training in Europe, Arulampalam *et al*. (2004) find that, across countries, there is a negative association between fixed-term contacts and training, while in most countries training is positively associated with public sector employment. Training is positively associated with firm size – workers in large firms receive almost twice as many hours of training as workers in small firms (Bassanini, Ok, 2004).

Training generally improves the likelihood of continued employment. In a cross-country study Ok and Tergeist (2003) find that, after controlling for individual characteristics, training reduces the job-loss rate by 3.5 per cent. Interestingly, this effect is particularly large in Italy. They also find that the employment effect is mostly related to the fact that trained workers are also more likely to be re-employed. Sanders and De Grip (2004) show, however, that training of low-skilled workers contribute only to retention of existing jobs, while it does not contribute to their external employability. Similarly, in a study on transition to the labour market in Portugal, Budría and Telhado-Pereira (2009) find that schooling and training are strongly complementary when it comes to remaining employed.

The effects of both education and training on employment outcomes may vary with the local unemployment rate. In an environment where unemployment puts workers with much different skill levels in competition for the same jobs, the more highly educated or better trained are favoured both in labour hoarding and in hiring, as well as in retaining current employment (Thurow, 1975; Teulings,

Koopmanschap, 1989; van Ours, Ridder, 1995). Hoarding is more likely when the skills are firm-specific, and so less easily replaced in the market (Filippetti, Guy, 2016).

Furthermore, Brunello and De Paola (2008) argue that the complementary relationship between skills and agglomeration externalities in Italian provinces may increase both investment in training and productivity of firms located in areas with higher spatial density of employment. However, higher wages and labour turnover in the same denser areas may counterbalance the positive effects of spatial agglomeration and reduce training: Brunello and De Paola's analysis, restricted to off-the-job training provided by organisations external to the firm, shows that training is lower in provinces with higher labour market density. In the same vein, Croce and Ghignoni (2012) examine the interaction between human capital in Italian local labour markets and individual levels of education. They find that localised human capital increases investment in training, particularly of workers with an upper secondary degree; interestingly, the result does not hold for those with tertiary education. For such reasons, regions differ with respect to private returns to training and the level of training chosen by individuals and employers; it appears that regions with higher levels of human capital and higher densities of employment will also engage in more training.

Regional differences in market structure can also affect returns to employers from to investments in training (Acemoglu, Pischke, 1999), and this may either reinforce or offset the agglomeration effects just noted (Kamnungwut, Guy, 2012). Firms are expected to invest more in training when product markets are imperfectly competitive, which in general would be more likely in regions with lower employment density and/or larger firms. The same firms are more inclined to hoard skilled labour during times of slack demand; labour hoarding in times of slack should, in turn, promote further training, since the opportunity costs of training is lower when demand is slack.

2. The Context

The historical socio-economic and institutional differentiation of Italy (see, among the most recent, Trigilia, Burroni, 2009; De Blasio, Nuzzo, 2010; Mauro, Pigliaru, 2011; Dias, Tebaldi, 2012; D'Agostino, Scarlato, 2015) has in recent decades been exacerbated by internal migration of highly-educated labour force from the Southern to the Central and Northern regions (e.g. Piras, 2005; D'Antonio, Scarlato, 2007; Etzo, 2011; Marinelli, 2013). The advantage of conducting an empirical analysis within the same country makes it possible to study the variation of the phenomenon of interest within an environment that shares the same formal institutional setting.

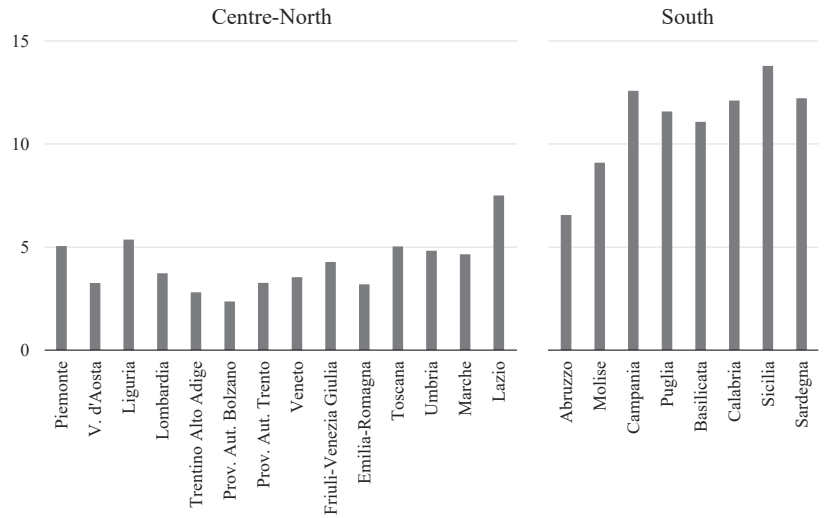
In this chapter we divide Italy into two areas, or macro-regions: South, or Mezzogiorno, and Centre-North.[1] Such a territorial division of Italy is customary adopted in the literature and can be justified on the basis of the historical background (Iammarino, 2005, for a brief review); historical and recent social and economic statistics (e.g. Iuzzolino *et al*., 2013); and any of numerous measures of institutional quality (e.g. D'Agostino, Scarlato, 2015). In terms of human capital the two macro-regions are comparable in terms of levels of formal educational qualifications (Education, in Table 1 below), but lower in terms of internationally standardized measures of literacy and numeracy (Pisa scores, Table 1). In terms of inter-firms linkages, localised networks are far more extensive in the Centre-North than in the South, which lacks "bridging" social capital (Crescenzi *et al*., 2013); consequently, firms tend to internalize more functions and more stages of production, and thus to be less networked than SMEs of the Centre-North (Passaro 1994; Lazerson, Lorenzoni, 1999). The relatively stand-alone nature of southern firms – larger firms yet located in areas of lower employment density should increase their monopsony power in relation to workers and, for the reasons discussed above, should be a factor encouraging them both to provide more training and to retain skilled workers when demand is slack.

In the crisis period 2008-2013 the national GDP in Italy dropped by some 8 per cent. The national rate of unemployment rose from 6.7 per cent in 2008 up to 8.4 in 2011 and 12.7 in 2014, after nearly ten year of steady decline. Figures 1a and 1b display the rate of unemployment and long-term unemployment (> 1 year) in 2008 across the Italian regions. The vertical bars run from North-Centre on the left – the regions from Piemonte to Lazio – to South on the right – the regions from Molise to Sardegna – and highlight the sharp division of the country into two different labour markets at the beginning of the crisis. The average rate of unemployment in the regions of the Centre-North was 4.5 per cent in 2008, compared with 12 per cent in the South; the difference is even sharper when looking at long-term unemployment, with rates of 1.7 and 6.5 per cent respectively.

Figure 2 presents the rates of training while employed (TWE) by region in 2008: this is the share of the employed who reported to have participated in training in the year prior to the PLUS survey used in the empirical analysis reported below: the difference between Central-Northern and Southern regions is not statistical significant. At the same time – as shown by ISTAT data reported in Figure 3 – the crisis has exacerbated a process of territorial divergence in the rate of employment that was already unfolding since the early 2000s: in the period 2008-2011 the employment rate dropped dramatically in the Southern regions and this trend has been confirmed also more recently (CNEL, 2014).

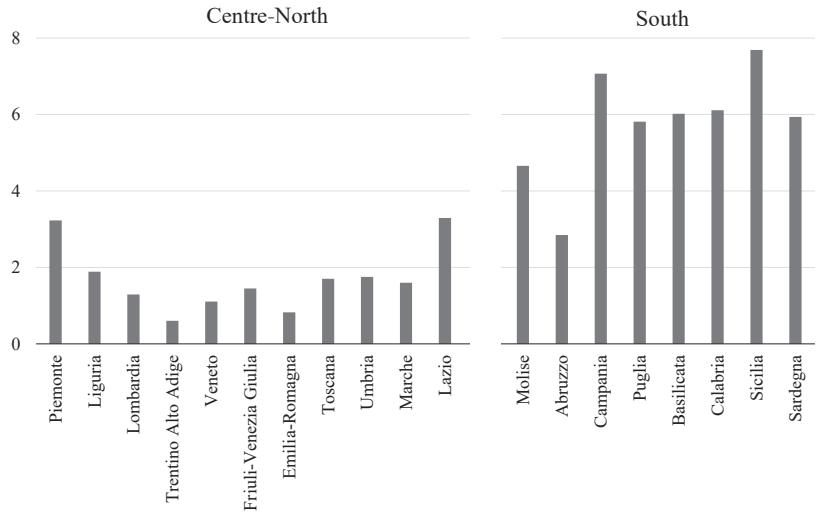
1. In the empirical analysis reported below we also run our basic models on the alternative territorial division of three areas (South, Centre and North), but we found little difference between North and Centre, so what is presented here is the South versus Centre-North partition.

Figure 1a – Rate of Unemployment and Average by Centre-North (left) and South (right), 2008



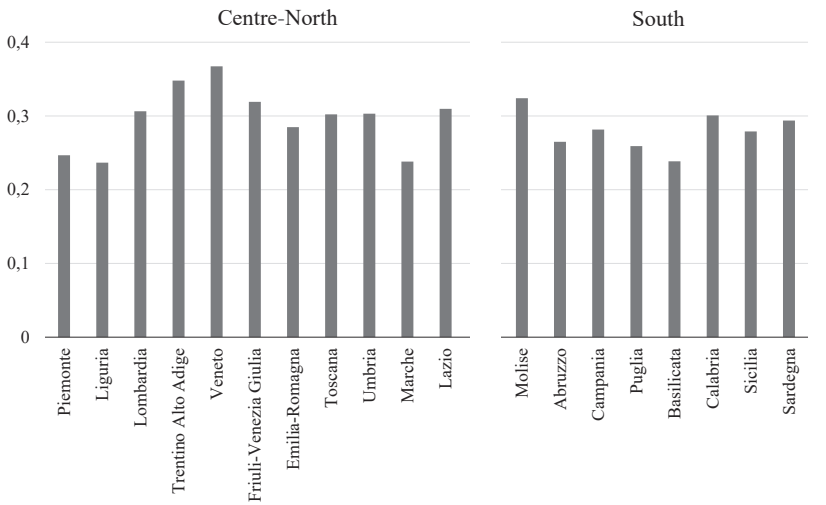
Source: our elaboration on ISTAT data

Figure 1b – Rate of Long-term Unemployment and Average by Centre-North (left) and South (right), 2008



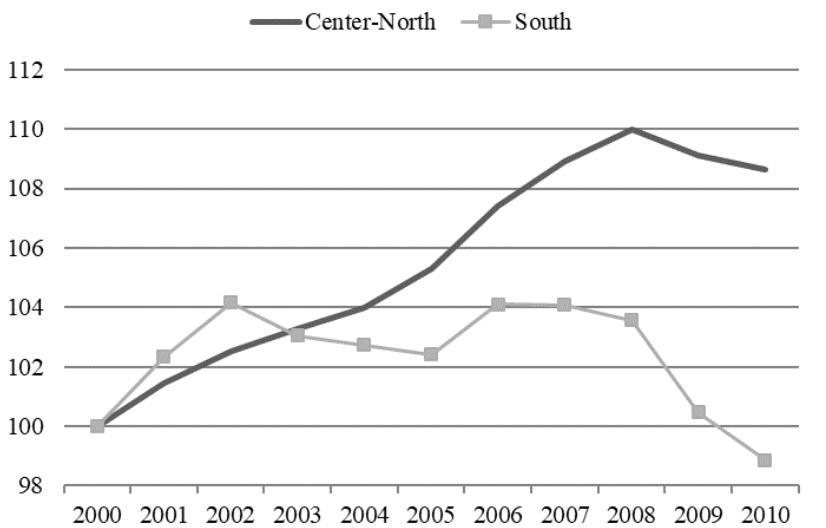
Source: our elaboration on ISTAT data

Figure 2 – Regional Mean of Training_all, 2008 Average by Centre-North (left) and South (right), 2008



Source: our elaboration on ISFOL PLUS data

Figure 3 – Rate of Employment (> 15-year old) in the Centre-North and South of Italy, 2000-2011



Source: ISTAT, Rilevazione sulle forze di lavoro; Indexes 2000=100

3. Dataset and Main Variables

In the empirical analysis we employ data from the PLUS Survey (Participation Labour Unemployment Survey), a sample survey on the Italian labour market supply developed and administered by ISFOL, a national research institute reporting to the Italian Ministry of Labour and Social Policy (see Gianmatteo, 2009; Meliciani, Radicchia, 2011, and Mandrone, Radicchia, 2012, for a detailed description of the survey). The survey sample design is stratified over the Italian population aged 18-64: strata are defined by region (20 administrative regions), type of city (metropolitan/not metropolitan), age (5 classes), sex, and employment status of the individual (employed, unemployed, student, retired, other inactive/housewife). The reference population is derived from the annual averages of the ISTAT Labour Force Survey.

In this chapter we use a 3-year panel – from the 2008, 2010, and 2011 survey waves – including 12,593 individuals in each wave. The survey is extremely rich in information on individual job features, employer characteristics, type of training, income, and educational history, at the same time providing detailed information on other crucial aspects of the respondents such as, for instance, family background, residential mobility, general skills (i.e. knowledge of English, information and communication technology (ICT) skills), geographical location, personal life satisfaction, and risk propensity. Our sample takes into account all individuals included in the 3-year panel that were employed in 2008, and were still in the labour force – either employed or unemployed – in 2011. This gives us a final sample of 4,861 individuals, of whom 512 (11%) became unemployed in 2011.[2]

In order to analyse the impact of training in employment on the probability of keeping the job during the crisis period 2008-11, our dichotomous dependent variable – Remaining employed – takes a value equal to 1 if the individual is employed in 2011, and 0 otherwise.

Training takes the value 1 if the individual respondent reported to have received training while employed during the period 2008-2010, 0 otherwise.[3] All specifications of our model were run with two versions of this variable. Training_All uses all forms of reported training – training courses in classroom, distance training courses, on-the-job (workplace) training, and shorter term modes such as seminars, conferences and fairs, and workshops; whilst Training_Long excludes

2. Our final sample thus includes those that were employed throughout the period 2008-11, and those who became unemployed either in 2010 and/or in 2011. For consistency in the construction of our dependent variable (see below) we excluded those individuals that lost their job in 2010 and found a new one in 2011 (who were just 1.3% of the sample).

3. We consider training undertaken in the three years 2008-2010 as reported in the 2010 wave of the PLUS survey, leaving out training in 2011 in order to observe the employment outcome in this last year.

all forms of short-term training. The results reported here use Training_All; results with Training_Long are similar, and are available from the authors.

We classify education as Edu_low (primary and middle school diploma), Edu_medium (high school diploma), and Edu_high (university degree or above).

We also control for a large number of regional characteristics, and, as customary in the quantitative literature on training in employment, individual features – including not only traditional variables on demographic and educational aspects, but also on family background and personality attitude –, and job-related characteristics. The complete list of variables used in the estimates, their description and source is reported in Appendix A. Summary statistics for the main variables are given in Table 1, and Tables 2a and 2b.

We see from Table 2a that training is far more prevalent for workers with higher levels of education – about 60% of all university educated workers said they had received training; for those who had completed secondary school but not university, the figures were 38% in the North and 35% in the South, while for those who had not completed secondary school the figures were 19% in the North and 14% in the South. In Table 2b, we see differences, by macro region, in the proportion of those workers who remained employed who did not remain with the same employer. Workers in the South were substantially less likely to change employers, and that mobility between employers increased with levels of education.

4. Model and Results

The estimation strategy for the effect of training in employment on the probability to remaining employed in the years of the severe economic recession is based on the following simple baseline equation:

$$y_i = k + train_i + reg_{ir} + edu_i + ind_i + job_i + v_i \qquad [1]$$

where y_i is our dependent variable (equal to 1 for those who remain employed over the period 2008-2011, and equal to 0 for those who are employed over the period 2008-2010 and unemployed in 2011). *Train* is our main explanatory variable, together with a vector of regional variables (*reg*) and education variables (*edu*). *Ind* is our set of controls at the individual level, and *job* is a vector of job characteristics for those in employment (see Appendix A for details); finally, *k* is a constant while *v* is the error term.

In order to study the effect of training across Centre-North and South, as well as across the three levels of education, we employ the following two interaction models:

$$y_i = k + train_i + reg_{ir} + edu_i + ind_i + job_i + train_i * reg_{ir} + v_i \qquad [2]$$

Table 1 – Summary Statistics for the Main Variables Used in the Analysis

	Mean	Sd	Mean	Sd	Mean	Sd	Mean	Sd	Mean	Sd	Mean	Sd	Mean	Sd
Regional Characteristics														
	Unemployment 2008		*Change in unemployment*		*Regional GDP 2008*									
Center-North	4.4	1.2	1.7	0.5	10.6	0.1								
South	11.2	2.2	1.4	0.8	10.1	0.1								
Total	6.7	3.6	1.6	0.6	10.4	0.3								
Individual Characteristics														
	Staying employed(y)		*Training*		*Education*		*Age*		*Sex*		*Top grade*		*Work experience*	
Center-North	0.92	0.32	0.28	0.47	2.11	0.69	3.46	1.39	0.48	0.50	0.19	0.39	18.78	12.71
South	0.86	0.24	0.35	0.43	2.14	0.69	3.67	1.43	0.55	0.50	0.21	0.41	19.17	12.84
Total	0.90	0.29	0.30	0.46	2.12	0.69	3.53	1.41	0.50	0.50	0.19	0.40	18.91	12.75
	Health		*Self-confidence*		*Children*		*Foreign*		*Father job*		*Mother education*		*Urban*	
Center-North	0.17	0.37	5.19	1.09	0.55	0.50	0.012	0.11	1.52	0.74	2.65	1.13	0.32	0.47
South	0.11	0.31	5.20	1.17	0.58	0.49	0.001	0.034	1.51	0.73	2.46	1.12	0.24	0.43
Total	0.15	0.35	5.19	1.12	0.56	0.50	0.009	0.92	1.52	0.73	2.59	1.13	0.29	0.46
Job Characteristics														
	Permanent Contract		*Part-time*		*Changed job*		*Self-employed*		*Moved for job*		*Employed in public sector*		*Employed in large firm*	
Center-North	0.66	0.48	0.14	0.35	0.14	0.35	0.17	0.38	0.11	0.32	0.32	0.47	0.07	0.25
South	0.64	0.48	0.11	0.31	0.12	0.33	0.19	0.39	0.15	0.36	0.42	0.49	0.06	0.24
Total	0.65	0.48	0.13	0.34	0.14	0.34	0.18	0.38	0.13	0.33	0.36	0.48	0.07	0.25
Education and Social Capital														
	PISA scores		*Trust*											
Center-North	28.07	18.45	39.46	6.97										
South	-15.40	15.80	29.17	2.76										
Total	13.12	27.12	35.92	7.64										

Table 2a – Mean Participation in Training, by Educational Level and Region

Regions	*Education level*		
	low-educated	*medium-educated*	*high-educated*
North	0.18	0.37	0.59
South	0.14	0.34	0.60

Table 2b – Mean Employer Change, by Education Level and Region, for those Remaining Employed

Regions	*Education level*		
	low-educated	*medium-educated*	*high-educated*
North	0.12	0.13	0.16
South	0.08	0.09	0.12

$$y_i = k + train_i + reg_{ir} + edu_i + ind_i + job_i + train_i * reg_{ir} * edu_i + v_i \quad [3]$$

In equation 2, the interaction term $train_i * reg_{ir}$ considers the joint effect of training while employed for the regions of the Centre-North and for the Southern regions. In equation 3, the term $train_i * reg_{ir} * edu_i$ considers the joint effect of training across the Centre-North and the South for the three levels of education.

Table 3 presents the results of the probit estimates for the baseline model (Equation 1) in columns 1 to 4, and for the two interaction models in column 5 (Equation 2) and column 6 (Equation 3).

Results in columns 1 to 4 show that training while employed increases the probability of remaining employed over a period of economic crisis; education also plays a substantial role. All coefficients for our regressors of interest are positive and highly significant. In column 5 we introduce interactions of training with Regions (Centre-North, South). We see that training has a larger effect in the Southern regions – its effect on the probability of remaining employed is nearly three times that in the Centre-North. In column 6 we introduce interactions also with the level of education. The coefficients on the separate interactions are not statistically significant, but when we gather the interactions to test North-South differences for each level of education, the effects for both medium and high educations are significant at the 5% level; the effect for the low educated has a larger estimated size, but is significant only at the 10% level.

The South/Centre-North difference in the effectiveness of training during the years 2008-2011 is surprisingly strong, given the large number of individual-, job- and region-level controls included in the models. These controls have

definitely an effect: for instance, if we remove the regional unemployment variables from the model, the difference between the two macro-regions increases substantially, as we would expect. We tried to explain the differences reported in Table 3 by including further regional variables, controlling for labour market conditions (i.e. the regional share of youth not in education, in employment, or training – NEET); type of educational institutions (i.e. types of schools) or their quality (regional averages on the Pisa tests); measures of social capital, used in various other studies of regional social and economic imbalances in Italy. None of these additional controls had a noticeable effect on the South versus Centre-North difference in the effect of training on remaining in employment.[4]

5. Conclusion

In the South of Italy, training has a substantially larger effect on the probability of remaining employed through the financial crisis than it does in the Centre-North. The effect is not explained by differences, across Italy's twenty regions, in initial unemployment, the change in unemployment, or GDP per capita, all of which we control for. It remains strong when we add further region-level controls for the quality of education (regional Pisa scores), and for Tabellini's (2010) social capital variables.

This could suggest a strong role for training as a response to problems of unemployment and skill shortages in regions which, like the Italian Mezzogiorno, are relatively poor, relatively hard hit by the crisis and post-crisis restructuring, or both. To better grasp the North-South differences we need to understand more about the local demand side of the labour market. Literature on market structure and inter-firm relations suggests one factor: Southern firms internalise more functions, have more limited external networks, and are less likely to be located in specialised agglomerations (Crescenzi *et al*., 2017). The broad literature on industrial dynamics and agglomeration economies suggests that this is not a good recipe for innovation or for job creation. It also describes an environment in which inter-firm job mobility is likely to be lower, and thus one in which training is more directed at needs and opportunities with the present employer (specific skills), and has less of an effect of fostering a localized pool of skilled labour. The individual in the South receiving training has done more to secure future employment than her counterpart in the Centre-North, but this may be seen as coming at the expense of external benefits, in the failure to contribute to a Marshallian pool of skilled labour from which other firms in the area may draw.

Our results support the call for a geographical approach to labour-market policy. The problem is a complex one: in order to learn more about it, we need to

4. Results of these additional checks are available upon request from the authors.

Table 3 – Results of Probit Estimates (Models in equations 1, 2, 3)

DV:staying employed	*(1)*	*(2)*	*(3)*	*(4)*		*(5)*	*(6)*
	baseline model					*interaction models*	
Training_all	0.535*** (0.0671)	0.482*** (0.0664)	0.437*** (0.0650)	0.333 *** (0.0666)	training_all	0.202*** (0.0523)	0.299 (0.197)
Education		0.245*** (0.0375)	0.356*** (0.0320)	0.256 *** (0.0349)	South#training	0.377*** (0.138)	
Regional rate of unemployment in 2008			-0.0125 (0.0213)	-0.0246 (0.0210)	South#medium-educated#training		-0.0824 (0.474)
Regional change in unemployment 2008-2011			-0.0309 (0.0445)	-0.0353 (0.0421)	South#high-educated#training		0.209 (0.300)
Regional GDP per capita in 2008			-0.115 (0.422)	-0.107 (0.420)	South#medium-educated		0.153 (0.0960)
South			-0.291* (0.175)	-0.219 (0.175)	South#high-educated		0.132 (0.0991)
Age			0.0507 (0.0489)	-0.00871 (0.0442)	in training#medium-educated		-0.0289 (0.215)
Male			0.0882 (0.0678)	0.0952 (0.0706)	in training#high-educated		-0.239 (0.200)
Higher marks at school			-0.0841 (0.0646)	-0.0550 (0.0721)	all controls included		
Experience			0.0139*** (0.00422)	0.0126 *** (0.00400)	Testing differences North-South		
Health: sport&no-smoking			-0.00706 (0.0608)	-0.0223 (0.0608)	training vs. no-training (low education)		0.102* (0.078)
Individual satisfaction of life			0.112*** (0.0303)	0.0985 *** (0.0318)	training vs. no-training (medium education)		0.051** (0.012)

Presence of children			0.0833	0.0468
			(0.0547)	(0.0611)
Pon Italian citizen			-0.0462	-0.0566
			(0.303)	(0.282)
Father's job			-0.0368	-0.0183
			(0.0446)	(0.0497)
Level of mother's education			0.0373	0.0384
			(0.0249)	(0.0251)
Living in urban area			-0.0578	-0.0951
			(0.0777)	(0.0708)
Permanent contract				0.592 ***
				(0.0888)
Part-time employed in 2008				-0.182 **
				(0.0915)
Changed job over 2008-2011				0.0117
				(0.0973)
Self-employed in 2008				0.159 **
				(0.0752)
Moved for job reasons over 2008-2011				0.148 *
				(0.0768)
Employed in public sector 2008				0.214 **
				(0.0846)
Employed in large firm 2008 >250				-0.0197
				(0.0930)
Industry dummies (15 sectors)				included
Constant	1.174***	0.687***	0.844	0.740
	(0.0543)	(0.109)	(4.490)	(4.490)
Pseudo R square	0.0256	0.0419	0.0937	0.1439
Observations	4861	4861	4861	4861

training vs. no-training (high education)		0.049**
		(0.026)
	0.1460	0.1471
	4861	4861

Note: Clustered standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1

match data on workers and training with micro data on employers, and to do so at lower level of geographical aggregation. This we hope to do in future research.

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Sommario

Formazione professionale e occupazione durante la crisi nel Nord e Sud italiani

Il dualismo territoriale italiano – Nord verso Sud – ha profonde radici storiche e manifestazioni complesse e diversificate. Questo capitolo studia un particolare aspetto di tale differenziazione spaziale: l'efficacia della formazione professionale nel garantire occupazione continuativa negli anni della recente crisi economica e finanziaria. Il risultato principale dell'analisi mostra che l'effetto positivo della formazione professionale sul mantenimento del posto di lavoro è decisamente più forte nelle regioni del Mezzogiorno che in quelle del Centro-Nord. Tale risultato è robusto ai controlli effettuati con una batteria di variabili macroeconomiche, istituzionali e culturali suggerite dalla letteratura sul tema.

Appendix A

Table A.1 – List of Variables

Name/acronym	*Description*	*Type*	*Source*
Dependent variable			
Remaning employed (y)	1=employed over the period 2008-2011; 0=employed over the period 2008-2010 and unemployed in 2011	dummy	PLUS Survey, Q#d6bis
Training while employed			
Training_All / Training_Long: Train	1=undertaken training while employed in the 2008-2010 period; 0=otherwise. Training_All uses all forms of reported training: training in-house, courses outside the workplace, and seminars, conferences and workshops. Training_Long excludes the latter three modes of training	dummy	PLUS Survey, Q#d175
Instrument for training			
Individual risk propensity: Risk	1=risk taker; 0= risk averse	dummy	PLUS Survey, Q#d.183
Regional characteristics			
Unemployment	regional rate of unemployment in 2008	continuous	ISTAT
Change in unemployment	regional change in unemployment over 2008-2011	continuous	ISTAT
Regional GDP 2008	regional GDP per capita in 2008	continuous	ISTAT
South	1=living in a Southern region; 0=otherwise	continuous	ISTAT
Individual characteristics			
Education (levels): Edu_low, Edu_medium, Edu_high	1=Edu-low (primary and middle school); 2=Edu-medium (high school); 3=Edu-high (university or above)	categorical	PLUS Survey, Q#D.88
Age	years	continuous	PLUS Survey, Q#D. cleta5_1
Sex	male / female	dummy	PLUS Survey, Q#D. 8
Top-grade in the last education level achieved: Top_grade	1=top-grade achiever; 0=otherwise	dummy	PLUS Survey, Q#D.89
Work experience	number of years since started working	continous	PLUS Survey, Q#D. 90
Health	1=no smoking and doing sport; 0=otherwise	dummy	PLUS Survey, Q#D.109_2
Self-confidence	Composite indicator built on 5 dimensions of life satisfaction each ranked from 1 (low) to 7 (high)	continuous	PLUS Survey, Q#D.183ter

Name/acronym	*Description*	*Type*	*Source*
Children	1=respondent has children; 0=otherwise	dummy	PLUS Survey, Q#D.97bis
Foreign	1=non-Italian citizenship; 0=otherwise		PLUS Survey, Q#D.110
Father_job	1=manual occupation; 2=mixed cognitive occupation; 3=intellectual and scientific occupation*	categorical	PLUS Survey, Q#D.105bis
Mother_edu	1=no education to 5=university education and above	categorical	PLUS Survey, Q#D.105b
Urban	1=living in a urban area; 0=otherwise	dummy	PLUS Survey, Q#D.v9142
Job characteristics			
Permanent contract	1=permanent contract; 0=otherwise	dummy	PLUS Survey, Q#D.11bis_2
Part-time	1=part-time contract; 0=otherwise	dummy	PLUS Survey, Q#D.14
Changed job	1=changed job over 2008-2011; 0=otherwise	dummy	PLUS Survey, Q#D.46
Self-employed	1=self-employed; 0=otherwise	dummy	PLUS Survey, Q#D.lav2
Moved for job	1=moved in a different province for job reasons during 2008-2011; 0=otherwise	dummy	PLUS Survey, Q#D.37
Employed in public sector 2008	1=employed in public sector in 2008; 0=otherwise	dummy	PLUS Survey, Q#D.39
Employed in large firm	1=employed in large firm (>250); 0=otherwise	dummy	PLUS Survey, Q#D.40
Employer sector (ATECO ISTAT)	15 sectoral categories	dummy	PLUS Survey, Q#D. sett15_n_11
S Survey			

Notes: * This classification was obtained by simply grouping in the ISTAT occupational categories reported in the PLU

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Italian Firms' Interregional Trade Decisions

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Abstract

In this study we analyse Italian firms' behaviour in terms of interregional trade activities during the period 2007-2013. In particular, our aim is to detect similarities and differences in interregional trade strategies with respect to international trade ones. Our analysis is carried out within the framework of probability panel models and makes use of a very rich micro-level dataset. Main results, while confirming the relevant role played by firms' productivity and size, provide new evidence on the relevance of learning processes in enhancing the probability of entering interregional markets. Our findings also show that the determinants of the firms' propensity to engage in interregional trade exhibit heterogeneous effects across the macro-regions of the country.

1. Introduction[1]

The ability of firms to sell their products and services beyond the boundaries of neighbouring markets is a standard measure to evaluate their competitiveness. This concept has been usually applied to international borders and a large amount of trade studies, theoretical and empirical, has provided both conceptual reasoning and statistical evidence to corroborate it (see the reviews by Wagner, 2007, 2012, 2014; Greenaway, Kneller, 2007; Bernard *et al*., 2012). This paper suggests that competitiveness may depend on firms' trade performance in other regions within national borders, other than in other countries.

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1. The research leading to these results received funding from the Regione Autonoma Sardegna (LR7 2011, "Project Analysis of Competitiveness of Sardinia production system"). We have benefited from valuable comments by participants at the conferences, AISRe in Cagliari and SIE in Cosenza.

We move along the research avenue pioneered by Bernard and Jensen (1995), according to which firms' openness depends on their capacity to overcome the sunk costs for selling abroad. Openness is, therefore, related to specific firms' characteristics, such as productivity, innovativeness and previous experience and learning. In particular, we refer to Penrose (1959) by suggesting that firms' management draws on previous trade involvements to increase its knowledge and, thus, ultimately, its ability to overcome trade barriers. In other words, firms have a higher probability to enter and to survive in distant markets, both international and interregional ones, if they are already accustomed to such environments. Although the institutional framework is the same all over the home country, its application at the regional level can be highly differentiated. Moreover, regional markets could be highly differentiated in terms of local demand or distribution networks.

Building on the analysis performed in Brancati *et al*. (2018), the aim of this paper is to assess the importance of the usual set of potential internal and external firms' features, which have proved influential on international trade, in affecting interregional trade. The analysis is applied to the Italian case in the period 2007-2013 by using data from an updated new database from the MET surveys. These surveys are specifically designed to study Italian firms' characteristics and strategies, with particular focus on inter and intra national relationships and networks.

The paper is structured as follows. The second section briefly illustrates the rich theoretical and empirical background of the present analysis in order to highlight its original contents. The third section presents the empirical model and discusses some methodological issues. Section four describes the main features of the data employed in the analysis while section five discusses the main results. Section six concludes.

2. Literature Review

In this study we mainly refer to the international trade literature because, to the best of our knowledge, there are no theoretical models specific with respect to interregional trade. Nonetheless, the extant literature provides a flexible framework to analyse a firm's decision to sell its products on distant markets, located either in other countries or in other regions within national borders. Such a decision is, anyhow, the outcome of a cost-benefit analysis: as long as this activity turns out to be profitable the firm will decide to carry it out. Therefore, all those elements affecting either costs or revenues influence the firm's decision process by increasing or reducing potential marginal profits stemming from the trade activity.

One of the first models tackling this issue is represented by the Heckscher-Ohlin-Samuelson model, which identifies comparative advantages generated by different factor endowments across sectors and countries as the main force underpinning

the export activity. In order to obtain this result, however, the model needs to assume a population of firms made of homogenous agents acting within a competitive framework. The first attempt to overcome this unrealistic assumption has been put forward by Krugman (1979). Starting from the mid-90s many empirical works have challenged the "homogeneity" assumption by providing systematic micro-level evidence of structural differences occurring between exporters and non-exporters (Bernard, Jensen, 2004, 1999, 1995; Bernard *et al*., 2012; Clerides *et al*., 1998; Greenaway, Kneller, 2007; Wagner, 2007, 2012, 2014).

The first theoretical contribution introducing agents' heterogeneity within an international trade framework is represented by the pioneering work of Melitz (2003). According to this model, export decisions are brought about by the combination of export sunk and variable costs and firm-level productivity. Sunk costs, on the one hand, are mainly due to informal barriers and include incomplete information about international markets, uncertainty about contract enforcements, unfamiliarity with market characteristics abroad, difficulties in the establishment of distribution channels and the costs of complying with new or more developed product standards. Firm-level productivity, on the other hand, is assumed to differ across enterprises according to a given population distribution. Melitz (2003), therefore, reinterprets the exporters-domestic firms differences as a productivity issue: exporters are able to afford export costs for their productivities outstrip the required threshold whereas domestic firms act on national markets because their productivity falls short of the threshold. This is an important shift since it provides a framework to analyse all trade activities, both international and interregional ones. Indeed, according to this perspective trade activities are carried out as long as firm-level productivity overcomes trade costs, which, in turn, are market specific. Thus, the only difference occurring between foreign and interregional markets is the extent of these costs.

Aw *et al*. (2007) and Costantini and Melitz (2008) add on this framework by building models which incorporate firms' attempts to improve their efficiency levels by means of innovation activities. The key idea is that the existence of a virtuous circle linking innovation and export activities: R&D returns increase along with the openness to trade. This makes investments in research and development more attractive (because potentially more remunerative) whenever there are higher market opportunities.

A similar explanation for the innovation-export link can be found also in different approaches. In particular, Dosi *et al*. (1990) and Barletta *et al*. (2014) point out that whenever an exporting firm introduces either a product or a process innovation, it gains a temporary quasi-rent along its technological trajectory. However, unlike the neoclassical tradition, the evolutionary and behavioural schools of thought couple the decision mechanism with organizational bounded

rationality (March, Simon, 1958). To this extent, cost-benefit decisions depend not only on the amount of information at firm's disposal, but also on the knowledge processing activities it carries out.

As a consequence, learning becomes another key aspect to understand which factors may alter export cost processes. For example, a large number of works have put to test the so called "learning-by-exporting" hypothesis (Aitken *et al*., 1997; Bernard, Jensen, 1999; Clerides *et al*., 1998; Greenaway, Kneller, 2004; Roberts, Tybout, 1997). According to this hypothesis, an enterprise adjusts its export strategies in accordance with its past experiences on foreign markets, proxied by lagged export status or performance. Quite often previous experience explains most of the variation in the data, even though these estimates may be the outcome of a self-selection process à la Melitz (2003).

Another phenomenon connected to firms' learning abilities is represented by export spillover effects. The local environment may create important technological and pecuniary spillovers, which affect firms' performance and, thus, their potential to export.

The way the geographical location may influence the overall efficiency of firms is twofold. The first channel has to do with the so-called "first nature geography" which is about the exogenous attributes of a territory (such as latitude, natural resource endowment, climate, proximity to the coast). The second one is due to the "second nature geography" following from economic agents interactions (thus endogenous) occurring within a certain territory (e.g. specialization and urbanization economies, local knowledge spillovers and other regional endowments).

This second type of externalities may be also related to those sectors where technological progress displays high levels of opportunity and cumulativeness (Nelson, Winter, 1982; Malerba *et al*., 1997). In such sense, firms develop and improve their capabilities not only by exerting internal innovative efforts, but by absorbing knowledge and ideas from other geographically and/or technologically proximate firms (Cohen, Levinthal, 1990).

Recent literature has provided a large set of potential determinants of local advantages, among others we refer to Andersson and Weiss (2012) for Sweden, Koenig *et al*. (2010) for France, Greenaway and Kneller (2004) for UK, López-Bazo and Motellón (2018) for Spain. As for Italy, Becchetti and Rossi (2000), Antonietti and Cainelli (2011) and Brancati *et al*. (2018) have investigated the existence of local externalities affecting export activity of Italian firms. Results turn out to be non-homogenous due to the different empirical settings and, most importantly, to the different sets of indicators measuring local advantages. Nonetheless, there is a general agreement that local features may play a significant role in firms productivity and export performance. In this study we test whether this is also the case for interregional trade performance.

3. Empirical Strategy

In order to model firms' interregional trade decisions, we follow the approach suggest by export propensity literature reviewed in section 2 (Roberts, Tybout, 1997; Bernard, Jensen, 2004). We assume that a firm decides to sell its products/services on a specific extra-regional market as long as its current and expected profits are positive, i.e. as long as the difference between current and expected revenues, on the one hand, and current and sunk costs to get the access on a particular market, on the other hand, is positive. Yet, as highlighted in the previous section, costs and revenues may depend upon several internal and external factors. Therefore, we account for this heterogeneity by allowing interregional trade decisions to depend on three different aspects: firm's structural characteristics, the innovation activity and the ability to learn both from past experiences and from the surrounding environment.

The starting point of our analysis is the following index function model:

$$interregional\,trade^{*}_{isrt} = S_{intreg}\left(1 - interregional_{isr,t-1}\right) + \\ + X'_{isr,t-1}\beta + \alpha_i + \mu_s + \delta_r + \gamma_t + \varepsilon_{isrt} \qquad [1]$$

where *i* denotes the firm, *s* denotes the sector, *r* denotes the region and *t* denotes the time period. The dependent variable is a latent variable standing for firm *i*'s interregional trade propensity at time *t*. S_{intreg} represents the sunk costs that the firm has to face at time *t* if it was not a trader in the interregional market in the previous period. Therefore, model (1) expresses firm's propensity to trade in extra-regional markets as a function of a set of factors affecting current and expected economic performances.

As for the set of explanatory variables, we follow Bernard and Jensen (2004) to deal with sunk costs by linking their existence to firm's past trade activity. S_{intreg} exerts an effect on interregional exchanges only in case the firm has not previously sold its products on distant markets, either interregional or international ones. Therefore, model (1) may be rewritten as:

$$interregional\,trade^{*}_{isrt} = \theta_1 interregional_{isr,t-1} + \theta_2 export_{isr,t-1} + \\ + X'_{isr,t-1}\beta + \alpha_i + \mu_s + \delta_r + \gamma_t + \varepsilon_{isrt} \qquad [2]$$

Where θ_1 and θ_2 are the coefficients denoting the contribution of firm's past trade experiences on current interregional trade propensity. Alternatively θ_1 and θ_2 may be interpreted as the extent to which the company learns how to sell its products on a specific market from its past trade experiences. Hence, both coefficients are expected to be positive. It is important to highlight that our specification is different from the models present in the literature since we include

both lagged interregional trade and international export, thus implying that a firm may learn from past experiences on both foreign and interregional markets.

The matrix X'_{isrt} includes the set of explanatory variables influencing expected profits. Thus, it includes the export spillover variable, public and private R&D expenditures at the regional level as well as two dummies denoting the group and local network memberships. As highlighted by many theoretical and empirical works in the international trade literature (Antonietti, Cainelli, 2011; Aw *et al*., 2007; Barletta *et al*., 2014; Bernard, Jensen, 2004; Costantini, Melitz, 2008; Dosi *et al*., 1990 among others), innovation activity at the firm level is another key aspect affecting the propensity to sell products on distant markets. In our study, it is proxied both by R&D expenditure and by the innovation dummy. In so doing we try to capture both formal and informal R&D, as it has been shown Italian firms' innovative activity is to a large extent informal (Santarelli, Sterlacchini, 1990). Finally, in terms of firm's characteristics, we control for productivity (value added per worker), size (employees), age and financial leverage.

A possible problem arising from our specification refers to the direction of the estimated relationships. Indeed some of the explanatory variables we employ in our analysis may be regarded as being both influential for and influenced by firm's trade activity. In order to attenuate this reverse causality problems arising between firm's trade propensity and some of the explanatory variables, these are included in lagged form. It is worth noting that we take a two-years lag (t-2) instead of a one-year lag (t-1) because of the design of the MET survey. Finally, equation (2) incorporates specific effects at firm, macro-sector and macro-region level, as well as time dummies. In particular α_i accounts for firm heterogeneity stemming from unobservable factors affecting the propensity to trade.To cope with firm-specific effects, we treat α_i as random effects. Nevertheless, this is not sufficient to obtain consistent estimators within a dynamic model framework because past interregional and export propensity variables are correlated with firm's unobserved heterogeneity. To tackle this issue we follow Chamberlain (1982), Mundlak (1978) and Wooldridge (2005, 2010) contributions by modelling firm's unobserved heterogeneity as a function of the exogenous variables' within mean ($\overline{x}_i$) and of the dependent variable's initial period value (y_{i1}). This approach has two main advantages: first, it controls for possible correlation between α_i and $\overline{x}_i$ and, secondly, it enables the estimation of the time-invariant variables' coefficients. In our case, $\overline{x}_i$ is represented by the average firm's age, which is deemed to be an exogenous variable.

Finally, it is worth highlighting the importance of our methodological approach with respect to the export propensity literature. Indeed, to the best of our knowledge, those works in the field dealing with dynamic binary choice models very often have overlooked initial conditions issues. Other works (Bernard, Jensen, 2004) have tackled the unobserved heterogeneity problem by turning the nonlinear model into a

linear one in order to be able to estimate a linear probability models via Arellano and Bond (1991) GMM methodology.

4. The Dataset

Our analysis is carried out by exploiting a very rich micro-dataset drawing on three different sources of information. The first source is a firm-level database obtained from the MET survey on Italian manufacturing (ISIC Rev.4 C) and production services (ISIC Rev. 4 H and J) sectors. This is a vast survey realized by the MET Research Centre[2], which gathers a wide range of data on Italian firms' strategies in terms of trade activities, R&D and innovation, investments and network participation. We make use of the waves related to the years 2008, 2009, 2011 and 2013. Each wave contains more than 22,000 observations amounting to an overall number of 97,324 Furthermore, the sample design allows for longitudinal analyses by devoting about 50% of each wave to a two-period panel. Since we are interested in modelling firms' interregional trade decisions according to their previous characteristics and strategies, we only work through this subsample.

It is worth highlighting that, unlike many other firm-level databases, the MET dataset also encompasses family and micro-firms with less than 10 employees. We believe this is an important aspect of our work for micro-firms represent the outnumbering size class within Italian enterprises' population. Indeed, the representativeness of MET survey results is warranted by a sample design stratified along three dimensions: size class, sector and geographical region.[3]

2. http://www.met-economia.it/

3. In terms of firm size, four classes are accounted for: micro-firms (<10 employees), small firms (>= 10 and <50 employees), medium firms (>=50 and <250 employees) and large firms (>= 250 employees). In terms of sectors, the MET survey is representative for the following ISIC Rev4 sectors: Food products, beverages and tobacco (C10-12), Textiles, textile products, leather and footwear (C13-15), Wood, products of wood, cork and furniture (C16 and 31), Pulp, paper, paper products, printing and publishing (C17-18), Chemical, rubber, plastics and fuel products (C19-22), Basic metals and fabricated metal products (C24-25), Transport equipment (C29-30), Machinery and equipment n.e.c. (C28), Electrical and optical equipment (C26-27), Other manufacturing sectors (C32-33), Transport and storage (H), Information and communication (J). The former ten sectors (ISIC Rev4 section C sectors) represent the manufacturing sectors, while the latter ones (ISIC Rev4 H and J) represent the production services sectors. Finally, the dataset is also representative for the 20 NUTS2 Italian regions, which can be clustered in five NUTS1 macro-areas: North West (Valle d'Aosta, Piemonte, Liguria, Lombardia), North-East (Veneto, Trentino Alto Adige, Friuli Venezia-Giulia, Emilia-Romagna), Centre (Toscana, Umbria, Marche, Lazio), South (Abruzzo, Molise, Campania, Puglia, Basilicata, Calabria) and the Islands (Sicilia and Sardegna). Given the main task of the survey is to study innovative firms' characteristics, the sample design seeks to oversample them by looking for the cells with a greater probability of containing innovative enterprises. This identification procedure is performed according to a Bayesian technique which updates each wave's information with the innovative firms' frequencies observed in the preceding wave.

The second source of information is CRIBIS[4] database on companies' financial statements. By merging balance sheet data with the MET database we are able to match performance and financial indices with strategic activities at the firm level. Nevertheless, this operation leads to a sensitive sample size reduction. Finally, information on regional R&D public and private expenditures are drawn from the website of the Italian national institute for statistics (ISTAT).

After the merging procedure, we end up with an unbalanced panel made of 16,541 observations. Likewise the Italian firms' population, the sample size is skewed towards the smallest dimensions. Indeed, 76% of observations refer to micro and small firms while large enterprises with more than 250 employees account only for the residual 5% (Table 1). By looking at the geographical distribution, about 75% of observations refer to firms located in the northern-central regions, while only 25.1% refer to firms located in the so called Mezzogiorno area, embracing South of Italy and the two islands (Sicilia and Sardegna).

In macro-sectoral terms, the overwhelming majority of companies in our sample belong to manufacturing sectors. Manufacturing enterprises appear to be more concentrated around the SME's size classes and tend to be more often located in the North of Italy (especially in the North East) than the production services firms. On the contrary, production services show higher shares of both micro and large firms and appear to be more concentrated within the central and Mezzogiorno regions.

The final dataset encompasses a wide range of information concerning structural characteristics, strategies and linkages at the firm level, together with some selected phenomena at the regional level. In particular, among the former we account for company's activities on foreign and interregional markets, innovative activity, participation to groups and/or local networks, size, age, productivity levels and financial structure. Among the latter we include the share of exporters within each region-sector combination and the regional public and private R&D expenditures.[5]

Interregional trade activities are measured by means of a dummy variable computed according to MET information on geographical distribution of firm's total sales. It takes the value of 1 whenever the firm has sold (part of) its products/services on domestic markets outside the NUTS2 region where it is located, and 0 otherwise.

The innovation activity is proxied by two variables drawn from the MET survey and representing inputs and outputs within the innovative process. Inputs are measured by the ratio between R&D expenditure and firm's total sales. Indeed, the larger the amount of resources devoted to research and development with respect to total sales, the more the firm is committed to innovation. Yet,

4. https://www.cribis.com.
5. For a full list of the variables employed in our study look at Table A in the Appendix.

Table 1 – Firms Sample Description

	Total		*Manufacturing*		*Production Services*	
	N. of obs.	*%*	*N. of obs.*	*%*	*N. of obs.*	*%*
Panel A – size						
Micro	5,622	34.0	3,112	30.0	2,510	40.7
Small	6,953	42.0	4,795	46.2	2,158	35.0
Medium	3,144	19.0	1,979	19.1	1,165	18.9
Large	822	5.0	485	4.7	337	5.5
Total	16,541	100.0	10,371	100.0	6,170	100.0
Panel B – geographical distribution						
North West	3,397	20.5	2,219	21.4	1,178	19.1
North East	4,226	25.6	2,943	28.4	1,283	20.8
Centre	4,770	28.8	2,678	25.8	2,092	33.9
South	2,977	18.0	1,841	17.8	1,136	18.4
Islands	1,171	7.1	690	6.7	481	7.8
Total	16,541	100.0	10,371	100.0	6,170	100.0

the industrial economics literature points out that Italian firms' innovation is often carried out through informal ways (Santarelli, Sterlacchini, 1990). R&D expenditure alone is thus insufficient to measure the innovative activity for it is unable to capture both the whole extent of firm's efforts and whether these efforts have produced an actual outcome. To cope with these issues we also consider a dummy variable indicating the actual introduction of at least one type of innovation. It is worth pointing out that even this dummy alone would be insufficient to measure the innovative activity for it detects the outcome of a process but it is uninformative as to company's commitment to that process. We therefore regard the R&D expenditure and the innovation dummy as two complementary elements, necessary to account properly for the firm's innovative activity.

Group membership and local network participation are measured by two dummies on the basis of the MET survey information. Local network participation is identified through any stable and persistent relationship occurring between the enterprise and other firms/institutions settled in the "local" area. Thus, local networks do not necessarily fall within regional boundaries, but they can also cross borders whenever they remain in a local dimension. This aspect has to be taken into account when interpreting the interregional trade patterns.

Firm's structural characteristics are measured in the usual way. Size is proxied by the total number of employees; age is computed as the difference between the

year of MET wave under consideration and firm's establishing year; productivity is measured as value added per employee and firm's financial structure is proxied by its financial leverage. All these variables are log-transformed when included in the empirical model.

Finally, at the regional level we include both public and private R&D expenditures and the share of exporters in each sector-region.

Before analysing the econometric results, we report some descriptive statistics concerning firms' trade patterns, characteristics and strategies. Table 2 reports the summary statistics for the whole sample, as well as for a number of subsets referring to international and interregional exporters. Overall, the former account for 39% of whole sample of firms, while the latter add up to 64%. In line with the empirical literature (Bernard *et al*., 2012; Greenaway, Kneller, 2007; Wagner, 2007, 2012, 2014), firms who trade across regions are on average less innovative, less productive and devote a smaller share of resources to R&D activities than international exporters. Furthermore, they also show higher financial leverages due to the deep fall of the Italian aggregate demand hampering their ability to pay the debts back. As to international exporters, it is interesting to point out that the overwhelming majority of these companies sell products both on foreign and on national markets. Such behaviour does not seem to be transitory, since 74% of them already used to trade on foreign markets in the preceding wave. This suggests that many enterprises adopt a stable market diversification strategy.

Finally, Table 3 reports descriptive statistics at the regional level in order to highlight the extent of firm heterogeneity across the Italian territory. In terms of openness to trade, Northern regions stand out by displaying the best performance: the average shares of international and interregional exporters within this area outstrip 45 and 67% respectively. On the contrary, the Mezzogiorno area (South and Islands) performs poorly with slightly more than 50% of firms reaching interregional markets and less than 30% of companies exporting products abroad. Central regions are positioned in-between these two extremes by exhibiting about 36% of enterprises engaged in international export activities and 64% of companies exporting products on interregional markets. Along with trade propensities, regional statistics highlight other aspects differing across Italian regions. Indeed, enterprises located in the northern and central areas are, on average, larger and more innovative than those located in the Mezzogiorno area.

5. Results

Table 4 reports the main empirical results. Interregional trade propensity models have been estimated for Italy as a whole and for its five macro-regions

Table 2 – Descriptive Statistics

	Overall sample				*International exporters*		*Interregional exporters*		*Interregional exporters only*		*Both international and interregional exporters*		*International exporters only*	
Variables	*Mean*	*Std. Dev.*	*Min*	*Max*	*Mean*	*Std. Dev.*	*Mean*	*Std. Dev.*	*Mean*	*Std. Dev.*	*Mean*	*Std. Dev.*	*Mean*	*Std. Dev.*
At t														
Export propensity	39%	49%	0%	100%	100%	0%	53%	50%	0%	0%	100%	0%	100%	0%
Inter-regional trade propensity	64%	48%	0%	100%	85%	35%	100%	0%	100%	0%	100%	0%	0%	0%
At t-2														
Export propensity	37%	48%	0%	100%	74%	44%	46%	50%	14%	35%	74%	44%	75%	44%
Inter-regional trade propensity	60%	49%	0%	100%	79%	40%	76%	42%	67%	47%	85%	36%	48%	50%
Innovation	38%	49%	0%	100%	45%	50%	41%	49%	35%	48%	46%	50%	38%	49%
Productivity	10.61	1.05	2.30	16.99	10.64	0.93	10.60	0.99	10.57	1.08	10.62	0.91	10.76	1.04
R&D intensity	1.39	5.90	0	100	2.2	7.1	1.7	6.6	1.1	5.7	2.3	7.2	1.4	6.0
R&D dummy	15%	35%	0%	100%	24%	43%	19%	39%	10%	30%	26%	44%	14%	34%
Leverage	12.0	100.1	0.0	9118.9	10.0	117.2	11.6	106.5	13.3	79.2	10.1	126.2	9.8	30.4
Size	68	250	1	9000	93	268	82	285	61	293	101	276	52	204
Age	19	15	0	169	21	15	20	15	19	14	21	16	18	13
Group	19%	39%	0%	100%	26%	44%	22%	42%	17%	37%	27%	45%	15%	35%
Local network	41%	49%	0%	100%	39%	49%	41%	49%	44%	50%	39%	49%	37%	48%
Observations	16,541				6,510		10,594		5,031		5,563		947	

Note: See Appendix for definitions of variables. Time t-2 refers to the previous survey wave. International and interregional exporters are identified according to firm's time t shares of revenue stemming from international and interregional trade activities, respectively.

Table 3 – The Main Variables across Italian Regions and Macroregions

	At t			*At t-2*							
	Obs.	*Interregional trade propensity*	*Export propensity*	*Innovation*	*Employees*	*Productivity*	*Age*	*R&D intensity*	*Regional public R&D*	*Regional private R&D*	*Export spillovers*
North West	3,397	70.2%	50.5%	40.7%	88.0	10.6	22.5	1.8%	0.35%	1.11%	20.2%
Piemonte	1,277	69.9%	49.8%	43.2%	102.6	10.5	20.7	1.8%	0.38%	1.44%	19.8%
Valle D'Aosta	143	41.3%	32.2%	35.0%	23.0	10.8	19.8	0.6%	0.15%	0.45%	15.2%
Lombardia	1,563	73.8%	53.7%	39.8%	85.3	10.6	23.7	2.0%	0.29%	0.98%	20.7%
Liguria	414	67.9%	46.4%	38.6%	75.9	10.6	24.0	1.5%	0.55%	0.78%	20.7%
North East	4,226	67.7%	45.0%	42.0%	76.1	10.6	21.6	1.5%	0.47%	0.71%	22.9%
Trentino Alto Adige	629	61.2%	42.3%	36.6%	98.9	10.7	22.6	1.1%	0.52%	0.65%	17.1%
Veneto	1,910	67.3%	45.0%	44.5%	63.3	10.6	18.9	1.6%	0.35%	0.61%	22.7%
Friuli-Venezia Giulia	352	72.4%	59.1%	31.3%	113.1	10.6	22.4	0.8%	0.63%	0.80%	31.0%
Emilia Romagna	1,335	70.0%	42.5%	43.8%	74.1	10.6	24.9	1.8%	0.58%	0.86%	23.8%
Centre	4,770	64.3%	36.4%	38.5%	62.3	10.7	17.8	1.3%	0.79%	0.51%	15.3%
Toscana	1,563	65.3%	42.8%	42.2%	50.8	10.5	19.7	1.3%	0.63%	0.51%	17.1%
Umbria	506	68.8%	32.8%	40.7%	70.3	10.5	17.3	1.5%	0.69%	0.23%	17.5%
Marche	687	70.5%	46.6%	33.9%	51.6	10.5	18.2	1.4%	0.36%	0.34%	19.9%
Lazio	2,014	60.4%	28.8%	36.7%	72.9	10.9	16.5	1.2%	1.09%	0.63%	11.7%

	At t			At t-2							
	Obs.	*Interre-gional trade propensity*	*Export propensity*	*Innovation*	*Employees*	*Productivity*	*Age*	*R&D intensity*	*Regional public R&D*	*Regional private R&D*	*Export spillovers*
South	2,977	58.8%	29.6%	31.1%	54.3	10.5	16.1	1.0%	0.57%	0.30%	14.3%
Abruzzo	247	75.7%	44.9%	33.6%	101.1	10.3	20.3	1.2%	0.55%	0.40%	15.9%
Molise	244	53.7%	27.5%	25.8%	18.8	10.6	15.2	0.9%	0.42%	0.07%	12.7%
Campania	1,059	64.0%	30.1%	28.5%	48.0	10.3	14.2	1.6%	0.71%	0.55%	16.7%
Puglia	568	67.8%	39.3%	43.0%	90.5	10.4	20.1	1.2%	0.54%	0.24%	10.2%
Basilicata	278	51.4%	27.0%	37.4%	34.8	10.9	16.3	0.4%	0.52%	0.17%	15.1%
Calabria	581	39.1%	14.6%	22.2%	34.9	10.8	14.4	0.3%	0.42%	0.04%	13.5%
Islands	1,171	45.1%	23.8%	29.0%	40.0	10.7	16.8	1.0%	0.60%	0.19%	13.9%
Sicilia	850	44.4%	24.6%	31.3%	40.5	10.8	16.9	1.0%	0.61%	0.23%	13.1%
Sardegna	321	47.0%	21.8%	23.1%	38.7	10.5	16.5	1.0%	0.59%	0.07%	15.9%

Note: See Appendix for definitions of variables.

Table 4 – Probit Models for Italian Firms' Interregional Trade Propensity

	All regions	*North-West*	*North-East*	*Centre*	*South*	*Islands*
Innovative efforts						
Innovation	0.014	0.025	0.110**	0.038	-0.108*	-0.152
	(0.027)	(0.059)	(0.058)	(0.049)	(0.066)	(0.102)
R&D intensity	0.006**	0.007	0.007	0.004	0.007	0.012
	(0.003)	(0.005)	(0.006)	(0.005)	(0.007)	(0.011)
Learning processes						
Past inter-regional trade	0.642***	0.456***	0.441***	0.861***	0.802***	0.572***
	(0.053)	(0.130)	(0.107)	(0.095)	(0.112)	(0.213)
Past export	0.148***	0.187***	0.272***	0.007	0.156**	0.229**
	(0.029)	(0.062)	(0.062)	(0.055)	(0.070)	(0.108)
Export spillovers	0.005***	0.005**	0.010***	0.007**	-0.003	0.003
	(0.001)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Group	0.068*	0.010	0.086	0.038	0.127	0.211
	(0.036)	(0.074)	(0.071)	(0.064)	(0.098)	(0.157)
Local network	0.012	0.013	0.013	0.019	-0.021	0.038
	(0.025)	(0.054)	(0.055)	(0.047)	(0.058)	(0.093)
Regional public R&D	0.034	0.227**	-0.242	0.115	-0.168	-0.575
	(0.049)	(0.105)	(0.153)	(0.080)	(0.333)	(1.240)
Regional private R&D	0.053*	0.009	0.238	-0.155*	0.121*	-0.037
	(0.026)	(0.096)	(0.212)	(0.091)	(0.069)	(0.081)
Firm characteristics						
Productivity	0.083***	0.073**	0.073**	0.078***	0.090***	0.121***
	(0.012)	(0.030)	(0.030)***	(0.022)	(0.026)	(0.043)
Size	0.125***	0.112***	0.123	0.117***	0.116***	0.126***
	(0.012)	(0.025)	(0.026)	(0.023)	(0.026)	(0.045)
Age	-0.353***	-0.514*	0.114	-0.369*	-0.761**	-0.445
	(0.123)	(0.288)	(0.248)	(0.218)	(0.322)	(0.502)
Leverage	0.007	-0.023	0.016	0.004	0.028	0.016
	(0.012)	(0.026)	(0.026)	(0.021)	(0.027)	(0.045)
Constant	-1.450***	-0.949**	-1.566	-1.745***	-1.529***	-2.258
	(0.174)	(0.419)	(0.415)	(0.320)	(0.361)	(0.912)
Log-likelihood	-8,721.77	-1,740.61	-2,192.17	-2,491.82	-1,583.60	-652.51
Number of observations	16,541	3,397	4,226	4,770	2,977	1,171

Note: All explanatory variables are two-year lagged (previous MET survey wave). R&D intensity, productivity, leverage, size, age and regional R&D variables are log-transformed. All models include fixed effects for macro-sectors (manufacturing, services) and time. Macro-regions (North-West, North-East, Centre, Islands) fixed effects are included in the "All Regions" model. Clustered Standard Errors in parenthesis

(North-West, North-East, Centre, South and Islands). All estimated models have been specified as random effect probit models following the approach in Chamberlain (1983), Mundlak (1978) and Wooldridge (2005, 2010) to account for the correlation between firms' fixed effects and past propensity to trade. Table 5 reports some selected average marginal effects computed on the basis of the estimated models reported in Table 4[6].

Differently from what highlighted by Brancati *et al*. (2018) for international trade activities, the role of R&D and innovation in enhancing the probability to trade in extra-regional markets seems to be very limited. R&D intensity turns out to be relevant only for the aggregate sample of Italian regions (Table 4, column 1), while innovation exhibits a significant coefficient only in the case of the North-East macroregion. This finding may be due the reduced number of observation at the macroregion level and to the well-known knightian uncertainty (Knight, 1921) characterizing firm's innovative activity. As a matter of fact, it is very difficult for a firm to foresee whether its efforts will be successful and this difficulty is even stronger during aggregate demand downturns, such as those affecting the period analysed in this study.

As to learning processes, we find that past trade experiences are fundamental for future probability to trade. Indeed, in Table 4, lagged export and interregional trade coefficients show highly significant coefficients, which implies that these activities are persistent through time. Thus, this persistency confirms the existence of sunk costs, as well as the ability to learn from past experiences to overcome them. Contrary to part of the literature (Aitken *et al*., 1997; Bernard, Jensen, 1999; Bugamelli, Infante, 2003; Clerides *et al*.,1998; Greenaway, Kneller, 2004; Roberts, Tybout, 1997), though, our model accounts for the possibility that firms learn how to dampen these costs by taking advantage of past experiences on both international and domestic markets. Despite past experiences in the same type of market stand out as a more important channel for trade, we find strong evidence of cross effects too. As a consequence, firm's investments and strategies set up today to sell on foreign markets may help firm's future activities on regional markets. This is also consistent with Table 2 summary statistics where enterprises selling products both internationally and inter-regionally outperform simple interregional traders and exporters.

Turning to the analysis on macro-region subsamples, our results point out that firms located in the northern regions have to cope with smaller sunk costs than the ones located either in the Centre of Italy or in the Mezzogiorno area. This implies that trade activities are more persistent outside northern regions: once a company located either in the Centre or in the Mezzogiorno area is able to sell

6. Average marginal effects are computed only for significant coefficients reported for models in Table 4.

Table 5 – Selected Average Marginal Effects for Interregional Trade Propensity

	All regions	*Nord-West*	*North-East*	*Centre*	*South*	*Islands*
Innovative efforts						
Innovation	--	--	0.0302	--	-0.0320	--
R&D intensity, 10% increase	0.0002	--	--	--	--	--
Learning processes						
Past inter-regional trade	0.2114	0.1432	0.1325	0.2925	0.2762	0.1998
Past export	0.0430	0.0537	0.0761	--	0.0464	0.0729
Export spillovers	0.0008	0.0008	0.0011	0.0010	--	--
Group	0.0195	--	--	--	--	--
Local network	--	--	--	--	--	--
Regional public R&D	--	0.0153	--	--	--	--
Regional private R&D	0.0068	--	--	-0.0112	0.0190	--
Firm characteristics						
Productivity, 10% increase	0.0022	0.0019	0.0019	0.0021	0.0025	0.0036
Size, 10% increase	0.0033	0.0028	0.0031	0.0031	0.0033	0.0040
Age, 1 year change	-0.0051	-0.0882	--	-0.0601	-0.1110	--

Note: Changes in the explanatory variables are computed with respect to the mean values; for continouos variables the effect refers to one standard deviation change, unless otherwise stated in the first column of the table. All effects are significant at the 5% level.

its products on distant markets, it is more likely it will persist with the same behaviour in future periods. As for Italy as a whole, past interregional experience is more relevant to enhance the propensity to trade in extra-regional markets than past export experience. As shown in Table 5, the effect of past interregional trade is on average 21 percentage points (ranging from 14 pp for the North-East one to 29 pp for the Centre macroregion), while the effects of past international trade is on average just above 4 pp (the highest effect, 7.6 pp, is detected for the North-East area).

By looking at firm's abilities to learn from the surrounding environment, Table 4 shows that industry-regional characteristics might enhance trade activities. First of all, both trade propensities are positively correlated with the share of surrounding firms belonging to the same sector and exporting abroad their products. This export spillovers effect may follow from a set of beneficial interactions occurring between companies located within the same area. These interactions turn out to be especially helpful for the interregional trade probability, the only exception being the regions located in the South and the Islands. This finding

may follow from the fact that exporters gather for the most part within these areas, as shown in Table 3.

Regional private R&D expenditure is positively correlated with both probabilities to trade when the whole sample is considered: the higher the amount of knowledge produced around the firm, the lower the overhead costs burdening the company. Therefore, a high level of R&D expenditure implies higher chances for the firm to obtain strictly positive profits by selling its products on distant markets. Differently from what happens for the export spillovers variable, though, regional private R&D expenditure is slightly more important for export propensity (Brancati *et al*., 2018) than for interregional trade propensity. However, at the macro-region level a positive significant effect is found only for the Southern regions. As for regional public R&D expenditures, we do not find any clear-cut evidence. Results in Table 4 suggest, on the one hand, a poorly negative correlation with firm's propensity to export and, on the other hand, a positive but not significant correlation with the propensity to sell products on domestic markets outside regional boundaries, the only exception being the result for the North-West macroregion.

In addition to the sectoral and regional dimensions, we also account for learning processes stemming from enterprises' environmental linkages. Group membership is positively correlated with the probability to trade and the coefficient turns out to be statistically significant at the 10% significance level. This is slightly different from what we found for international trade propensity in our previous work to the extent that companies belonging to a group are slightly more likely than the others to sell their outputs outside the region where they are located but they do not show any comparative advantage in terms of export activities. It is worth pointing out that we are not able to distinguish between national and international groups for our data do not report the group's nationality. As to local network's membership, the signs of the correlations are in line with our expectations in that firms taking part into local networks are less likely to export but more likely to sell products on interregional markets. Yet, these coefficients are never statistically significant.

By turning the attention to the relationship between firm's structural characteristics and trade activities, we find evidence in line with most of the literature (see among others, Bernard, Jensen, 2004; Melitz, 2003), although the estimated effects (Table 5) are smaller in magnitude when compared to those for past trade experiences. Both higher productivity levels and larger firm's size are correlated with higher chances to sell products on distant markets. Firm's age is strongly negatively correlated: this result suggests that young firms are more likely than old ones to overcome regional boundaries, once controlling for size. It is worth highlighting that the younger the enterprise, the smaller (on average) its size.

Firms' indebtedness plays a detrimental role only for the export activity. As a matter of fact, leverage coefficients within interregional trade specifications are never significant. We interpret this result by taking into account that, on average, exporting abroad requires bigger investments than selling on domestic markets. Furthermore, as underlined by the lagged dependent variables coefficients, trade activities are persistent through time, thus making internationalised enterprises more likely to show higher leverages than the other firms.

Finally, it is worth emphasizing that results on the role of firms' characteristics are robust across the macro-region subsample specifications.

6. Conclusions

This study investigates Italian firms' competitiveness in terms of interregional trade behaviour. In particular, we single out the role of sunk costs and learning abilities on firm's strategies for selling beyond their neighbouring intra-regional market.

Comparison with respect to export trade patterns, shows that international and interregional trade activities are only to some extent alike. First of all, firms' innovative efforts, proxied by both R&D investments and innovations turns out to be relevant in export models only. This finding suggests that innovative activity, being related to uncertain and highly heterogeneous results, is effective only when firms need a competitive hedge in international markets. Secondly, we find that firms learn how to dampen sunk costs by taking advantage of past experiences both on international and on domestic markets. Obviously past experiences on the same type of market proves always the most important channel for trade, but there is also strong evidence of cross effects. In other words, firm's current strategy to sell on domestic distant markets may be helpful tomorrow to export on foreign markets. Conversely, today strategies towards foreign markets may facilitate firm's future activities on regional markets. Thirdly, we find that, when we analyse learning from the surrounding environment, the two phenomena are very similar: industry and regional characteristics, most of the time, boost both trade activities.

Finally, we deepen the analysis at the regional level to investigate if firms' learning abilities vary according to the dualistic features of the Italian economy. Results show that this is the case: firms located in northern regions have to cope with smaller sunk costs than the ones located either in the Centre of Italy or in the Mezzogiorno area. This implies that trade activities are more persistent outside northern regions. Thus, a company located either in the Centre or in the Mezzogiorno area which sells its products on international or interregional markets today, is likely to survive in the same market tomorrow. At the same time, firms currently out the market are very likely to persist in this state also in the future. These results can be particularly

relevant if we consider that the overall dimension of sunk costs is much lower in the case of interregional trade if compared with the international trade ones.

In conclusion, we prove that interregional and international trade strategies are interrelated and similar phenomena even though with some interesting difference with respect to the role of innovation and learning abilities. Most importantly, we have seen that these phenomena may depend on the regional location and that persistence is stronger in the Mezzogiorno rather than in the North. As a result, regional policies oriented to break this path dependence are more necessary in some areas rather than others.

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Sommario

Il commercio interregionale delle imprese italiane

Questo studio analizza il comportamento delle imprese italiane in termini di commercio interregionale nel periodo 2007-2013. In particolare, il nostro obiettivo è individuare analogie e differenze nelle strategie commerciali interregionali rispetto a quelle internazionali. L'analisi viene condotta stimando modelli dinamici di probabilità per dati panel e utilizzando un campione di microdati a livello di impresa molto dettagliato. I risultati principali, pur confermando il ruolo rilevante svolto dalla produttività e dalla dimensione delle imprese, forniscono nuova evidenza sulla rilevanza dei processi di apprendimento nel rafforzare la probabilità di accedere ai mercati interregionali. I nostri risultati mostrano, inoltre, come gli effetti delle principali determinanti del commercio interregionale variano tra le macro-regioni del paese.

Appendix

Table – A

Variable name	*Definition*	*Source*
International and interregional trade		
export propensity	dummy = 1 if the firm sells at least part of its products/services abroad	MET database
inter-regional trade propensity	dummy = 1 if the firm sells part of its products/ services outside the region where it is located but within the national boundaries	MET database
Innovation activity		
Innovation – all types	dummy = 1 if the firm has introduced one or more innovations	MET database
R&D intensity	R&D expenditure at time t normalised by total turnover at time t, log-transformed	MET database
R&D dummy	dummy=1 if the firm carries out R&D activity	MET database
Productivity measures		
Productivity – va per worker	Value Added per employee at time t, log-transformed	MET database, CRIBIS D&B
Financial and structural chacteristics		
Leverage	Financial leverage of the firm, log-transformed	CRIBIS D&B
Age	age of the firm computed as the difference between time t and the date of its establishment, log-transformed	MET database
Employees	number of employees	MET database
Group	dummy=1 if the firm belongs to a group of enterprises at time t	MET database
Local network	dummy=1 if the firm belongs to a local network of firms at time t	MET database
Regional and sectoral exogenous factors		
Export spillovers	share of exporting firms, at time t, operating in the same sector and located in the same region of the focal firm	MET database
Regional public R&D	public expenditure in R&D at the regional level normalised by the regional GDP at time t, log-transformed	ISTAT
Regional private R&D	private expenditure in R&D at the regional level normalised by the regional GDP at time t, log-transformed	ISTAT

Spillover Effects of Foreign Direct Investment: New Evidence from Italy

Andrea Ascani, Luisa Gagliardi°*

Abstract

This chapter investigates the relationship between foreign direct investment (FDI) and the productivity of Italian provinces over the period 2003-2009. Our findings suggest that recipient local economies are on average more productive when they receive FDI. Nevertheless, our estimates reveal that spillover effects are solidly concentrated in provinces with the highest absorptive capacities, thus reinforcing the notion that local competences play a crucial role to capture the benefits associated with inward FDI. This evidence suggests that policy measures for the attraction of FDI should necessarily be accompanied by interventions aimed at generating adequate skills and competences at the local level.

1. Introduction

International business activity has become an increasingly relevant feature of the world economy, spurred by tighter economic integration and the fall of trade and communication costs in the last decades. Consistently, the global stock of foreign direct investment (FDI) has increased fourfold from 1980 to 2013 (UNCTADStat, 2014), reaching unprecedented levels. This trend responds to the belief, especially common among policy makers, that the attraction of FDI can boost the competitiveness of the recipient economies as a result of the larger productivity and superior knowledge carried by foreign multinational companies (e.g. Dunning, 1980; Cantwell, 1989). Yet, in the academic debate a general lack of consensus on the actual benefits associated to the activities of foreign firms persists. This chapter revises the existing debate on the impact of FDI and introduces a focus on the heterogeneity of domestic local economies as a key dimension to

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account for when analysing the effects of FDI. This approach takes stance from the intuition that firms, industries and regions do not simply take advantage from the mere presence of corporate activities and that a determinant role is played by the ability of domestic actors to capture the benefits deriving from the presence of a MNE (Görg, Strobl, 2001). More specifically, the present study focuses on differences in local absorptive capacities as a key driver of spatial heterogeneity in the relationship between inward FDI and domestic productivity. To this scope, we combine information on the inward flow of FDI in Italian provinces (defined at the NUTS-3 level) for the period 2003-2009 together with data on domestic labour productivity. We show that provinces that experienced larger inward FDI are characterised by higher average productivity, and that this positive spillover effect is crucially determined by their level of absorptive capacity, being more pronounced for provinces with larger capabilities to exploit foreign knowledge. Overall our findings suggest that the relationship between multinationals and domestic economies functions as a bilateral interaction. The assumed superiority of multinational enterprises alone does not suffice to justify the emergence of positive spillovers, which instead arise also in response to the competency level of domestic economies as a crucial counterpart of both intended and unintended knowledge exchanges.

The rest of the chapter is organized as follows: the next section summarises the existing debate on the impact of inward FDI on the productivity of recipient economies. Sections 3 and 4 discuss the data and present the main result of the empirical analysis while section 5 offers our concluding remarks and considerations for policy.

2. Literature Review

Existing research on the impact of FDI hinges on the recognition that multinationals are systematically different from uni-national firms, either exporters or not, due to a number of characteristics, including the possession of specific knowledge and higher productivity (Dunning, 2000; Helpman *et al*., 2004). These facts mirror the notion of the superiority of multinational companies pioneered by Hymer (1976), which has become central to the theory of the multinational enterprise associated with the Ownership-Localization-Internalization (OLI) paradigm by Dunning (1977; 2000). As a consequence, the decision of multinational enterprises to locate abroad contribute to the global diffusion of knowledge by granting to specific geographical contexts the access to the infrastructure that channels global knowledge (Iammarino, McCann, 2013).

Several existing contributions have considered this rationale to test whether MNEs investments abroad are systematically associated with productivity gains for the recipient economies (see for instance Blomström, Kokko, 1998; Ascani,

Gagliardi, 2015; Crescenzi *et al*., 2015). However, existing research is far from being univocal on the intensity and the sign of this effect, as different studies point at very heterogeneous and often conflicting results. For instance, the entry of a foreign company may trigger a more intense product market competition, which can alternatively crowd out domestic firms in the short term (Aitken, Harrison, 1999) and hinder their innovative capacity (García *et al*., 2013). Conversely, multinational investments may affect positively domestic firms by leading them to make a more efficient use of available resources or to be more innovative as a strategy to tackle the greater competitive pressure (Wang, Blomström, 1992; Görg, Greenaway, 2004). FDI-induced effects can also act through the mobility of workers such that domestic companies can benefit when successfully attract human capital from foreign firms (Glass, Saggi, 2002; Görg, Strobl, 2005), via an upgrading of the technical and managerial competences of their local supplier, aimed at maintaining a high level of quality in production (Ernst, Kim, 2002) or through pure spillover dynamics operating via demonstration effects and reverse engineering can operate as a relevant mechanism (Javorcik, 2004; Sinani, Meyer, 2004; Brambilla *et al*., 2009). The heterogeneity of domestic actors has been traditionally considered a key element to interpret and understand the conflicting results that characterize existing studies (Kokko *et al*., 1996; Girma, 2005; Blalock, Simon, 2009). In this context, differences in absorptive capacities have received special attention as a pivotal characteristic to account for. On the one hand, it has been suggested that positive spillovers are concentrated in the subset of more productive domestic enterprises that operate close to the technological frontier and have adequate capabilities to understand and process external knowledge (Haskel *et al*., 2007). In contrast with this hypothesis, other studies have provided evidence in line with a catching-up process of FDI-induced externalities, according to which larger technological gaps between domestic and foreign firms are more conducive of positive spillovers (Castellani, Zanfei, 2003). Therefore, while the literature has produced insightful analyses in various regards, the evidence remains characterised by very mixed results.

We embrace the approach centred on the role of local absorptive capacity as a key moderating factor of FDI-induced effects in the case of Italy. Hence, after producing baseline evidence on the robustness of the link between FDI and domestic productivity in our data, we test whether the local presence (or lack) of adequate absorptive capacities correlates with the emergence of spillovers from foreign multinationals.

3. Data Description, Methodology and Main Results

To provide an empirical test of our main argument we assembled a novel dataset that includes information from two complementary sources. We combine

data from Orbis, a business-level database reporting companies' balance sheet, with information on FDI taken from the Balance of Payment of the Bank of Italy and merge them by province (NUTS-3).

Orbis data are used to measure the average domestic firms' labour productivity across Italian companies by province. Data from the Bank of Italy are, instead, collected to recover information of FDI inflows at the provincial level. This is a remarkable advantage over previous research that almost exclusively employ proxy variables for the foreign presence in a region by means of the number of foreign affiliates or the share of foreign employment.

Our final dataset is a panel at the province level providing information on the average domestic firms' productivity level, the amount of investment flows and a set of standard controls for the period 2003-2009. We exploit the panel nature of our data to explore whether provinces with more substantial FDI flows experience productivity gains on a yearly basis. To this aim, we estimate the following basic equation:

$$\ln Y_{pt} = \beta_1 fdi_{pt-1} + \beta_2 X_{pt} + \delta_t + \vartheta_p + \varepsilon_{pt} \qquad [1]$$

where subscripts p and t denote province and time, respectively; Y stands for (average) firm labour productivity; *fdi* denotes inward FDI as a share of domestic GDP and it is our variable of interest; X includes a set of standard controls at the province level; δ and ϑ denote year and province fixed effects while ε encompasses unobserved random factors influencing firm labour productivity.

To exploit the heterogeneity of domestic firms in terms of absorptive capacities we follow Haskel *et al* (2007) and estimate equation (1) for the subset of provinces with different levels of labour productivity, including the 25th, 50th, and 75th percentile. Table 1 reports standard descriptive statistics on key variables, while Table 2 shows the correlation coefficients between our independent variables.

In Table 3, we explore the relationship between provincial labour productivity and inward FDI. Column 1 shows that FDI inflows correlates positively and significantly with the average productivity of domestic firms, also controlling for standard provincial level controls and for province and year fixed effects. In columns 2 to 5 we estimate the same specification by gradually adding the set of covariates in order to control for other potential determinants of provincial productivity.

These variables include the average capital assets endowment of firms within each province (column 2), the economic size of provinces measured with GDP (column 3), the local unemployment rate as an indicator of the functioning of local labour markets and the incidence of dismissed activities by foreign multinationals measured as foreign disinvestment. Results show that the significance level and magnitude of our variable of interest remain stable and consistent across specifications. Finally, we construct area trends at the provincial level to

Table 1 – Descriptive Statistics

Variable	*Obs*	*Mean*	*Std. Dev.*
log(productivity)	721	-0,245	0,155
Share of FDI_{t-1}	721	0,011	0,048
log(capital assets)	721	7,743	0,475
log(gdp)	721	9,165	0,791
unemployment rate	721	7,324	4,230
log(foreign disinvestment)	721	-4,642	4,349

Source: Author's elaboration

Table 2 – Correlation Matrix

	Share of FDI_{t-1}	*log (cap. assets)*	*log (gdp)*	*unemp. rate*	*log (for. disinv.)*
Share of FDI_{t-1}	1				
log(capital assets)	-0,06	1			
log(gdp)	0,35	-0,16	1		
unemployment rate	-0,15	-0,06	-0,24	1	
log(for. disinvestment)	0,11	0,11	-0,20	0,19	1

Source: Author's elaboration

capture any unobserved factor that can affect productivity in a specific province over the sample period. This may include specific policy measures at the local level or other shocks influencing the provincial economy. Therefore, combining area trends with province fixed effects in column 6 produces a quite stringent specification. Nevertheless, the coefficient on FDI remains significantly and positively correlated with average provincial productivity, thus suggesting that the estimated relationship is adequately stable.

Table 4 unpacks the sample by level of average labour productivity and presents the estimates by defining high, medium-high, medium-low and low levels of absorptive capacity, based on the 75th, 50th, and 25th percentile of the productivity distribution. Results show that the positive effect from FDI tends to be concentrated in provinces where domestic firms show the highest level of absorptive capacities, specifically above the 75th percentile. In provinces with a lower level of absorptive capacity, the effect of inward FDI becomes non-significant and it turns to be negative in areas with the least developed absorptive capacity. The latter effect is not statistically different from zero, but it may suggest that FDI

Table 3 – Provincial Panel Fixed-effects Estimates

Dependent Variable log(productivity)	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Share of FDI_{t-1}	0.841 ***	0.850 ***	0.697 ***	0.694 ***	0.691 ***	0.666 ***
	(0.170)	(0.155)	(0.139)	(0.150)	(0.152)	(0.156)
log(capital assets)		-0.113	-0.090	-0.095	-0.094	-0.102
		(0.100)	(0.104)	(0.102)	(0.102)	(0.105)
log(gdp)			1.223 ***	1.149 ***	1.148 ***	1.170 ***
			(0.254)	(0.254)	(0.255)	(0.264)
unemployment rate				-0.014 **	-0.013 **	-0.015 **
				(0.006)	(0.006)	(0.007)
log(for. disinvestment)					0.001	0.001
					(0.002)	(0.002)
R-squared	0.16	0.16	0.18	0.19	0.19	0.19
Observations	721	721	721	721	721	721
Number of provinces	103	103	103	103	103	103
Province FEs	Y	Y	Y	Y	Y	Y
Year dummies	Y	Y	Y	Y	Y	Y
Area trends						Y

Notes: Standard errors are clustered on provinces. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. The number of observations include 103 provinces observed over a period of 7 years (103×7=721).

Source: Author's elaboration

can also produce detrimental effects within areas with weak competences, due for instance to market stealing dynamics associated to competitive pressures.

4. Conclusions

This chapter provides an empirical account of the relationship between inward FDI and the domestic productivity level of recipient local economies in Italy over the period 2003-2009. At the aggregate level our data suggests that there is an average positive effects on labour productivity in provinces that receive inward foreign investment, thus corroborating the most general findings of the literature. In this sense, our fixed effects estimates prove to be robust to the inclusion of other confounding factors, thus confirming the positive link between inward FDI and the performance of Italian provincial economies. Nevertheless, when considering the heterogeneous local ability to intercept the benefits from incoming foreign investments, our results suggest that the positive effects related to FDI

Table 4 – Provincial Performance and FDI

Dependent Variable: log(productivity)	*(1)*	*(2)*	*(3)*	*(4)*
	Provincial performance			
	High	*Med.-high*	*Med.-low*	*Low*
Share of FDI_{t-1}	0.765 ***	0.106	0.936	-2.374
	(0.115)	(0.417)	(0.755)	(1.576)
log(capital assets)	0.046	-0.188	0.068	-0.053
	(0.212)	(0.145)	(0.074)	(0.087)
log(gdp)	0.792 **	0.823 ***	0.595 **	1.022 **
	(0.365)	(0.248)	(0.267)	(0.441)
unemployment rate	-0.007	-0.012	-0.002	-0.023 **
	(0.010)	(0.008)	(0.005)	(0.010)
log(for. disinvestment)	-0.002	-0.002	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.005)
R-squared	0.70	0.53	0.30	0.19
Observations	180	181	180	180
Number of provinces	33	42	47	42
Province FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Area trends	Y	Y	Y	Y

Notes: Standard errors are clustered on provinces. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. The four columns consider different levels of provincial performance defined on the following values of labour productivity: higher than the upper quartile (column 1), between upper quartile and median (column 2), between median and lower quartile (column 3), lower than the lower quartile (column 4).

Source: Author's elaboration

tends to be entirely concentrated within areas with the highest levels of absorptive capacity, while most of the other provincial economies do not experience any significant local spillover. This heterogeneity may produce clear spatial imbalances in the distribution of the benefits deriving from the foreign presence within the country. Hence, in policy terms, this result suggests that national and regional initiatives for the attraction of foreign multinational companies should be accompanied by measures aimed at strengthening the knowledge base and competences of domestic actors. In absence of such ancillary measures, the scope for absorbing the technical and managerial know-how possessed by foreign firms may remain largely unexploited, and this could be especially the case of areas where the marginal benefits of the potential FDI-induced spillovers are the greatest.

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Sommario

L'impatto territoriale degli investimenti diretti esteri:
Nuove evidenze empiriche sul caso italiano

Questo capitolo investiga la relazione tra gli investimenti diretti esteri (IDE) e la produttività delle province italiane negli anni 2003-2009. I risultati dell'analisi suggeriscono che le province che ricevono più IDE sono mediamente più produttive. Tuttavia, le stime rivelano anche che gli effetti benefici sono fortemente concentrati nelle province caratterizzate da capacità di assorbimento estremamente elevate. Ciò rafforzerebbe l'idea che le competenze territoriali svolgono un ruolo prominente nello sfruttamento degli effetti associati agli IDE in entrata. Alla luce di tale evidenze empiriche, le politiche di attrazione degli IDE dovrebbero necessariamente essere accompagnate da misure volte a rafforzare adeguatamente il tessuto di competenze locali.

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Geo-sectoral Clusters and Patterns of Growth in Central and Eastern Europe

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Abstract

The paper analyses factors affecting the evolution of within countries disparities in per capita GDP in Central and Eastern European Countries (CEECs) between 1991 and 2011. We add to the literature in different ways. First, we use data on the sectoral distribution of production, on employment growth and on foreign direct investment to test the existence of different geo-sectoral groups for CEECs regions, with similar characteristics to the categories used by Rodriguez-Pose (1998) for studying convergence among regions of old (Western) EU members, but adding the role of foreign direct investment. Second, we test whether these geo-sectoral groups help explaining processes of catching-up/ falling behind in CEECs. By means of spatial regression analyses, we test the relevance of the groups emerging from the cluster analysis, finding that they help explaining the increase in within countries' regional disparities, particularly after the turn of the century.

1. Introduction and Review of the Literature

This paper analyzes the determinants and the evolution of income disparities across Central and Eastern European Countries (CEECs) regions from 1991 to 2011. In the process of transition some areas managed to restructure old lines of production or to introduce new ones and started heading towards a virtuous path of growth and productivity gains. Others instead simply lost industries and employment to international competition and lagged behind, setting the foundation for future disparities.

A growing body of the literature investigates these processes. Contributions generally detect an ongoing process of between-country convergence coupled with within-country divergence (Ezcurra *et al*., 2007). Some regions (notably

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capitals and major urban agglomerations) jump ahead and move close to Western standards. They are the great winners of the transition process (Artelaris *et al*. 2010, Chapman *et al*., 2012). Also regions sharing common borders with old EU members (especially in Poland and in Hungary) fare better than others (Petrakos, 2001) and receive consistent Foreign Direct Investment (FDI) from abroad.

Among the factors that appear to explain uneven patterns of development, the regional productive structure is found to play an important role (Ezcurra *et al*., 2007). Some authors focus on geographic factors and find that regions sharing common borders with old EU members, being closer to the European core, benefit from integration more than far-off areas (Petrakos, 2001; Artelaris *et al*., 2010).

This points to proximity to large markets as well as regional structural and historical features as decisive factors in determining the success or failure in the transition process; it also marks the importance of agglomeration economies and of geography for regional growth. Kallioras and Petrakos (2010) confirm the presence of a differentiated spatial impact for the industrial sector. Ezcurra *et al*. (2007) study the role of various factors (namely, the national component, regional location, the structure of production, investment and agglomeration economies, proxied by employment density) in explaining the distribution dynamics of per capita GDP. They find that all factors matter but that only the production structure has a uniform effect on the whole distribution. Using similar methods, Meliciani (2016) finds evidence of growing importance of innovation and of socio-economic factors in explaining regional disparities both in the EU and in CEECs. Chapman and Meliciani (2012 and 2016) reach similar results for EU regions.

With reference to this literature the present paper studies within-country convergence/divergence in CEECs regions. First, by means of traditional cluster analysis it classifies CEEC regions in four different groups based on structural criteria and on the presence of FDI. Second, we test the relevance of these clusters in explaining the different growth paths of CEEC regions by means of spatial regression analysis. Overall, we find that emerging clusters, while not particularly important initially, gain explanatory power over time. Some concluding remarks follow.

2. The Definition of Clusters

The definition of regional clusters in CEECs sharing homogeneous economic and structural features is performed following traditional non-hierarchical procedures.

First, with reference to the literature quoted above, we select a number of variables which appear to be relevant in determining different industrialization paths across CEEC regions. These are: (i) the average growth in the employment rate over 1991-2011; (ii) regional specialization in the initial and final year respectively in agriculture, industry and services; and (iii) the ability to attract FDI.

Specialization (country-relative) is measured by the revealed comparative advantage index on gross value added.[1] This is computed as the share of gross value added (GVA) in sector s in region i over total gross value added in region i divided by the share of sector s in total gross value added of all regions in the country:

$$RCA_s = \frac{GVA_{i,s}}{\sum_{s=1}^{S} GVA_{i,s}} \Bigg/ \frac{\sum_{i=1}^{Nc} GVA_{i,s}}{\sum_{s=1}^{S}\sum_{i=}^{Nc} GVA_{i,s}} \qquad [1]$$

where S is the total number of sectors and N_C is the number of regions within each country.[2]

We refer to regional specialization in order to capture also a location effect, as in CEECs all regions on the far eastern borders of each country are specialized (country-relative) in agriculture both in 1991 and in 2011[3]. Instead high specialization in industry often provides an indication of old industrialized regions.

Data on FDI are from different national sources and refer to flows at current values. Only in two cases (Hungary and Poland) data reflect the numbers of enterprises receiving FDI.[4] All FDI data are relative to 2011 except those for Slovakia which refer to 2010. With reference to the literature we expect FDI to go hand-in-hand with processes of industrial restructuring.[5]

As a preliminary test, we measure the correlation between the eight variables under consideration. Correlation is generally high and significant, even if it fades somewhat over time. Apart from the trivial high correlation between specialization in a sector in the initial and final years, the following results are found: (i) specialization in one sector is generally negatively (and significantly) correlated with specialization in each of the other two. The exception is agriculture that is

1. Specialization is sometimes based on employment data. This paper chooses GVA instead because it appears more apt to capture the "true" economic value of each sector in a CEEC. Sectoral employment provides a poor (or biased) measure of sectoral performance whenever restructuring is accompanied by sizeable changes in productivity, as appears to be the case in CEECs (Marrocu *et al*., 2013).

2. All data are from Cambridge Econometrics and cover years 1991-2011. Data deflated to 2005 constant prices.

3. This refers to regions bordering Russia, Belarus Ukraine and Moldova, or coasting the Black Sea. It is worth noting that in these regions specialization in the sector deepens over time.

4. Data are, respectively, from the Bulgarian National Bank; the Czech National Bank; the Hungarian Central Statistical Office; the Polish Central Statistical Office the National Bank of Romania; the Bank of Slovenia and the Slovak Statistical Office.

5. Flows directed to CEECs are generally found to promote growth and to generate technology transfers and spillovers that ultimately raise productivity both at the country level and in individual sectors. However these effects are crucially linked to the recipient's absorptive capacity, be it the quality of human capital, the legal environment, the presence of infrastructures or the like (ECB, 2009; Damijan *et al*., 2007).

significantly negatively associated only to industry and only in 1991; (ii) FDI is positively related to specialization in industry and, surprisingly, negatively to that in services. In both cases the coefficient falls over the period pointing to a weaker link; finally, (iii) the correlation between employment growth and each other variable is never significant (significance level: 0.01, two-tailed).[6]

Non-hierarchical cluster analysis starts by fixing the number of clusters *ex ante*. It then allocates the units in the sample to each cluster with the objective of minimizing the distance from the group's centroid (the k-means method). With respect to hierarchical procedures, this type of analysis has the advantage of being both more flexible and simpler. In the present context, it has the additional appeal of going in the wake of previous studies (Rodriguez-Pose 1998; Chapman, Meliciani, 2016). By considering the socio-economic characteristics of EU and/or CEEC regions these works generally identify *a priori* the following four groups: capitals and urban areas, old industrialized regions, lagging, peripheral ones and intermediate areas (the latter represent a residual group). The identification of four groupings *via* cluster analysis allows to confirm, or to integrate, this classification checking whether the economic indicators actually point to clusters that are similar to the ones derived from a more descriptive approach. It also provides a more clear-cut characterization of groups as it leads to eliminate the residual one (that of intermediate regions). Moreover, a recent contribution (Chapman, Meliciani, 2018) introduces for CEEC regions a new group in order to capture the relatively dynamic areas that, often through considerable amounts of FDI, manage to restructure industry and/or to diversify the local economy moving towards a virtuous path of growth and productivity gains. The present exercise tests this hypothesis.[7]

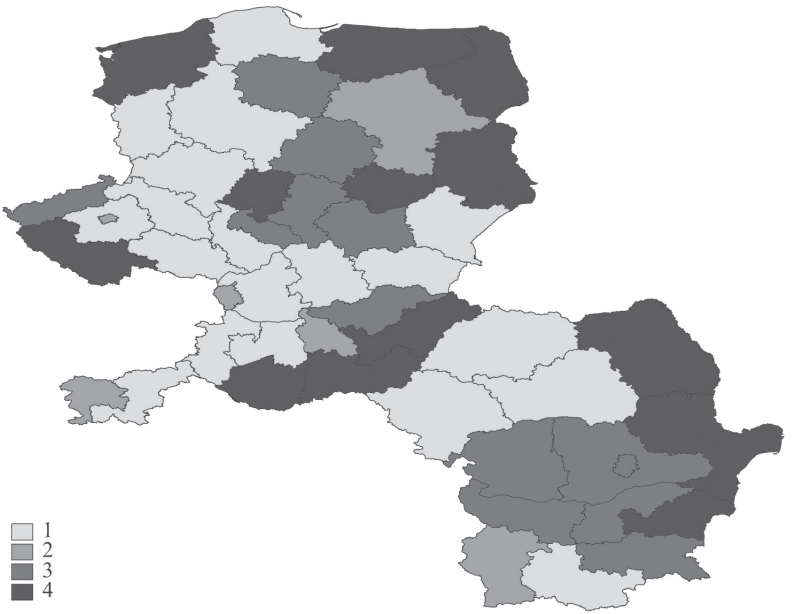
On the basis of the existing literature we set the number of clusters at four.[8] Regions and groups are listed in Appendix 1, together with the indicators that are used to form them. Figure 1 maps the groups.

6. Correlation coefficients are available on request. Correlations calculated on a sample that leaves out capitals, by all means outliers, changes the results only marginally.

7. The distance between cases is measured by the squared Euclidean distance. Data are standardized due to scale differences. Given that both non-hierarchical and hierarchical clustering may give different results depending on the data ordering various different random orderings were tested. They produced only minor changes in results.

8. Various other attempts were made, producing unsatisfactory and/or unrealistic results. Testing for five clusters left results grossly unchanged except for an unsatisfactory split of the capitals group in two, isolating the capitals of Bulgaria and Romania. Testing for three clusters resulted in under differentiated groupings. The average distance of units from their respective centroids was above that of the four cluster case (1.7 instead of 1.6) and the R squared was lower (0.57 instead of 0.62). Also hierarchical procedures, that were applied to check the results, generally distinguish four groupings (Complete linkage and Ward's method).

Figure 1 – Geo-sectoral Clusters



1= FDI-restructuring 2=Capitals 3=Old industrialized 4=Peripheral

The first cluster includes nineteen regions, one respectively for Bulgaria and Slovenia, two for Hungary, three for Romania and Slovakia, four for the Czech Republic and five for Poland. All present a relatively diversified production structure that is divided between industry and services (specialization in agriculture falls below the average) and positive employment growth. FDI is slightly below the average. However given the presence of capital regions that receive shares between 43 and 84 per cent of total FDI, this actually implies relatively high flows.[9] In line with previous contributions (Chapman, Meliciani, 2018) we identify the cluster as including "FDI-based restructuring regions". Interestingly, most of the areas are located in the western part of each country and often lie at the borders with old EU members. This suggests that closeness the West could actually be an important factor in encouraging FDI.

The second cluster groups the seven capital regions. As expected, all present above-average specialization in the service sector coupled with below-average specialization both in industry and in agriculture. FDI flows are high while employment growth is around the sample's average.

9. On average the regions in the cluster receive some 8 per cent of FDI country-relative (variance 17.8).

The third cluster includes twelve areas, one for Hungary, two belonging respectively to the Czech Republic and to Romania, three to Bulgaria and four to Poland. All present consistently below average (actually negative) employment growth. The initially high specialization in industry falls markedly while agriculture expands somewhat. FDI flows are below the sample's average. As in Chapman and Meliciani (2018) we define these regions as "Old industrial".

Our fourth cluster contains thirteen regions, one belonging respectively to Bulgaria and to the Czech Republic, two to Romania, three to Hungary and six to Poland. They specialize in agriculture and/or in services, receive the lowest shares of FDI and manage to keep employment growth around the sample's average. We term these regions "Peripheral", due to the fact that most are located at the periphery of their country. In addition, some of them border relatively underdeveloped regions with which no form of economic integration was envisaged over the period (Rodriguez-Pose, 1998; Chapman, Meliciani, 2016).[10] Overall, although the clusters were not defined ex ante on the basis of a geographical dimension, spatial patterns endogenously emerge. For this reason, we define the clusters as "geo-sectoral" ones.

3. Testing the Role of Clusters for Regional Growth

In what follows we look at whether the groups resulting from the cluster analysis explain regional disparities in per capita GDP and enjoy different growth patterns. This is done both by means of analysis of variance and by the estimation of conditional convergence models with spatial effects.

3.1. Analysis of Variance

In order to capture the explanatory power of countries and of our clusters for differences across regions in per capita GDP, the total variance is decomposed into its within (countries and clusters) and between groups components.

Table 1 reports the total variance of EU-relative per capita GDP of CEEC regions in 1991 and 2011; the fractions explained by countries and by geo-sectoral clusters are shown separately.

First of all intra-group variability increases substantially in the period under analysis pointing to a process of divergence. Second, coming to the impact of countries and of geo-sectoral groups, the role of countries in explaining regional disparities evidently falls while that of geo-sectoral groups increases. While in 1991 countries explain 52% of total variance, their explanatory power falls over

10. Differently from previous literature, this cluster does not simply include a group of lagging regions, as almost half manage to raise employment overall.

Table 1 – Variance in Regional per Capita GDP in 1991 and 2011: Countries and Geo-sectoral Groups (Total, between and within groups components)

Countries	*Total*	*Between*	*Within*	*R-Squared*
1991	13.65	7.17	6.48	0.52
2011	17.98	6.81	11.17	0.38
Geo-sectoral groups	*Total*	*Between*	*Within*	*R-Squared*
1991	13.65	3.58	10.07	0.26
2011	17.98	9.65	8.33	0.54

Source: calculated from Cambridge Econometrics

time, passing to 38% in 2011. By contrast, in 1991 geo-sectoral groups explain only 26% of total variance but their share passes to 54% in 2011, well above that of countries in the same year. Moreover, while within-country differences grow over time, geo-sectoral groups become more similar internally. Overall, this marks the end of Socialist egalitarianism opening the way to the forming of groups based on regional characteristics linked to specialization processes, industrialization trends and ability to attract FDI.

3.2. Spatial Regression Analysis

The econometric analysis estimates a simple growth equation for growth rates conditional on: (i) countries, (ii) countries and geo-sectoral groups. The analysis aims at assessing whether regions belonging to different geo-sectoral groups converge to different levels of country-relative per capita GDP.

As it is common in regional growth analysis, estimations allow for spatial dependence. In particular, the analysis starts from the Spatial Durbin model (SDM) which is a general model that includes among its regressors not only the spatial lagged dependent variable, but also a spatial lagged set of independent variables:

$$Y = WY\rho + X\beta_1 + WX\beta_2 + \varepsilon \qquad [2]$$

where Y denotes a *Nx*1 vector consisting of one observation for every spatial unit of the dependent variable, X is a *NxK* matrix of independent variables, where *N* is the number of regions and *K* the one of explanatory variables, W is an *NxN* non negative spatial weights matrix with zeros on the diagonal. A vector or matrix pre-multiplied by W denotes its spatially lagged value. Parameters ρ, β_1 and β_2 are response parameters and ε is a *Nx*1 vector of residuals with zero mean and variance σ^2.

The Spatial Durbin Model nests most models used in regional literature. In particular, imposing the restriction that $\beta_2=0$ leads to a spatial autoregressive (SAR) model that includes the spatially lagged dependent variable of neighbouring regions, (but does not account for other features of these areas). Imposing the restriction that $\beta_2=-\rho\beta_1$ yields the spatial error model (SEM) that allows for spatial dependence only in the error terms. Imposing the restriction that $\rho=0$ leads to a spatially lagged X regression model (SLX) that assumes independence among regional dependent variables, but includes values of neighbouring regions as explanatory variables. Finally, imposing the restriction that $\rho=0$ and $\beta_2=0$ leads to a non-spatial regression model. We choose the appropriate model by means of hypothesis testing.[11] In both the SAR and the Spatial Durbin models, a change in a single explanatory variable in region *i* has a *direct impact* on the dependent variable in the region as well as an *indirect impact* (spillover) on that of other regions (see LeSage, Fischer, 2008 for a discussion). This results from the spatial connectivity that is incorporated in spatial regression models; it raises the difficulty of interpreting the estimates. LeSage and Pace (2009) provide computationally feasible means of calculating scalar summary measures of the two types of impacts that arise from changes in the explanatory variables.

In all models Y is the yearly rate of growth of country-relative per capita GDP over 1991-2011. The matrix W reflects the geographic distance between regions' centroids and is row normalised.[12] In the model conditional on countries X contains country-relative per capita GDP in the initial year (1991); in the model conditional also on geo-sectoral clusters X contains the initial country-relative level of per capita GDP and dummies for each of the groups in order to allow each region to converge to the group-specific country-relative per capita GDP.

Table 2 reports the results of the estimation of the SAR model (chosen according to the criteria described in footnote 12) for (i) growth rates conditional on countries, (ii) growth rates conditional on countries and geo-sectoral groups.

Both models show negative spatial correlation and the preferred model is the SAR one. The negative spatial correlation for country-relative per capita GDP growth represents an interesting result since it marks a difference between CEEC regions and the whole of European regions (on the presence of strong spatial correlation in regional per capita GDP in the EU see, among others, Ertur and Koch,

11. Lagrange Multiplier tests and their robust versions are used to test the OLS versus the SAR and SEM; Likelihood ratio (LR) tests are used for testing the SAR and SEM versus the SDM while the test of the SLX versus the SDM is a t-test on the coefficient of the spatial lag of the dependent variable in the SDM.

12. Row standardization implies that the elements of the distance matrix measure the fraction in a region's overall spatial effect that is attributable to each neighbour. As a consequence the spatial lag of the dependent variable has the intuitive appeal of being a weighted average of neighbours' growth rates.

Table 2 – Conditional Convergence Regressions

	SAR (1)			*SAR (2)*		
	Direct	*Indirect*	*Total*	*Direct*	*Indirect*	*Total*
Country-rel. per-capita GDP 1991	0.021*** (3.50)	-0.005 (-1.62)	0.016*** (3.01)	-0.006 (-0.96)	0.001 (0.86)	-0.004 (-0.95)
Urban				0.025*** (7.04)	-0.006** (-2.19)	0.019*** (5.51)
Restructuring				0.005** (2.31)	-0.001 (-1.57)	0.004** (2.24)
Peripheral				0.001 (0.34)	-0.000 (-0.34)	0.001 (0.33)
R-Squared	0.230			0.628		
LM (lag)	3.250*			3.530*		
LM (err)	1.926*			0.940		
Robust LM (lag)	2.224			2.914*		
Robust LM (err)	0.914			0.467		
LL (lag)	1.134			3.854		
LL (err)	2.561			1.119		
Lambda						
Rho	-0.306*			-0.268**		

Notes: Dependent variable: rate of growth of country-relative per capita GDP. (1) Conditional on countries; (2) Conditional on countries and geo-sectoral groups. In specification (2) the reference group is old industrial regions. t-values in brackets; *, **, *** denote respectively significance at 10, 5 and 1%.

Source: calculated from Cambridge Econometrics

2006 and Chapman and Meliciani, 2016). This result may depend on CEEC capital regions that grow above the country average and are not clustered.

Coming to the results of the estimations, these confirm within country divergence (richer regions country-relative grow more than poorer ones, see the positive and significant direct and total effect of initial per capita GDP in SAR1). Estimations including dummies for geo-sectoral groups show that it is indeed different growth performance across geo-sectoral groups that accounts for such divergence.

In particular, the direct effect of urban and FDI-based restructuring regions is respectively 2.5% and 0.5% higher than that of old industrialised regions. However, for urban areas there is also a significant negative indirect impact that makes the total effect fall to 1.9%. The significance of the indirect effect signals that being surrounded by capitals has a displacing impact. Finally, the direct and indirect effects of peripheral regions do not significantly differ from those of old industrialised regions.

Overall the results of the regression analysis are in line with the evidence emerged from the analysis of variance and show divergence from the country mean and the existence of different growth clubs based on geo-sectoral characteristics.

4. Conclusions

The paper focuses on economic disparities in CEEC regions. It confirms that the variability of per capita GDP across regions grows markedly over 1991-2011 and that this occurs largely because of growing disparities building up within countries.

Coming to the main determinants of divergences, it first identifies clusters on the basis of socio-economic indicators. These are: capitals, old industrialized regions, FDI-restructuring and far-off, peripheral regions. It then shows that the explanatory power of the geo-sectoral factors that define these groups grows over time. While in 1991 geo-sectoral clusters do not explain regional GDP disparity any better than country factors, by 2011 they account for the biggest part of it.

These results cast doubts on the ability of market forces to generate even patterns of development attracting investment (also from abroad) and directing it where it is most needed. This contrasts the idea that growth is bound to "trickle down" from the fastest growing areas to neighbouring regions. Not only: while pointing to the need for future assistance, the increasing polarization of growth also marks the limited impact that both national and EU-tailored assistance programmes have produced so far. This adds to the on-going debate on the need to improve traditional EU development policies and to tailor targets and policies more carefully with reference to the socio-economic features and specific needs of recipient areas.

The persisting problem of a relatively large group of far-off, agricultural regions and of old industrialized ones points to two possible fields of intervention: on one hand the restructuring of obsolete industrial areas and on the other the integration of peripheral regions into the EU. The paper suggests that FDI may play a strategic role in promoting these processes. Improving investment conditions locally then becomes an important policy goal. For instance, measures addressing far-off, peripheral areas could aim at ensuring a more effective use of local resources (land and labor) diversifying economic activity and encouraging the introduction of new sectors (for instance, tourism). Instead, reconverting old industrial areas requires coordinated innovation and industrial policies tailored on the needs of low-tech sectors. These could include measures to upgrade existing plants, to raise human capital and to achieve productivity gains.

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Sommario

Cluster geo-settoriali e crescita economica nei Paesi dell'Europa Centro-Orientale

Questo lavoro analizza i fattori che influenzano l'evoluzione delle disparità di reddito regionali tra i Paesi dell'Europa Centro-Orientale (PECO) dal 1991 al 2011. L'analisi si discosta dalla letteratura precedente in diversi modi. In primo luogo, suddivide le regioni PECO in gruppi geo-settoriali al fine di identificare cluster con caratteristiche simili per distribuzione settoriale della produzione, andamento dell'occupazione e investimenti esteri diretti. In tal senso, segue l'impostazione tradizionale già applicata da Rodriguez-Pose (1998) alle regioni dei primi paesi membri dell'UE, ma la estende considerando anche il ruolo degli investimenti diretti esteri. In secondo luogo, il lavoro mira a individuare se i gruppi geo-settoriali così definiti siano alla base dei processi di convergenza/divergenza regionale dei PECO. Per mezzo di un'analisi spaziale si dimostra che i gruppi che sono stati definiti attraverso la cluster analysis sono rilevanti per spiegare l'aumento delle disparità regionali avvenuto all'interno dei PECO, in particolare a partire dagli anni Duemila.

Appendix

Table A1 – The Classification of CEEC Regions

Nuts_id	*Name*	*Growth employm. 91-00*	*Country-rel. special. indus. 91*	*Country-rel. special. indus. 11*	*Country-rel. special. agric. 91*	*Country-rel. special. agric. 11*	*Country-rel. special. serv. 91*	*Country-rel. special. serv. 11*	*Country-rel. special. serv. 91**	*Country-rel. special. serv. 11 **	*Foreign Direct Invest.*	*Category*
bg31	Severozapaden	-0,28	1,20	1,17	1,10	2,92	0,89	0,84	1,00	0,97	2,5	OLDIND
bg32	Severen tsentralen	-0,04	1,13	1,29	1,10	2,06	0,94	0,85	1,05	0,98	3,7	OLDIND
bg33	Severoiztochen	-0,03	0,88	0,85	1,10	1,50	1,03	1,02	1,15	1,17	9,3	PERIPHERAL
bg34	Yugoiztochen	-0,11	1,33	1,26	1,45	1,08	0,73	0,81	0,82	0,93	13,6	PERIPHERAL
bg41	Yugozapaden	0,17	0,76	0,82	0,44	0,32	1,26	1,13			62	CAPITAL
bg42	Yuzhen tsentralen	0,13	0,96	1,30	1,32	1,48	0,91	0,83	1,01	0,96	8,8	NEWFDI
cz01	Praha	-0,13	0,68	0,44	0,06	0,21	1,32	1,35			52,3	CAPITAL
cz02	Strední Cechy	0,09	1,21	1,24	1,18	1,39	0,86	0,88	0,93	1,00	10,6	NEWFDI
cz03	Jihozápad	0,17	0,93	1,14	1,70	2,08	0,95	0,88	1,03	1,00	6,8	NEWFDI
cz04	Severozápad	-0,11	1,22	1,26	0,61	0,81	0,88	0,85	0,96	0,97	4,4	OLDIND
cz05	Severovýchod	0,02	1,02	1,21	1,22	1,46	0,95	0,87	1,03	0,99	6,6	OTHER
cz06	Jihovýchod	0,05	1,00	1,06	1,52	1,39	0,96	0,93	1,04	1,06	8,7	NEWFDI
cz07	Strední Morava	0,01	0,93	1,28	1,68	1,15	0,99	0,82	1,07	0,94	3,4	OTHER
cz08	Moravskoslezsko	-0,14	1,33	1,27	0,73	0,51	0,82	0,88	0,89	1,01	7,2	OLDIND
hu1	Közép-Magyarország	-0,14	0,85	0,73	0,27	0,16	1,19	1,18			71,5	CAPITAL
hu21	Közép-Dunántúl	0,22	1,24	1,73	1,18	1,56	0,82	0,67	0,93	0,82	5,4	NEWFDI
hu22	Nyugat-Dunántúl	0,11	1,25	1,60	1,20	1,26	0,83	0,74	0,94	0,91	9	NEWFDI
hu23	Dél-Dunántúl	0,11	0,87	0,89	1,60	2,02	0,99	0,93	1,13	1,14	4	OTHER
hu31	Észak-Magyarország	-0,14	1,30	1,30	0,93	1,49	0,85	0,83	0,97	1,01	2,5	OLDIND
hu32	Észak-Alföld	0,09	0,93	1,05	1,78	2,38	0,91	0,87	1,04	1,07	3	PERIPHERAL
hu33	Dél-Alföld	-0,04	0,98	0,94	2,04	2,41	0,88	0,91	1,01	1,11	4,6	OTHER
pl11	Lódzkie	-0,02	1,02	1,32	0,84	1,74	1,07	0,83	1,09	0,89	4,2	NEWFDI
pl12	Mazowieckie	0,00	0,84	0,55	0,91	0,79	1,11	1,22			43	CAPITAL
pl21	Malopolskie	-0,14	0,98	0,95	0,60	0,72	1,05	0,98	1,07	1,05	4,9	OTHER

Nuts_id	Name	Growth employm. 91-00	Country-rel. special. indus. 91	Country-rel. special. indus. 11	Country-rel. special. agric. 91	Country-rel. special. agric. 11	Country-rel. special. serv. 91	Country-rel. special. serv. 11	Country-rel. special. serv. 91*	Country-rel. special. serv. 11*	Foreign Direct Invest.	Category
pl22	Slaskie	0,00	1,41	1,36	0,37	0,21	0,84	0,92	0,86	0,98	9	OLDIND
pl31	Lubelskie	-0,20	0,85	0,86	1,86	2,27	0,96	0,96	0,98	1,03	1,4	PERIPHERAL
pl32	Podkarpackie	0,03	1,06	1,08	1,12	0,62	0,92	1,00	0,94	1,07	1,6	PERIPHERAL
pl33	Swietokrzyskie	0,12	0,88	1,02	1,60	1,19	1,00	0,96	1,02	1,03	1,1	OTHER
pl34	Podlaskie	-0,02	0,67	0,63	2,08	2,31	1,06	1,09	1,08	1,16	0,4	PERIPHERAL
pl41	Wielkopolskie	-0,04	1,02	1,27	1,49	1,74	0,87	0,82	0,89	0,88	9,3	NEWFDI
pl42	Zachodniopomorskie	-0,03	0,80	0,63	1,13	0,82	1,13	1,14	1,16	1,22	3	NEWFDI
pl43	Lubuskie	0,20	0,69	1,16	0,90	0,86	1,27	0,96	1,30	1,03	2,6	OTHER
pl51	Dolnoslaskie	0,17	1,05	1,47	0,85	0,55	0,96	0,84	0,98	0,90	9	NEWFDI
pl52	Opolskie	0,04	0,90	1,01	1,73	0,91	0,97	1,01	0,99	1,08	1,9	OTHER
pl61	Kujawsko-Pomorskie	-0,10	1,04	1,13	0,97	1,92	0,99	0,87	1,01	0,93	2,7	OLDIND
pl62	Warminsko-Mazurskie	0,06	0,79	0,96	1,84	1,80	1,02	0,96	1,04	1,03	1,1	PERIPHERAL
pl63	Pomorskie	0,19	0,90	0,83	0,76	0,51	1,12	1,09	1,15	1,17	4,9	NEWFDI
ro11	Nord-Vest	0,06	0,93	1,22	1,00	1,19	1,09	0,86	1,16	0,96	4,5	PERIPHERAL
ro12	Centru	0,12	1,13	1,16	1,24	0,95	0,85	0,91	0,90	1,02	7,6	NEWFDI
ro21	Nord-Est	-0,06	0,95	0,88	0,92	1,77	1,09	0,98	1,16	1,10	2,9	PERIPHERAL
ro22	Sud-Est	0,03	0,82	0,90	1,30	1,58	0,97	0,94	1,04	1,05	5,4	PERIPHERAL
ro31	Sud – Muntenia	-0,22	1,18	1,33	1,12	1,47	0,83	0,76	0,88	0,85	7,4	OLDIND
ro32	Bucuresti – Ilfov	0,11	0,99	0,71	0,10	0,03	1,38	1,30			61,7	CAPITAL
ro41	Sud-Vest Oltenia	-0,11	1,08	1,06	0,90	1,62	0,90	0,86	0,95	0,96	3,3	OLDIND
ro42	Vest	0,15	0,87	1,11	1,54	0,89	0,85	0,98	0,91	1,09	7,2	NEWFDI
si01	Vzhodna Slovenija	0,03	1,13	1,39	1,72	1,65	0,83	0,84	1,00	1,00	15,4	OTHER
si02	Zahodna Slovenija	-0,04	0,89	0,70	0,37	0,50	1,15	1,13			84,6	CAPITAL
sk01	Bratislavský kraj	-0,19	0,60	0,60	0,46	0,32	1,26	1,28			61,9	CAPITAL
sk02	Západné Slovensko	0,07	1,22	1,49	1,19	1,33	0,87	0,78	0,94	0,88	19,3	NEWFDI
sk03	Stredné Slovensko	0,00	1,05	0,91	1,22	1,32	0,95	0,96	1,03	1,09	9,3	OTHER
sk04	Východné Slovensko	0,00	1,04	0,85	1,06	1,12	0,98	0,99	1,06	1,12	9,5	PERIPHERAL

Note: * excluding the capital.

Measuring Marshallian Pools of Specialized Labour Using Brazilian Micro-data

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Abstract

A local pool of specialized labour is one of Marshall's trio of external economies, from which firms in a specialized agglomeration may benefit. This externality may be seen as a reflection of better job matches in a locality. We use micro-data for each formally employed person in Brazil. For each of the 558 Brazilian micro-regions, we create an index based on the skill-relatedness of establishments in the micro-region. We use this index as our measure of the Marshallian pools of specialized labour for the different micro-regions. The index indicates that the availability of specialized labour from other employers nearby, may contribute to productivity growth. Further investigation will assess the impact of a local pool of specialized labour on productivity growth.

1. Introduction

Specialization is often seen as beneficial to the economic vitality of local agglomerations, and this has often led policymakers to promote specialist clusters. But how are we to identify firms as belonging, or not belonging, to a field of specialization, much less to one which might engender such vitality?

The question of what makes an agglomeration vital – what makes it grow in productivity or employment, or survive macroeconomic and technological shocks – is important because policies based on the promotion of particular industries are a common tool for governments seeking to reduce within-country regional economic disparities. There is widespread scepticism as to the efficacy of such policies, scepticism well-grounded in a decidedly mixed record of outcomes; it is possible that one reason for this mixed record is a failure to understand what makes specialized agglomerations work.

Our contribution is to use patterns of inter-industry movement of workers in

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Brazil to identify relationships between industries; to classify agglomerations as more or less specialized based on the degree to which the employers in the agglomerations are related in this sense; and then to study the relationship between specialization, thus measured, and economic outcomes.

This method of studying an agglomeration has its foundation in Marshall's (1890) proposition that the presence of a pool of specialized labour was one of the principal advantages to firms from co-location with other firms in the same line of business. It also follows on more recent research by Boschma (Boschma, Iammarino, 2009; Boschma *et al*., 2013; Boschma, Gianelle, 2014), Frenken *et al*. (2007), Gilly and Torre (2000), and others, on "related variety" in agglomerations.

It is perhaps too easy to conceptualize a pure specialized cluster, defined as a spatial concentration of firms in one particular industry. This is obviously not what Marshall had in mind, since one of the advantages he listed for location in an industrial district was proximity to specialized suppliers or customers – upstream and downstream firms which, generally, would not all fall within the same narrow specialization. A model of pure specialization is also not consistent with Porter's (2003) influential repackaging of industrial districts as "clusters": for Porter, these are always comprised of "related industries". According to both Marshall and Porter, then, a vital industrial district/cluster will always show related variety. Still, a debate over the relative merits of specialization and diversification persists, from Chinitz's (1961) declaration that this was New York's advantage over Pittsburgh, to recent works by Kemeny and Storper (2015) and Klein and Crafts (2015). This line of work tends to set up a competition between Marshall and Jacobs (1961), with Marshall representing specialization, Jacobs diversity.

In such an arena, it is tempting to see related variety as a possible middle way between these poles. We propose, on the contrary, that it is a way of measuring functional Marshallian specialization. That is, rather than seeing a Marshallian industrial district as a platonic ideal of industry monoculture with certain hypothesized advantages, we should measure Marshallian localization by the degree to which those supposed advantages are manifested: specialization should be measured not by the uniformity of the local population of firms, but by firms' proximity to resources in the form of the appropriate specialist labour, suppliers, customers, and knowledge – all of which may not come labelled with a predefined set of industrial classifications.

Marshall listed three advantages – specialized labour, proximity to customers and suppliers, and knowledge spillovers. Our data allows us a window into the first of these. A local concentration of firms from the same standard industrial classification category may, or may not, represent a ready source of specialized workers for those firms (inter-firm mobility within industries varies); and it may, or may not, be co-located with firms from other industrial classifications which

are a ready source of such workers. The best way to measure Marshallian labour specialization is not to measure the concentration of firms in a particular industrial category, but to give weights to co-location of industries (including same industry) based on the propensity of workers to move between the industries in question.

That is what we do. If workers nationally move with disproportionate frequency between industries i and j, and a particular town has high concentrations of both industries, that boost our measure of specialization; if workers nationally do *not* move much between firms within industry k, then for a town to have an unusually high concentration of firms in k will not boost our measure of specialization. We use data which records annually the place of employment for each formally employed person in Brazil. We measure an establishment's proximity to sources of specialized labour through the following procedure: for each industry pair i, j, (218 3-digit sectors) we measure skill-relatedness by the frequency with which new employees in industry i had been previously employed in industry j, relative to the frequency we would expect from random assignment: high rates of movement between a pair of industries (including same-industry moves) are assumed to reflect similarity of specialized skills. Next, for each of the 558 Brazilian micro-regions, we create an index based on the skill-relatedness of establishments in the micro-region. We use this index as our measure of the Marshallian pools of specialized labour for the different micro-regions.

One advantage to our approach is that it allows us to treat manufacturing and services in the same way.

Our main objective is to investigate the impacts of local labour specialization on productivity growth. This paper explains our data and the development of our index, and presents some descriptive results.

The balance of the paper is as follows. Part 2 is a brief review of skilled labour in the literature on specialized agglomerations. In part 3 we describe the data. In part 4, we present details of the labour specialization index. Part 5 maps the index across Brazilian micro-regions, and considers how it may relate to the levels of human capital level of those regions, and also to productivity growth. Part 6 concludes.

2. Specialized Labour as a Source of Localization Economies

Gordon and McCann (2000) put Marshallian labour specialization in terms of modern economic theory: location in such a pool reduces search and matching costs, and thus raises productivity. Or, as Becattini (1990) puts it "within such a selection of positions, a continuous process of reallocation occurs as an expression of the search for a place which is at the same time more appealing and better suited to the abilities of each person." (Becattini, 1990, p.42). This constant

exchange of activity from one activity to another, or even from one company to another, not only matches worker with job, but contributes to what Marshall called an "industrial atmosphere", favouring learning on the part of the worker, and knowledge spillovers between firms. Linkages between firms go beyond transactions of supply and demand for each other's products Pavitt (1984)but specific to firms and applications, cumulative in development and varied amongst sectors in source and direction. Innovating firms principally in electronics and chemicals, are relatively big, and they develop innovations over a wide range of specific product groups within their principal sector, but relatively few outside. Firms principally in mechanical and instrument engineering are relatively small and specialised, and they exist in symbiosis with large firms, in scale intensive sectors like metal manufacture and vehicles, who make a significant contribution to their own process technology. In textile firms, on the other hand. most process innovations come from suppliers. These characteristics and variations can be classified in a three part taxonomy based on firms: (1 tells us; these linkages "can include flows of information and skills, as well as technological diversification into the main product areas of suppliers and customers" (p. 364).

A pool of specialized labour can be characterized as the narrow specialization of labour only on one sector but also as the broader specialization in sectors that requires similar skills from workers. The skill-relatedness plays an important role when measuring the linkages between sectors. Nooteboom (2000) discussed the idea of the existence of cognitive proximity between industrial sectors. This idea implied that cognitive distance should not be too large, compromising communication between industries, an neither too small, avoiding lock-in situations, since in both cases the spillovers effects would be diminished or even not existent (Boschma *et al*., 2013). During the past decade, scholars combined the notion of industry linkages with empirical observations, which concluded that commonly spillovers were limited by geography. Researchers improved the notion that the higher the level of activity proximity between different industries settled in a locality, the higher the effects of knowledge spillovers and inter-industry learning, because local industries in distinct but associated activities can have higher profits from common spillovers than local companies that belong to industries with lower degrees of association (Boschma *et al*., 2013).

Knowledge spillovers at the regional level do not happen between any random selected sectors since the exchange of information is commonly difficult when these sectors are far from each other in regard of cognitive distance. Therefore, the literature on knowledge spillovers indicates that the learning process is more likely to happen when industries present some level of proximity (Neffke *et al*., 2011). Hence, a region should benefit more from a variety of linked industries than from a diversified but not linked group of industries. This occurs since

related industries have a balanced combination of cognitive distance and cognitive proximity, which bring together "the positive aspects of variety across and relatedness among industries" (p. 241). Frenken *et al*. (2007) argued that regions with an increased level of variety among related industries in a location will present higher learning possibilities and thus more local knowledge spillovers.

Similar to the idea of optimal cognitive distance, presented by Nooteboom (2000), Frenken *et al*. (2007) consider the need of balance between cognitive proximity and cognitive distance across industries. Therefore, Boschma *et al*. (2013, p.31) point out: "the more variety across related sectors in a region, the more learning opportunities there are for local industries, the more intersectoral knowledge spillovers are likely to take place, and the higher the economic performance of regions".

In face of this, scholars started to analyse whether being specialized in linked industries would bring positive outcomes to a location, especially in terms of development. Frenken *et al*. (2007) present three ways in which variety and economic development are related. The first way considers that apart from spillovers happening between companies within an industry, they also happen between industries. This idea gives support to the argument that the more diversified current industries are in a location, the bigger will be the economic growth of the same location (Jacobs, 1969; Glaeser *et al*., 1992; Van Oort, 2004; cited in Frenken *et al*., 2007). The authors add: "only some sectors are complementary in that their joint presence within an economy causes additional growth" (p. 686). Therefore, localities too much specialized or too much diversified will experience lower growth than the ones that specializes in a composition of complementary sectors.

The second form is to consider diversification as a "portfolio strategy" to mitigate the effects of external shocks in demand over the local economy (Attaran, 1986; Haug, 2004; cited in Frenken *et al*., 2007). The third way to relate variety and economic development contemplates a long-term need for diversification in a local economy: "the development of new sectors in an economy is required to absorb labour that has become redundant in pre-existing sectors" (p. 686).

Another approach that may be useful to check whether sectors are linked is to identify the existence of similar processes regarding their production processes. Knowledge about technological proximity, when shared, helps to explain the evolution not only of the companies but also of the region (Neffke *et al*., 2011). Boschma and Iammarino (2009) following Frenken *et al*. (2007) argued that it is not precise that Jacobs's externalities certainly result in knowledge spillovers. Only when there is proximity among the capabilities of sectors, knowledge spillovers will happen. This proximity is perceived through the degree of specialization. Further, they point out: "it is not a matter of having a diversified economy, but rather an economy that encompasses related activities in terms of competencies that induce knowledge spillovers" (p. 291).

Boschma *et al*. (2013) point out that are noble motivations to consider that the regional scale (subnational) plays a more important role in the process of related variety. The authors state that there is no easy mobility of the capabilities within countries. Hence, regions also need to present the necessary capabilities at the local level in order to develop new industries. If there was mobility of these capabilities, reinstate de authors, regions would be able to obtain them from other regions and there would not be constraints for the development of new industries, regarding lack of capabilities. However, since capabilities are not easily transferable between countries and regions, the ones positioned in periphery of the production map are likely to struggle when trying to diversify the production, when compared to the ones that are positioned in the main parts of the production map (Boschma *et al*., 2013).

The literature on knowledge spillovers indicates that the learning process is more likely to happen when industries are linked by their production processes (Neffke *et al*., 2011). Hence, a region should benefit more from a variety of technologically linked industries than from a diversified but not linked group of industries. This occurs since related industries have a balanced combination of cognitive distance and cognitive proximity, which bring together "the positive aspects of variety across and relatedness among industries" (p. 241). Alfaro and Chen (2014, p. 268) pointed out that technology can spread "from one firm to another through movement of workers, interaction between those who perform similar jobs, or direct interaction between firms through technology sourcing". Also, skills that are absorbed by a worker during a period in a specific industry will be more adaptable to other industries where there is more cognitive proximity.

Among the main challenges in this field of research that were pointed out by Boschma *et al*. (2013) is the selection of the most adequate linkage indicator to study regional diversification. Boschma *et al*. (2013) made use of the proximity product indicator developed by (Hidalgo *et al*., 2007). Boschma and Iammarino (2009) used a relatedness indicator based on region's exports and the similarities between the exported products, also similar to Hidalgo's approach.

3. Data

We create an index based on the skill-relatedness of establishments in Brazilian micro-regions. We use this index as our measure of the Marshallian pools of specialized labour for the different micro-regions.

Since the Brazilian economy may have experienced a significant change regarding regional economic agglomerations during the first decade of the 2000s, we consider the period between 2003 and 2013. Employment data is provided by the Brazilian Ministry of Labour and Employment, through a database called Annual Relation of Social Information (RAIS, for the Portuguese acronym),

which contains data of every formal employee that is hired or laid off by a company in each year calendar.

We calculate the location quotient (*LQ*), for each industry in each location *k*, using the general RAIS, with aggregated data for 2013. Our geographical unit is the micro-region (a combination of economically and geographically linked municipalities), which are 558 in Brazil. For each location we consider the number of employees for each one of the 218 economic sectors, following the National Classification of Economic Activities (CNAE, for the Portuguese acronym), which is also provided by the Brazilian Institute of Geography and Statistics (IBGE, for the Portuguese acronym).

The labour specialization index requires the previous calculation of the linkage between each pair of sectors according to their occurrences along employees' careers. The frequency of movements between any two sectors we call M_{ij}. We have data from 2003 to 2013, so it is possible to follow the career path of an employee for up to11 years, identifying in which sectors this employee has worked. In 2013, RAIS reached 75,400,510 entries, of which 26,452,077 were for people not currently employed and 48,948,433 were for active employees; this was up from 29,544,927 in 2003, which reflects in part the growth of employment, and in part the growing formalization of the Brazilian labour market: between 2003 and 2013, 19,403,506 formal jobs were created in Brazil. Then, using data the same table, extracted from RAIS, we compute the LQ. The pairs of sectors that are linked through labour mobility (M_{ij}) are weighted by the cross-sectorial LQ for each location and pair of sectors.

4. Labour Specialization Index

In recent decades, scholars have proposed various methods to overcome difficulties in identifying and measuring clusters (Spencer *et al*., 2010). As mentioned earlier, from the Marshallian perspective, there are three main benefits that influence firms to agglomerate in a location: specialization of labour, provision of specific inputs to the type of industry and knowledge transfer. It is common to identify clusters considering one of these dimensions.

The most common method of measuring concentration is the location quotients (*LQ*). *LQ* is given by

$$LQ_{ik} = \frac{E_k^i / E_k}{TE^i / TE} \qquad [1]$$

where E_k^i represents the stock of employment in sector *i* in the locality *k*, E_k is the total employment in the locality *k*, TE^i represents the total employment in sector *i* in the country, and *TE* represents the total employment in the country.

Since the *LQ* is based on employment, it has been used as a measure both of specialized industrial agglomeration and also of the attendant pool of specialized labour (Billings, Johnson, 2012, cited in Pires *et al*., 2013). An *LQ* higher than 1 is taken as indicative that a locality has a relative specialization in the sector in question. Among the critics that are made to *LQ* methodology it is the one that argues that apprehends merely the level of employment concentration in the locality, while missing other salient industry features (Pires, 2013). Our objection to it would be different: that it treats all same-industry employees, and only same industry employees, as the relevant labour pool.

Our method for measuring co-occurrence of a pair of sectors is based on a body of work that has dealt this in other contexts (D'Este *et al*., 2013; Farjoun, 1994; Nesta, Saviotti, 2005; Teece *et al*., 1994). The index of linkage for two sectors *i* and *j*, considering labour mobility, is:

$$M_{ij} = \frac{o_{ij} - \mu_{ij}}{\sigma_{ij}} \qquad [2]$$

Where O_{ij} is the number of times sectors *i* and *j* appear in the careers of the employees, μ_{ij} is the expected number of co-occurrences between sectors *i* and *j* if that movement were random, and σ_{ij} is the estimated standard deviation of μ_{ij}. Therefore, M_{ij} gives us the level of linkage, via employee mobility, between each pair of sectors for the dataset as a whole, which is to say at the national level. At the level of the micro-region, we compute the labour specialization index for each industry pair *i,j* by weighting the M_{ij} by the cross-sector location quotient of each pair of sectors:

$$L_k = \sum_{i=1}^{N}\sum_{j=1}^{N} M_{ij}\sqrt{LQ_{ik}LQ_{jk}} \qquad [3]$$

Again, M_{ij} represents the labour specialization index between sectors *i* and *j*, LQ_{ik} and LQ_{jk} are the location quotients of sectors *i* and *j* in the location *k*. Hence, L_k gives the level of labour specialization for a micro-region, considering skill-relatedness between pairs of sectors that are present in each location. Hence, this index captures the dimension of existence of a pool of specialized labour in the locality *k*, since the highest the L_k, the more similar the skills demanded by the sectors present in the location.

More importantly, the level of specialization measured by the index does not consider sectors in isolation, but establishments embedded in an environment of establishments from the same sector and from others, weighed on the basis of employee movement and thus, by assumption, on the basis of commonality of skill requirements. Hence, what is being measured is not only the specialization of a location in a specific sector, which may happen, but also the specialization of a location in linked sectors.

5. Measurements

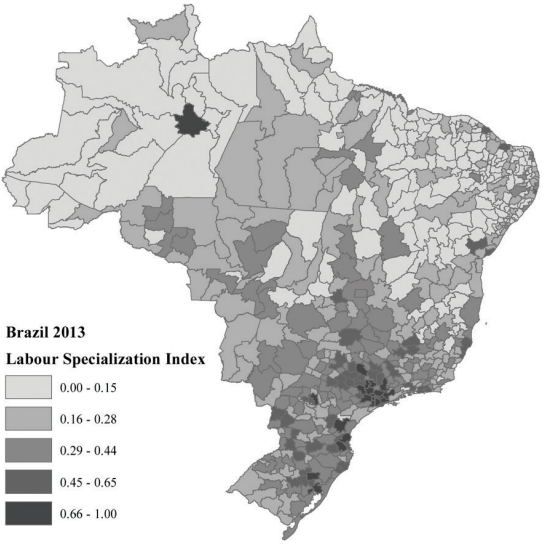
The labour specialization index gives information on the level of specialization of a specific location, considering all the industries that are existent in this location, according to their level of level of linkage (M_{ij}). Therefore, before presenting the measurements of the final index it is important to mention that the main pairs of industries according labour linkages are concentrated within manufacturing, and of same-industry pairs overall. After computing the linkages M_{ij}, it is necessary to weigh and add them up for each location administrative unit (k), to calculate the labour linkage index (L_k), according to the formulas presented in the previous section.

Before presenting the results of the index it is also important to mention the issue regarding the administrative boundaries when measuring specialization. Industries plants can be located close to each other and have some level of linkage without being at the same administrative unit. This may happen especially when the administrative unit that is being used is too small. In Brazil, municipalities are the smallest administrative units, standardized by the Brazilian Institute of Geography and Statistics (IBGE). However, while the biggest municipality has an area of 159,553.255 square meters, which is Altamira in Para state (bigger than Greece), the smallest municipality has an area of 3,565 square meters, which is Santa Cruz de Minas in Minas Gerais state (bigger than Luxemburg). The vast majority of Brazilian municipalities are small with strong economic relations with their neighbour municipalities. For this reason, IBGE created the administrative unit of micro-regions, which are combinations of municipalities that normally present bigger exchanges and economic relations among them. The use of this administrative unit helps to minimize the location of firms close to the municipalities' boundaries. For the purposes of this study, the smallest administrative level used is micro-region.

Even using micro-regions as the unit of analysis, there are some issues regarding the areas of these micro-regions. Usually, the most populated micro-regions are smaller in terms of area. Therefore, population density plays an important role as well when presenting the measurements of the labour specialization index. Figure 1 and Figure 2 present the maps of the labour specialization index in Brazil. The first map shows the micro-regions areas as they actually are, whereas the second map shows the micro-regions areas according to population, being density-equalized. It is possible to notice that there is a large incidence of high labour specialization in the most populated micro-regions.

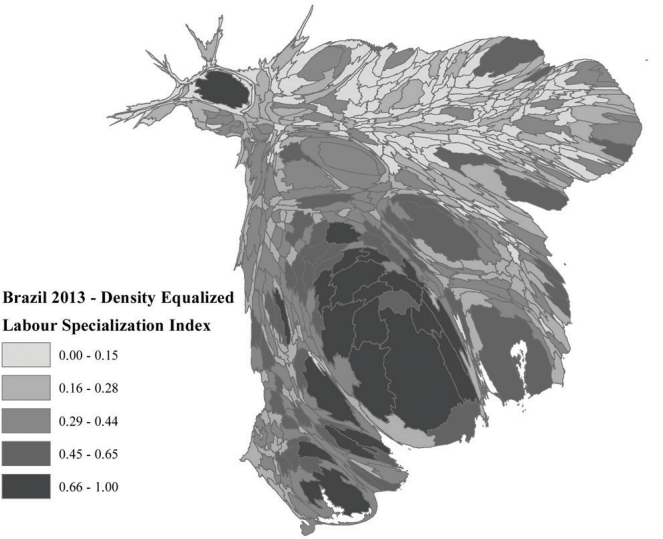
In Tables 1 and 2 we present the top 10 micro-regions, by GDP, for each year 2003 and 2013. Notice that among the top 10 are high GDP per capita micro-regions as well as ones with high population. The main difference between the two periods remains on the level of education, given by the share of employees

Figure 1 – Brazilian Micro-regions by Level Labour Specialization Index



Source: Labour Specialization Index computed by the authors based on data of the Brazilian Ministry of Employment and Labour

Figure 2 – Density-equalized (by Population) Brazilian Micro-regions by Level Labour Specialization Index



Source: Labour Specialization Index computed by the authors based on data of the Brazilian Ministry of Employment and Labour

Table 1 – Top 10 Labour Specialization Index Micro-regions, 2003

Micro-region	*Labour specialization index*	*GDP per capita*[1]	*Population*[2]	*Level of education*[3]
Guarulhos	1.00	17.2	1.27	0.23
Osasco	0.98	21.3	1.71	0.22
Moji das Cruzes	0.91	10.0	1.23	0.22
Sorocaba	0.86	15.1	1.20	0.22
Itapecerica da Serra	0.84	10.8	0.88	0.21
Campinas	0.82	20.7	2.34	0.22
Joinville	0.73	16.6	0.73	0.24
Jundiai	0.72	19.7	0.56	0.21
Caxias do Sul	0.71	17.3	0.69	0.17
Sao Jose dos Campos	0.66	26.3	1.30	0.30
Average (558)	0.15	6.8	0.32	0.24

Note: (1) in R$ thousands; (2) in million people (3) in ration of at least high-school educated employees.

Source: Brazilian Institute for Geography and Statistics (IBGE) and Labour Specialization Index computed by the authors

with secondary education. The majority of the top 10 micro-regions in 2003 presented a share that were below the average of the 558 micro-regions, while in 2013 the majority of the top 10 were above the average.

Other characteristics among the top 10 micro-regions for both periods that worth to be noticed are the fact that most of them being locations where manufacturing activities are very strong, and that all of them are micro-regions located either in the state of Sao Paulo or in one of the states of the south. Also, the only observed change in terms of presence among the 10, was the substitution of Sao Jose dos Campos (position 14 in 2013) by Blumenau (position 13 in 2003).

From the tables, it is possible to infer that there is a relationship between population size, level of education – as a measure of human capital – and labour specialization. Also, that these three variables have an impact on the productivity of the micro-regions.

6. Concluding Remarks

In this paper we presented a new approach for measuring localized labour specialization, by considering both the co-location of industries in micro-regions, and the propensity (nationally) for workers changing jobs to between particular

Table 2 – Top 10 Labour Specialization Index Micro-regions, 2013

Micro-region	*Labour specialization index*	*GDP per capita*[1]	*Population*[2]	*Level of education*[3]
Guarulhos	1.00	27.8	1.43	0.51
Campinas	0.95	33.5	2.82	0.45
Osasco	0.93	44.6	1.88	0.46
Sorocaba	0.92	24.1	1.42	0.51
Jundiai	0.89	49.7	0.68	0.49
Moji das Cruzes	0.87	16.4	1.41	0.54
Caxias do Sul	0.86	30.7	0.82	0.35
Joinville	0.82	34.3	0.91	0.44
Itapecerica da Serra	0.80	19.5	1.06	0.45
Blumenau	0.79	24.8	0.73	0.33
Average (558)	0.25	13.2	0.36	0.41

Note: (1) in R$ thousands; (2) in million people; (3) in ration of at least high-school educated employees.

Source: Brazilian Institute for Geography and Statistics (IBGE) and Labour Specialization Index computed by the authors

industry pairs (including same-industry). We calculated the index using Brazilian micro-data for the years from 2003 to 2013. Initial application of this index indicates that it is correlated both with per capita GDP and with levels of human capital.

Initial empirical work suggests that specialization is higher where income and conventionally measured human capital (completion of schooling) are higher. Our work currently in progress relates specialization to productivity growth and to convergence, or divergence, between regions.

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Sommario

Misurazione dei bacini Marshalliani di manodopera specializzata attraverso l'impiego di micro-dati brasiliani

Un bacino locale di manodopera specializzata è una delle tre componenti del trio di esternalità Marshalliane, dal quale possono trarre beneficio le imprese che fanno parte di agglomerazioni specializzate. Questa esternalità può essere vista come il riflesso di una miglior corrispondenza delle occupazioni in un territorio. Utilizziamo micro-dati per ogni individuo formalmente occupato in Brasile. Per ciascuna delle 558 micro-regioni brasiliane, creiamo un indice basato sulla skill-relatedeness degli impianti produttivi localizzati in ogni micro-regione. Questo indice viene utilizzato per misurare i bacini marshalliani di manodopera specializzata per le diverse micro-regioni. L'indice rivela che la disponibilità di manodopera specializzata proveniente da datori di lavoro dei territori vicini può contribuire alla crescita della produttività. Ulteriori analisi valuteranno l'impatto di un bacino locale di manodopera specializzata sulla crescita della produttività.

International Specialization and Export Performance of Local Economies: Methodological Issues

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Abstract

This paper discusses some simple statistical indicators, measuring general features of an economy's specialization pattern, which can influence its performance and resilience to external shocks. The sector structure effect, identified by "constant-market-share" analysis, measures the dynamic efficiency of specialization patterns. Its magnitude depends on their degree of polarization, defined as the average intensity of their comparative advantages and disadvantages. Traditional measures of export concentration are biased by their reliance on an abstract benchmark of equidistribution. A similar problem affects the entropy-based measures of related and unrelated variety. We propose new specifications of these indicators, which can solve this problem.

1. Introduction

The last wave of globalization and the great economic crisis erupted in 2008 have shown how open local economies are vulnerable to external shocks, particularly if their productive structure is concentrated in sectors that are more exposed to the risk of strong fluctuations in world demand. On the other hand, under certain conditions, international economic integration has reinforced the resilience of local economies to exogenous disturbances, by improving their productive systems and spreading knowledge across firms.

A better understanding of the complex relationships between the structure of local economies and their performance in external markets is therefore important to explain the wide divergence across their development patterns, as well as to devise regional policies that are able to strengthen their ability to participate in international production networks along a path of sustainable growth.

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The literature on regional economic resilience has been flourishing in the last few years. Although the heuristic power of the concept and its empirical specification are still controversial, increasing interest surrounds the idea that structural features of local economic systems may exert an important influence on their ability to resist and overcome external shocks (Christopherson *et al*., 2010; Fingleton *et al*., 2012; Oecd, 2013; Augustine *et al.*, 2013; Martin, Sunley, 2015; Brown, Greenbaum, 2017).

The quality of economic structures can be assessed under different perspectives. One influential strand of literature aims at illuminating why and under what conditions regions characterized by a diversified portfolio of productions tend to perform better than regions that are more specialized. The driving idea is that diversification in itself is not enough to ensure higher long-run growth. What matters is the existence and the quality of knowledge and production linkages among sectors, encapsulated in the concept of "related variety" (Frenken *et al.*, 2007; Boschma, Iammarino, 2009; Kemeny, Storper, 2015).

The structure of regional economic systems may be forged not only by the local endowment of resources and institutions, but also by their interaction with the external environment. The cross-border circulation of technological and organizational knowledge, spurred by trade, migration and international production, is an important driver of growth and structural change. If local conditions allow absorbing and spreading the benefits of foreign sources of knowledge and skills, open regions may prove more resilient and dynamic than closed economic systems. The literature on the role of multinational enterprises in local development is abundant. Iammarino and McCann (2013) offer a survey from the perspective of economic geography. More recently, a growing attention has been paid to the development of international production networks, involving also small local producers acting as sub-contractors of larger firms located in different regions or countries (see e.g. Giunta *et al.*, 2012).

A flourishing strand of research is trying to assess to what extent the quality of trade specialization affects economic growth, starting from the seminal contributions by Hausmann and Rodrik (2003) and Hausmann *et al.* (2007). Countries that are able to upgrade the complexity of their exports tend to have a better performance than countries remaining stuck to the specialization dictated by their initial comparative advantages. This idea has been adapted also to the relationship between trade specialization and growth at the local level (see e.g. Coniglio *et al.*, 2016).

Actually, the relationships between trade specialization and growth were already investigated, under a different perspective, in the context of balance-of-payments constrained growth models (Thirlwall, 2011). The underlying idea is that national economies cannot grow more rapidly than the world average, without incurring in problems of external disequilibrium, unless their comparative advantages are concentrated in products characterized by a relatively high income elasticity of demand.

One implication of this approach is that models considering only macroeconomic fundamentals are inadequate to explain trade performances, as they overlook important – although difficult to quantify – factors, such as product quality, shifts in consumer tastes, changes in international trade rules and a whole range of other structural factors affecting the distribution of trade by product or by partner country. For instance, assuming the growth of world demand and all other circumstances being equal, the dynamics of a country's exports will be influenced by the concordance between its international specialization pattern and changes in the product composition of world imports. In other words, if foreign demand grows more rapidly in products in which the country enjoys comparative advantages, the aggregate income elasticity of its exports will result higher. In this case, we may speak of *macroeconomic* or *dynamic efficiency* of a country's international specialization pattern. The influence of these structural factors is more relevant than commonly understood, and may sometimes override the effect of aggregate variables, such as real exchange rates. Differences in foreign trade structures between countries are therefore important determinants of their growth rates: international specialization patterns affect the income elasticity of exports and imports and so the intensity of the external constraint to growth. Thirlwall (1979) and, with a different approach, Krugman (1989) highlighted the link between the income-elasticity of trade flows and the growth rate of an open economy. Goldstein and Khan (1985), among others, advanced the hypothesis that international differences in such elasticity are essentially attributable to differences in the structure of foreign trade.

At the local level, the balance-of-payments constraint is not binding, as any trade deficit can easily be financed by surpluses in other regions of the same country. Yet, the dynamic efficiency of local specialization patterns is an important determinant of their export performance, as well as of their resilience to external shocks.

In this paper we will discuss some structural characteristics of export specialization patterns, which can affect competitiveness and performance at the local level, focussing on the main statistical indicators used to measure such qualitative properties of economic systems.

We will start from the concept of dynamic efficiency of trade specialization, which depends on its correlation with changes in the distribution of external demand. We will see how a well-known statistical decomposition technique of the relative growth of aggregate exports (constant-market-share analysis) can shed light on this concept. This will lead us to focus on the importance of the degree of *polarization* of export specialization, defined as the average intensity of comparative advantages and disadvantages. Other things being equal, more polarized specialization patterns tend to magnify the effects of external shocks on national and local economies.

Since the concept of polarization is related, although not equivalent, to the concept of *concentration*, we will then discuss some of the main indicators used to measure the concentration of trade specialization patterns. As we have argued above, theoretical and empirical research on regional development in an international context has often used the idea that more diversified economic structures are less vulnerable to shocks and perform better than economies relying on few sectors. We will see, however, that the measurement of concentration can be negatively affected by its reference to a benchmark of equidistribution. Since statistical units used in the analysis of trade data, such as sectors or partner countries, are intrinsically different in terms of size, the equidistribution benchmark is inappropriate. We will discuss how to overcome this problem, by measuring concentration in terms of dissimilarity with respect to a suitable reference distribution.

A similar issue concerns statistical indicators used to operationalize the concepts of *related* and *unrelated variety*, which are widely used in the literature on regional development. The final section of this paper will address these measures of diversification, and propose a simple solution for the problem of their implicit reliance on an implausible equidistribution benchmark.

2. Export Structure and the Distribution of Foreign Demand: Dynamic Efficiency and Polarization of Trade Specialization Patterns

The relative importance of structural and competitiveness factors in determining trade performances can be established with the help of a statistical decomposition technique, known as "constant-market-share analysis". Several different specifications of this method have been experimented in the literature. A survey of this literature is offered in Memedovic and Iapadre (2010), who propose a new specification and study the role of structural factors for trade performances of national economies. An interesting application to international trade data at sub-national level can be found in Coughlin and Pollard (2001).

Here we refer to a simple formula, which allows to split the change of each region's aggregate share of world exports into three effects:

1. *Competitiveness effect (CE)*: it is the weighted average of the changes recorded by each region's share in each of the sectors of the world export market. The weights are given by the relative size of each sector in the value of total world exports in the initial year. The term "competitiveness" should be understood in a broad sense, encompassing the set of factors that may explain the relative success of the region's products in international markets. Therefore, CE is not an *ex ante* measure of their possible competitive advantage in terms of relative prices, but only a summary *ex post* measure of their relative export performance. While leaving open the question of identifying the factors that

led to these results, this indicator gives better information than that offered by the simple change of the aggregate market share, because it cleans it from the influence of structural effects.

2. *Sector structure effect (SE)*: it is related to the interaction between the characteristics of the region's specialization pattern and changes in the sector distribution of world exports. In other words, it measures the change in the aggregate export market share which would result, if all the sector market shares remained unchanged (hence the name "constant-market-share" analysis). Other things being equal, regions that are specialized in relatively dynamic sectors will enjoy a higher SE (and a better trade performance) than regions whose comparative advantages are concentrated in slow-growth sectors. So, this term can be interpreted as a measure of the dynamic efficiency of the region's export specialization pattern.
3. *Adaptation effect (AE)*: it is related to the interaction between changes in the region's sector market shares and changes of sector weights in world exports. This effect reveals the extent to which the region's specialization pattern adapts over time to structural changes in the market.

The formula used is as follows:

$$S^t - S^0 = CE + SE + AE$$
$$= \sum_k \left(s_k^t - s_k^0\right) w_k^0 + \sum_k \left(w_k^t - w_k^0\right) s_k^0 + \sum_k \left(w_k^t - w_k^0\right)\left(s_k^t - s_k^0\right) \qquad [1]$$

where:

S = a region's market share of total world exports;

s_k = a region's market share of world exports in sector *k;*

w_k = sector *k*'s weight on world exports;

and superscripts 0 and *t* refer respectively to the initial and final year chosen for the analysis.

The role played by structural factors in determining export performance may be better understood by further decomposing the *SE* effect. Memedovic and Iapadre (2010) applied to this effect an approach similar to that proposed by Fagerberg and Sollie (1987) for the adaptation effect. The formula is as follows:

$$SE = r_{SC} \sqrt{\sum_k \left(s_k^0 - \mu_s^0\right)^2} \sqrt{\sum_k \left(w_k^t - w_k^0\right)^2} \qquad [2]$$

in which:

r_{SC} = linear correlation coefficient between a region's initial export market shares in each sector and changes of sector weights in world exports;

μ_s^0 = unweighted arithmetic mean of a region's initial sector market shares.

Equation [2] shows the sector structure effect as the product of three factors:

a. The degree of correlation between the sector structure of a region's market shares, which defines its specialization pattern, and changes in the sector structure of world export demand.
b. An indicator of the variability of sector market shares around their mean or, in other terms, of the degree of *polarization* of the specialization pattern.
c. An indicator of the intensity of change in the structure of demand, as measured by the variation of sector weights in world exports.

Since the third factor is common to all exporting regions, it is the first two that are decisive for differentiating each region's *SE*. More precisely, the sign of *SE* is established by the coefficient of correlation, while its size relative to other regions, depends on the intensity of the correlation and on the coefficient of market share polarization. In other words, for any given degree of correlation between the regions' specialization patterns and the changes in the structure of export demand, the highest positive (or negative) *SE*s are recorded by those regions whose specialization patterns are more differentiated between strong and weak points: the polarization of export market shares amplifies the magnitude of the structure effect.

This index of polarization should not be confused with a measure of concentration. Rather, it can be seen as a measure of the average intensity of comparative advantages and disadvantages. Regions whose export supply is concentrated in a few number of sectors might reveal a relatively low degree of polarization, if the sector distribution of their export market shares does not show much variability. On the other hand, even regions with a richly diversified export structure can have a relatively polarized specialization pattern, if the average intensity of their comparative advantages and disadvantages is high.

However, the two concepts are interconnected and the corresponding indicators tend to be strongly correlated between each other. Moreover, concentration and polarization indices tend to be negatively associated with the economic size of the region.

The next section of this paper will be devoted to a more comprehensive discussion of the indicators of concentration that are more often used in the analysis of trade specialization patterns.

3. Concentration of Trade Specialization Patterns

If the structure of a local economy relies heavily on a limited number of sectors, this concentration can increase its vulnerability to external shocks.

This theme has often been raised in the debate about the integration of developing countries into the world trading system. In particular, countries that are strongly specialized in the production of raw materials are exposed to the high volatility of their prices.

More generally, if an economy's productive structure is concentrated in few sectors, its reactivity to changes in the composition of external demand will be higher. The aggregate impact of a sector shock will be stronger, the more important the sector is for the local economy.

At the macroeconomic level, this theme has been discussed in the debate on international monetary integration. Kenen (1969) pointed out that the costs of monetary integration, as highlighted by the theory of optimum currency areas, are lower for countries characterised by a more diversified export structure, because this reduces the probability of an adverse asymmetric shock and dampens its impact.

The concentration/diversification of local specialization patterns can be measured in several ways, and we will now discuss the main properties and limitations of some of these indicators.

3.1. Relative Number of Comparative Advantage Sectors

The most intuitive indicator of diversification is the number of revealed comparative advantage (*RCA*) sectors, expressed as a percentage of the total number of sectors in which trade flows are classified:

$$RCAN_i = m_i / n \qquad [3]$$

where: m_i = number of region *i*'s *RCA* sectors; n = total number of sectors.

If we refer to the Balassa (1965) revealed comparative advantage (*RCA*) index, which is implicit in the *CMS* analysis presented in the previous section, this indicator of diversification is given by the number of sectors for which a region's share of world exports is higher than its average level.

Small local economies tend to concentrate their comparative advantages in a limited number of sectors, as resource constraints restrict their ability to differentiate production. The extreme case in which a region is fully specialized in only one sector represents the maximum level of concentration. On the other hand, a region cannot specialize in all sectors as, by definition, any comparative advantage in one production implies a comparative disadvantage in at least one of the other sectors. So, the number of comparative advantage sectors cannot grow indefinitely up to the total number of sectors. The maximum level of diversification is reached if the economy exhibits no specialization, that is if the Balassa *RCA* index is equal to 1 in every sector or, in other words, if the region's shares of world exports are equal across sectors.

The ambiguity of the *RCAN* index is augmented by the fact that it cannot discriminate between sectors based on their size. So, a local economy revealing a comparative advantage in a given number of large sectors would show the same level of concentration as a region which is specialized in an equal number of small productions.

3.2. Export Concentration

In the empirical trade literature the concentration of exports across different sectors or markets is generally measured through the Herfindahl-Hirschman index (H_i) (Hirschman, 1945):

$$H_i = \sqrt{\sum_k \left(x_{ik} / \Sigma_k x_{ik} \right)^2} \quad [4]$$

This index is dependent on the number of sectors considered in the distribution. More precisely, H_i is equal to 1/n when all the n sectors have the same weight in terms of export value, reaching a maximum level of 1 if exports are concentrated in only one sector. In order to correct for the problem of dependence on the number of sectors, one can use the normalised version of the H_i index, which is as follows:

$$NH_i = (H_i - 1/n)/(1 - 1/n) \quad [5]$$
$$0 \leq NH_i \leq 1$$

Both variants of the Herfindahl-Hirschman index are based on a comparison between the actual distribution of data and an abstract benchmark of equidistribution across the statistical units of observation. This benchmark can be reasonable, when the index is applied to individual families or firms, but may be questioned when the index is used to study the concentration of a distribution across statistical units that are inherently different in terms of size, such as sectors or partner countries. Given that sector boundaries in trade classifications are not aimed at identifying units of comparable size, there is no a priori reason to expect that exports of a large sector, such as automobiles, have the same weight than those of a small sector, such as musical instruments.

3.3. Export dissimilarity

An alternative approach, which does not refer to the equidistribution benchmark, is based on the linkage between the concepts of concentration and specialization. Local economies tend to concentrate their productive resources in their sectors of comparative advantage, so that their export structure tends to differentiate from the average of other localities.

This idea was already discussed in the debate on optimum currency areas, where the Kenen (1969) criterion can be interpreted in a slightly different way than as mentioned at the start of this section. An economy's vulnerability to external shocks can be related not so much to the absolute degree of concentration of its productive structure, as to its degree of dissimilarity with respect to partner economies. For any given level of concentration, a sector shock will affect mostly those local economies that are specialized in the sector hit by the shock. So, if productive structures are similar across regions, any sector shock will not be asymmetric, as it will hurt all local economies in a similar way. On

the contrary, a strong dissimilarity with respect to the rest of the country exposes the local economy to higher risks of idiosyncratic shocks.

A simple way to measure the dissimilarity of export structures across regions is offered by the Finger-Kreinin (1979) index (FK_i), which is as follows:

$$FK_i = \tfrac{1}{2} \Sigma_k \left| (x_{ik} / x_{i.}) - [(x_{.k} - x_{ik})/(x_{..} - x_{i.})] \right| \qquad [6]$$

$$0 \leq FK_i \leq 1$$

In equation [6] $x_{.k}$ denotes the value of sector's k exports originated in the country to which region i belongs, or in a larger reference area, such as the European Union or the world, if data is available, and $x_{..}$ denotes the value of the reference area's total exports. FK_i compares the sector distribution of a region's exports against that of the other regions in the reference area. This index is null if a region's export structure by sectors is exactly equal to the average of the other regions in the reference area and ranges up to a maximum of one, which is reached when a given sector is the only export item of only one region (perfect concentration *and* dissimilarity).

4. Related and Unrelated Variety

The concept of variety has been recently used in many studies aimed at investigating the determinants of growth differences across different territories. The underlying idea is that innovation and growth can be favoured by technological and cognitive externalities among sectors, the so-called Jacobs externalities (Jacobs, 1969). Therefore, other things being equal, an economy characterized by a relatively large presence of *related* sectors grows more rapidly than a strongly specialized economy, as well as than a diversified economy, which however is oriented towards reciprocally *unrelated* sectors.

This concept is difficult to operationalize. In principle, assessing linkages among sectors would require detailed information about their production functions. Even the use of input-output tables would not be enough to ascertain the presence of cognitive spillovers, which often go beyond supply-and-use linkages.

A widely used indicator is based on the concept of entropy (Theil, 1972), and has been applied to the study of specialization patterns by Frenken *et al.* (2007). The driving idea is that Jacobs externalities emerge more easily among related productions *within* each sector, rather than *between* different and unrelated sectors. So, unrelated variety is measured by the Theil entropy index between different sectors (k):

$$UV = \Sigma_k w_k \log_2(1/w_k) \qquad [7]$$

where $w_k = x_{ik} / x_{i.}$

On the other hand, related variety is measured by a similar index computed between different products (p) within each sector, and its aggregate measure for each economy is given by the weighted average of the sector indicators:

$$RV = \Sigma_k w_k V_k \quad [8]$$

where $V_k = \Sigma_p w_{pk} log_2(1/w_{pk})$ and $w_{pk} = x_{ip}/x_{ik}$

The properties of the Theil entropy index ensure that total variety across products is equal to the sum of related and unrelated variety. The heuristic power of these indices is strongly affected by the quality of the available statistical classification, and particularly by the reliability of the distinction between products and sectors.

Leaving this problem aside, it should be stressed that, by construction, the entropy index is a measure of diversification. So, it is an inverse function of the degree of concentration and its maximum corresponds to the case in which all statistical units (products or sectors) have the same weight (equidistribution). As already argued in our discussion of the Herfindahl-Hirschman index, when the size of the statistical units is intrinsically different, the equidistribution benchmark appears as unreasonable.

Therefore, like in the case of concentration, a different approach could be useful also to study diversification. The starting point could be, even in this case, a comparison between each region's export distribution and their average. If a region's within-sector entropy is higher than the national average, this gap can be used to detect and measure related variety. So, our relative measures of related and unrelated variety are as follows:

$$RUV_i = (UV_i - UV^*_i)/(UV_i + UV^*_i) \quad [9]$$

$$RRV_i = (RV_i - RV^*_i)/(RV_i + RV^*_i) \quad [10]$$

where the * refers to the arithmetic mean of the two indicators across all the regions, except region i. This exclusion ensures that both indicators range between -1 and 1.

If the degree of related or unrelated variety of the region's specialization pattern is equal to the average of the other regions, the corresponding indicator equals zero. This can be interpreted as a case in which diversification does not reveal *variety* in a qualitative sense, but is only the result of the intrinsically different size of the statistical units (products or sectors) used for the analysis.

5. Concluding Remarks

Statistical indicators used to measure the quality of trade specialization are manifold and pursue different targets, related to a variety of analytical frameworks.

The brief and incomplete survey presented in this paper has focussed on a set of simple descriptive indicators, concerning some general features of specialization patterns that can have an important impact on the trade performance of local and national economies, on their resilience to external shocks, and on regional growth.

Starting from a simple specification of "constant-market-share" analysis, we have argued that the sector structure effect identified by its decomposition formula can measure the dynamic efficiency of an economy's specialization pattern. This concept refers to how the correlation between changes in the sector composition of external demand and the distribution of an economy's comparative advantages affects the aggregate income elasticity of its exports.

We have then shown that the magnitude of this effect depends, among other factors, on the degree of polarization of the economy's specialization pattern, defined as the average intensity of its comparative advantages and disadvantages. Other things being equal, more polarized economies are more vulnerable to adverse external shocks, but can reap more intense benefits from favourable changes in the structure of demand.

The concept of polarization is similar but distinct from that of concentration, which is normally defined and measured as the distance between the actual distribution of exports across sectors and an abstract benchmark of equidistribution. We have argued that this benchmark is not appropriate, as the statistical units used in the analysis are sectors whose size is intrinsically different, for reasons related to the way in which trade classifications are built. We have therefore proposed to measure the concentration of an economy's exports in terms of dissimilarity of their sector distribution with respect to a more suitable benchmark, which is the average sector distribution of exports from the other economies in the reference area.

Finally, we have discussed the concepts of related and unrelated variety, which have gained increasing prominence in the research on regional growth. In particular, we have underlined that entropy-based indicators of variety are affected by the same problem as traditional measures of concentration, which is their reliance on the benchmark of equidistribution. We have therefore proposed a simple new metrics for related and unrelated variety, which can solve this problem.

As usual, the heuristic power of statistical indicators depends on a sound definition of the underlying theoretical concepts, which is essential to properly specify their empirical counterparts.

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Sommario

Specializzazione internazionale ed export performance delle economie locali: problemi metodologici

Questo capitolo discute alcuni semplici indicatori statistici, usati per misurare le caratteristiche generali del modello di specializzazione di un'economia, che possono influenzare la sua performance e la sua resistenza agli shock esterni. L'analisi constant-market-shares identifica un "effetto struttura settoriale", che misura l'efficienza dinamica dei modelli di specializzazione. La sua grandezza dipende anche dal loro grado di polarizzazione, definito come l'intensità media dei loro vantaggi e svantaggi comparati. Le misure tradizionali di concentrazione delle esportazioni sono influenzate dal fatto che si basano su un benchmark astratto di equi-distribuzione. Un problema simile riguarda gli indici di entropia usati per misurare la diversificazione correlata e non correlata. Proponiamo nuove specificazioni di questi indicatori, che possono risolvere il problema.

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Smart Specialisation Strategy: come misurare il grado di *embeddedness* e *relatedness* dei domini tecnologici

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Sommario

L'implementazione della Smart Specialisation Strategy ha richiesto alle autorità regionali di selezionare un numero ristretto di domini tecnologici in cui concentrare gli investimenti destinati alla ricerca e sviluppo e all'innovazione. Questa scelta sarebbe dovuta partire da un'analisi dei punti di forza regionali, con l'obiettivo di identificare i domini con il maggior potenziale in termini di innovazione. Dato che la specializzazione tecnologica regionale mostra un alto grado di path-dependency, una diversificazione risulta efficace solo in settori strettamente collegati alla base di conoscenze già esistente a livello locale. L'obiettivo di questo lavoro è quello di proporre alcune metodologie che permettano alle regioni di facilitare e giustificare la scelta dei domini tecnologici, alla luce delle aspettative della policy. In particolare, le metodologie di seguito illustrate hanno come obiettivo la misura di due dimensioni dell'implementazione della policy: a) il grado di coerenza tra le scelte dei domini in cui specializzarsi e l'effettiva disponibilità delle conoscenze ad essi collegate (embeddedness); b) il grado di connessione tra i domini scelti, cioè quanto i domini scelti siano tra loro complementari al fine di massimizzare l'efficacia degli sforzi innovativi e quelli volti alla diversificazione (relatedness).

1. Introduzione e letteratura

La progettazione e l'implementazione della *Smart Specialisation Strategy* (S3 d'ora in poi) ha richiesto alle autorità regionali l'identificazione di un numero ristretto di domini di specializzazione tecnologici in cui concentrare l'allocazione delle risorse e verso cui orientare la loro politica di innovazione (Foray, 2015; Foray *et al.*, 2012; McCann, Ortega-Argilés, 2013). La scelta dei domini di specializzazione è stata un compito non senza difficoltà per le autorità regionali per diversi motivi (Capello, Kroll, 2016; Iacobucci, 2014), tra cui le caratteristiche

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del processo di progettazione e implementazione. In particolare, secondo le linee guida della Commissione Europea (Foray *et al.*, 2012), la S3 avrebbe dovuto seguire un approccio "dal basso verso l'alto" in cui la cosiddetta scoperta imprenditoriale (*entrepreneurial discovery*) sarebbe dovuta essere una delle peculiarità più innovative e rilevanti. Ulteriori difficoltà sono legate al fatto che la specializzazione avrebbe dovuto fare riferimento a domini tecnologici piuttosto che a settori industriali (Asheim, Grillitsch, 2015; Foray *et al.*, 2011). L'enfasi sulla tecnologia piuttosto che su prodotti o servizi è un risultato delle fondamenta teoriche alla base della S3. In questa strategia infatti, particolare enfasi è posta sull'obiettivo di collegare *ricerca* e *innovazione*, nonché sulla diversificazione delle produzioni regionali. Un dominio tecnologico può trovare applicazione in diversi settori, generando opportunità di apprendimento e produzione della conoscenza in diverse ambiti produttivi (McCann, Ortega-Argilés, 2013), alcuni dei quali potenzialmente nuovi per la regione. Infatti, una delle idee alla base alla base delle S3 è che la scelta di domini tecnologici particolarmente promettenti possa facilitare l'innovazione e la diversificazione attraverso la creazione di nuove tecnologie e prodotti (Asheim *et al.*, 2011). Inoltre, ci si aspettano ricadute positive anche nei settori già esistenti grazie a nuove ambiti applicativi in cui potere utilizzare nuove conoscenze (McCann, Ortega-Argilés, 2015).

In linea di principio, la scelta dei domini tecnologici dovrebbe provenire da un'analisi delle effettive specializzazioni economiche, tecnologiche e di ricerca della regione, un'analisi volta ad identificare i domini con il maggior potenziale. L'adozione del processo di scoperta imprenditoriale (Foray *et al.*, 2009) dovrebbe garantire che la scelta dei domini di specializzazione si basi sulle capacità effettivamente presenti nella regione. La logica sottostante è che aziende e ricercatori, in quanto direttamente coinvolti nello sviluppo di tecnologie e prodotti, siano meglio informati rispetto ai *policy maker* su quali siano i settori più promettenti verso cui indirizzare i fondi pubblici e privati destinati a ricerca e innovazione.

Un ostacolo che le regioni hanno dovuto affrontare nel processo di progettazione è la mancanza di metodologie e di dati adeguati. In primis, i dati relativi alla specializzazione regionale sono generalmente organizzati in base ai codici di classificazione delle attività economiche (NACE). Questa classificazione si basa principalmente sulla descrizione di prodotti o servizi e potrebbe quindi non essere appropriata al fine di identificare le tecnologie che sono effettivamente utili per l'attività innovativa in un settore. Questo problema è sempre più rilevante. I prodotti infatti stanno diventando sempre più complessi e la loro produzione fa uso di conoscenze provenienti da una pluralità di domini tecnologici eterogenei fra loro. Questa tendenza risulta evidente se si pensa alla crescente rilevanza delle tecnologie trasversali (*key enabling technologies*): tecnologie che possono avere importanti applicazioni in molteplici settori, talvolta distanti da quelli in cui sono state sviluppate originariamente.

Un ulteriore problema pratico che le regioni hanno dovuto affrontare nell'individuazione dei domini tecnologici è stato l'assenza di un sistema codificato per la loro classificazione. Di conseguenza, nei documenti S3 prodotti dalle diverse regioni i domini di specializzazione tecnologica (così come i sottodomini) sono presentati usando il linguaggio naturale, cioè non standardizzato. Questa scelta ha permesso alle regioni di essere alquanto flessibili (e talvolta creative) nell'identificazione dei domini di specializzazione, generando però diversi inconvenienti. Il primo è la mancanza di controllo sull'effettivo contenuto tecnologico considerato all'interno di una specifica denominazione Il secondo è che lo stesso dominio tecnologico potrebbe essere descritto in modo diverso. Il terzo inconveniente discende dai prime due ed è relativo ad una ridotta comparabilità che ostacola l'utilizzo di analisi quantitative.

Partendo da queste premesse, gli obiettivi di questo lavoro sono i seguenti: a) proporre una metodologia per descrivere in modo più rigoroso e controllato i domini tecnologici di specializzazione scelti dalle regioni; b) svolgere un'analisi quantitativa sui domini tecnologici scelti dalle regioni al fine di valutare il loro grado di complementarietà e la congruenza con le effettive capacità tecnologiche possedute dalle regioni in questi domini.

Utilizzando i termini specifici riportati nella guida della S3, ci occuperemo di valutare (ex-post) il grado di *embeddedness*, cioè quanto i domini scelti siano coerenti con le capacità già presenti sul territorio, e il grado di *relatedness*, cioè quanto i domini scelti siano collegati e complementari tra di loro.

Per superare il problema della tassonomia dei domini tecnologici, è stato utilizzato il sistema internazionale di classificazione dei brevetti (*International Patent Classification*, IPC). Questo sistema è universalmente adottato dagli uffici brevettuali per classificare le tecnologie cui un brevetto fa riferimento. È un sistema di classificazione delle tecnologie ampiamente conosciuto che si riferisce a domini tecnologici piuttosto che a settori industriali. Più in particolare, per ogni regione italiana abbiamo associato ai domini di specializzazione dichiarati nei documenti S3 i corrispondenti codici IPC a 3 cifre.

Al fine di misurare il grado di specializzazione effettivo relativo ai diversi domini tecnologici, abbiamo calcolato diversi indicatori di specializzazione tecnologica basati sulle domande di brevetto (*patent application*) depositate tra il 2002 e il 2012 presso il *World Intellectual Property Organization* (WIPO) tramite il *Patent Cooperation Treaty* (PCT). Ogni domanda è stata associata a una o più regioni utilizzando gli indirizzi degli inventori.

Utilizzando le specializzazioni dichiarate dalle regioni, da noi tradotte in specifici codici IPC, ed i brevetti depositati associati alle diverse regioni, abbiamo sviluppato due tipologie di indicatori. Una prima tipologia di indicatori ha come obiettivo la valutazione (e quantificazione) della coerenza tra i domini tecnologici

scelti e quelli in cui una regione è effettivamente specializzata in termini di produzione brevettuale.

2. Metodologie di misurazione proposte

Nonostante l'enfasi posta dalle linee guida sulla necessità di basare la strategia S3 su un'analisi delle caratteristiche già presenti sul territorio, poche regioni hanno provato a fornire misure specifiche a tal riguardo limitandosi ad analisi di tipo qualitativo. Quasi del tutto assente risulta l'analisi del grado di collegamento e complementarietà dei domini tecnologici scelti (Iacobucci, 2014; Iacobucci, Guzzini, 2016).

Ci sono due ragioni principali che spiegano queste carenze. La prima è l'assenza di una metodologia comune per valutare il grado di coerenza e il grado di collegamento/complementarietà tra i domini tecnologici. La seconda è la mancanza di dati e informazioni adeguati per applicare metodologie di tipo quantitativo. Ad esempio, nella guida S3 una metodologia suggerita per l'analisi della *relatedness* è basata sui movimenti di capitale umano fra settori (*Reveald Skill Relatedness*). Questa richiederebbe la disponibilità di dati individuali sulla mobilità del lavoro tra le imprese, dati disponibili solo in poche regioni dell'UE e valida solamente per alcune tipologie di lavoratori.

La nostra metodologia propone di tradurre i domini tecnologi scelti dalle regioni in codici IPC, in modo da superare i problemi di ambiguità e comparabilità legati all'utilizzo del linguaggio naturale. I codici IPC inoltre permettono di quantificare la presenza sul territorio di capacità innovative in uno qualsiasi dei domini tecnologici, utilizzando i dati di produzione brevettuale.

I brevetti rappresentano uno dei principali risultati del processo di innovazione ed indicano domini tecnologici in cui imprese e istituti di ricerca stanno investendo ed accumulando conoscenza. Nonostante questo, i brevetti non sono la sola produzione di attività innovative e potrebbero non fornire una rappresentazione esaustiva della base di conoscenza di una regione. In alcuni settori, i brevetti sono meno rilevanti per proteggere la conoscenza tecnologica e quindi il loro uso è limitato. Inoltre, mentre i brevetti rappresentano una forma di conoscenza codificata, una rilevante parte del know-how tecnologico si basa su conoscenze informali non codificate. Nonostante queste limitazioni, il numero di brevetti è uno dei principali indicatori della capacità di sviluppare nuove conoscenze caratterizzate da una chiara applicazione pratica e implicitamente da una valenza economica, seppur solo potenziale. Considerato che uno degli obiettivi della S3 è ottenere un più efficace collegamento tra le attività di ricerca e gli output innovativi, i brevetti ben si prestano ad essere utilizzati per misurare le performance di questa politica. Inoltre, Acs *et al.* (2002) hanno dimostrato che i

brevetti possono essere considerati delle misure approssimate ma affidabili delle performance innovative a livello regionale.

L'analisi empirica si basa su due principali fonti di dati. Per individuare i domini di specializzazione target della S3 sono stati utilizzati i documenti ufficiali approvati dalle regioni italiane. Per quantificare le capacità innovative a livello territoriale, abbiamo usato le domande di brevetto contenute nel database REGPAT dell'OCSE (versione: febbraio 2016; vedere Maraut *et al*. 2008 per una descrizione).

Dai documenti S3 delle 20 regioni italiane sono stati estratti i domini tecnologici scelti dalle autorità regionali al più alto livello di descrizione. Poiché ogni regione li ha definiti utilizzando il linguaggio naturale e senza fare riferimento a un sistema di classificazione comune, è stato attuato un processo di omogeneizzazione della tassonomia per avere informazioni completamente confrontabili.

A tal fine, è stata eseguita un'associazione sistematica tra la descrizione più dettagliata dei domini tecnologici fornita nei documenti S3 e i corrispondenti codici a 3 cifre del codice internazionale della classificazione dei brevetti (IPC). Questa associazione è stata effettuata in modo semi-automatico utilizzando il servizio pubblico IPCCAT (*Categorization Assistant* nella classificazione internazionale dei brevetti). La mappatura automatica è stata quindi rivista manualmente da esperti. È bene sottolineare che in tutta la nostra analisi ciascun dominio tecnologico è identificato quindi da un codice IPC a 3 cifre, con cui c'è quindi una corrispondenza biunivoca.

Ad esempio, la regione Campania ha indicato 6 settori tecnologici tra cui l'aerospazio. Sotto quest'ultimo dominio, il documento S3 elencava 35 sottodomini tecnologici specifici (al livello più dettagliato). Ad ognuno di essi è stato associato un codice IPC, che ha portato a 5 codici IPC diversi e unici (a livello di tre cifre). Così è stata ottenuta una mappa dettagliata dei domini tecnologici scelti e dei codici IPC corrispondenti.

Nel complesso, i domini di specializzazione contenuti nei documenti S3 sono stati mappati in 64 diversi codici IPC, con G06 (sistemi o metodi di elaborazione dati) con la frequenza più elevata tra le regioni. Dei 64 codici IPC, 20 codici (31%) hanno una frequenza pari a 1, suggerendo un moderato livello di diversificazione delle regioni italiane nella scelta dei loro domini di specializzazione.

Il database OECD RegPat fornisce informazioni sui codici IPC a cui appartiene un brevetto, l'indirizzo del richiedente (i) e dell'inventore (i) e l'anno di presentazione della domanda. Sono state prese in considerazione le domande di brevetto PCT dal 2002 al 2012 con almeno uno degli inventori localizzati in Europa assegnando a ciascuna regione europea NUTS2 il numero corrispondente di brevetti. Questi dati hanno permesso di valutare le dinamiche dell'innovazione e della specializzazione tecnologica all'interno delle regioni europee, come misurato dai brevetti (Kogler *et al.*, 2017).

Si è adottato il *fractional count*[1] delle domande di brevetto di tipo PCT (quindi al WIPO) per ogni classe IPC a 3 cifre (se un brevetto è stato classificato in più di una classe IPC, il suo conteggio frazionario è considerato per ogni classe IPC a cui appartiene) in ogni anno e in ogni regione europea NUTS2.

3. Indicatori di coerenza

L'indicatore di coerenza da noi calcolato misura il grado di sovrapposizione tra i codici IPC scelti dalle regioni (corrispondenti ai domini dichiarati) e i codici IPC in cui la regione presenta una effettiva specializzazione in termini di produzione brevettuale. Per definire la specializzazione in un dominio tecnologico abbiamo calcolato opportuni indici di specializzazione relativa e assoluta.

Come D'Adda *et al.* (2018a)[2], definiamo il grado di coerenza per una generica regione *k* come

$$C_k = \frac{\sum_{i=1}^{N} I(i \in S_k) \cdot I(RCA_{(k,i)}^{norm} > 0)}{\sum_{i=1}^{N} I(i \in S_k)} \qquad [1]$$

dove *I* è una funzione indicatrice uguale a 1 quando la condizione fra parentesi è verificata. L'indice *i* identifica una specifica classe IPC e S_k è l'insieme di classi IPC scelti dalla regione *k* nella propria S3. $RCA_{(k,i)}^{norm}$ è un indicatore di specializzazione relativa à la Balassa normalizzato come Dalum *et al.* (1998). In altre parole, questo ultimo è superiore a 0 quando la regione *k* è relativamente specializzata nella classe IPC *i*, cioè ha capacità innovative relativamente più sviluppate in quel dominio tecnologico. In pratica, questo indicatore calcola la percentuale di classi IPC in cui la regione ha dichiarato come target della propria S3 ed in cui è effettivamente specializzata.[3]

1. I brevetti possono avere più inventori e/o proprietari. Nell'associare un brevetto ad una regione, un brevetto con più inventori localizzati in diverse regioni può essere contato interamente in ciascuna delle due regioni (*whole count*) oppure a ciascuna regione può essere associato una frazione del brevetto, in modo che sommando su tutte le regioni quel brevetto corrisponda a un totale del 100%. Per esempio, se due inventori sono localizzati in due diverse regioni, nel caso di conteggio frazionario (*fractional count*) in ciascuna di esse quel brevetto sarà conteggiato con un valore pari a 0.5 (o 50%). Per confrontare le performance brevettuali a livello regionale è consuetudine utilizzare il conteggio frazionario.

2. A differenza del lavoro di D'Adda *et al.* (2018a), per semplicità in questo lavoro abbiamo deciso di focalizzarci su un unico indicatore calcolato usando misurando l'effettiva specializzazione in termini relativi, usando cioè l'indice di Balassa come indicatore della presenza di una effettiva capacità innovativa locale in un determinato dominio tecnologico.

3. Per esempio, supponiamo che una regione sia specializzata (cioè ha un indice di Balassa normalizzato superiore a 0) nella classe IPC A01 (agriculture; forestry; animal husbandry; hunting; trapping; fishing) e A21 (baking; equipment for making or processing doughs; doughs for baking) ma non è specializzata in A22 (butchering; meat treatment; processing poultry or fish). Diciamo

4. Indicatori di *relatedness*

L'indicatore di *relatedness* da noi calcolato misura il grado di prossimità medio tra tutte le coppie di codici IPC scelti dalle regioni (corrispondenti ai domini dichiarati). Per definire la prossimità tra due codici IPC (domini tecnologici) abbiamo utilizzato come misura la probabilità che una regione sia contemporaneamente co-specializzata in due codici IPC. Questa metodologia segue quella proposta originariamente da Hidalgo *et al.* (2007) e applicati a flussi di commercio tra nazioni. In particolare, definiamo la prossimità tra due classi IPC *i* e *j* come il minimo tra la probabilità condizionata "a coppie":

$$proximity_{i,j} = \min(P(RCA_i > 0 \mid RCA_j > 0), P(RCA_j > 0 \mid RCA_i > 0)) \quad [2]$$

dove

$$P(RCA_i > 0 \mid RCA_j > 0) = \frac{P(RCA_i > 0 \wedge RCA_j > 0)}{P(RCA_j > 0)} \quad [3]$$

In altre parole, l'ultima formula calcola quanto frequentemente una regione è specializzata (indice di Balassa normalizzato superiore a 0) nella classe *i* dato che è specializzata nella classe *j*. Contiamo quindi il numero di regioni europee specializzate sia nella classe *i* che nella classe *j* e dividiamo per il numero di regioni specializzate nella classe *j*. Le prossimità così calcolate vanno a comporre una matrice $N \times N$, dove N è il numero di classi IPC, che indica la probabilità che una regione sia co-specializzata nelle classi *i* e *j*.

Come D'Adda *et al.* (2018b), definiamo l'indice di *relatedness* come la prossimità media dei codici IPC scelti dalle regioni nella propria S3. In formula, la *relatedness* per la generica regione *k* è uguale a:

$$R_k = \frac{\sum_{i \in S_k} \sum_{j \in S_k, j \neq i} proximity_{i,j}}{\sum_{i \in S_k} \sum_{j \in S_k, j \neq i} 1} \quad [4]$$

5. Risultati

Come previsto dalla logica di S3, le regioni hanno scelto un numero di domini di specializzazione inferiore al numero di quelli in cui mostrano una effettiva specializzazione relativa: in media i primi sono circa un terzo di questi ultimi (vedi Tabella 1). Tuttavia, come evidente dalla Figura 1 ci sono grandi differenze tra le regioni. I casi opposti sono Toscana e Campania che mostrano un numero

anche che questa regione ha dichiarato come target prioritari della propria S3 (solo) le classi A21 e A22, ma non A01. In questo caso, diciamo che la regione è stata "coerente" per quanto riguarda la scelta della classe A21 e non coerente per scelta della classe A22, siccome in questa ultima classe non risulta essere specializzata. Il risultante indicatore di coerenza sarà quindi uguale a 0.5 (1 classe scelta in cui la regione è effettivamente specializzata sulle due classi effettivamente scelte.

simile di campi tecnologici con relativa specializzazione (rispettivamente 48 e 47): tuttavia, la Toscana ha indicato solo 6 domini tecnologici nel suo documento S3, mentre la Campania ne ha indicati ben 33. Le regioni che mostrano un focus più stretto nella loro S3 (rispetto alla loro effettiva estensione di specializzazione) sono Marche, Sardegna, Molise, Provincia Autonoma di Bolzano, Umbria, Veneto e Sicilia. Al contrario, insieme alla Campania ci sono altre regioni che hanno optato per un livello di specializzazione inferiore: Basilicata, Calabria e Provincia Autonoma di Trento.

Inoltre, attraverso l'indice di coerenza abbiamo verificato anche quanto i domini scelti siano quelli in cui la regione ha un'effettiva specializzazione

Tabella 1 – Indicatori di specializzazione delle regioni italiane

Regione	*Numero di codici IPC*		*Indice di coerenza*	*Indice di relatedness*
	con indice di $RCA^{norm} > 0$	*corrispondenti ai domini scelti nella S3*	C_k	R_k *(p-value)*
	(n)	*(n_s3)*	*(c)*	*(r)*
Basilicata	29	13	0,31	0,224 (0,952)
Calabria	39	17	0,59	0,397 (0,000)
Campania	47	33	0,55	0,276 (0,354)
Emilia-Romagna	52	15	0,47	0,277 (0,391)
Friuli Venezia Giulia	43	16	0,44	0,335 (0,005)
Lazio	45	17	0,47	0,284 (0,270)
Liguria	50	16	0,50	0,339 (0,004)
Lombardia	70	19	0,42	0,264 (0,627)
Marche	52	10	0,30	0,293 (0,242)
Molise	25	5	0,40	0,415 (0,003)
Piemonte	59	15	0,47	0,301 (0,113)
P.A. Bolzano	44	9	0,33	0,322 (0,070)
P.A. Trento	48	22	0,50	0,284 (0,247)
Puglia	46	11	0,64	0,275 (0,439)
Sardegna	44	8	0,25	0,298 (0,216)
Sicilia	40	10	0,60	0,328 (0,041)
Toscana	48	6	0,17	0,385 (0,009)
Umbria	46	10	0,40	0,345 (0,012)
Valle d'Aosta	25	9	0,33	0,363 (0,006)
Veneto	56	13	0,62	0,346 (0,005)
media	*45,40*	*13,70*	*0,44*	*0,32*
dev. standard	*10,78*	*6,35*	*0,13*	*0,05*

tecnologica relativa. In media, l'indicatore di coerenza è pari al 44%. Anche in questo caso però ci sono grandi variazioni intorno alla media, dai valori più bassi di Toscana e Sardegna ai valori più alti di Puglia e Veneto. Vale la pena

Figura 1 – Numero di domini in cui le regioni sono effettivamente specializzate (con RCA_{norm}>0) vs. numero di domini scelti nella S3

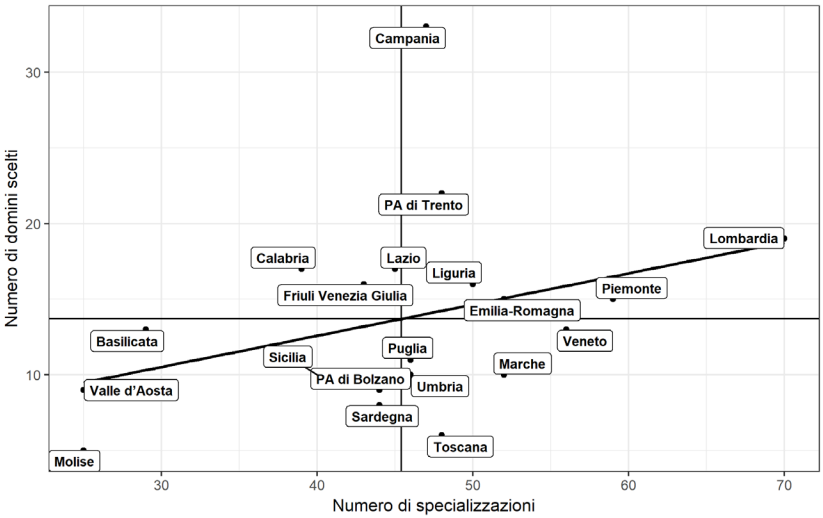
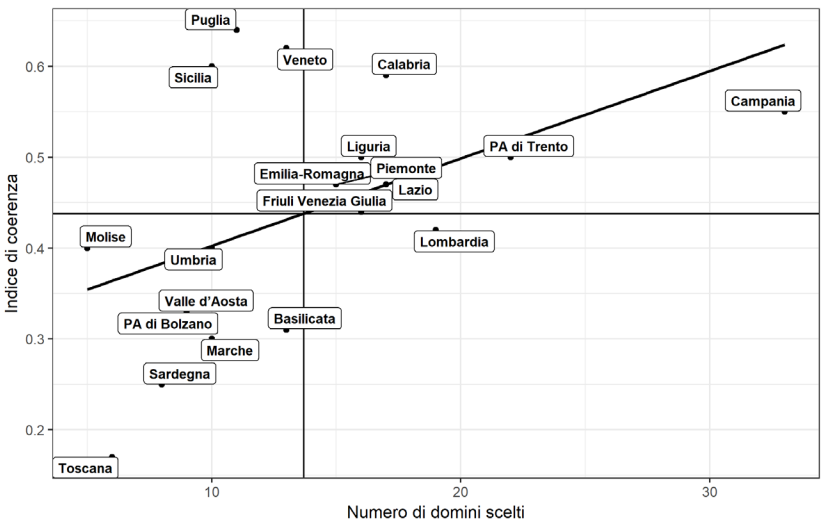


Figura 2 – Numero di domini scelti dalle regioni nella S3 e indice di coerenza



ricordare che abbiamo usato il concetto di coerenza in un modo "neutrale", ciò non implica alcun giudizio sulle scelte fatte dai governi regionali. Queste ultime potrebbero infatti avere scelto domini in cui non la regione non è ancora specializzata ma su cui punta in futuro, oppure domini emersi dal processo di scoperta imprenditoriale. Indipendentemente dal criterio utilizzato nella scelta, crediamo sia comunque importante comprendere l'effettiva capacità innovativa posseduta dalla regione nei domini tecnologici scelti.

Il livello di specializzazione e il grado di coerenza consentono di suddividere le regioni in quattro gruppi in base alla loro distanza dai valori medi dei due indicatori (vedi Figura 2). Ci aspetteremmo che tra i due indicatori sussista una relazione negativa: maggiore è l'estensione della specializzazione, maggiore potrebbe essere il rischio di perdere coerenza nella scelta dei domini tecnologici. Questo non è sempre vero, circa la metà regioni nonostante una ristretta specializzazione scelta sono caratterizzate da un basso grado di coerenza. Al contrario, altre fanno registrare un livello di coerenza al di sopra della media sebbene abbiano una ampia estensione della specializzazione.

L'indicatore di *relatedness* dà una indicazione di quanto sia la vicinanza media tra tutte le possibili combinazioni di coppie di domini tecnologici scelti dalle regioni nelle rispettive S3. Con poche eccezioni infatti, gli indicatori di *relatedness* sono significativamente differenti da quelli che si sarebbero potuti ottenere scegliendo i domini in maniera casuale[4], come evidenziato in Tabella 1. Questo però non è necessariamente il risultato di un processo di selezione da parte delle regioni volto a tenere in considerazione i legami tra i domini scelti. Questo indicatore è naturalmente portato a peggiorare con il numero di domini scelti, infatti l'eterogeneità tra domini tende ad aumentare con il numero (vedi Figura 3).

Se guardiamo il legame tra indice di coerenza e indice di *relatedness*, questi non sembrano essere particolarmente legati tra di loro (vedi Figura 4). Le 20 regioni considerate si distribuiscono in maniera abbastanza equilibrata nei 4 quadranti delimitati dai rispettivi valori medi.

Infine, è interessante notare come i nostri indicatori non presentino correlazioni estremamente elevate né tra di loro né con caratteristiche generali quali la popolazione, la densità abitativa e il *regional innovation index* (fonte: Regional Innovation Scoreboard 2017, European Commission, 2017), riportati in Tabella 2. Prestando le dovute cautele dato il limitato numero di osservazioni (20), si

4. Per calcolare il p-value riportato in tabella, abbiamo utilizzato un test esatto di Fisher. In particolare, abbiamo estratto casualmente un numero di IPC uguale a quello scelto dalla particolare regione in modo ripetuto (10.000 estrazioni). Per ogni estrazione abbiamo calcolato il relativo indice di *relatedness*. Confrontando la distribuzione degli indici di *relatedness* estratti casualmente ed il valore dell'indice di i calcolato usando i domini effettivamente scelti abbiamo ottenuto il *p-value*, cioè la probabilità che un'estrazione casuale dia un indice di *relatedness* superiore o uguale a quello effettivo.

può notare che l'unica relazione significativa risulta essere quella positiva tra il *regional innovation index* ed il numero di domini tecnologici in cui una regione è relativamente specializzata (vedi Tabella 3).

Figura 3 – Numero di domini scelti dalle regioni nella S3 e indice di relatedness

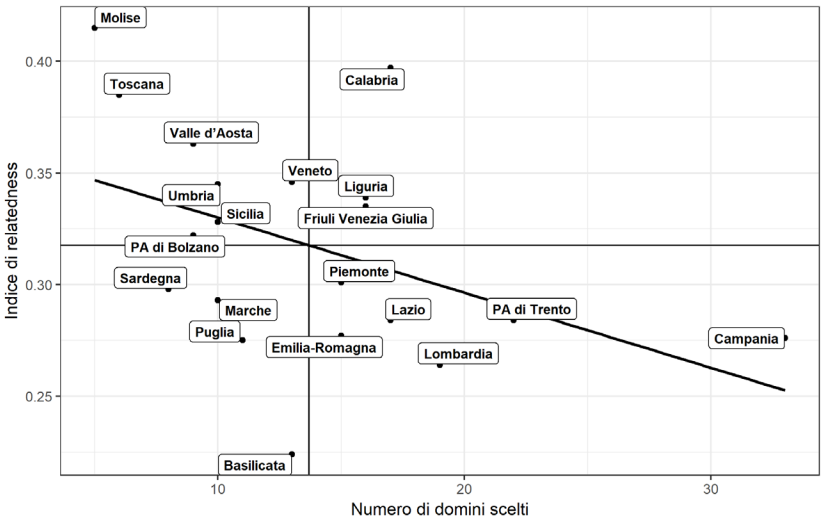


Figura 4 – Indice di coerenza vs. indice di relatedness

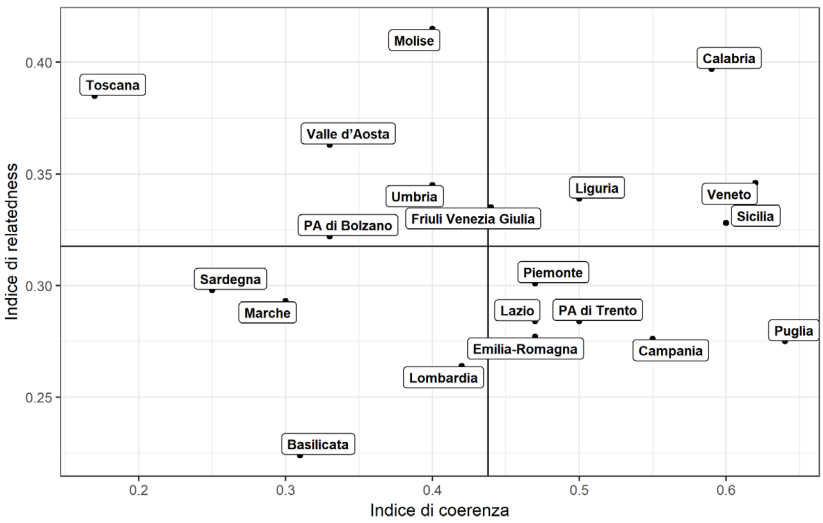


Tabella 2 – Caratteristiche delle regioni italiane

Regione	*Popolazione nel 2016 (milioni di abitanti) (pop)*	*Densità nel 2015 (abitanti/km²) (den)*	*Regional Innovation Index 2017 (innoindex)*
Abruzzo	1.327	122,7	66,19
Basilicata	574	57,1	59,42
Calabria	1.971	129,7	59,29
Campania	5.851	428,4	59,31
Emilia-Romagna	4.448	198,2	81,98
Friuli-Venezia Giulia	1.221	155,7	90,15
Lazio	5.888	341,8	75,52
Liguria	1.571	291,2	71,40
Lombardia	10.008	419,3	81,65
Marche	1.544	164,6	71,19
Molise	312	70,1	62,60
Piemonte	4.404	173,9	81,85
P.A. Bolzano	521	70,2	71,24
P.A. Trento	538	86,6	80,42
Puglia	4.077	209	60,07
Sardegna	1.658	68,9	53,74
Sicilia	5.074	196,8	52,70
Toscana	3.744	163,1	77,46
Umbria	891	105,5	76,21
Valle d'Aosta	127	39,2	60,54
Veneto	4.915	267,4	81,46

Tabella 3 – Matrice di correlazione

	n	*n_s3*	*c*	*r*	*pop*	*den*	*innoindex*
n	1,00	0,35	0,18	-0,35	0,68	0,63	0,59
n_s3	0,35	1,00	0,47	-0,44	0,41	0,64	0,15
c	0,18	0,47	1,00	-0,05	0,35	0,44	-0,03
r	-0,35	-0,44	-0,05	1,00	-0,34	-0,31	-0,05
pop	0,68	0,41	0,35	-0,34	1,00	0,85	0,19
den	0,63	0,64	0,44	-0,31	0,85	1,00	0,22
innoindex	0,59	0,15	-0,03	-0,05	0,19	0,22	1,00

6. Conclusioni

Questo lavoro ha come obiettivo quello di proporre alcune metodologie che consentano di misurare in termini oggettivi alcune delle dimensioni dell'implementazione della *Smart Specialisation Strategy* da parte delle regioni. In primis, la traduzione dei domini di specializzazione scelti in codici IPC permette di risolvere le ambiguità che contraddistinguono i documenti ufficiali stilati dalle regioni, rende misurabile l'ampiezza della specializzazione e permette di collegare i domini scelti all'attività brevettuale. Abbiamo quindi utilizzato i brevetti per mappare quelle che sono le capacità innovative a livello locale nei diversi domini tecnologici.

La metodologia quantitativa sviluppata permette di valutare quanto le regioni abbiano scelto domini tecnologici in cui mostrano una effettiva capacità innovativa (indicatori di coerenza) e quanto questi domini siano tra loro collegati e complementari (indicatori di *relatedness*). In questo lavoro abbiamo quindi presentato solo alcuni dei possibili indicatori, rimandando per approfondimenti a D'Adda *et al.* (2018 a, b).

Questo studio ovviamente non è esente da limiti. Uno di questi è per esempio l'utilizzo dei brevetti per misurare la specializzazione tecnologica di una regione. Pensiamo tuttavia che questa scelta sia particolarmente in linea con le politiche di S3, che sottolineano l'importanza di tradurre la ricerca e sviluppo in innovazione, cioè in applicazioni/prodotti di utilità pratica e con valore economico.

Nonostante le limitazioni, riteniamo che la metodologia qui proposta possa costituire un punto di partenza per misurare in termini quantitativi i gradi di coerenza e *relatedness* tra i domini tecnologici scelti dalle regioni, due dimensioni chiave delle politiche di S3. Queste misure potrebbero aiutare le regioni ad essere più consapevoli delle scelte fatte in sede di pianificazione nonché a monitorare l'implementazione e valutare i risultati di queste politiche.

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Abstract

Smart Specialisation Strategy: measuring the degree of embeddedness and relatedness between technological domains

Smart Specialisation Strategy required regional authorities to identify technological domains where to concentrate investment in R&D and innovation. In principle, their choices should originate from an analysis of regional strengths, aiming to identify the domains with the greatest potential for innovation. Given that regional technological specialization shows high path-dependency, a diversification strategy is effective only toward sectors that are closely related to the existing local knowledge base. This work suggests some methodological solutions aimed at facilitating and evaluating regional choices about the technological domains to target, given S3 policy expectations. In particular, we propose methodologies aimed to measure: a) the degree of coherence between the technological domains chosen by regions, which are the targets for their specialisation strategy, and the actual local knowledge base (embeddedness); b) the degree of complementarity of the chosen technological domains (relatedness), so as to maximise the effectiveness of regional innovation and diversification efforts.

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Part II

Human Capital and Migration

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Some Stylized Facts on Italian Inter-regional Migration

Davide Fiaschi, Cristina Tealdi°*

Abstract

In this chapter we provide a descriptive analysis of inter-regional mobility in Italy for the period between 1992 and 2005. We use ISTAT data on the change of residence for groups of individuals according to age and education. We find evidence of two different types of migration. The first is the migration of working age individuals who respond to changes in economic conditions. The second is the return migration, which involves older cohorts of individuals, it is mainly driven by factors non-economic in nature and it is roughly constant over time. We also find that migration intensity generally increases over the period, but only for the first type of migration, while return migration, after a phase of stability, decreases in 2004 and 2005. Overall, the use of disaggregated data by age and education appears crucial for the correct identification of the determinants of migration.

1. Introduction[1]

For quite some time, researchers have focused mostly on international migration, while having dedicated relatively little attention to internal migration (Gallo, 2012). This is because internal migration has a much lower impact and visibility in national societies and is considered much easier to manage compared to international migration (Bonifazi, Heins, 2009). However, in Italy internal migration is a rather important phenomenon, given the presence of important and persistent regional disparities (Zamagni, 2008; Banca d'Italia, 2010). In particular, the existence of a large and persistent regional economic divide in Italy, with the poor South legging behind the wealthy North is a well-known and extensively studied phenomenon (Checchi, Peragine, 2010; Gagliardi, Percoco, 2011; Larcinese, 2008; Faini, *et al*. 1997).

In the period between the end of the 19th century and the beginning of the 20th century the migration intensity from Italy towards other countries, particularly

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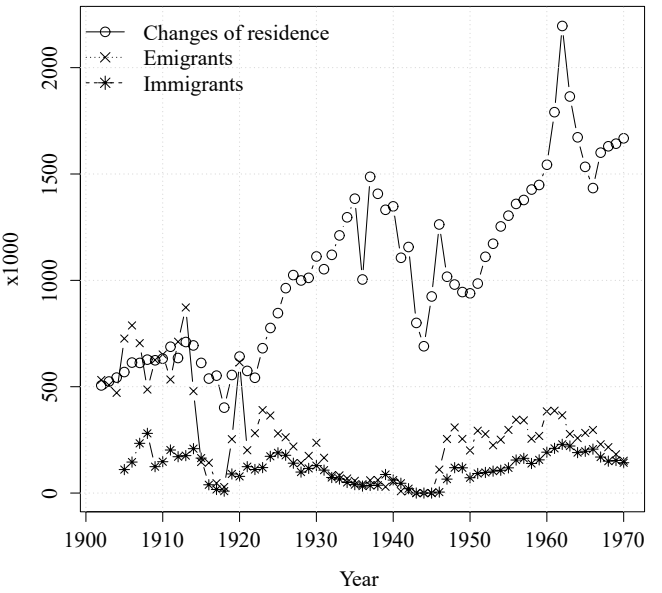
towards America, reached extraordinary levels. Between 1876-1880 approximately 544,000 left the Italian peninsula, while in the years 1896-1900 this number was up to 1.5 million. Remarkably, in 1913 more than 800,000 people left Italy, which is more than the number of inhabitants in the city of Milan in the same year (Bonifazi, Heins, 2000). However, parallel to what was defined as "The Great Exodus", the internal migration rate was also significantly high (Figure 1). Data from the 1861 Italian census show that three forth of the migration flows remained within the national borders, while only one fourth was towards a foreign country. In the period between the two wars, while internal mobility remained rather high, the flows of migrants towards foreign countries declined significantly.

It was after the WWII that both internal and international mobility picked up again, with internal migration growing faster than international migration. Italy considerably suffered from severe damage to its industry and infrastructure and was dealing with the heavy inheritance of 20 years of dictatorship largely based on isolation and autarchy. Since 1945 Italy went through the most in-depth social transformation in its history: from an agricultural and rural country to a modern industrial economy. Between 1948 and 1963, the GDP at constant prices grew at a rate of 6% per year, with huge effects on population flows. The migration flows peaked in 1961-63,

Figure 1 – International Flows of Emigrates, Immigrates, and Changes of Residence (1902-1970)



Source: Gallo (2012)

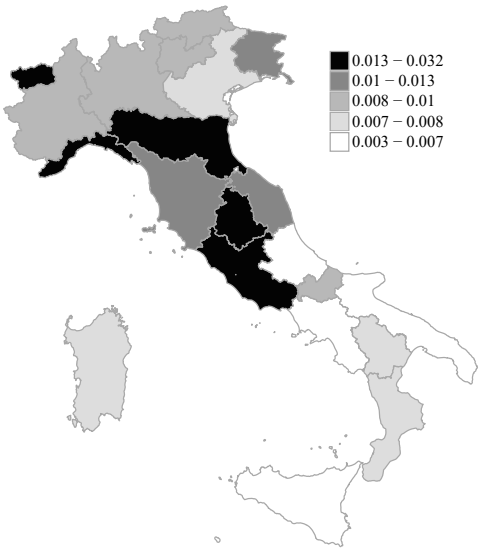
reaching 4.3% per thousand in 1962, equivalent to 2.2 million reallocations (Figure 1). Even though the 1961-63 peak was somehow inflated, as it reflected the effects of post-census adjustments and the retraction of the fascist law, which had placed severe limitations on changes of residence, the numbers were impressive (Bonifazi, Heins, 2000; Gallo, 2012). The major industrial cities in North-West of Italy (Milan, Turin and Genoa) absorbed immigrants from neighbouring provinces and regions, as well as from other Italian regions. "Italy was [..] crossed [..] by a variety of short-, medium- and long-distance transfer flows with different main directions: from the South to the central and north-western areas; from East to West; from small- and medium-sized towns to medium-, large- and very large-sized cities; from the mountains to the hills and the plain, from agriculture to industry, crafts and services" (Sonnino, 1995).

This intense phase ended in the early 1970s; after the migration flows changed and lost their link to the economic disparities (Bonifazi, Heins, 2000). The migration rate decreased in the 1970s, although there was a slight revival between 1979 and 1982. Subsequently, the rate continued to fall until 1995. Specifically, in 1970 the internal rate was approximately 2.6%, which corresponded to 1.4 million individuals changing residency, while in 1991 the migration rate was down to 1.8% corresponding to 1 million individuals moving within the country. After 1995, internal migration increased again reaching in 2008 a rate of approximately 2.4%, which corresponds to 1.4 million individuals relocating internally (Gallo, 2012).

Italy in the last thirty years, relates to the model stages of a Late Transitional Society and an Advanced Society, as defined by Zelinsky (1971), which conforms to a decline in movements from countryside to city, a decline in emigration, and the increasing importance of residential mobility. Over the past 20 years, however, the character of migration has changed. The function of internal migration in regional labour market readjustment has declined, there have been more moves to suburban areas, and consumption-oriented (family and amenity-related) flows have increased with respect to production-oriented (job and employment-related) ones (Terra-Abrami, Bonaguidi, 1993; 1996). In addition, an increase in low-skilled and medium-skilled immigration can be observed. In particular, statistics about the migration flows in the period 1992-2005 show that approximately 2% of the Italian population each year changes residency. Inter-regional migration accounts for 24% of total migration, which corresponds to approximately 320.000 people moving from one region to another. Northern regions, such as Lombardy, Piedmont and Veneto, are still the most chosen destination regions, while Southern regions such as Campania, Puglia, Basilicata, Calabria e Sicilia have more outflows than inflows (Figures 2 and 3).

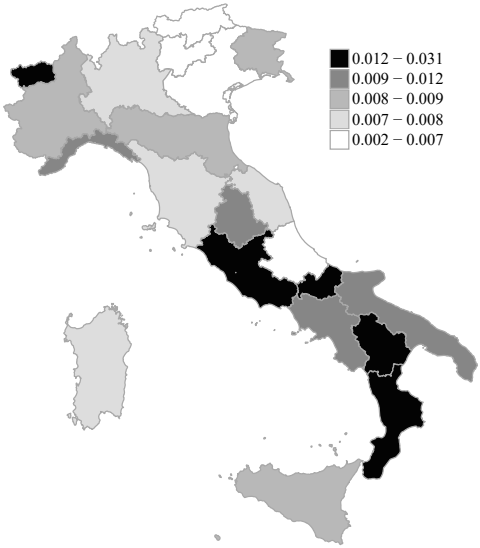
Large disparities among regions are persistent, particularly between the North and the South of the country, and they contribute to explain part of the long-distance migration flows. However, the heterogeneity in the migration flows and the

Figure 2 – Regional Immigration Rate for Individuals Coming from other Italian Regions in 2005



Source: our calculations based on Mocetti and Porello (2010) and European Labour Survey

Figure 3 – Regional Emigration Rate for Individuals Going to other Italian Regions in 2005



Source: our calculations based on Mocetti and Porello (2010) and European Labour Survey

new patterns of migration lead to think that new approaches are needed to analyse in depth the phenomenon. Hence, in this chapter we use a new methodology, which takes into account bi-directional migration flows: the Markov matrix.

The objective of this chapter is therefore to provide new evidence over the period 1991-2005 of the way labour mobility, specifically in terms of inter-regional migration, has changed over time, taking into account different types of migration and distinctive categories of migrants, classified according to age and education.

2. Literature

The literature on Italian internal migration is not very large and it mainly addresses the issue of South-North migration, disregarding the multiple and heterogeneous regional migration routes. The paper by Faini *et al*. (1997) indicates the presence of an empirical puzzle related to the coexistence of increasing employment differentials between the North and the South of Italy and lower migration rates in the period 1970-1990. This evidence seems to contradict the standard economic theory, according to which the larger the economic disparities between regions, the higher the migration rate (Hicks, 1932; Greenwood, Hunt, 1984; Greenwood, 1975). The authors argue that high mobility costs and inefficiencies in the job-matching process might rationalise the puzzle of falling migration and growing unemployment differentials in Italy. Attanasio and Padoa-Schioppa (1991) explain the decline in the propensity to migrate using as an argument the role of family and government support. Cannari *et al*. (2000) emphasize how the housing price differentials between the North and the South of Italy could have played a big role in explaining interregional migration flows until the mid-1990s. Fachin (2007) finds that the most important factor behind the fall in migrations is the income in the region of origin.

The new wave of internal migration which began after 1995 was characterized by a higher probability to migrate for high-skilled workers compared to low-skilled and medium-skilled workers. As pointed out in a report from Bank of Italy (Banca d'Italia, 2005), "while only 7% of the total working-age population in the South has a degree, 25% of migrants from the South to the Centre-North have one". Basile and Causi (2007) and Etzo (2008, 2011) claim that the increased migration rates since the mid 90s go in parallel with the increased unemployment differentials between North and South and identify per capita GDP as the main pull factor. Daveri and Faini (1999) pinpoint income risk as a significant determinant of the decision to migrate either abroad or inside the country as it represents a way of escaping uncertain income prospects. Cannari *et al*. (2000) and Mocetti e Porello (2012) find that other variables such as house prices, but also employment rate, temporary contracts, employment in public administration and immigration rate are important determinants of migration. Biagi *et al*. (2011) find that the determinants of long-distance migration are mostly

economic, while the determinants of short-distance migration mainly include variables related to the quality of life and amenities. Fratesi and Percoco (2014) focus on the impact of internal migration and show that selective migration from the South to the North increased the disparities between regions. On the contrary, Bartolucci *et al*. (2017) find that returns to ability are lower in the North than in the South and therefore those who decided to migrate to the North are mainly lower ability workers.

3. Migration Indexes based on Markov Matrices

In this section we develop a new index to measure the migration intensity inspired by the Shorrocks' index of mobility (Shorrocks, 1978) as well as a new long-distance migration index inspired by the Bartolomew's index (Bartolomew, 1973).

In the literature the two most common migration indexes are the migration rate and the net migration rate. We instead propose to analyse the Italian interregional migration phenomenon using Markov matrices. In a Markov matrix each element (*i,j*) reports how many individuals have migrated from region i to region j in a specific year. Each element of the Markov transition matrix instead provides information on the probability that an individual migrates from region i to region j in a specific period. This is estimated by the ratio of the individuals who moved from region i to region j and the population of region i in a specific period. We argue that our approach has two main advantages with respect to the use of (net) migration rates. First, using the Markov transition matrices we are able to measure both the migration intensity and the migration distance. Second, we are able to identify different migration patterns, for instance capturing return migration from the North to the South of the country. In particular, building on a well-established methodology developed in the literature on mobility by Shorrocks (1978), we propose as index to measure the inter-regional migration intensity:

$$I_{MI} = n/(n-1)(1-\sum_{(i=1)}^{n} f_i p_{ii}), \qquad [1]$$

where n is the number of regions, and p_{ii} is the element (i,i) of the inter-regional transition matrix, f_i is the weight of region i (the observed frequency of observations or the ergodic mass of region i), with $\sum_{i=1}^{n} f_i = 1$.

This index assigns higher weight to more populated regions, and varies in the range [0, 1], with I_{MI}=1 measuring the maximum migration intensity.

In addition, inspired by Bartholomew (1967), we propose an index to measure the long-distance migration between regions as:

$$I_{LDM} = \sum_{i=1}^{n} \frac{f_i}{1-p_{ii}} \sum_{j=1}^{n} d_{ij} p_{ij} \qquad [2]$$

where p_{ij} the element (i,j) of transition matrix P, and d_{ij} is an index of the (normalized) distance between region i and region j, i.e. $\sum_{j=1}^{n} d_{ij} = 1$. The latter index

is increasing with a higher prevalence of long-distance migration and lays in the range [0, 1], with I_{LDM}=1 measuring the maximum long-distance migration. The main difference with respect to the index proposed by Bartholomew is the normalization of the out-of-diagonal element p_{ij} with the mass $(1-p_{ii})$ to insulate the index from the change in the migration intensity. To understand the reason why this latter index is substantially different from the migration intensity index I_{MI}, express $a_{ij} = p_{ij}/(1-p_{ii})$ with $\sum_{j=1, j\neq i}^{n} a_{ij} = 1$, with a_{ij} being the transition probabilities normalized with respect to the mass of migrants. Then:

$$I_{LDM} = \sum_{i=1}^{n} f_i \sum_{j=1}^{n} d_{ij} a_{ij} \qquad [3]$$

while

$$I_{MI} = n/(n-1)\left(1 - \sum_{i=1}^{n} f_i p_{ii}\right) \qquad [4]$$

We observe that the migration intensity index I_{MI} is increasing in p_{ii}, while the long-distance migration index I_{LDM} is independent of p_{ii}.

4. Stylized Facts on Italian Interregional Migration

We use Italian National Institute of Statistics (ISTAT) data[2] on the change of residence at regional level for the period 1992-2005 to study the evolution of migration in Italy. Specifically, we observe migration flows from the region of origin to the region of destination for different categories of individuals, aggregated by age and education level.[3]

Migration is a complex phenomenon. People may decide to migrate for different reasons, which not always are economic in nature. Individuals may choose to go back home after many years they have been living abroad (return migration), or because they appreciate the amenities and the better quality of life that another place can offer, or for family reasons, e.g., to follow the spouse (Biagi *et al*., 2011). If we look at migration only at aggregate level, we run the risk of losing all this complexity and miss out in understanding the real nature of the phenomenon. Below, we carry out our analysis using disaggregated data by age and education, as those are the two main characteristics that help classify categories of individuals who respond to well-defined pull factors (Borjas, 2014; Borjas *et al*., 2017).

Looking at the migration intensity index (Figure 4) we find that the average value of the migration intensity index for people between the age of 15 and 64 in the

2. Data are available on S. Mocetti's website (https://sites.google.com/site/sauromocetti/open-data).
3. The education level is divided in 3 categories: high (tertiary level of education), medium (secondary level of education) and low (primary level of education). In this chapter we refer to individuals with high education levels and high-skilled individuals interchangeably (ILO, 2012).

period 1992-2005 is approximately 0.009.[4] In line with the literature on migration, we find that individuals with a high level of education migrate the most, followed by individuals with low and medium levels of education. Specifically, for high skilled workers the migration intensity index is approximately 0.01, while for medium skilled workers is approximately 0.006. One possible explanation is that high-skill migration increases as a reaction to immigration (Mocetti, Porrello, 2010): for the case of Italy, this hypothesis may be plausible as data show that since the end of the 90s immigration picked up. An alternative explanation is that labour market opportunities for high skill individuals are more spatially dispersed (Romani *et al*., 2003), and highly educated individuals are more efficient at gathering information and have greater knowledge of alternative opportunities (van Ham *et al*., 2001).

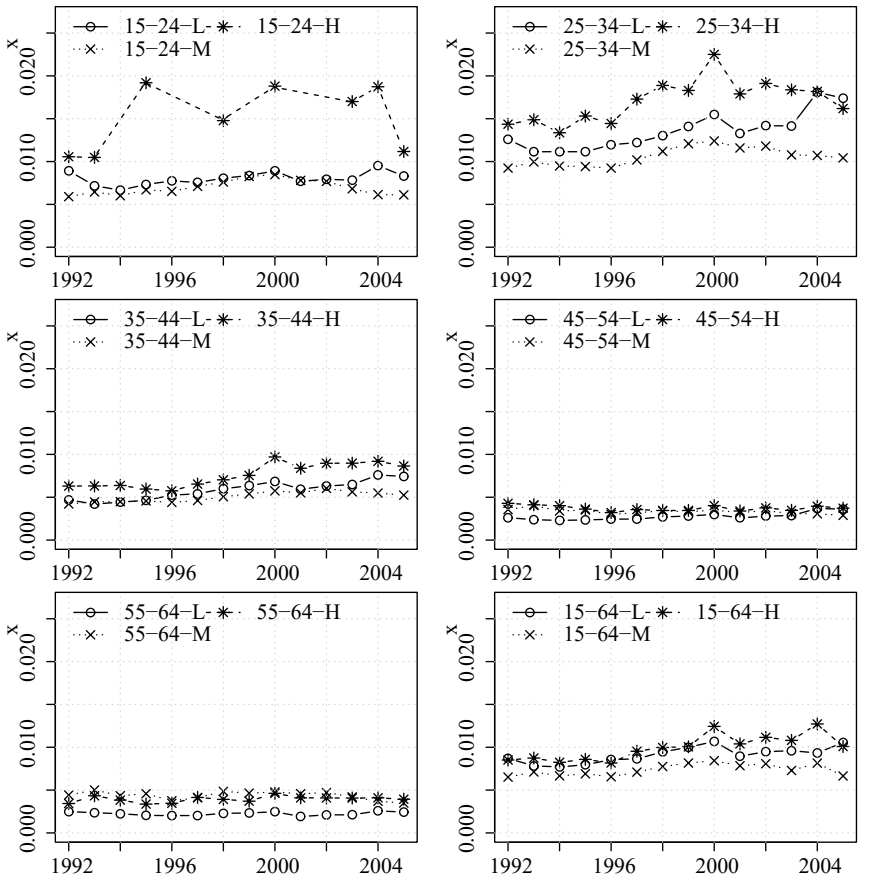
Second, in line with the literature (Romani *et al*., 2003), we find that younger individuals in the age cohorts 15-24, 25-34 and 35-44 are more likely to migrate than older individuals. Possible explanations refer to the fact that older workers are less likely to change jobs as they have accumulated firm-specific or sector-specific human capital which is not transferable across employers. Moreover, older workers are more likely to be home-owners and have family obligations, which are factors that increase significantly the cost of migration (Bonaguidi, 1987; van Ommeren *et al*., 1997; van Ham *et al*., 2001).

Looking at trends over time, we observe that starting from the end of the 90s younger people in the 25-34 and 35-44 years old age cohorts migrate more (Figure 4). The increasing trend is common across all levels of education, but particularly strong among individuals who hold a tertiary education level. We argue that these individuals are active on the labour market and hence their migration decision is mainly motivated by economic factors. In addition to having lower migration intensity, individuals in the 45-54 and 55-64 age cohorts also show flat trends, no matter what the level of education. The absence of fluctuations suggests that this type of migration is mainly driven by time-invariant pull factors, such as local amenities. The migrants' age and the flat trends lead to believe that these movements are ascribable to return migration. However, even for these two age groups, the level of education matters as highly educated individuals migrate more.

When we looked instead at the long-distance migration index (Figure 5), the picture that we get is rather different. When we think about long-distance migration in Italy, we often refer to the North-South migration, even though there are several other long-distance routes that individuals may follow. Individuals with a low level of education are the ones who migrate the most long-distance across all age groups, compared to individuals with a higher level of education. This might be due to the fact that moving costs are rather high and independent of distance and low-skill workers need to experience a high increase in wage in order for the benefits of moving

4. Figure 6 in the Appendix shows that migration index and crude migration rate are highly correlated.

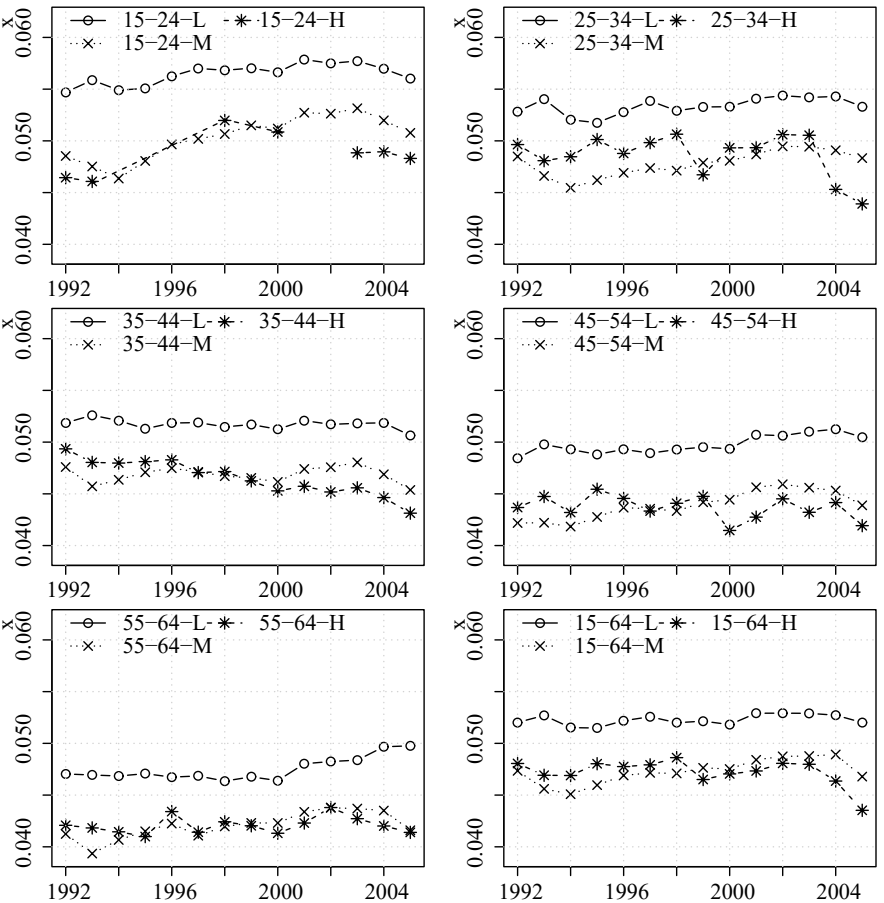
Figure 4 – Migration Intensity Index by Age and Education (1992-2005)



Source: our calculations based on Mocetti and Porello (2010) and European Labour Survey

to be higher than the costs. In a country like Italy which is characterized by a strong segmentation between the North and the South, this is only achievable with long-distance migration. Over time, starting from the early 90s less educated individuals (with either a low or medium level of education) across all age cohorts migrate more long-distance. We also observe an increasing long-distance migration rate among low educated people in the 55-64 age cohort starting from the early 00s. We argue that these individuals may be identified as those workers who migrated from the South to the North for work in the 60s and having reached the retirement age in the 00s, decide to go back to their birthplace (return migration), pulled by non-economic incentives, such as local and social amenities. Finally, we observe a declining trend

Figure 5 – Long-distance Migration Index by Age and Education (1992-2005)



Source: our calculations based on Mocetti and Porello (2010) and European Labour Survey

across all age groups and education levels in the years 2004 and 2005, which is likely to be ascribable to the geographical asymmetries of the business cycle.

5. Summary and Future Research

In this chapter we have analysed inter-regional migration in Italy in the period between 1992 and 2005. We have shown that when data are aggregated, many important features of migration disappear, as different migration movements may respond to different types of incentives. Particularly two important and different types of migration might be cluttered: migration driven by economic factors, such as differences in wages and unemployment (Greenwood, 1975; Greenwood, Hunt, 1984) and

return migration driven by non-economic factors, such as location-specific natural, social, cultural and skill-dependent amenities (Graves, 1980; Glaeser *et al*., 2001; Florida, 2002). Hence, we emphasize the importance of analyzing migration flows at regional level by disaggregating the data by age and education. This distinction between two migration types has been already assessed for the USA by Faggian and Royuela (2010) and Shapiro (2006). However, it seems the case that in the USA, people decide whether and where to migrate by comparing utility differentials across different alternative locations, which depend on the combination of both economic and non-economic factors. For the case of Italy, our stylized facts seem to suggest that there is a clear split between two types of migration (working-age versus return migration), which respond to different pull factors (economic versus non-economic).

The evidence just described delineates a possible research agenda for Italian inter-regional migration. First, we wonder if the evolution of institutional settings during the observed period affected migration flows. For instance, several labour market reforms were approved in the late 90s-early 00s to increase the flexibility of the labour market. Even though the reforms were effective at national level, the implementation differed across regions, and this might have triggered internal migration flows. Second, as suggested by the work of Mocetti and Porrello (2010), it should be investigated if (foreign) immigration has significantly affected internal migration. Specifically, if immigration is mostly high-skilled, this may lead to increased internal mobility due to agglomeration effects. On the other hand, if immigration is mostly low-skilled, this may result in a decline of internal migration, the latter being crowded out by foreign migrants. Third, it deserves an analysis if the 1992 crisis together with its regional asymmetric effects may have had a role in explaining the increasing trend of migration in the following years (Di Caro, 2015). Fourth, the difference in migration rates by education level supports the idea that returns to education vary significantly across Italian regions, making migrants' self-selection in inter-regional migration a key issue, which deserves further investigation (Fiaschi *et al*., 2018). Finally, the interpretation of the stylized facts discussed so far requires the development of a novel theoretical model of migration and this is definitely the priority in our agenda (Fiaschi *et al*., 2018).

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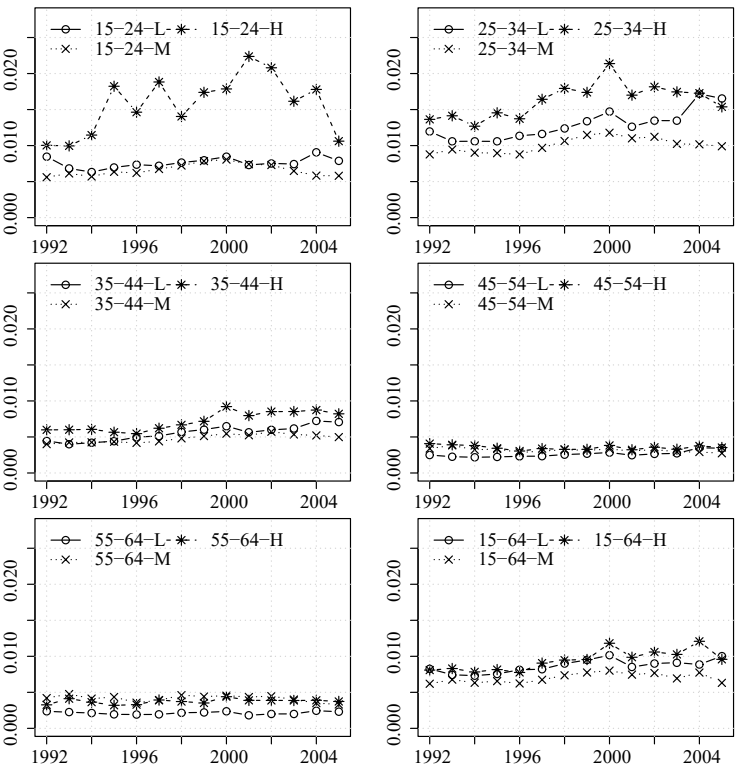
Sommario

Alcuni fatti stilizzati sulla migrazione inter-regionale in Italia

In questo capitolo forniamo un'analisi descrittiva della mobilità inter-regionale in Italia nel periodo dal 1992 al 2005. Usiamo dati ISTAT sul cambiamento di residenza per gruppi di individui suddivisi per età e livello di istruzione. Identifichiamo due tipi di migrazione. Il primo tipo riguarda la migrazione di individui in età lavorativa che rispondono a cambiamenti delle condizioni economiche. Il secondo tipo riguarda la migrazione di ritorno, che coinvolge individui in età più avanzata, è determinata principalmente da fattori non economici ed è perisistente nel tempo. Troviamo che l'intensità del fenomeno migratorio cresce nel periodo considerato, ma solo per il primo tipo di migrazione, mentre la migrazione di ritorno, dopo una fase di stabilità, decresce nel 2004 e 2005. Concludiamo evidenziando l'importanza di utilizzare dati disaggregati per età e livello di educazione per una corretta identificazione delle determinanti della migrazione.

Appendix

Figure 6 – Migration Rate in Italy by Age and Education (1992-2005)



Source: our calculations based on Mocetti and Porello (2010) and European Labour Survey

Skill Matching as a Determinant of the Mobility of Italian Graduates

Ugo Fratesi, Luisa Gagliardi°, Camilla Lenzi*, Marco Percoco§*

Abstract

This paper aims to study the relevance of matching between the educational background of workers and firms demand for skills for the individual decision to migrate. We estimate a model where the probability to migrate after graduation depends on the skill demand in the province of destination and on the type of university degree. Results show that the possibility to achieve a better matching between personal skills (as proxied by the type of university degree) and the skills actually required on the job is a significant determinant of the decision to migrate.

1. Introduction[1]

Why do people migrate? The answer to this long debated question has been often found into spatial disparities in terms of labour market opportunities. People move in search for better jobs towards places where the return of their skills is higher. As such, individual specific characteristics interact with recipient labour market attributes to shape the geographical pattern of migration flows (Gagliardi, Lemos, 2015).

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In this vein, a large body of existing research has looked at this topic through the lens of the human capital theory and suggested that selective migration is the result of the interplay between differences in educational achievements and in the pay-off of education across recipient labour markets (e.g. Docquier, Marfouk, 2006; Gibson, McKenzie, 2009). However, only recently attention has been also paid to the matching between labour demand and supply as concurrent determinant of individuals' migration (Coulson *et al*., 2001; Sato, 2004).

In this paper, we investigate how individuals with the same level of formal education but different skill sets in terms of actual competences and areas of specialization make their decision to migrate in response to spatial heterogeneity in the demand for job profiles across geographical segments of the labour market. We do this by looking at how the matching process between the type of skills offered by migrants and the type of local labour demand drives interregional migration flows in Italy. More in detail, we estimate the probability of individual migration in an augmented specification anchored to the search and matching theory (Pissarides, 2000; Zenou 2009) and test empirically our main hypothesis by using a unique survey of Italian graduates matched with information on job vacancies classified by type (i.e. in terms of the type of university qualifications firms are looking for) and region.

We construct a measure of matching that exploits information on both the graduates' field of study and the regional variation in the typology of available job vacancies (measured by the skills actually required to perform a given job in terms of typology and field of qualification). Then, we test whether individuals with specific skills, in terms of domain of qualification held, are more likely to move towards geographical labour markets offering a better probability of skill matching.

We find that matching is a relevant determinant of the migration behaviour of recent graduates in Italy. This result holds also after controlling for individual and regional characteristics.

Our analysis contributes to the existing research on the determinants of the individual decision to migrate in two respects. First, it suggests that besides traditional geographical push and pull factors, such as for instance differences across labour market segments in unemployment rates (Hunt, 2006), income and wage inequality (Brücker, Defoort, 2009; Belot, Hatton, 2008) and poverty levels (Lopez, Schiff, 1998; Yang, 2006), individuals primarily reward the utilization of their actual skills when searching for jobs. This is an important consideration as differences in the stock of human capital are considered a key determinant of local economic performance, with related claims for the role of universities and investments in higher education (Rosenberg, Nelson, 1994; Dotti *et al*, 2013; Faggian, McCann, 2008). However, little attention has been

paid to the coherence between education supply and labour demand and to the conditions under which different places are able make the best use of human capital (either locally produced or externally recruited) in productive activities (Gagliardi, 2015).

Second, our analysis entails relevant implications with respect to the role of migration as equilibrating force in reducing regional disparities. (Graves, Mueser, 1993; Graves, 1983; Glaeser, Gottlieb, 2009). Selective migration in the context of our analysis has an adverse impact on regional disparities, consistently with previous studies. Yet, whereas Kanbur and Rapoport (2005) and Fratesi and Percoco (2014) suggest that spatial imbalances are boosted by the mobility of higher skilled individuals towards more developed regions, our study argues that this detrimental effect is further exacerbated by the systematic transfer of highly demanded, individual embodied competences towards more productive areas. The case of Italy as a country that experienced substantial interregional migration flows from the South to the North over the past decades and with considerable spatial disparities is of special interest in this respect.

2. Empirical Strategy

In order to verify empirically to what extent job-matching is a determinant of migration, we make use of information on migrants at the individual level that comes from the "Indagine sull'inserimento professionale dei laureati" (Survey on the professional status of graduates) (Istat, 2013), which is conducted by Istat, the Italian National Statistical Office, every three years and analyses the employment situation of recent graduates over the three years preceding the survey.

More in detail, we exploit data from the wave published in 2013 that analyses the professional status in 2011 of Italian students who graduated in 2007. The survey was conducted with the CATI method (Computer Assisted Telephone Interviewing) and interviewed 62,000 graduates over a population of 300,338, providing a considerable amount of information about the professional situation of graduates as well as their personal and family characteristics.

We define as migrants all individuals who were working at the moment of the survey in a region (defined at the Nuts3 level) different from that of origin, independently on whether they moved for studying or working related reasons. Analogously, those who were working at the time of the survey in their origin region, are considered as non-migrants independently on whether they have moved for their university period. In fact, for these people the relocation to study has been just temporary.

Our data makes it also possible to distinguish graduates by field of study, which is a crucial information to investigate the matching between the qualification held

and that required in the job market. Details are particularly rich on this respect as there are 124 classes of study in the database. We re-aggregate these categories in 16 groups that represent reasonable alternative typologies of worker types.

In order to develop a measure of skill matching we complement the information contained in the survey of recent graduates with data from the EXCELSIOR survey. The EXCELSIOR survey collects information directly from employers asking them to estimate how many new employment opportunities are likely to be offered in their firm in the next 12 months and which typology of employees they are looking for in terms of competences. Interestingly, the survey classifies job vacancies in terms of type of university degree, allowing an almost perfect match with the survey on recent graduates. For a graduate with degree type *i* in region *r* we define the following indicator:

$$Match_i^r = JO_i^r / LF^r \qquad [1]$$

where JO_i^r are job openings demanding a university degree of type *i* in region *r*, and LF^r is the total labour force in the region. In this paper, we are interested in testing the link between skills matching and interregional migration. In doing so, we assume that individuals observe the matching probability (1) at both the origin and destination regions at the time of their graduation and make their decision on the basis of the difference between the two probabilities. In other words, if *o* is the region of origin (birth) and *d* the region of destination (residence), it is possible to identify two ideal states of the world:

if $\left(JO_i^o / LF_o^r\right) \geq \left(JO_i^d / LF_d^r\right)$ given the observables, no migration should take place as there is not incentive to migrate to another region; $JO_i^o / LF_o^r < JO_i^d / LF_d^r$ is, instead, the standard case of migration, in which an individual moves to find a better match to his/her degree in the labour market of destination.

We estimate a Probit model in which the dependent variable is the individual decision to migrate and the relevant explanatory variable is the matching measure as defined in equation (1). Standard individual and regional controls for migration decisions are added.

The baseline specification takes the following form:

$$Prob\left(mig = 1\right) = \alpha match + \beta\, Z + \gamma R + \delta F + \theta U + \varepsilon \qquad [2]$$

Where *mig* is a dummy variable being 1 if the person migrates and 0 otherwise, *match* is the matching variable as defined in equation (1), *Z* is a matrix of controls for individual characteristics, *R* are regional dummies, which control for a full range of time invariant unobservable characteristics, *F* are dummies for the field of study (which account for differences in the propensity to move across typologies of graduates), *U* are dummies for the university where the person

studied (which controls for the fact that some universities, due to their networks, can promote interregional migration).

Controls at the individual level include;

- High school grade, which may proxy the level of individual ability;
- Father's education, which reflect differences in the external stimuli towards education and mobility;
- Marital status, which proxy constraints to individual mobility due to personal ties;
- Number of children, which also reflects the additional social and monetary relocation costs that may relate to personal ties;
- Gender, which control for differences in the propensity to migrate across males and females.

3. Estimation Results

Table 1 reports descriptive statistics on our matching variables. The probability that a graduate in a given province has a degree matching local demand for skills is 33.5%, whereas the probability at destination is slightly higher and equal to 39%. These statistics indicate that on average, the benefits from migration account for 5.5% increase in the matching probability.

Table 2 shows estimates of the Probit model where the dependent variable is an indicator equal to 1 if the respondent is to be considered a migrant, according to our definition. Besides fixed effects for the province of origin, destination, university and university degree, we control for a full set of individual-level variables, as detailed in section 2. The table reports three models. Model (1) considers only matching at destination, model (2) matching at the origin and model (3) includes the difference between origin and destination in terms of matching indicators.

Results show that the final score obtained at the end of the high school and whether the father has a university degree are positively associated with the probability to migrate. Family variables have the opposite sign since being married and the number of children have negative coefficients. Finally, gender is found to be not significant.

Table 1 – Descriptive Statistics

Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
Match origin	31,204	0.3354	0.5070	0	5.6919
Match destination	31,310	0.3910	0.5901	0	5.6919
Diff. match origin-destination	31,129	0.0552	0.3138	-2.849	4.5863

Table 2 – Probit Estimations of the Relationship between Skill Matching and Migration

Dependent variable: MIGRATION = 1	*(1)*	*(2)*	*(3)*
High school score	0.0065***	0.0069***	0.0056***
	(0.001)	(0.001)	(0.001)
Father's education	0.1590***	0.1686***	0.1536***
	(0.022)	(0.021)	(0.022)
Marital status	-0.2990***	-0.2916***	-0.2929***
	(0.025)	(0.024)	(0.025)
Number of children	-0.3461***	-0.3589***	-0.3310***
	(0.026)	(0.025)	(0.026)
Gender (female)	0.0077	0.0142	0.0082
	(0.022)	(0.021)	(0.022)
Match (destination)	0.8683***		
	(0.033)		
Match (origin)		-0.0968***	
		(0.037)	
Difference between match at destination and at origin			1.4160***
			(0.082)
Pseudo R2	0.28	0.23	0.31

Note: Robust standard error in parentheses. * p<0.10, ** p<0.005, *** p<0,01

Turning to the matching variables, indicators at both origin and destination are significant determinants of the decision to migrate. The coefficient associated to the matching probability at destination is positive and larger in absolute value than the coefficient associated to matching at the origin. Consequently, the variable indicating the difference in matching probability across space has a positive and significant coefficient. This results support (a) the role of matching as key determinant of individual migration decisions, (b) the pivotal importance of matching conditions at destination as key pull factor for graduates' migration.

4. Conclusions

Existing research postulates the determinants of individual migration decisions to depend mainly on equilibrium or disequilibrium mechanisms. Our empirical analysis shows that migration persists even in the case of no differences between regions in classic indicators such as amenities, cost of life, income per capita, total economic activity and unemployment rate. This is possible because different places have different specializations and are characterized by heterogeneous demands for different professional profiles.

Since young people are expected to choose their university field of study (also) on the basis of their attitudes and interests, and assuming that the distribution of attitudes and interests is randomly distributed across regions[2], this implies that people will keep migrating to find a better match of their actual skills even in the absence of observable difference in overall labour demand, quality of life and alike. Put differently, also in case the labour market is in equilibrium, that is all regions are equally attractive in terms of amenities and aggregate unemployment rates, migration will still be observed as a response to skill matching considerations.

The paper provides empirical support for this statement: controlling for the standard individual migration factors and for regional, field and university characteristics, migration substantially responds to the aspiration of young people to maximize their labour market outcomes by moving to places where their skills are most searched by the employers.

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Sommario

L'abbinamento delle competenze come determinante della mobilità dei laureati italiani

Questo lavoro studia la rilevanza per le decisioni migratorie della corrispondenza tra il titolo universitario ottenuto dai lavoratori e la domanda di lavoroespressa dalle imprese con riferimento alle specifiche competenze richieste. Vi si stima un modello dove la probabilità di migrare dopo la laurea dipendedalla domanda di competenze nella provincia di destinazione e dal tipo di diploma universitario posseduto. I risultati mostrano che la possibilità di ottenere un migliore "matching" tra le competenze individuali (misurate dal tipo di diploma universitario) e quelle effettivamente richieste nello svolgimento del proprio lavoro è una determinante significativa della decisione di migrare.

Early Propensity to Migrate: A Descriptive Analysis from A Survey of Schooled Teenagers in a Southern Italian City

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Abstract

The brain drain from the south of Italy is a well-known and unfortunately increasingly alarming phenomenon. In recent times, the demographic decline due to migration has been coupled by a worrying decrease in the average age at which this process starts. While most of the existing literature has looked at the problem looking at migrant workers, especially in relation to their level of schooling or education, here we look at the propensity to migrate at an earlier stage of life while people are still in their secondary school studies. Using a unique field survey conducted over a large sample of students in the city of Palermo we uncover that more than three quarters of the interviewed sample would consider moving far away from the family after completing their studies. We perform a simple descriptive analysis to look at how this propensity to migrate changes depending on some individual and family characteristics of the respondents.

1. Introduction[1]

Italians are historically migrants. The so-called Italian diaspora, started centuries ago, has seen different waves over the last two centuries. However, while the first waves saw migrants leave uniformly across the peninsula, recent waves have tended to be characterized by the well-known dualism between the North and the South. Over the last few years, after a temporary slow-down, migration rates from the South have regained momentum determining a demographic decline. According to Svimez (2017), in 2016 the population decreased by 62,000 units in the southern regions and by only 14,000 units in the rest of the country. Interregional South-North migration have contributed to this result. In the last fifteen years the

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population has increased by only 265,000 units in the South against more than 3 million in the Centre-North. The Italian Office of Statistics forecasts that in 2065 the 71% of Italian population will live in the Centre-North while only the 29% in the South; this is against the 66% and 34%, respectively, of today. Similarly, for the future, the estimated probability of population increase in the South in the next fifty years is near zero against 30% in the rest of the country (Istat, 2017).

While migration from the South has deep roots, the additional perverted twist of the recent past is the worrying hemorrhage of younger generations, leaving in larger flocks than in the past for both job-search and study (Svimez, 2017). The average age of migrants has decreased over time and over the last fifteen years with net migration of 716 thousand units, 72% of migrants have been in the age class 15-34 and most of them with high education levels.

The importance of this issue has attracted some degree of academic and policy attention (Faggian *et al*., 2017). For the Italian case, the relevant literature has focused, in particular, on the push and pull factors of the interregional migration flows of educated migrants. For example, Coniglio and Prota (2008) look at the migration propensity of highly educated people living in Basilicata. Their analysis suggests that policy interventions aimed at improving the quality of people, such as policies against crime, significantly affect the decision to remain in a location rather than migrating. Di Cinto and Grassi (2011) explore the wage gains due to migration, finding that these are larger for those who move after graduation than those who before graduation.

Ciriaci (2014) explores the role of university quality and other socio-economic factors in the migration behaviour of Italian students and graduates. The author finds that both research and teaching quality influence migration choices and, therefore, consider these as a determinants of regional human capital accumulation. Iammarino and Marinelli (2015) look at the role of graduate migration in driving the education-job matching in Italy. They find that the benefits of migration are particularly pronounced for those migrants going to the North from the more peripheral Southern regions after graduating.

While for the individual migration can lead to better job and wage opportunities, more systemically level these flows can lead to the further widening of the social and spatial North-South divide. In a vicious circle, migration further impoverishes the human capital of the region of origin with dramatic consequences on long-term prospects. This circle, however, is even more vicious if the migrant population is young and educated. In this sense, the recent trends have even further damaging effects than in the past. In a recent paper, Vecchione (2018) estimates the economic impact of graduate migration from the South of Italy during the 2000s. Considering about 200 thousand graduate migrants in that period and the investment in their education, he estimates an economic loss

of about 30 billion for the South. This loss increases considering all those students that enroll in universities located in the Centre-North. In 2017, according to Svimez (2017) around 25% of university students decided to migrate from the South to the Centre-North.

The above-mentioned literature provides interesting insights looking at graduate or non-graduate workers. Little is known, however, about migration from an attitudinal or propensity point of view before the transition to the job market. In this paper, we exploit a unique field survey experiment to look at the migration propensity of young people before their transition to the job-market. The survey is representative of the population of students enrolled in the second year of the secondary schools in the city of Palermo, a southern Italian city historically troubled by high levels of (especially youth) unemployment and that has seen a recent spike in the migration of young people. Critically, the survey intercepts the population at that critical age when attitudes are formed. Therefore, it can be particularly informative of a yet unknown phenomenon. Here, we report some preliminary evidence from a simple descriptive analysis of the traits of those who answer yes or no to a question aimed at capturing migration propensity. We then relate this to some individual and family characteristics of the respondents. Clearly, the complex nature of this phenomenon requires a much deeper and advanced investigation. Some interesting information, however, emerges also from this simple analysis.

Bearing in mind the above consideration, the next section briefly illustrates the relevant information on the conducted survey. Section 3 discusses the above-mentioned preliminary evidence and Section 4 concludes.

2. The Survey

In the Spring of 2015, a survey has been conducted on the values and beliefs of students in the city of Palermo, the capital city of Sicily in southern Italy. Like many other southern regions, Sicily is also lagging compared to the rest of the country in terms of many socio-economic indicators. Also, the recent past has seen a dramatic spike in migration that makes this a particularly interesting study case on the topic. The unique nature of this survey lies in the fact that it has aimed at students enrolled in the second year of their secondary school studies. As such the survey is designed to capture the values and beliefs at the critical age when these are formed.

Using a double stratification strategy by school-type (classical/scientific, professional, technical, teacher training/fine arts) and by spatial administrative units, 12 schools have been selected to take part in the exercise and within each school all second-year classrooms. The final sample contains just over 2000 students' questionnaires, i.e. about 25% of the population of students enrolled in

the public secondary schools of Palermo. The questionnaire is very extensive and includes sections related to the individual, family, contextual characteristics of the respondents. As mentioned above, here we concentrate on the migration propensity of students. Specifically, the questionnaire contains the following question useful to capture the individual propensity to migrate: *"Once you have completed your studies, would you take into consideration the possibility to live in a place far away from your family?"* Yes/No answers are then related to features of the individual (gender, residence in or outside the city, type of school attended, future job/study aspirations, academic performance) and family background (parents' education and job-type, family income situation). Further details on the characteristics of sample can be found in Fazio *et al*. (2016).

3. The Propensity to Migrate among Students: A Simple Descriptive Analysis

Based on the survey data described above, in this section we present and discuss some evidence on the migration propensity of students based on simple descriptive statistics of their main characteristics. Table 1 shows how a disproportionate part of the respondents (over 76%) answers that they would take into consideration the possibility to live far away from their family after completing their studies. Interestingly, this percentage is slightly skewed towards females (almost 79%). This result is in line with Coniglio and Prota (2008), who find evidence of differences in the migration behaviour of males and females, with the former more likely to stay home after their degree. They observe that compared to males the females' propensity to move increases relatively more with education. They also find that people living in urban areas are less likely to migrate than people from rural areas. Since part of our sample (around a quarter) is made of students who are enrolled in a school of the city, but commutes from one of the many smaller towns of the non-urban area, we can look for potential differences in the response of the two groups. Different considerations could be made with respect to the difference between students living in the city and those from nearby areas. Coming from smaller communities, where relationship should in theory be denser than in the city, one could be tempted to think that a smaller percentage of these students should be willing to leave. However, more scarce resources and opportunities might play in the opposite direction. Percentages in table 1 show that the difference between students living and studying in the city and those who only study in the city is negligible (a mere 1%). This outcome may be due to the fact that the respondents from the non-city areas are actually a selection that has already taken the decision to commute to study (likely because of a lack of similar opportunities closer to home). Therefore, they are probably more alike to their classmates from the city.

Table 1 – Migration Propensity, Gender and Students' Localization

Migration propensity	*Sample*	*Sample %*	*M %*	*F %*	*Urban %*	*Non-urban%*
Yes	1,534	76.39	73.95	78.83	76.57	75.48
No	474	23.61	26.05	21.17	23.43	24.52
Total	2,008	100.00	100.00	100.00	100.00	100.00

Table 2 reports information on migration propensity in relation to the type of school attended and the desired future occupation. Looking at the type of school, again, percentages are quite high across the board. Somehow expectedly, schools that are typically closer to the job-market (vocational/professional and technical schools) show smaller percentages than those that are likely to feed more into further higher education (university). In these cases, 78% of the students enrolled in teacher training and fine arts schools and 85% of those attending classic and scientific schools would consider migrating. These higher percentages are likely to anticipate at this age the trends observed at later stages of life of people migrating to work as teachers or in other high-skilled jobs in the public and private sector (see also Di Cintio and Grassi, 2011). It may, however, also reflect the expectation that later they may pursue their university studies in another city. In our sample, over 81% of students who want to continue their studies after school answer that they would consider moving away from their families. This percentage is reduced to 68% for those who do not want to keep studying after school (table unreported for brevity).

Table 2 illustrates also how migration propensity is related the students' desired job. There is very little difference between those who say they would consider moving and want to be public (77% ca.) or private employees (79% ca.). This percentage reflect the dramatic and yet realistic assessment (even at this early stage) of the lack of opportunities in the local job market. It is, however, worth noting the significant difference among those who want to be self-employed/entrepreneurs and have a family business or not. While over 78% of those who would like to start a new business are inclined to migrate, just above 57% of those who would like to be employed in the family business would migrate. Given that continuing the family business may be rooted in both cultural factors and personal convenience calculations, this is still to some extent a large percentage. The fact that the majority of students who have this opportunity would be willing to move could be taken as a signal that the family business is not seen as a good job prospect for the future (and a sign of a declining economy that is seeing historical local brands closing down after several generations). However, the much smaller percentage of migration propensity for this desired occupation may also denote the effect of a

pre-existing link to the job market. At the more systemic level, this plays against the presence of equality of opportunities: those who have a family business can afford to stay, those who do not think they need to migrate. In this sense, it is striking that the highest percentages are among the students whose desired future occupation is in the private sector (without a family business).

Table 2 – Migration Propensity, School-Type and Desired Occupation

Type of school	*Migration propensity*		*Desired occupation*	*Migration propensity*	
	yes	*no*		*yes*	*no*
Teacher training/fine arts	78.15	21.85	Public employee	77.21	22.79
Professional/vocational	70.57	29.43	Private employee	78.91	21.09
Technical	72.54	27.46	Self-employed family business	57.4	42.6
Scientific/Classic	85	15	Self-employed starting new business	78.6	21.4

As mentioned in the introduction, migration is in general bad for the region of origin. However, it is even worse if it involves the more educated part of the population. In our case, our sample involves potential migrants who have reached secondary school level, so we know that if the 76% of those who would consider moving really moved, it would be a major loss in human capital. However, the questionnaire also collects information on school performance and in particular of the marks received in core disciplines like Italian, Math and Foreign language at the end of the previous year. Therefore, we are able to see whether there are differences in the propensity to migrate depending on academic achievement. To this end, table 3 looks at the students' migration propensity by grouping them on whether they received a low (mark≤5), medium (6≤mark≤8), high (mark≥9) in a discipline or as an overall average. While percentages are again high, more students with medium and high marks are willing to move away from their families after their studies than students with low marks. This result is analogous to the result provided by Coniglio and Prota (2008), who find that individuals with lower marks in their bachelor's degree have a lower propensity to move.

Next, we look at the family background of those who are more willing to migrate. Thanks to the information collected in the survey, we are able to consider important factors, such as education, financial resources and occupation. The literature on migration has emphasised the role of the family background and family's ties in reducing migration or determine return migration (Iammarino, Marinelli, 2015; Crescenzi *et al*., 2017).

We have collapsed parents' education into high and low categories (with and without at least a secondary school diploma) and parents' occupation into unemployed, low-skills (employee, blue collar, retailer/seller/dealer) and high-skill

Table 3 – Migration Propensity and School Performance

Italian	*Migration propensity*		*Math*	*Migration propensity*		*Foreign language*	*Migration propensity*	
	yes	*No*		*yes*	*no*		*yes*	*No*
Low	63.29	36.71	Low	68.50	31.50	Low	67.26	32.74
Medium	76.79	23.21	medium	78.04	21.96	Medium	76.36	23.64
High	78.50	21.50	high	73.50	26.50	High	80.44	19.56

job (manager, professional advisor, and entrepreneur). Table 4 shows how, in terms of parents' education, more students are willing to migrate when parents have reached higher levels of schooling: 79.30% of those with parents' schooling at least at the diploma level against 73% ca. for those with less schooled parents. The family economic conditions are gauged by asking whether financial resources are adequate with respect to the needs of the family (on a 10-point Likert scale). This has been translated into a yes/no binary variable for answers strictly above 5 or below 6. Table 4 shows the propensity to migrate is essentially identical across the group of those who consider family resources adequate or not. Parental job type may also be related to migration propensity. Unsurprisingly, a higher percentage of those with parents who are either unemployed or in a low-skill occupation is willing to leave. This is slightly more pronounced if the mother is in a low skill job type.

Table 4 – Migration Propensity, Parents' Education and Family Resources

Father's education	*Migration propensity*		*Mother's education*	*Migration propensity*		*Adequate family resources*	*Migration propensity*	
	Yes	*No*		*Yes*	*No*		*Yes*	*No*
Low	72.82	27.18	Low	73.19	26.81	No	76.83	23.17
High	79.30	20.70	High	79.13	20.87	Yes	76.65	23.35

Table 5 – Migration Propensity and Parents' Occupation

Fathers' occupation	*Migration propensity*		*Mothers' occupation*	*Migration propensity*	
	Yes	*No*		*Yes*	*No*
Unemployed	78.57	21.43	Unemployed	75.67	24.33
Low	78.05	21.95	Low	82.89	17.11
High	72.68	27.32	High	65.67	34.33

4. Concluding Remarks

Southern Italian regions have over the recent past seen alarming rates of youth unemployment, accompanied by greater outward mobility younger migrants. Not only migrants are increasingly younger, but also more educated than in the past. This type of migration is clearly more damaging since it produces faster loss of human capital with stronger and deeper consequences on the well-known Italian divide.

In this paper, we have exploited a question related to the migration propensity contained in a survey of students in the Southern Italian city of Palermo. Differently from other studies, this survey allows us to look at propensity rather than the actual migration and for individuals who are still to make the final transition to the job market. Also, it allows us to see how such propensity is shaped at an early stage of life. Here we provide a simple descriptive analysis of some features of those who would consider moving away from their families after their studies. In particular, we look at whether such predisposition is different across gender, residence (urban vs non-urban), and type of school and desired future occupation, school performance, family background in terms of parents' education, job-type and financial resources.

We find that a very large percentage of respondents, over 75%, would move away from their family after their studies. This can be seen as a positive signal of openness and adaptability, a sign of resilience. However, it is also a dramatic reflection of the consciousness, even at this early stage, of the lack of local opportunities that awaits them after their studies. It is interesting that the percentage is even higher among females, who might a priori be expected to prefer stronger family ties. Again, it may potentially reflect the expectation of a greater gender-related opportunities gap. Percentages do not differ whether students live in the urban or non-urban area, a sign that the latter are probably culturally similar to their classmates from the city.

The propensity to migrate is more present among students in classic, scientific and teacher training schools. Given that these students are more likely to continue their studies, this higher propensity probably anticipates the documented increase in the number of students who decide to further their studies in one of the centre-north universities. In terms of desired occupation, migration propensity is very high among those who would like to be an employee. Interestingly, percentages differ substantially between those who would like to pursue self-employment. Specifically, those who would like to become entrepreneurs are more likely to be prepared to leave if they do not have the opportunity to continue a family business. Still, among those who would like to continue the family business, the majority would also consider moving away from the family.

We find evidence that migration propensity is higher among students with better performance at school or desire to continue studying after school. This is again an anticipation of the phenomenon observed in the actual migration behavior at a later stage of life and it can be considered as a worrying sign of the future brain-drain for the local economy. Rather than in terms of degree qualification, here this phenomenon is captured in terms of academic performance. Among those who obtain better grades (probably reflecting also greater parental investment) there are more students prepared to leave the family.

Looking at students' migration propensity on the grounds of their family background leads to interesting further insights. We are able to observe a larger percentage of students who would migrate among those with more educated parents. This could be the results of an intergenerational human capital transmission with a migration twist: more educated parents may transmit better understanding of the benefits of higher education and make students more prepared to travel in order to reap these benefits.

A larger percentage of those with parents who are unemployed or in low-skill occupations are more prepared to migrate in the future. Again, this could be interpreted as a sign that respondents understand from parental observation that it may be required of them to leave their families in order to pursue better opportunities in the future. Clearly, further more advanced analysis is needed in order to disentangle and identify many of the possible effects at work.

From the policy standpoint, only a systemic approach can sizeably counteract the current hemorrhage of young people from the south of Italy. Recent initiatives gov-ernmental programmes seem to go in the right direction in trying to counteract the increasing phenomenon of youth migration with tax breaks ("Occupazione Giovani") or with support for entrepreneurial activities ("Resto al Sud"). Yet, the size of the phenomenon is likely going to require greater effort. One implication of our descriptive analysis is that it may be important that these migration trends are not further powered by early discouragement that could make the problem more persistent and foster social inequality related to the perception that the lack of opportunities are transferred within the family. Existing and future policies should therefore also make an effort to tackle such discouragement effects as early as possible in the life cycle.

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Sommario

Propensione giovanile all'emigrazione: un'analisi descrittiva attraverso un'indagine sugli studenti di una città del Sud Italia

Il fenomeno della "fuga dei cervelli" dal Sud Italia è ben noto e, sfortunatamente, sempre più allarmante. Negli ultimi anni, il calo demografico dovuto all'emigrazione è stato associato ad una preoccupante riduzione dell'età media al quale il processo inizia. Mentre la letteratura esistente tradizionalmente ha investigato il problema guardando a migranti economici, in particolare in relazione al livello di scolarizzazione o educazione, questo contributo guarda invece alla propensione ad emigrare ad uno stadio precedente, quando le persone sono ancora nella scuola secondaria. Usando le informazioni raccolte in una indagine su un ampio campione di studenti nella città di Palermo, troviamo che più dei tre quarti degli intervistati prende in considerazione l'idea di trasferirsi lontano dalla famiglia dopo aver completato gli studi. Utilizzando una semplice analisi descrittiva, mostriamo alcune delle caratteristiche individuali e familiari degli intervistati a seconda della loro propensione a emigrare.

Immigrants and Sector Productivity in the Italian Regions

Ivan Etzo, Carla Massidda*, Paolo Mattana*, Romano Piras°*

Abstract

This chapter studies how immigrants impact on Italian economy. The issue is addressed following the channel output decomposition approach by means of which the effect of immigration is measured with respect to per capita value added and its components. The investigation is carried out at sector level during the 2008-2011 time period. The results show that the main channel through which migration impacts on value added varies on sectoral basis. While at aggregate level, in Manufacturing and in Other Services the impact goes mainly through capital intensity, in the Construction and in the Commerce sectors the principal channel is via total factor productivity.

1. Introduction

During the last two decades, the upsurge of international migration flows has raised an overwhelming concern. In this regard, there are several reasons that make Italy a very interesting case to investigate. First, in this country immigration has grown very fast during the last two decades. According to Census data, foreign citizens more than tripled in only ten years, passing from the 2.3% in 2001 to 6.8% in 2011. Second, last available data (Fondazione Leone Moressa, 2017) show that the great majority of immigrants comes from the less developed economies – mainly from Romania (23.2%), Albania (8.9%) and Morocco (8.3%) – and that they are disproportionately involved in low-skill intensity tasks. Third, immigrants are relatively less educated than Italian natives: only one out of ten immigrants with respect to more than one out of five of Italians have a university degree. Fourth, immigrants are heterogeneously distributed across regions and sectors. They have settled principally in the North (59.0%) and Centre (26.1%), where they find more favorable employment opportunities and better

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living conditions, rather than in the South (14.9%). As reported in Table 1, they principally work in the Services (46.4%) and Manufacturing (17.5%) sectors, followed by Hotel and Restaurant (10.7%), Construction (10.0%), Commerce (9.3%) and Agriculture (6.1%). Finally, there are noticeable sectoral differences also in terms of contribution to GDP creation. Hotel and Restaurant registers the highest peak with 18.4% of GDP due to immigrants, followed by Construction with 17.4%, Agriculture with 16.7%, Manufacturing with 9.4%, Services with 7.5% and Commerce with 6.9%. Overall, 8.9% of Italian GDP is due to immigrant workers.

Table 1 – Immigrants: Employment and GDP

Sectors	*Employment share (% employed)*	*GDP of immigrants*		
		€ (Billions)	*Sector share (%)*	*GDP share (%)*
Services	46.4	65.6	50.1	7.5
Manufacturing	17.5	26.1	20.0	9.4
Construction	10.0	12.1	9.3	17.4
Commerce	9.3	11.6	8.8	6.9
Hotel and Restaurant	10.7	9.9	7.6	18.4
Agriculture	6.1	5.6	4.2	16.7
Total	100.0	130.9	100.0	8.9

Source: Fondazione Leone Moressa (2017)

Looking at these figures, it does not come as a surprise if in Italy, likewise in many other hosting countries, a growing number of researchers has devoted their attention to analyze the effects of immigration on the labor market outcomes (see, inter alia, Mocetti, Porello, 2010; Staffolani, Valentini, 2010; Falzoni *et al.*, 2011). Conversely, only few works exist on the out-of-labor-market impacts of immigration (Accetturo *et al.*, 2012; Bettin *et al.*, 2014; De Arcangelis *et al.*, 2015a, 2015b; Etzo *et al*., 2015). In this regards, a very recent international literature prompted, among others, by the works of Ottaviano and Peri (2006, 2008, 2013), Lewis (2011) and Alesina *et al*. (2013) suggests that, to understand the impact of immigration on destination countries, it is necessary the adoption of a general equilibrium perspective, rather than a partial equilibrium analysis as it happens when only the labor market impacts are investigated. This strand of new literature points out that, taking into account skill complementarities, immigrants can become an opportunity for receiving countries to improve allocative efficiency, which in turn might increase total factor productivity. Surprisingly, there are very few empirical studies taking this new theoretical perspective, among them the contribution of Peri (2012) on USA is worth to be mentioned.

He analyzes the impact of migration on production inputs, productivity and its skill bias in a production function framework where heterogeneity and complementarity among workers are allowed. His main empirical findings go in favor of a positive relationship between immigration and total factor productivity, and a negative relationship between immigration and the high-skill bias of aggregate productivity.

In the footstep of this work, the present chapter proposes an attempt to analyze the impact of immigration on the Italian economy. The purpose is two-fold: on the one hand, we aim at investigating the channels through which immigration affects the national value added; on the other hand, we try to uncover if these channels operate likewise across sectors. For these scopes, we decompose the value added per worker into four components, namely capital-output ratio, average hours worked, total factor productivity and an index of skill intensity, and then we estimate the impact of migration on each of these components.

The analysis covers the 19 Italian regions[1] and it is based on a three dimensional panel dataset that observes the value added at aggregate level (excluding Agriculture) and in four sectors, namely Manufacturing, Construction, Commerce and Other Services (which aggregates Services and Hotel and Restaurant) at regional (NUTS 2) level during the 2008-2011 time period.[2] For each sector, we first decompose value added per worker into its four components, namely capital-output ratio, average hours worked, total factor productivity and an index of skill intensity. Then we estimate the impact of migration, measured as the share of immigrant workers over total employment, on these components. Our results suggest that the main channel through which migration impact on value added varies depending on the sector of economic activity. At aggregate level, in Manufacturing and in Other Services this happens more via capital intensity rather than total factor productivity. Conversely, in the Construction and in the Commerce sectors total factor productivity appears the driving channel through which immigrants affect per capita value added.

2. The Research Strategy

The research strategy adopted in this chapter frames in the so called channel output decomposition approach advocated by Aleksynska and Tritah (2015), Peri (2012) and Ortega and Peri (2009). In particular, the theoretical framework is represented by a sectoral modified version of the Cobb Douglas production function proposed by Peri (2012). Accordingly, we assume that each sector *i* of region *r*

1. Italian regions are 20, but ISTAT merges the data of the smallest one (Valle D'Aosta) with Piemonte.
2. To construct our dataset, our main sources are ISTAT-National Accounts and ISTAT- Labor force survey (LFS). More details are available upon request.

in year t produces a homogeneous and perfectly tradable output according to the following production function defined in terms of value added per worker.[3]

$$\ln y_{irt} = \left(\frac{\alpha_i}{1-\alpha_i} \right) \ln \frac{K_{irt}}{Y_{irt}} + \ln x_{irt} + \ln A_{irt} + \ln \varphi_{irt} \qquad [1]$$

where, given N_{irt} the total employment in sector i of region r in year t, the variable are defined as follows:

- $y_{irt}=Y_{irt}/N_{irt}$ measures value added per worker;
- $x_{irt}=X_{irt}/N_{irt}$ measures the average hours worked (X_{irt}) per worker;
- $k_{irt}=K_{irt}/N_{irt}$ measures physical capital (K_{irt}) per worker;
- A_{irt} captures total factor productivity;
- φ_{irt} represents an index of skill intensity and describes the combination of high (h_{irt}) and low-skilled (1- h_{irt}) workers according to the following constant elasticity of substitution function:

$$\varphi_{irt} = \left[\left(\beta_{irt} h_{irt} \right)^{\frac{\sigma_i - 1}{\sigma_i}} + \left(\left(1-\beta_{irt} \right) \left(1-h_{irt} \right) \right)^{\frac{\sigma_i - 1}{\sigma_i}} \right]^{\left(\frac{\sigma_i}{\sigma_i - 1} \right)} \qquad [2]$$

where $\sigma_i>0$ is the elasticity of substitution between high- and low-skilled workers, β_{irt} measures the degree of productivity skill bias, $h_{irt}=H_{irt}/X_{irt}$ is the share of total hours worked (X_{irt}) supplied by high-skilled workers (H_{irt}) and, by definition, $(1–h_{irt})=L_{irt}/X_{irt}$ is the share of total hours worked (X_{irt}) supplied by low-skilled workers (L_{irt}).

Given equation [1], for each of the four sectors included in the panel, we test whether a variation in the share of immigrant workers impacts on each right-hand side term of equation [1]. For this scope, we specify the empirical model as follows:

$$\ln b_{irt} = d_i + d_r + d_t + \gamma_{b1} z_{1rt} + \gamma_{b2} (z_{2rt} d_2) + \gamma_{b3} (z_{3rt} d_3) + \gamma_{b4} (z_{4rt} d_4) + \varepsilon_{irt} \qquad [3]$$

where b_{irt} represents, alternatively, the right-hand side components of equation [1]; $z_{irt}=(N_{irt}^F / N_{irt})$ is the share of immigrant workers (N_{irt}^F) over total employment; d_i, d_r, d_t are sector, region and time specific effects; ($Z_{irt} d_i$) is the interaction term meant to capture differences in the slope coefficient across sectors and, finally, ε_{irt} represents a zero-mean random shock.

It is worth noticing that, since the model is specified in log-level format, all parameters, once estimated, represent semi-elasticities. Hence, after multiplying them by 100, they measure the percentage change on each of the dependent variables given by one-percentage point variation in the immigration share.

In equation [3] Manufacturing with its coefficient γ_{b1} represents the reference sector. Therefore, by definition, the coefficients γ_{b2}, γ_{b3} and γ_{b4} measure the differences

3. This is obtained through simple algebra from $Y_{irt} = K_{irt}^{\alpha} \left[X_{irt} A_{irt} \varphi \left(h_{irt} \right) \right]^{(1-\alpha)}$

between Manufacturing and the other sectors. It follows that the total impact of migration on the generic *i-th* sector is the sum of the two coefficients $\gamma_{b1}+\gamma_{bi}$. At aggregate level, namely ignoring sector heterogeneity and dropping the interaction terms, equation [3] simplifies into:

$$lnb_{irt} = d_i + d_r + d_t + \gamma_b z_{irt} + \varepsilon_{irt} \qquad [4]$$

The empirical implementation of equations [3]-[4] requires overcoming three main problems. First of all, it needs reliable estimates of the production function parameters, specifically the capital-income share and the elasticity of substitution between high- and low-skilled workers at sector level. Unfortunately, estimates at sector level for the case of Italy do not exist. As for α, since it affects only the scale factor of the capital to value added ratio, we impose the standard value of 0.33 for all sectors. With regards to σ, to the best of our knowledge, some estimates exist only at national level and are those provided by Romiti (2011) who delivers average values of σ around 1.55 at aggregate level. Therefore, our strategy is to estimate equations [3]-[4] imposing the elasticity of substitution of 1.55 to all sectors.

The second problem regards the computation of the variables A_{irt} and β_{irt}. At this end, by following the same procedure explained in Peri (2012), we consider the following two expressions[4]:

$$\beta_{irt} = \frac{\left(w_{irt}^{H}\right)^{\frac{\sigma_i}{\sigma_i-1}} h_{irt}^{\frac{\sigma_i}{\sigma_i-1}}}{\left(w_{irt}^{H}\right)^{\frac{\sigma_i}{\sigma_i-1}} h_{irt}^{\frac{1}{\sigma_i-1}} + \left(w_{irt}^{L}\right)^{\frac{\sigma_i}{\sigma_i-1}} \left(1-h_{irt}\right)^{\frac{1}{\sigma_i-1}}} \qquad [5]$$

$$A_{irt} = \left(\frac{Y_{irt}^{\frac{1}{1-\alpha_i}} K_{irt}^{-\frac{\alpha_i}{1-\alpha_i}}}{X_{irt}} \right) \times \frac{\left(w_{irt}^{H}\right)^{\frac{\sigma_i}{\sigma_i-1}} h_{irt}^{\frac{1}{\sigma_i-1}} + \left(w_{irt}^{L}\right)^{\frac{\sigma_i}{\sigma_i-1}} \left(1-h_{irt}\right)^{\frac{1}{\sigma_i-1}}}{\left[w_{irt}^{H} h_{irt} + w_{irt}^{L} \left(1-h_{irt}\right) \right]^{\frac{\sigma_i}{\sigma_i-1}}} \qquad [6]$$

where w^{H}_{irt} and w^{L}_{irt}, the average hourly wage of high- and low-skilled workers, are constructed by using the monthly wage taken from LFS that we divide first by total workers and then by the average hours worked during the year.

The final and most relevant problem refers to the possible endogeneity of the migration variable. In fact, one concern when studying the economic impact of migration is that OLS estimates of equations [3]-[4] could be inconsistent due to reverse causality and/or omitted variables. In order to overcome this problem and to obtain reliable estimates, the literature suggests to apply the two stages least square (2SLS) estimator. At this scope, following Altonji and Card (1991) and Card (2001), we construct the instrument by exploiting the correlation between the new

4. It has to be considered equation [1] together with the condition that the average hourly wage of high- and low-skilled workers equals their respective marginal productivity.

immigrants' inflow from a sending country and the past settlements of communities from the same country in the destination area (i.e., city, province or region).

3. Results

3.1. OLS Estimates

This section provides some brief comments on OLS estimates of the effect of immigration on value added per worker lny_{irt}, capital to value added ratio $(\alpha/(1-\alpha))$ $ln(K_{irt}/Y_{irt})$, average hours worked per worker lnx_{irt}, total factor productivity lnA_{irt} and the productivity-weighted skill-intensity index $ln\varphi_{irt}$. In Table 2, column (1) reports the estimates at aggregate level for the whole economy as in equation [4], which excludes the interaction terms, while columns from (2) to (5) present the results for each sector in the panel as specified in equation [3]. The results suggest the existence of a positive and significant relationship between the share of immigrant workers and all components of the value added per worker, with the exception of the skill intensity index $\varphi(h_{irt})$ that reports a negative coefficient. In particular, the total positive effect of immigration share on lny_{irt} is almost all attributable to the effect of migration on total factor productivity and to the capital-value added ratio. The sector-level estimates mostly confirm the aggregate picture.

In column (1), with the exception of the skill intensity index $\varphi(h_{irt})$ that reports a negative coefficient (-0.004), the overall picture suggests the existence of a

Table 2 – OLS Estimates

Dependent Variables	*Total (1)*	*Manufacturing (2)*	*Construction with interaction (3)*	*Commerce with interaction (4)*	*Other Services with interaction (5)*
ln yirt	0.019***	0.011**	0.023***	0.041***	0.014**
	(0.004)	(0.004)	(0.004)	(0.005)	(0.006)
(α/(1-α)) ln (Kirt/	0.005***	0.008***	0.002	0.008**	0.012**
Yirt)	(0.001)	(0.002)	(0.002)	(0.003)	(0.005)
ln xirt	0.001**	0.000	0.001**	-0.001	0.005***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
ln Airt	0.017***	0.006	0.024***	0.040***	0.007
	(0.017)	(0.004)	(0.005)	(0.007)	(0.009)
ln φirt	-0.004***	-0.004***	-0.004***	-0.006***	-0.011***
	(0.001)	(0.001)	(0.000)	(0.001)	(0.002)

Notes: observations 380. Heteroskedasticity robust standard errors clustered by region in brackets. Constant term, industry, region and time effects included but not reported. *** significant 1%, ** significant 5%, * significant 10%. For the *i-th* industry, the interaction term is $(Z_{irt} \times d_i)$. The Table reports the total impact of migration on the *i-th* industry as the sum of the coefficient of Manufacturing and the interaction term, namely $\gamma_{b1} + \gamma_{bi}$.

positive and significant relationship between the share of immigrant workers and all components of the value added per worker. In details, the total positive effect of immigration share on lny_{irt} (0.019) is almost all attributable to the effect of migration on total factor productivity (0.017) and to the capital-value added ratio (0.005). Only a minor role (0.001) is detected for average hours worked per worker lnx_{irt}.

Let us now turn to the sector level perspective (columns from 2 to 5 in Table 2) and focus on the effect of migration on Manufacturing, Construction, Commerce and Other Services. At first glance we observe that sector-level estimates confirm the aggregate picture of column (1). As we can notice, across all sectors immigration has a positive correlation with lny_{irt} (ranging from 0.011 in Manufacturing to 0.041 in Commerce) and a negative correlation with $\varphi(h_{irt})$ (in the range from -0.004 in Manufacturing and Construction to -0.011 in Other Services). Except for Construction (where it is not statistically significant), a positive coefficient is also obtained for the capital to value added ratio (0.008 in Manufacturing and Commerce, 0.012 in Other Services) and, when statistically significant, for average hours worked per worker lnx_{irt} and total factor productivity lnA_{irt}.

3.2. Instrumental Variables Estimates (2SLS)

As discussed in Section 2, the potential endogeneity of the migration variable suggests the implementation of the 2SLS technique. The source of endogeneity could be some omitted variables which might affect both our dependent variables and the immigrants' decision to move into a specific region. That is, some foreign workers might have chosen to move to a specific region attracted by the favorable economic conditions and the consequently increase in employment opportunities. To control for these potential sources of bias, the implementation of the 2SLS estimator requires the adoption of an instrument. Following Altonji and Card (1991) and Card (2001), in order to construct a valid instrument, we exploit the correlation between the current immigrants' inflow from a given sending country and the size of the corresponding community that have settled in a given destination region in the past. Given that we are working at regional and sectoral level, we modify the standard version of the instrument by distributing the predicted number of immigrants in each sector and region on the basis of the value added share of each sector in the corresponding sending country.[5] As a result, the resulting variable that predict the share of immigrants in each region and sector is the following:

$$p\_sh\_imm_{r,i,t} = \frac{\sum_{r,i}\left(sh\_imm_{j,r,2002} * imm_{j,t} * \overline{w\_ind_{j,i}}\right)}{pop_{r,i,t}} \qquad [7]$$

5. Data are retrieved from ILO database, for each sending country the sum of the industry shares equal to one.

where, $sh\_imm_{j,r,2002}$ is the share of immigrants from country *j* residing in region *r* in 2002 over the total number of immigrants from country *j* residing in Italy in 2002,[6] $imm_{j,t}$ is the total number of immigrants from country *j* residing in Italy in year *t* and $\overline{w\_ind_{j,i}}$ is the average value added share of sector *i* in country *j*. To obtain the predicted exogenous component of the share of immigrants, the numerator has been divided by the total population (working age) resident in each region, which has been distributed to each sector according to the corresponding employment share (i.e., $pop_{r,i,t}$). The first stage regression results show that the predicted share of immigrants has a positive and statistically significant coefficient and significant power (*F*-test of 20.3).

The second stage regression results are reported in Table 3. As for the signs of estimated coefficients, the general picture mostly confirms OLS results. The positive effect of immigrants' share on per capita value added is confirmed, while the estimated impact is magnified.

At aggregate level, it seems that the positive impact of the immigration share on value added per capita is mainly attributable to the capital channel, though a positive and significant effect also arises through total factor productivity. Moreover, the negative coefficient for the skill intensity index is confirmed.

Moving to the sector-level perspective, let us start focusing on Manufacturing (column 2). The estimated coefficients confirm a statistically significant positive impact of immigration on $(\alpha/(1-\alpha))ln(K_{irt}/Y_{irt})$ and lnA_{irt}, as well as the negative coefficient for $\varphi(h_{irt})$. In details, it emerges that a one-percentage point shock in the immigrants' share increases value added per worker by 3.3% thanks to the positive responses of both capital to value added ratio (2.3%) and total factor productivity (1.4%). Conversely, negative estimates are obtained for the effect of immigration share on the degree of productivity skill index (-0.03%). As for the variable lnx_{irt}, the reported coefficient continues being statistically not significant.

Looking at column (3), we first notice that Construction does not exhibit strong differences with respect to Manufacturing in terms of both sign and significance of the estimated coefficients. Some differences only appear in terms of magnitude. In this respect, it is interesting to note that, while the estimated impact of migration on value added per worker is almost the same in the two sectors, there are differences in two of its components. In particular, for Construction we estimate a lower coefficient with respect to the capital to value added ratio (1.4%) and a slightly higher semi-elasticity as regards total factor productivity (1.9%). In this sector, a weaker impulse of immigration on physical capital might be the signal for a substitution effect between foreign workers and real investment.

6. The 2002 is the first year for which data of immigrants by country of origin are available at regional level.

Table 3 – 2SLS Estimates

	Total	*Manufacturing*	*Construction with interaction*	*Commerce with interaction*	*Other Services with interaction*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*
ln yirt	0.033***	0.033***	0.032***	0.063***	0.036**
	(0.007)	(0.007)	(0.008)	(0.010)	(0.016)
(α/(1-α)) ln (Kirt/Yirt)	0.022***	0.023***	0.014***	0.024**	0.033**
	(0.004)	(0.004)	(0.005)	(0.010)	(0.015)
ln xirt	-0.001	-0.001	-0.001	-0.003	0.004**
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
ln Airt	0.014***	0.014***	0.019*	0.052***	0.013
	(0.004)	(0.004)	(0.010)	(0.011)	(0.013)
ln φirt	-0.003**	-0.003***	-0.004***	-0.008***	-0.012***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)

Notes: F-test (First-stage) = 20.3; observations 380. Heteroskedasticity robust standard errors clustered by region in brackets. Constant term, industry, region and time effects included but not reported. *** significant 1%, ** significant 5%, * significant 10%. For the *i-th* industry, the interaction term is $(Z_{irt} \times d_i)$. The Table reports the total impact of migration on the *i-th* industry as the sum of the coefficient of Manufacturing and the interaction term, namely $\gamma_{b1} + \gamma_{bi}$.

Finally, as regards the coefficients reported by the index of skill intensity $ln\varphi_{irt}$ the differences between Construction and Manufacturing are not very relevant.

As regards Commerce, the correlation between immigration share and value added per worker is positive and stronger than any other sector (6.3%). This result mainly derives from the high correlation between the immigrants' share and total factor productivity (5.2%) which makes Commerce the sector with the highest productivity gains from immigration. In this respect, Commerce seems to be the sector where the advantages of a more efficient allocation of skills to tasks are strongest (manual-intensive tasks for immigrants and communication-intensive tasks for natives) and where migration inflows are more likely to affect the real side of the economy. Other differences between Commerce and the other sectors also emerge for the other estimated coefficients.

Finally, the value added ratio shows the strongest response to variations in the immigration's share (3.3%), while total factor productivity does not seem to show any statistically significant reaction. These two results, taken together with the positive coefficient reported by lnx_{irt} (0.4%) (this is the only sector where this variable contributes to the effect of migration shocks on income per worker), almost compensate each other, so that the sensitivity of value added per workers to the share of immigrant workers over total employment does not diverge from Manufacturing and Construction. On the other hand, $ln\varphi_{irt}$ reports the highest (in absolute value) estimated coefficient compared to the other sectors, which make

Other Services the sector in which immigration exerts the strongest influence in promoting unskilled-efficient production techniques.

Summing up, our general results point out a positive effect of the share of immigrant workers on total factor productivity and capital to value added ratio, while a negative effect is obtained as far as the technology skill bias is concerned. Furthermore, an almost nil effect is detected from migration shocks to the average hours worked per worker. Concerning the positive effect on total factor productivity, immigrants seem to work as stimulus for tasks specialization among workers (natives and immigrants) and for overall productivity growth through competition in the labor markets. At the same time, the positive effect of migration on the capital to value added ratio suggests that Italian firms tend to invest quickly as soon as new labor force becomes available. As for the negative role on the technology skill bias, it might be the case that immigrants lead firms to adopt less skill-intensive technologies. Moreover it is interesting to note that the responses to immigration shocks seem different in the various sectors, demonstrating that strong sectoral heterogeneities affect the transmission mechanisms of these shocks in the economic performance of receiving regions.

In relation to previous international literature, our findings partly confirm those of Peri (2012) and of Aleksynska and Tritah (2015). In line with them, we find a positive effect of the share of immigrants' workers on value added per worker and on total factor productivity. In addition, we also confirm the negative impact on the technology skill bias index found by Peri (2012). Differently from both these papers, however, our results highlight also a positive role of immigrants' workers on the capital to value added ratio. Focusing on Italy, our results compare with the findings delivered by Accetturo *et al.* (2012), Bettin *et al.* (2014) and De Arcangelis *et al.* (2015a; 2015b), although the methodologies adopted by these researchers differ significantly from the one proposed in the present study.

4. Conclusions

This chapter has delivered an empirical investigation on the response given by the Italian economy to an increase in immigrant workers supply. We have employed the channel output decomposition approach used also by Aleksynska and Tritah (2015), Peri (2012) and Ortega and Peri (2009) by means of which the effect of immigration is measured with respect to per capita value added and to its components. To develop the proposed investigations, it is used a three dimensional panel dataset for the main Italian sectors at regional level, through time (2008-2011). In particular, we have decomposed the value added per worker into four components: the capital to value added ratio, average hours worked per worker, total factor productivity and a productivity-weighted skill-intensity

index. Then the impact of the share of immigrant workers over total employment has been estimated separately for each component.

We have found that immigrant workers have a positive impact on value added per worker thanks to their positive influence on the process of capital accumulation and total factor productivity. At the same time, they negatively affect the skill-intensity index. Taken jointly, these results suggest that immigration in Italy stimulates productivity gains by promoting production techniques that are more unskilled-efficient. This result is perfectly consistent with the fact that immigration in Italy is characterized by a very high percentage of low-skilled workers which presumably have been employed in the less qualified jobs disregarded by the native labor supply. Therefore, comparative advantages in tasks specialization seem the primary source of productivity gains due to immigration in Italy. It is also possible that immigration is giving an indirect contribution to total factor productivity by reducing labor costs and by allowing firms to invest more in new technologies.

A further important result is that an increase in the share of immigrant workers is likely to have different economic consequences depending on the sector which employs the resource. We have found that in Construction more immigrant workers mean a slower capital accumulation process and, therefore, this might be a signal of a substitution effects between capital and labor. Conversely, more immigrant workers in Commerce seem correlated with higher productivity gains and stronger skill bias and, hence, complementarities between immigrants and natives. Finally, in other Services more immigrant workers mean faster growth in the average hours worked. In this scenario, Commerce seems to be the economic sector where migration inflows have more chance to impact on total factor productivity and, thus, on value added per worker.

All these results taken together give very interesting new information regarding the mechanisms linking the inflow of immigrant workers to the economy of host countries. First of all, they represent new evidence for Italy, a country where the immigration phenomenon has assumed unprecedented dimensions. Secondly, they support previous empirical literature advancing the idea that low-skilled immigrants can be an opportunity for receiving countries. Finally, they highlight that the responses to an increase in the share of immigrants can differ among sectors and, therefore, that the overall economic impacts depend on the sector where the immigrants find occupation. In this perspective, positive economic impacts of immigration on host countries seem strictly dependent on the efficient allocation of all available resources and on the correct matching of skills with tasks.

Precisely because of their relevance, our results suggest the need for further research. First of all, the assumption of constant parameters used for the estimates

should be relaxed. Secondly, the robustness of estimates against the risk of the endogeneity bias needs to be checked trying alternative specifications of the instrument. Third, a relevant issue concerns the disaggregated analysis, which should be further pushed by virtue of the great differences that exist between the economic sectors.

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Sommario

Immigrati e Produttività Settoriale nelle Regioni Italiane

Questo capitolo studia in che modo gli immigrati impattino sull'economia italiana. La questione viene affrontata seguendo l'approccio della scomposizione dell'output, mediante il quale viene misurato l'effetto dell'immigrazione rispetto al valore aggiunto pro capite e alle sue componenti. L'analisi è condotta a livello settoriale per il periodo 2008-2011. I risultati mostrano che il canale principale attraverso il quale l'immigrazione influenza il valore aggiunto varia su base settoriale. Infatti, mentre a livello aggregato, nel settore manifatturiero e negli altri servizi, l'impatto è principalmente legato all'intensità di capitale, nei settori dell'edilizia e del commercio il principale canale di trasmissione è quello della produttività totale dei fattori.

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Skilled Migration and Human Capital Accumulation in Southern Italy

*Gaetano Vecchione**

Abstract

The demographic data indicate that the total number of migrants moving from the South of Italy to the Center and North has held basically constant in recent decades. However, the portion of the aggregate called "high-skilled" has been increasing. That is, the quality composition of migrant workers has undergone a radical change. Where in the early postwar decades migrants were mostly young people from the rural parts of the South, today increasing numbers of university graduates and students (enrolled in institutions outside their home regions) are leaving the peninsular and island regions of the South for the Center and North. The global literature on the measurement of the effects of such educated migration has examined the question from two opposing standpoints, among others: "brain drain" and "brain gain". This paper contributes to the discussion on the measurement of the economic effects of high-skilled migration, focusing on the case of the Italian South. After setting out a general framework for measuring the economic effects of educated emigration, the paper presents the empirical findings on the impact on human capital accumulation.

1. Introduction

The issue of the emigration of educated persons has often been the object of study in a range of disciplines. This interest is rooted, notably among economists, in the importance of human capital to the processes of economic growth. It has been ascertained (Lucas, 1988; Romer, 1990) that better human capital means greater opportunities for economic growth and development, so that in principle understanding the dynamics and determinants of its accumulation should enable policy makers to devise better strategies in the longer run.

In years past the relative lack of detailed data for the analysis of migratory flows of educated workers has represented a serious impediment to work on this theme.

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If at first statistics were collected only on overall migratory flows (skilled and unskilled together), with time the information available has been refined. At both the international level (Carrington, Detragiache, 1998, 1999; Docquier, Marfouk, 2006; Defoort, 2008; Docquier *et al*., 2009) and the national (Istat, from 1989 and annually to 2015), the consolidation of the relevant databases has made possible considerably closer inquiry and the rise of new strands of research. For simplicity, albeit with a certain degree of approximation, we can subdivide the migration literature into two blocks: one on the determinants of the decision to emigrate, a second on the impact of migratory flows on welfare in the sending and recipient areas. The first set of studies, which has now attained a good degree of maturity since the pioneering work of Harris and Todaro (1970), has emphasized at least three different species of determinants. The first group consists of quintessentially macroeconomic factors (per capita GDP, unemployment rates, real estate prices, and so on); the second consists of microeconomic factors, relating to the migrants' individual characteristics (family income and education, own education and academic performance, occupational experience, international experiences); the third group refers to context factors (quality of life, quality of public institutions, quality of public services, all the elements that combine to make one place better to live in than another). This first strand of research is now very substantial, also in the case of Italian internal migration (Faini *et al*., 1997; Coniglio, Prota, 2008; Furceri, 2006; Etzo, 2007, 2011; Biagi *et al*., 2011; Marinelli, 2012; Nifo, Vecchione, 2014).

The literature dealing with the effects of migration on the countries of origin and destination, by comparison, is considerably less well developed, especially on the empirical side. To be specific, there has been a transition from an initial phase that focused only on the strictly adverse impact of migration on the sending countries (the "brain drain" literature) to a second phase that recognizes the benefits of international migration – "brain gain" (Spilimbergo, 2012). In detail, following the approach of Boeri *et al*. (2012), the potential positive or negative effects should be studied by analysing the transmission channels through which they impact on the processes of human capital accumulation, productivity and other economic variables, on emigrants' remittances, and on the institutional arrangements of the sending/recipient countries.

One cannot fail to notice, however, that the bulk of this literature bears on international migration. What can we say more specifically about Italian internal migration? In particular, can we extend the conclusions on the effects of international educated migration to the case of interregional migration within Italy? As regards international migration, the "brain gain" thesis is sustained by the marked economic differences between sending countries (developing countries in 50 percent of the cases)[1] and

1. According to Oecd data, in 2000 of the 20 million high-skilled immigrants to Oecd countries, at least 50% came from non-Oecd countries (Oecd, 2015).

recipient countries, as gauged by such standards as per capita GDP, wage levels, human development indicators, unemployment rates, and quality of public institutions, not to mention cultural differences (language, mores, religion). If it can be maintained that in the case of international migratory flows poor countries may derive evident benefits from high-skilled emigration ("diaspora externalities", for instance), this standard of analysis cannot be applied to internal migration within Italy, given the much less pronounced economic differentials between the regions of origin and destination. Moreover, we must consider that internal movement is much easier, with much lower transaction costs. Overall, as Boeri *et al*. (2012) argue, where there are no liquidity constraints and where the wage differentials with the area of destination are not excessively great, it is reasonable to presume that high-skilled emigration does not produce benefits for the area of origin. Thus it should come as no surprise that an authoritative literature (Faini, 2003; Becker *et al*., 2004; Piras, 2005; Fratesi, Percoco, 2014) holds that for the sending areas, the negative effects of Italian internal migration outweigh the positive.

The share of university graduates among emigrants from the Italian South rose from 5 percent in 1980 to 25 percent in 2015 (Istat, 2016). Clearly, the phenomenon of high-skilled emigration is not only expanding rapidly but has begun to take on alarming proportions: whereas in the 1980s migrants were overwhelmingly unskilled, today an ever-increasing share are educated (university students and graduates). This paper contributes to a debate that may not have gotten the attention it deserves either within the academic community or in policy design at national and regional level. With reference to the Italian South, the question is whether we can speak simply of brain drain, or is there also to some extent a brain gain?

2. On the Benefits and Costs of High-skilled Emigration

High-skilled migration has different characteristics depending on whether one considers it from the international perspective (from Italy to other countries and vice versa) or domestic (from southern to northern regions and vice versa). Faggian *et al*. (2017) offer an excellent review of the benefits and costs of high-skilled interregional emigration, underscoring that we have only a limited number of analyses of the consequences of migration on the regions from which internal migrants leave, and for Italy a mere handful. However, it is possible to trace some features common to international and internal migration, so as to determine the main channels of transmission (Faggian *et al*., 2017). Docquier and Rapoport (2012) identify a number of channels whereby high-skilled migratory flows transmit their potential beneficial and adverse effects to the economy of the sending areas. The most important are: i) human capital and human capital accumulation; ii) screening selection of the individuals who decide to leave or to stay; iii) productivity, hence the overall performance of the

economy; and iv) institutional, i.e. the capacity of the network of migrants formed abroad to modify the institutional and governance arrangements of the home country ("diaspora effects"). Applying a theoretical model and a series of simulations, Docquier and Rapoport estimate the impact of migration as a percentage of GDP. Their conclusions concerning the single transmission channels are given below.

Human capital. High-skilled international migration has a positive effect on the human capital stock of the home country by creating an incentive for those who, while not leaving, may decide to invest more in their own human capital in hopes of being able to emigrate later on.

Screening selection. At the same time, in quality terms, the emigration of the high-skilled results in a gradual decline in the average skill level of non-emigrant human capital. Although the countries studied are very heterogeneous indeed, the empirical analysis would appear to confirm the thesis that those who emigrate do in fact tend to be "the best and the brightest".

Productivity. Migration has an adverse impact on productivity in the sending country, especially where the sending and recipient countries do not differ too greatly in their distance from the technological frontier. Skilled workers are important above all for countries not too far away from that frontier.

Institutional. The institutional effects of "diaspora externalities" are generally beneficial, owing both to the influence that the emigrants may exert on political, cultural and economic institutions in their home country and to reductions in transaction costs, which are said to incentivate foreign investment in the sending country.

The schematic representation in Table 1, is a reconsideration of the items identified by Docquier and Rapoport (2012), listing costs and benefits not only for the sending but also for the recipient region. It also adds two more channels, namely public expenditure and remittances. As regards public expenditure (channel 5), Vecchione (2017) estimates at €30 billion the loss to the southern Italian regions in 2000-2015, counting the per person public education investment prior to the decision to emigrate as a deadweight loss for the sending region, which will be deprived of the positive externalities generated by education in the longer term.

As noted earlier, this paper reports an initial empirical inquiry into the first of the channels specified in the table, i.e. that relating to processes of human capital accumulation, with special attention to the migrants' regions of origin. Various works (Mountford, 1997; Beine *et al*., 2001; Stark, Wang, 2002) maintain that given the possibility of emigrating, young students step up their investment in human capital in order to increase their chances of effective emigration, which in principle should result in a higher expected return to the investment, considering the higher levels of remuneration in the recipient countries. In other words, human capital investment is an endogenous factor in the rate of high-skilled emigration. In the final analysis, this thesis implies that emigration results in an increase in the human capital stock,

Table 1 – Benefits and Costs (B/C) of High-skilled Migration, Regions of Origin (RO) and Destination (RD)

Region of Origin	*Region of Destination*
1-RO. B/C via human capital stock	1-RD. B/C via human capital stock
2-RO. B/C via effects on economic variables	2-RD. B/C via effects on economic variables
3-RO. B/C via diaspora effects	3-RD. B/C via diaspora effects
4-RO. B/C via remittances	4-RD. B/C via remittances
5-RO. B/C via public expenditure	5-RD. B/C via public expenditure

hence a net benefit, in the region of origin. This insight, which goes back to the work of Bhagwati and Hamada (1974) and McCulloch and Yellen (1977), has managed to reorient the perspective of the literature on migration from brain drain to brain gain (Spilimbergo, 2012) and is unquestionably a fascinating hypothesis, albeit centered above all on developing countries. But does such an interpretation fit the realities of internal migration within Italy? Is it correct, in this case too, to speak of the endogeneity of human capital investment to high-skilled emigration? In practical terms: we need to investigate the relationship between the rate of high-skilled migration from South to North and the decisions of southern families on human capital investment. The findings of an initial empirical analysis are given in the following section.

3. The Empirical Investigation

Table 2 presents summary data on population, enrollment rates, graduates and students, and public expenditure for the two main Italian macroregions Center-North and Mezzogiorno (South, including the island regions of Sicily and Sardinia) in the period 2001-2016. The main sources of statistical information are the from Ministry of Education, Universities and Research *Anagrafe Studenti* (Miur, 2017) and Istat (2016). Examining the table, three empirical results stand out. First, between 2001 and 2016 the South shows negative changes for the following indicators: i) *HS graduates*, the number of secondary school graduates, decreases by 2.5%; ii) *Enrolled*, the number of students enrolled in universities, declines steadily; iii) *Enrollment rate*, the ratio of university enrollees to secondary school graduates, undergoes a general decrease except for students enrolled at universities located in the region of residence. Second, the numbers of *graduates* and of *30-34-year-olds* with tertiary education increased sharply throughout the country. Third, *public expenditure on education* in proportion to GDP fell by 5.54 percent nationwide, 1.71 percent in the Center-North and 9.08 percent in the South.

Following Faini (2003), we proxy human capital accumulation with the enrollment rate after completion of upper secondary education. Enrolled students are

Table 2 – Summary of Data

	Center-North			*Mezzogiorno*			*Italy*		
	2001	*2016*	*%g*	*2001*	*2016*	*%g*	*2001*	*2016*	*%g*
General									
Population	36,412,744	39,822,381	9.36%	20,547,948	20,843,170	1.44%	56,960,692	60,665,551	6.50%
Pop Density	204.17	223.29	9.36%	166.06	168.45	1.44%	188.56	200.83	6.51%
Education									
HS Graduate[1]	252,837	266,445	5.38%	193,941	188,973	-2.56%	446,778	455,418	1.93%
Enrolled (stud_region)	174,472	177,244	1.59%	128,199	108,332	-15.50%	302,671	285,576	-5.65%
Enrolled (stud_local)	149,449	145,091	-2.92%	100,281	76,128	-24.09%	249,730	221,219	-11.42%
Enrolled[2] (stud_univ)	213,718	204,784	-4.18%	118,731	85,448	-28.03%	332,449	290,232	-12.70%
Enroll rate[1] (stud_region)	0.69	0.62	-10.14%	0.66	0.54	-18.18%	0.68	0.58	-14.71%
Enroll rate[1] (stud_local)	0.59	0.51	-13.56%	0.52	0.39	-25.00%	0.56	0.46	-17.85%
Enroll rate[1] (stud_univ)	0.84	0.71	-15.47%	0.56	0.43	-23.21%	0.71	0.59	-16.90%
Graduated[3] (flow)	128,181	218,324	70.32%	42,450	82,584	94.54%	17,0631	300,908	76.35%
Graduated[4] (stock)	2,944,788	4,963,743	68.56%	1,282,849	1,979,576	54.31%	4,227,637	6,943,319	64.24%
30-34 years old with tertiary Education[4]	17.03	29.35	72.34%	12.87	20.66	60.53%	15.60	26.16	67.69%
Public expenditure in Education (% Gdp)[5]	2.92	2.87	-1.71%	6.61	6.01	-9.08%	3.79	3.58	-5.54%

Note: [1]2001-2014 – [2]2003-2016 – [3]2004-2015 – [4]2004-2016 – [5]2004-2014

usually computed in three different ways: i) number of students by region of residence, regardless of the university's location *(stud_region)*; ii) number of students whose residence is in the same region as their university (local students, *stud_local);* iii) number of students by region of enrollment, regardless of residence *(stud_univ)*. This gives three enrollment rates, or ratios of enrolled students to upper secondary school graduates. Figure 1 and Figure 2 show the enrollment and enrollment rates trends distinctly for Center-North and Mezzogiorno from 2011 to 2015.

3.1. An Econometric Estimation

To test whether skilled migration affects human capital accumulation, I used the enrollment rate for region *i* (i=1,…, 20) in year *t* (t=2001,…,2016), counting number of students by university, regardless of region of residence (*rate_univ*). Using natural logarithms, I estimate the regression equations with following estimators: pooled OLS (1), Panel FE (2) and GMM (3)

$$y_{it} = \alpha_0 + \beta_1 X_{it} + \beta_2 SM_{it} + \varepsilon_{it} \quad [1]$$

$$y_{it} = \alpha_0 + \beta_1 X_{it} + \beta_2 SM_{it} + v_{it} + \varepsilon_{it} \quad [2]$$

$$y_{it} = \alpha_0 + \beta_0 y_{i(t-1)} + \beta_1 X_{it} + \beta_2 SM_{it} + v_{it} + \varepsilon_{it} \quad [3]$$

where the control vector X is constituted by: per capita GDP, population density, a time trend, a "reform" dummy[2] and a "south" dummy[3]; *SM*, i.e. skilled migration, our variable of interest, is measured as the ratio of skilled migration to the graduates' flows; and α_0, v_{it} and ε_{it} are respectively a constant fixed term, regional fixed effects and the error measurement term. Preliminary as they are, the results given in Table 3 nevertheless offer interesting evidence. First, *SM* is always negative, which would appear to corroborate the main hypothesis of this paper, namely that skilled migration decreases human capital accumulation in the South. Second, per capita GDP has a positive effect on the enrollment rate, as does population density, albeit to a lesser extent. Third, the time-trend coefficient in the Panel and GMM-DIF specifications is negative and significant, reflecting the drop in university enrollment in Italy over the last 15 years (by 12 percent nationwide and 28 percent in the South). The foregoing empirical evidence conflicts with a part of the literature – for example, Lucas (2004) – who, observing the high university enrollment rates in the Philippines, concluded that the possibility of future emigration induced greater investment in education. In fact, however, as Boeri *et al*. (2012) observe, according to theory one can speak of a direct correlation between skilled

2. To capture the effect of the reform instituting the 3-year university course followed by 2-year specialization.

3. For the Southern regions, i.e Molise, Abruzzo, Campania, Puglia, Basilicata, Calabria, Sicily, Sardinia.

Figure1 – University Enrollment by Category of Student

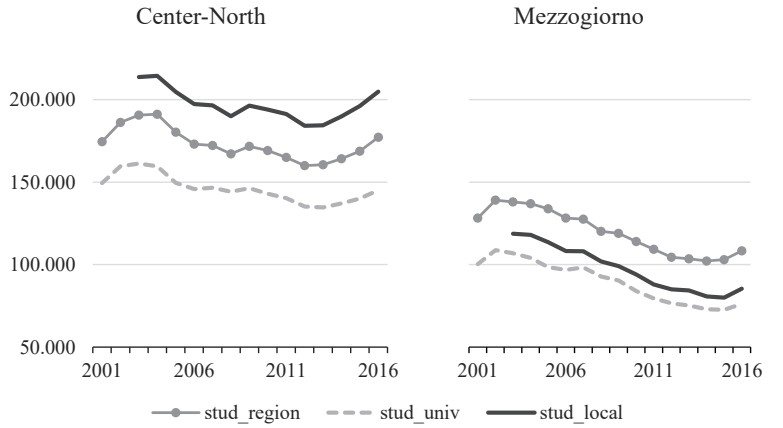
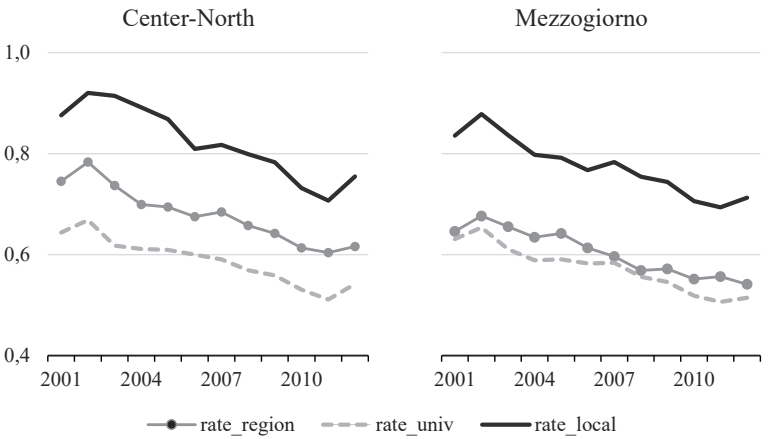


Figure 2 – Enrollment Rate by Category of Student



migration and human capital accumulation only on certain specific conditions as regards liquidity constraints, wage differentials, and the relative ineffectiveness of education policy in the sending countries. Therefore, in relation to the specific terms of Italy's North-South dualism, it is certainly not rash to hypothesize that the human capital channel has an adverse effect on the Mezzogiorno. And this cost can only be aggravated by positive selection of migrants, as underscored by Faini (2003): "*The most talented individuals would then have an incentive to migrate at a relatively early stage of their school curriculum, thereby definitely reducing the average enrolment ratio in the home country's educational system*."

Table 3 – Results. Dependent Variable: Enrollment Rate by Region of University

	Pooled OLS	*Panel FE*	*GMM-DIF*	*GMM-SYS*
Log_Skilled Migration	-0.526 ***	-0.0970 **	-0.0338 **	-0.0536 *
	(0.121)	(0.0418)	(0.0159)	(0.0293)
Log_GDP_pc	0.675 **	0.280	0.327 ***	0.523 ***
	(0.276)	(0.169)	(0.112)	(0.117)
Log_dens	-0.0131	1.228 ***	0.824	017 ***
	(0.0765)	(0.411)	(0.731)	(0.0317)
Dummy_South	-0.200	-	-	-
	(0.182)			
Year	-0.00683	-0.0237 ***	-0.0184 ***	-0.00247
	(0.00498)	(0.00409)	(0.00392)	(0.00241)
Dummy_reform	0.250 ***	0.0688 ***	0.0554 ***	0.1013 ***
	(0.0609)	(0.0231)	(0.0115)	(0.0124)
_cons	-8.003 **	-9.437 ***	-7.789 *	-6.928 ***
	(2.897)	(2.780)	(4.093)	(1.227)
L1.Log_Enroll_rate	-	-	0.130	0.724 ***
			(0.102)	(0.0948)
N	220	220	200	220
R^2	0.676	0.635	-	-
AR(2) p-value	-	-	0.61	0.96
Sargan/Hansen p-value	-	-	0.85	0.55
INST	-	-	105	26

Note: Standard errors in parentheses, $^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$; Abbreviations: GMM-DIF = difference GMM estimates (Arellano-Bond, 1991); GMM-SYS = system GMM estimates (Blundell-Bond, 1998), GMM-SYS use the STATA command *xtabond2* for the "*collapse*" option useful to reduce the number of instruments (Roodman, 2009); AR(2) p-value = p-value Arellano-Bond test for autocorrelation in difference residuals; Sargan/Hansen p-value = test of overid. restrictions. INST= number of instruments

4. Conclusions

In the course of fifteen years the net balance of high-skilled migration in Italy has been heavily negative for the regions of the South. Between 2000 and 2015, in fact, the number of university graduates resident in the South diminished by 190,000 (on a net basis), even without considering the growing share of middle- and long-distance commuters. The trend has taken on alarming proportions, especially considering that in 2015 no less than 25 percent of total migrants from South to North were university

graduates, compared with just 5 percent in 1980 (Istat, 2016) and that some 40 percent of all southern residents enrolled in universities ("*laurea magistrale*") were at institutions located in the Center-North. Thus the quality structure of migration has been drastically altered. If the typical southern emigrant of the immediate postwar decades was a young worker from the countryside, today there are steadily increasing numbers of university graduates and students (who study outside their home region) moving from the Mezzogiorno to central and northern Italy.

Measuring the impact of high-skilled migration on the sending and recipient territories remains both a challenge and a promising line of research. Despite the abundant literature on the determinants of migration decisions, very few studies indeed, especially for the Italian case, have come to grips with the more complicated problem of assessing the economic impact of this important type of migration. The present paper offers a preliminary measurement of the effect of high-skilled migration on the process of human capital accumulation, as gauged by university enrollment rates. The initial results would appear to demonstrate that the constant outflow of high-skilled migrants from the Mezzogiorno to the Center and North of Italy have, over the years, reduced the accumulation of human capital in the emigrants' regions of origin, undermining the competitiveness of the entire South.

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Sommario

Migrazione intellettuale e accumulazione di capitale umano nel Mezzogiorno d'Italia

Secondo dati ISTAT, il numero dei migranti totali dal Sud al Centro-Nord è sostanzialmente invariato nel suo valore aggregato negli ultimi decenni. Tuttavia risulta essere crescente la parte dei migranti cosiddetti high-skilled. È dunque radicalmente mutata la struttura qualitativa del migrante tipo: se negli anni del secondo dopoguerra a migrare era soprattutto giovane manodopera proveniente dalle aree rurali del Mezzogiorno, oggi va aumentando il numero dei laureati e degli studenti universitari (immatricolati fuori regione) che si spostano dalle regioni meridionali e insulari, verso le regioni del centro e del nord del Paese. La letteratura sulla misurazione degli effetti derivanti dalla migrazione intellettuale permette di esaminare la problematica da almeno due diversi punti di vista: quella del brain drain e quella del brain gain. Il presente lavoro cerca di offrire un contributo al dibattito sulla misurazione degli effetti economici derivanti dalla migrazione high-skilled focalizzando l'analisi sul caso del Mezzogiorno. Dopo la presentazione di un framework generale per la misurazione degli effetti economici della migrazione intellettuale, il lavoro presenta risultati empirici circa gli effetti di tale migrazione sui processi di accumulazione di capitale umano.on the measurement of the economic effects of high-skilled migration, focusing on the case of the Italian South. After setting out a general framework for measuring the economic effects of educated emigration, the paper presents the empirical findings on the impact on human capital accumulation.

International Skilled Migration and Institutional Quality: Evidence from Italian Provinces

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Abstract

The increasing importance of migration for the institutional dynamics in the sending and receiving places has raised the interest of scholars about the effects of migration. In particular, the growing high-skilled mobility that took place during the last few years has increased the attention to the consequences related to a higher level of education embedded in the migration flows. Using a System GMM estimator, the present paper contributes to this literature, highlighting a positive relationship between international human capital immigration and institutional quality in the Italian provinces during the period 2004-2012.

1. Introduction

The role of institutions in favouring the economic development has been object of a recent scientific literature (Acemoglu *et al*., 2005; Rodrik, 2007; Rodríguez-Pose, 2013). Institutions, indeed, are able to shape the economic outcomes through their ability to determine the incentives of and the constraints on economic actors (Acemoglu, Robinson, 2010). According to North (1990), institutions represent, the "rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction" (p. 477). In particular, if institutions define the rules and their enforcement, they also represent an important source of economic growth through their ability to influence technological innovations. Only when the institutional quality is high, indeed, a given country can benefit from economic growth and social development (Holmberg *et al*., 2009).

The increasing importance of institutions as a source of regional development has raised scholars' interest in the mechanisms which are able to improve the quality of

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government. In particular, a consolidated literature strand demonstrates that migration has important consequences on sending and receiving institutions (Spilimbergo, 2009; Beine, Sekkat, 2013; Docquier *et al.*, 2016). This relationship becomes increasingly important in the present historical period where the globalization process as well as the technological progress are contributing to promote the international mobility increasingly characterized by a growing weight of high-skilled individuals (the so-called "selective" migration). Therefore, in an era when the human capital mobility is becoming more intensive the attention on the role of skilled migration on institutional quality becomes even more necessary (Faggian *et al.,* 2017).

The "structural" characteristics assumed by this phenomenon raises the importance to extend the analysis of migration from the short-run effects on labor market (job and wage) to the impacts on others variables that could have long-run implications on the growth dynamics (Nathan, 2014).

The present paper aims at contributing to the economic literature by providing an analysis of the effects of international immigration on institutional quality across the Italian provinces.

Up to date, the relationship between migration and institutions has been investigated from two main perspectives. The first one, is focused on the effects on home country institutions and reveal a beneficial effect of emigration which is reinforced when the skill intensity of migration is taken into account (Beine, Sekkat, 2013; Docquier *et al.*, 2016; Li *et al.*, 2016; Spilimbergo, 2009). The second one, analyzing the impact of immigrants, provides evidence of a positive effect on institutional quality in the receiving country (Clark *et al.*, 2015; Padilla, Cachanosky, 2017; Powell *et al.*, 2017).

However, the effects related to the international immigrants on government quality from an intra-national perspective has received less attention. To the best of our knowledge, indeed, the work of Padilla and Cachanosky (2017) represents the unique contribution interested in the consequences of immigration at sub-national level. Given the growing interest on the regional dynamics and the consolidated idea that intra-national disparities in terms of institutional quality matter more than the cross-country differences in order to explain the causes of growth and stagnation (Rodríguez-Pose, 2013), there is a necessity to produce further empirical evidence within the national context.

The present paper attempts to contribute to this literature by exploring whether and to what extent the in-flows of international skilled individuals affect the quality of institutions, once we control for a set of important variables that contribute to determine institutions. In particular, in the first stage of our analysis we estimate the impact of human capital immigration on the overall institutional quality index while in the second step we carry out a more refined investigation by analyzing the role of skilled migration on different dimensions of institutions.

The econometric analysis is carried out by using the Italian National Institute of Statistics' dataset (Istat) on international immigration flows divided by educational level among the Italian provinces over the period 2004-2012 and the dataset provided by Nifo and Vecchione (2014) on institutional quality. Nifo and Vecchione (2014), by aggregating twenty-four elementary indexes into five different indicators (voice and accountability, government effectiveness, regulatory quality, rule of law, and control of corruption), are able to capture the different dimensions of institutions according to the definition proposed by Kaufmann *et al.* (2011).

This kind of analysis raises several important identification issues. First, the reverse causality between migration and institutional quality could lead to biased estimation results. Second, the possibility that the relationship between education and institutions could be driven by omitted factors able to affect both the variables arises the importance to control for the potential omitted variables.

Therefore, the present paper investigates the effects associated to the immigration on institutional quality by adopting, within a dynamic panel data framework, the system GMM estimator of Blundell and Bond (1998). This methodology allows us to account for both the endogeneity issues and the time-invariant provincial characteristics.

Finally, differently from the vast majority of empirical works, which are unable to measure the human capital endowment of migration, the subdivisions provided by the ISTAT's dataset in terms of educational level enables us to directly observe the skill intensity of each migrants and, thus to quantify the human capital embedded in these flows through the average number of years of schooling (Barro, Lee, 2001; Fratesi, Percoco, 2014; Piras, 2005a, 2005b).

The main results seem to indicate that the human capital in-flows have a positive and statistically significant effect on government quality, and in particular, on the regulatory quality, on the rule of law and on the voice and accountability.

The remainder of the paper is organized as follow. The next section provides the literature background. Section 3 presents the descriptive features on international in-migration in Italy. In section 4 the econometric model and the results are presented. Finally, in the last section, the main conclusions are provided.

2. Literature Background

Over the past few decades, we have assisted to a deeper transformation of the composition of migration with an increasing share of skilled individuals. The economic literature, beyond having demonstrated the essential role of migration as a source of economic growth and the importance to account for the human capital content of migration, has also considered the potential effect of human

capital mobility on institutions (Spilimbergo, 2009; Borjas, 2015; Clark *et al.*, 2015; Docquier *et al.*, 2016). The attention has been essentially paid to the international emigration and the impact on home country institutions. In particular, by exploring the consequences of return migration on democracy, different authors demonstrated that foreign-educated individuals promote democracy in their home country, acting as an effective mechanism able to transfer norms, rules and institutions from the receiving country to the country of origin (Spilimbergo, 2009; Chauvet, Mercier, 2014).

More generally, countries with a higher level of emigration rate are also those that experience the main improvements in terms of institutional quality (Docquier *et al.*, 2016). This relationship is reinforced when the relative capacity of highly-skilled emigrants is controlled (Beine, Sekkat, 2013). In other words, the educational level of migrants represents an important element, able to affect the institutional quality in the sending countries. Li *et al.* (2016) distinguish the mobility effects of the most skilled individuals on the economic and political institutions once they control for the domestic human capital. The results show a positive relationship between the brain drain and the country's political institutions. On the contrary, the outflows of human capital exert a negative impact on economic institutions.

In summary, these studies have highlighted the prevalent beneficial effects for the country of origin of the international emigration. More specifically, cross-country mobility represents a transmission channel that improves the institutions in the sending country.

However, less attention has been paid to the relationship between international immigration of human capital and institutional quality. In particular, in an important theoretical analysis, Borjas (2015) raised an important question about the consequences related to the mobility of individuals for institutions and social norms in a specific country. The author states that importing bad institutions from countries with a lower level of democracy has a detrimental effect on institutional quality in the receiving country. This statement has also been supported by Collier (2013) who was worried about the possibility of immigrants to bring with them institutions, social characteristics and cultural background from their "poor societies" (Collier, 2013 p.34).

Nevertheless, this theoretical concept didn't find a solid empirical support and has been discarded by recent studies focused on the relationship between international immigrants and institutional quality. The results, indeed, seem to indicate a gain in institutions due the immigration process. Clark *et al.* (2015), for instance, empirically examining the impact of immigrants on different dimensions of institutions in the destination country, found a positive impact of immigration on a country's institutions. These findings have been also confirmed

by Powell *et al.* (2017), who examining the consequences of mass immigration in Israel due to the relaxation in the emigration restrictions in the Soviet Union found a beneficial effect of this process to the Israel's economic freedom. In particular, the analysis shows an increase of the Israel's institutional quality from 15 percent below the global average to 12 percent above the same average.

However, although as suggested in the economic literature, the regional disparities in terms of institutional quality matter more than the national ones for the long-run economic growth (Rodríguez-Pose, 2013), there is only one evidence focused on the relationship between international in-flows and institutional quality from an intra-national perspective. The contribution of Padilla and Cachanosky (2017) represents, indeed, the only evidence at this level of analysis. The authors, in particular, in line with the previous findings found, through an empirical analysis of the relationship between immigration and economic freedom, that the naturalized US immigrants do not lead to a deterioration of the American states' institutions as suggest by Borjas (2015) and Collier (2013). On the contrary, international in-flows exhibit the ability to foster regional institutional quality.

Therefore, what emerges is the necessity to increase the debate on the relationship between immigration and institutions with the aim of shedding light on the mechanisms able to affect the territorial disparities within a national context. As pointed by Charron *et al.* (2014), indeed, the cross-country analysis could be biased due the significant sub-national or within differences in terms of institutional quality. The relevance of such an in-depth analysis has been also underlined in other works related to the institutional quality and its effect on innovation and growth. Rodríguez-Pose and Di Cataldo (2015), for instance, highlight that the higher quality of regional institutions as well as the dimensions of control of corruption, rule of law, government effectiveness and government accountability have a strong effect on the innovative capacity of European regions by transforming the R&D investments into innovation. To sum up, there is a consolidated idea of the importance to analyse the consequences on institutional quality from an intra-national point of view rather than adopting cross-country framework.

3. Data Description

In this study, the province (NUTS-3 at the European level) represents the territorial unit of analysis. Our data come from the dataset of Nifo and Vecchione (2014) and from the ISTAT.

The former dataset includes five dimensions of institutional quality and an overall institutional quality index for all the 103 Italian provinces, each of which represents the aggregation of different elementary indexes. The first indicator is the "control

of corruption" and refers to the extent of crimes against the public administration and all the illegal activities which affect the correct operating of the public function. The second indicator is the "rule of law" which is representative of the development level of a given society in terms of criminality rate, police forces and property rights. Then, we find an index able to capture the government ability to promote the private sector in terms of entrepreneurship and business environment ("regulatory quality"). The fourth indicator allows to know the endowment of social and economic facilities as well as the regional policy implementation concerning health, waste management and environment. Finally, the indicator "voice and accountability" captures the citizens' ability to select and to evaluate a particular governing class as well as the social participation and the degree of associations. The indicators are standardized, so they vary between 0 and 1: the higher the institutional score, the better the quality of the institutions of the considered province.

The Istat dataset grouped the international immigrants into five educational levels starting from the individuals without education to the tertiary educated people. Following Barro and Lee (2001) and for the Italian context Piras (2005a; 2005b) and Fratesi and Percoco (2014) we are able to measure the international in-flows of human capital (imm_hk) through the following equation:

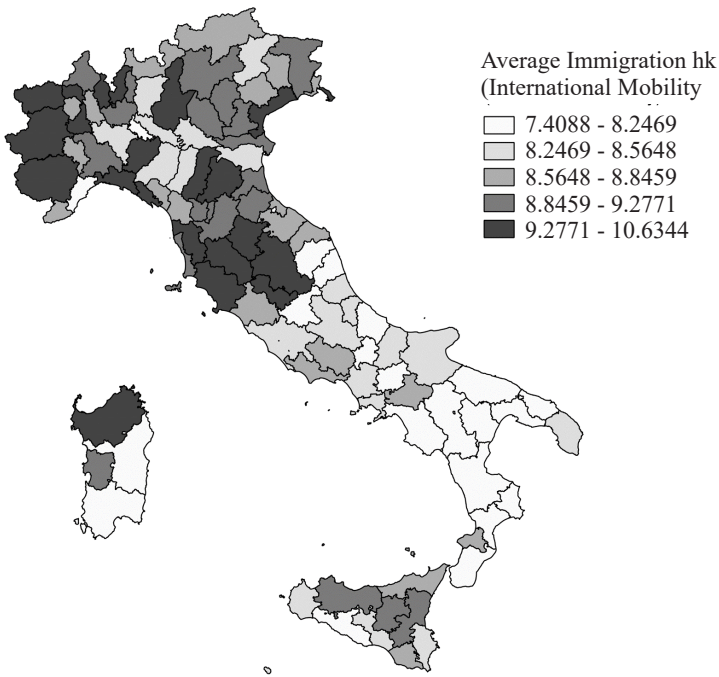
$$(international)\ imm\_hk_i = \frac{\sum_k immigrants_k\, year_k}{\sum_k immigrants_k} \qquad [1]$$

where k = 1, …, 5; $immigrants_k$ is the number of immigrants of schooling level k and $year_k$ is the number of years of schooling for the level of education k. In particular, we attribute five years for primary education, eight years for lower-secondary educated individuals, thirteen years for upper-secondary education and, finally, eighteen years for graduated. Although this approach rises some interpretation limits, due to the proxy of skills through the level of education, it has the advantage of being easy to quantify and it was largely adopted in the empirical literature (Fratesi, Percoco, 2014). Furthermore, differently from recent studies, based on migration data at individual level (see for instance Ciriaci, 2014; Nifo, Vecchione, 2014), this methodology allows us to analyse the entire sample of immigrants by considering the human capital content of these flows.

Following this approach, Figure 1 highlights the direction of the international human capital mobility. In particular, it is worth noticing the higher ability of the Central-Northern provinces to attract international flows of human capital from the other national context.

Furthermore, by focusing the attention to the international migration distinguished by level of education, the disaggregation provided by the ISTAT dataset allows us to examine the migration dynamics from the individuals without education (unskilled) to the tertiary educated people (high-skilled). In particular, by

Figure 1 – Human Capital International In-migration Flows (Average 2004-2012)



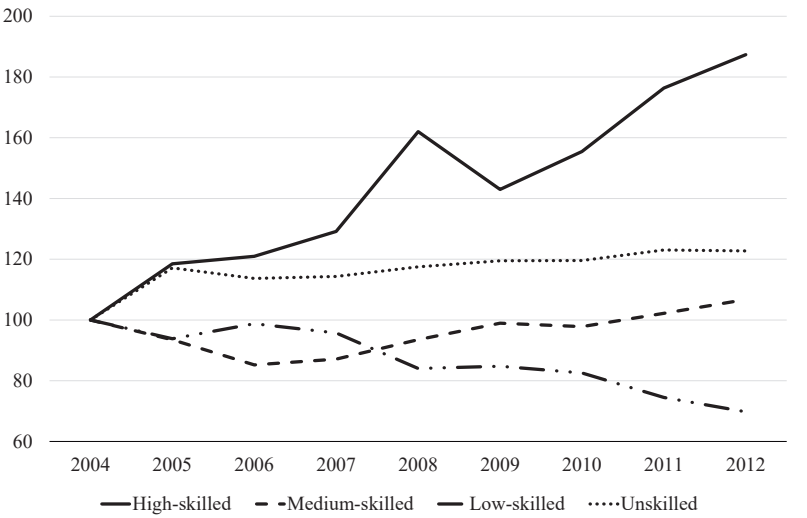
Source: Own elaborations. Istat data

analyzing the migration dynamics over the considered period, Figure 2 shows, taking the initial share of migration of 2004 equal to 100, that the evolution of the share of high-skilled mobility deviates from that of medium- and low-skilled, as well as unskilled individuals. This phenomenon highlights how, in Italy, the composition of international flows has shown a deep transformation with a growing weight of graduates.

Finally, distinguishing the international high-skilled immigrants by area of origin, Figure 3 highlights that the highest number of immigrants comes from countries belonging to the more developed European countries (EU-15) such as Germany, France and UK. Also the extra-EU European countries exhibit an important share (12% in the 2012) of graduate that move towards the Italian context.

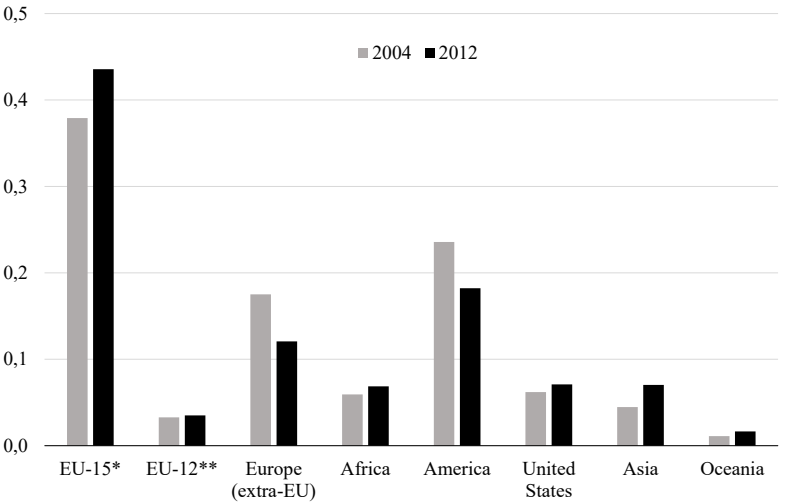
All of these aspects, contribute to increase the importance of empirical analysis at the regional level by investigating the role of international immigrants on the regional distribution of human capital and the consequent effect on institutional quality.

Figure 2 – International Migration Trend by Educational Level 2004-2012 (2004=100)



Source: Own elaborations. Istat data

Figure 3 – International High-skilled Immigration by Origin Area 2004-2012



Note: (*) Western EU countries; (**) Central-Eastern EU countries.
Source: own elaborations. Istat data

4. Empirical Analysis

4.1. Econometric Issues

The econometric analysis is carried out by testing the relationship between human capital mobility and institutional quality through a panel data econometric model (the descriptive statistics are in Table 1). In particular, the regression analysis focuses on the impact on each different dimension of institutions (voice and accountability, government effectiveness, regulatory quality, rule of law, control of corruption and, finally, the overall synthetic indicator).

The model is formulated as follows:

$$I_{i,t} = \beta_1 I_{i,t-1} + \beta_2 hk_{immi,t-1} + \gamma_1 open_{i,t-1} + \gamma_2 fraction_{i,t-1} + \gamma_3 popdens_{i,t-1} + \\ + \gamma_4 wserm_{i,t-1} + \mu_i + \eta_t + \varepsilon_{i,t} \quad [2]$$

the analysis cover a time period 2004-2012, $\varepsilon_{i,t}$ is the idiosyncratic error term and $I_{i,t}$ represents the six dimensions of institutions. In order to control to what extent institutions are persistent we introduce the lagged dependent variable among the explanatory variables ($I_{i,t-1}$). In the dataset, the level of education of the migrants is directly observed and, thus, the human capital is proxied through the average years of schooling (hk_imm). Each specification also includes a set of control variables represented by: the degree of trade openness (open), the ethnic fractionalization (fraction), the population density (popdens) and finally, the share of market services (wserm).

In order to account for the dynamics of the data generation process, measurement errors, unobserved heterogeneity and endogeneity due to the reverse causality the present paper adopts the SYS-GMM developed by Arellano and Bover (1995) and Blundell and Bond (1998). Moreover, as pointed out by different authors (Bobba, Coviello, 2007; Castelló-Climent, 2008; Li *et al*., 2016), the presence of highly persistent variables, such as institutions and human capital make the the SYS-GMM the most suitable estimator and has been proved to perform better than the first-difference estimator. Finally, the internal instruments of the SYS-GMM give the possibility to adopt an instrumentation strategy in order to account for the reverse causality between human capital in-flows and institutions and thus to consider the human capital as potentially endogenous.

In summary, the present paper estimates the consequences of immigration on different dimensions of institutional quality by implementing a SYS-GMM estimator. According to different works (Spilimbergo, 2009; Docquier *et al.*, 2016) the immigration variable is considered as potentially endogenous and instrumented with its first to third lags. The paper also tests the validity of moment

Table 1 – Descriptive Statistics of the Variables

Variable	*Description*	*Obs.*	*Mean*	*Std. Dev.*	*Min*	*Max*
iqi	institutional quality index	927	0.58	0.218	0	1
corruption	control of corruption	927	0.82	0.165	0	1
government	government effectiveness	927	0.36	0.177	0	1
regulatory	regulatory quality	927	0.48	0.208	0	1
ruleoflaw	rule of law	927	0.57	0.201	0	1
voice	voice and accountability	927	0.40	0.165	0	1
hk_imm	$\frac{\sum_k immigrants_k year_k}{\sum_k immigrants_k}$	927	8.76	0.894	6.48	12
open	share of import and export over GDP	927	0.22	0.166	0.04	1.35
fraction	$\left(\frac{foreign\text{-}born_{it}}{population_{it}}\right) \bullet 1000$	927	37.71	14.514	5.91	75.77
pop_dens	number of individuals per square kilometer	927	245.54	326.477	37.27	2603.16
wserm	share of employees in market services	927	0.38	0.047	0.26	0.54

Source: own elaborations. Istat and Nifo and Vecchione (2014) data

conditions by implementing the Hansen's J test of over-identifying restrictions in order to verify the validity of instruments and the Arellano-Bond test for the absence of serial correlations of the error term.

4.2. Econometric Results

The econometric analysis can be divided following two conceptual steps. The first estimation concerns the relationship between human capital immigration and the overall index of institutional quality (iqi). Then, we aim at investigating the channels through which the human capital content of in-flows could affect institutions by re-estimating the equation (2) for all the five dimensions of institutions. The first column of Table 2 displays the results related to the first specification. In particular, we observe a positive and statistically significant effect of human capital immigration. This is in line with different studies focused on the impacts for the host country institutions (Clark *et al.*, 2015; Padilla, Cachanosky, 2017; Powell *et al.*, 2017). In other words, a higher ability to attract human capital has important consequences on the overall quality of government by stimulating a process of skills accumulation.

This result takes on a relevant importance in the Italian context strongly characterized by unbalanced and asymmetric human capital gain from abroad between the richer provinces and poorer ones. Therefore, since the skill intensity embodied in the migration flows contributes to modify the regional distribution of human capital, international mobility ends up increasing the provincial skill disparities, with a diverging impact on institutional quality.

The positive and statistically significant coefficient associated to the lagged variable demonstrates that provinces with higher institutional quality tend to show better institutional performance in the next period and, thus, a persistence of institutional quality over time.

The models also include a set of control variables. With respect to the first one, the analysis reveal that government quality is affected by the degree of openness. In line with the literature, indeed, good institutions are strongly and positively correlated with trade intensity (i.e. the sum of imports and exports over the GDP) (Rodrik *et al.*, 2004; Docquier *et al.*, 2016). Also the ethnic fractionalization show a positive effect on the institutional quality that seems to support the perspective that more tolerant and democratic societies as well as more developed societies are also those with a higher level of ethnic fragmentation (Alesina *et al.*, 2003). Despite the negative coefficient associated to the population density seems to highlight a negative effect on the overall institutional quality index (iqi), the magnitude appears very low. Finally, with respect to the productive structure, provinces that have registered an increasing share of employees in market services have also registered important benefits in terms of institutional quality.

The second step of our analysis focuses on the effects of international human capital immigration on each component of the institutional quality (columns 2-6), which allows a more refined investigation, and even more consistent with the distinction between political and economic institutions typically carried out in the literature. In particular we are able to investigate the effects on the following dimensions included in the dataset provided by Nifo and Vecchione (2014): control of corruption (*corruption*), government effectiveness (*government*), regulatory quality (*regulatory*), *rule of law* and voice and accountability (*voice*).

The results reveal that apart from government effectiveness and control of corruption, human capital immigration has a positive and statistically significant effect on each institutional dimension, though with different magnitudes. The highest coefficients are associated with the impact on rule of law (0.0417) and on voice and accountability (0.0212) which represent the most important indicators of the political institutions. On the other hand, the effect is lower when analysing the role of human capital in-flows on the variable mainly representative of the economic institutions, in our case proxied by the ability to promote the private sector in terms of business environment.

Table 2 – Estimation Results for System-GMM Estimator

Variables	*iqi (1)*	*corruption (2)*	*government (3)*	*regulatory (4)*	*rule of law (5)*	*voice (6)*
L.dependent	0.8141***	0.2709***	0.7220***	0.5121***	0.6877***	0.7995***
	(0.027)	(0.0799)	(0.0572)	(0.0425)	(0.0381)	(0.0563)
hk_imm	0.0101*	-0.0105	0.0068	0.0177***	0.0417***	0.0212***
	(0.0054)	(0.0092)	(0.006)	(0.0069)	(0.0062)	(0.0048)
open	0.0967***	0.2106***	0.1432**	0.2593***	0.032*	0.1272***
	(0.0354)	(0.0706)	(0.0676)	(0.0347)	(0.0371)	(0.0449)
fraction	0.0006***	0.0013**	-0.0002	-0.0001	0.0014***	0.0003
	(0.0002)	(0.0006)	(0.0003)	(0.0005)	(0.0004)	(0.0003)
pop_dens	-0.0001***	-0.0003***	0.0002	-0.0001***	0.0003	-0.0000**
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
wserm	0.8450***	1.8756***	0.9533***	1.1116***	-0.6068**	0.9017***
	(0.2204)	(0.337)	(0.2809)	(0.3274)	(0.2979)	(0.2646)
constant	-0.3364***	-0.048	-0.3250***	-0.3753***	-0.0198	-0.4757***
	(0.0636)	(0.0852)	(0.099)	(0.1254)	(0.1003)	(0.0955)
NxT	824	824	824	824	824	824
N	103	103	103	103	103	103
First-order autocorrelation	0.000	0.000	0.000	0.000	0.000	0.000
Second-order autocorrelation	0.8268	0.0017	0.2287	0.2746	0.395	0.1484
Hansen's J test	0.204	0.227	0.218	0.195	0.19	0.229

Note: ***statistically significant at the 1%; **statistically significant at 5%; *statistically significant at 10%. Standard errors clustered by province (NUTS-3) are in parentheses.

Source: own elaborations. Istat and Nifo and Vecchione (2014) data.

As in the first model, we include the specific provincial characteristics that the literature has described as important determinant that contribute to determining the institutional quality. Although the coefficients associated to each control variables show the expected signs, the population density and the ethnic fragmentation are not always statistically significant. In particular, the population density seems to have a very low negative effect only on the regulatory quality and on the voice and accountability, while the ethnic fragmentation exerts a positive impact on the rule of law.

Standard errors are robust and clustered by province. Our variable of interest (human capital immigration) is treated as predetermined and instrumented with their first to third lags. The estimates are robust. Since the model is over-identified, we use the Hansen's J test in order to verify the validity of the instruments. Moreover, the test on serial autocorrelation is also carried out. The former indicates that the null hypothesis cannot be rejected at 10% (the instruments are valid) while the latter shows that although first-order autocorrelation is expected, the test of second-order autocorrelation presents an absence of a higher-order autocorrelation in the SYS-GMM models.

5. Conclusions

The growing importance of institutions as a source of the the long-run economic growth has raised the literature interest on the key elements able to improve the institutional quality. Among these factors, the human capital mobility plays a central role. A higher level of education embedded in the migration flows, indeed, has important consequences on the institutional dynamics by increasing the dimension of networks, the degree of social cooperation and participation, as well as the ability to select (*ex ante*) and to evaluate (*ex post*) the governing class through a more informed electorate. However, despite the increasing attention paid to the institutional development from an intra-national perspective, the difficulties that arise to measure the institutional quality at regional and sub-regional level have led to an absence of empirical contributions at this level of analysis. In particular, the relationship between international migration of high-skilled individuals and institutions has been mainly investigated from a national perspective, demonstrating the beneficial effect related to migration both for the receiving and the sending country.

By using a System-GMM estimator to account for provincial-specific effects, for the presence of highly persistent variables and for the endogeneity of the human capital mobility, the present paper contributes to the literature by empirically investigating the relationship between international human capital mobility and institutional quality among the Italian provinces during the time period 2004-2012 with the aim of extending the results to other national contexts through innovative features.

The findings have shown two complementary results that take on a greater importance in the Italian context, strongly characterized by a persistent internal economic and institutional dualism. First, in the descriptive analysis has been shown the higher attractiveness of the Central-Northern provinces in terms of international human capital with respect to the Southern provinces. Therefore, the immigrations, gradually characterized by an increasing share of high-skilled individuals, are widening the average skill intensity in the richer provinces.

Second, the main outcome related to the econometric results confirm the important effects of the human capital immigration on the institutional quality. In particular, controlling for the skill level of migration the analysis have shown the beneficial effects of these flows of skilled individuals on the overall institutional quality. The findings demonstrate that a higher human capital gain positively affect the quality of institutions of Italian provinces highlighting that in the following years the ability to increase the institutional opportunities will be based on the capacity to attract human capital from other national context.

Moreover, we find interesting results when we investigate the effect of skilled migration on all the different dimensions of institutions: *corruption, government effectiveness, regulatory quality, rule of law and voice and accountability*. More specifically, the paper provides evidence of a significant and positive effect on the ability to promote the private sector (regulatory quality), on the level of development of a society in terms of criminality rate, violence and magistracy activities (rule of law), and on the degree of social participation and cooperation (voice and accountability).

The present findings add to the existing economic literature by indicating the significant consequences of international migration on institutional quality and by suggesting the importance to shift the attention from a cross-country perspective to a regional point of view contributing to better understand the relationship between migration and institutional quality. These results take on a greater importance in the Italian context where the international human capital mobility follows an asymmetric and unbalanced direction by favouring the Central-Northern provinces. This process, indeed, by modifying the regional human capital distribution, is able explain the causes of a persistent institutional disparities between these two macro-areas of the country.

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Sommario

Migrazione Internazionale Selettiva e Qualità Istituzionale in Italia: Evidenze a livello provinciale

La crescente importanza della migrazione per le dinamiche istituzionali nelle aree di origine e destinazione ha sollevato l'interesse degli studiosi circa gli effetti di tale mobilità. In particolare, la sempre maggiore mobilità di individui qualificati, caratteristica degli ultimi anni, ha suscitato l'attenzione verso le possibili conseguenze legate ad un elevato capitale umano contenuto nei flussi migratori. Il presente lavoro, mediante l'utilizzo di un System GMM, contribuisce a tale letteratura evidenziando una relazione positiva tra l'immigrazione internazionale di capitale umano e la qualità istituzionale delle province Italiane durante il periodo 2004-2012.

The Intra-urban Location Rationale(s) of Knowledge-creating Services: Two Italian Case-studies

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Abstract

Recently, a debate has developed within the economic geography about agglomeration economies, which ensues from the transition from industrial to the knowledge-driven economy and from a deterministic to an evolutionary approach. While it is recognized that agglomeration economies are more important than location economies in the new context, their nature is being still questioned, especially between New Economic Geography and Evolutionary Economic Geography. This paper aims at contributing to that debate through novel or barely explored epistemological and methodological approaches. Our results, while confirming the importance of agglomeration economies, shed new light on the role of location economies especially at the intra-urban scale.

1. Introduction

Within the economic geography literature, it is widely accepted that the spatial distribution of activities is mainly affected by agglomeration factors rather than location factors (Ellison, Glaeser, 1999). The nature and the relative weight of the specific agglomeration economies involved, however, are still subject of debate (Phelps, Ozawa, 2003). This debate was launched at the beginning of the 1990s by the *New Economic Geography* (NEG) (Krugman, 1991) which, starting from a general-equilibrium approach, argued that location economies are effective only at the initial stage of industrialization, while agglomeration economies drive, even though unpredictably, the following stages, thus ultimately shaping the real economic geography. The question to be addressed is whether and to what

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extent this model holds also in the knowledge-driven economy. Following the NEG model, in fact, the "Knowledge-Intensive Services" (KIS) based on codified knowledge would locate randomly on space, since transfer costs of information have dramatically dropped thanks to ICT development, or would cluster if they are sensitive to reciprocal proximity[1] or to closeness to public services and infrastructures, especially when temporary proximity matters (Torre, 2008). Conversely, KIS based on tacit knowledge are expected systematically to cluster, even if at various degrees, depending on the trade-off between internal agglomeration economies and proximity to their respective customers and suppliers (who often coincide when information is the traded commodity). Since manufacturing represents a significant proportion of those customers/suppliers (Miles *et al.*, 1995), tacit knowledge-based KIS are ultimately supposed to follow the geography of the manufacturing areas, which is mainly shaped by agglomeration economies. These trends could be enhanced by the fact that learning is a relational practice (Gibbons *et al.*, 1994), and, thus, information exchange could depend on extra-market factors, where non-pecuniary externalities play a crucial role (Arrow, 1973).

These conclusions have been challenged by both Evolutionary Economics (Nelson, Winter, 1982) and the neo-Schumpeterian Economics (Freeman, 2007; McCraw, 2007), which argue that the major concern for firms lies in continuous innovation. It follows that the overall perspective turns from that of achieving a condition of general static equilibrium (including spatial equilibrium) to that of experiencing a continuous non-equilibrium condition. As the lack of any equilibrium prospect prevents us from inferring cause-effect regularities, the key theoretical question regards the possibility of designing intentional behaviour in an evolutionary context. To answer this question, the *Evolutionary Economic Geography* (EEG) identifies two basic laws: (i) the "material cause" of agglomeration economies does not consist mainly in the pecuniary (though cumulative) advantages of proximity, as suggested by NEG, but in firms' capacity to generate local spin-offs; (ii) the presence and composition of related and/or unrelated variety within a certain socio-economic milieu is the place-based factor which mainly shapes that generative power (Boschma, Frenken, 2006). It follows that, unlike NEG, also localized factors matter along the entire lifetime of firms (as well as the related local systems), provided that they refer to complex milieu conditions, rather than to specific pecuniary economies.

The present paper aims at giving a contribution to this debate by ascertaining, first, which of the two approaches fits better the knowledge-driven economy and, secondly, which kind(s) of agglomeration and location economies work specifically in that same context. Considering the sizeable work already carried out in this direction on the supra-urban scales, the paper opts to focus on (a) the

1. Asheim and Gertler (2006) note that also activities based on codified knowledge use tacit knowledge, especially in the explorative phases.

intra-urban scale and (b) a specific KIS classification − the "Knowledge-creating Services" (KCS), as defined by Compagnucci, Cusinato (2014), and further investigated by Cusinato, Philippopoulos (2016) on the basis of an interpretive/hermeneutic view on the knowledge-driven economy, which is alternative to both the excessively vague notion of KIS (Alvesson, 2001) and the excessively high-tech-oriented notion of KIBS (Miles *et al.*, 1995).

The paper is organized as follows. The next Section reassesses the issue of agglomeration economies according to the evolutionary approach, by focusing on KCS at the intra-urban scale. An empirical spatial-econometric analysis, supported by GIS techniques, will then be carried out on two Italian case-studies – Cagliari and Milan – to test the analytical consistency, the heuristic power and the methodological viability of the framed approach in such very different urban contexts. The final section will draw conclusions on the theoretical and normative domains.

2. Agglomeration Economies in the Knowledge-driven Economy

Lessons learned from Jacobs (1961, 1969), Redfield and Singer (1954) and, even earlier, Durkheim (1895) suggest that generative socio-economic effects, albeit resulting from individual rationales and behaviors, ground on structural conditions. Consequently, related and unrelated varieties result also from complex milieu conditions, which cannot be affected directly by intentional individual actions (Cooke, 2018). It also follows that dealing with agglomeration economies from an evolutionary perspective requires *really*[2] adopting a meso-approach, possibly opening to a *Relational Economic Geography* (Sunley, 2008), thus overtaking the micro foundations of the current EEG approach. Actually, the notions of "National System of Innovation" (Lundvall, 1992), "Learning Region" (Morgan, 1997) and "Triple Helix" (Etzkowitz, Leydesdorff, 2000), along with other similar notions which endogenize the evolutionary effects of learning synergies, consider them as depending on the intentional interaction between the actors involved, finally neglecting the role of milieu's structural conditions.

In light of the above considerations, the selection of hypotheses and tests to be used in investigating the issue of location and agglomeration economies is a crucial stage. Regarding the hypotheses, past analysis at the regional and metropolitan scales proved that KIS/KCS location is affected by: (a) urban economies, because of both the cumulative effects cities trigger (Compagnucci, Cusinato, 2016a, 2016b) and the large end-markets they host (Andersson, Hellerstedt (2009); (b) Marshallian economies internal to the same KIS/KCS sector

2. Which means, not only maintaining that the meso dimension matters, as EEG truly does, but also endorsing its disciplinary status.

(Ihlanfeldt, Raper, 1990); and (c) proximity to Hi-tech or Low-tech manufacturing, according to their respective relationship with the analytical or the synthetic knowledge base (Compagnucci, Cusinato, 2016b).

These results corroborate the idea that, in addition to Marshallian economies, also milieu, and, especially, the urban milieu play a crucial role in the knowledge-driven economy. This contradicts NEG's expectations, according to which concentration occurs in whichever region, in favor of the EEG approach, which is more sensitive to localized externalities. Do these results remain valid also at the intra-urban scale, where the impact of local peculiarities might be weaker than at the supra-urban scales, if only because of the shorter distances?

Whilst most of the current works on the intra-urban location rationales deal with manufacturing, the few works regarding KIS/KCS mainly highlight the role of agglomeration and pecuniary location factors at the regional and the metropolitan scales, while shedding only some light on intra-urban economies. Though adopting different methodological approaches (for instance, working on discrete or continuous space), they agree on the fact that KIS based on face-to-face contacts prefer central locations despite the higher rent levels (Ó hUallacháin, Reid, 1992). Central locations, in fact, allow them to benefit from the advantages deriving from higher relational density, economies of scope and prestige (Alvesson, 2001), along with the presence of transport infrastructures, and especially hubs (Arauzo-Carod, Viladecans-Marsal, 2009). So, it appears to be enough room for further exploration of the role of structural/milieu factors or, in other words, of localized generative economies.

Against this background and arguing that, at the intra-urban scale, proximity to manufacturing does not matter substantially, the paper aims at testing the role of urban economies "as a whole"[3] in addition to the standard location and agglomeration economies, by considering the following null hypotheses at the intra-urban scale: a) KCS are not sensitive to urban economies, as a whole; b) KCS are not sensitive to agglomeration economies; c) KCS are not sensitive to pecuniary locational factors.

3. Two Italian Case-studies

The above outlined hypotheses were tested on two Italian Local Labor Systems (LLS)[4], Cagliari and Milan[5], which differ in many respects. Apart from the geographical location (the city of Milan is the Lombardy capital, situated in

3. This expression summarizes the milieu effect, which is reputed to be higher than the arithmetic sum of its components.

4. LLS (*Sistema Locale del Lavoro*) are the Italian version of the Home-to-Work Areas or the Functional Urban Areas (Istat, 2014).

5. From here on, when speaking about "Milan" and "Cagliari", we refer to their respective LLS, if not differently indicated.

Northern Italy, while Cagliari is the capital of the island of Sardinia, in the *Mezzogiorno*), Milan, with its 174 municipalities, 3.7 million inhabitants, 1.7 million jobs and the most advanced manufacturing and service activities, is the Italian economic capital. Its rich infrastructural system along with a long tradition of financial, trade, cultural and scientific relationships with northern Europe have made it one of the main European metropolitan areas. On the other hand, Cagliari is an insular urban reality that counts 42 municipalities, 0.5 million inhabitants, and less than 0.2 million jobs. The differences in wealth conditions are equally important: in 2007, the added value per capita was respectively 34.2 and 20.0 thousand euros in the province of Milan and in that of Cagliari[6], thus mirroring the centuries-old dualism between the North and South of Italy. Finally, from the urban viewpoint, Milan is part of a compact metropolitan system, which covers most of central and northern Lombardy, while Cagliari is a typical central place within a system of surrounding low-ordered urban centers. Despite the differences, these two cities are both specialized in KCS (compared to the national average), albeit at a very different quantitative and qualitative level. The KCS Location Quotient (LQ_{ij})[7] is equal to 2.17 in Milan and 1.23 in Cagliari, even though this specialization mostly depends respectively on the private and the public component of KCS (Compagnucci, Cusinato, 2016b).

Testing the null hypotheses in such different contexts seems thus helpful to ascertain if this kind of services is affected by similar location and/or agglomeration rationales under changing urban conditions. To this extent, we performed an empirical analysis which consisted in: (1) providing a geo-referenced KCS database in both LLSs; (2) defining the intra-urban territorial unit of analysis; (3) rendering the related KCS geography through GIS techniques; (4) performing a spatial-econometric analysis on that geography.

3.1. Data base, Spatial Units of Analysis and the KCS Geography

The universe of enterprises belonging to the different KCS breakdowns[8] (at a five-digit ATECO 2007 detail) and their respective postal addresses were

6. Source: http://sitis.istat.it.

7. LQ_{ij} expresses the ratio between the ratio of employees in sector *i* and residents in the LLS *j*, and the respective national ratio.

8. The KCS classification is as follows: 1) Core KCS: Services whose core activity consists in the governance of creative processes; 2) Core-related KCS: Services whose normal activity consists in knowledge application, which interact systematically with Core KCS; 3) Activities Collateral to KCS: Service or manufacturing activities which technically support the above categories (for more details, see Compagnucci, Cusinato, 2016b). To shed more light on the underpinning spatial rationales, we generally considered two further distinctions: a) Core and Core-related KCS were split into Private and Public, depending on whether they normally work according to market criteria or not; b) drawing from Asheim *et al*. (2011), Core KCS were further classified with reference to their

provided by the Cagliari Chamber of Commerce (Register of Enterprises). Since the Register does not contain professional activities, these latter were drawn from the *Yellow Pages* internet site[9], thus representing only a sample of their respective breakdowns. For this reason and not being aware of the representativeness of those samples, we performed separated analyses for KCS enterprises and KCS professionals. They were both geo-referenced through GIS techniques onto the "OMI Zones"[10] map, along with highway tollgates and underground stations (only for Milan), airports, railway stations for long-distance trains and the two main City Halls, all considered as proxies of intra-urban pecuniary location economies (for details, visit the interactive website: http://kcs.nsupdate.info/).

For each OMI Zone, the *Osservatorio del Mercato Immobiliare* (n.d.) provides the range of the urban rent values, distinctly for apartments/houses, boxes and similar, shops, warehouses, workshops, offices, plants, according to the cadastral classification[11]. In this paper, we considered the "Offices" average rent values expressed in €/m^2/month on July 2017. In order to remove possible incompatibilities with the GIS tools, the geometries of the OMI Zones were reshaped using the ISTAT cartography of the municipal boundaries[12].

Table 1 shows the main features of the two LLSs in terms of OMI Zones, KCS enterprises and urbanized areas. Cagliari counts respectively 164 OMI Zones and about 3,300 KCS enterprises, whereas Milan contains 521 OMI Zones and counts nearly 49,000 KCS enterprises. Total and urbanized areas of each OMI Zone were derived from the land use maps of Sardinia and Lombardy, according with the second level *Corine Land Cover* codes 1.1 and 1.2. What clearly arises from the table is the overwhelming importance of the Milan KCS system compared to Cagliari. Not only does it count almost fifteen times more KCS enterprises, but over twenty times more Core KCS enterprises, a condition that marks its quantitative and qualitative primacy in this sector. As regards the territorial extension, Milan, while having a smaller total area, counts a total urbanized area three times wider than Cagliari.

Figure 1 describes the KCS enterprises location in the two LLSs. The first specificity is that KCS prefer a central location, where their highest density can

knowledge base, if Analytical, Synthetic or Symbolic (see Cusinato, 2016). Owing to constraints in the statistical sources at the intra-urban scale, the present work dealt only with Private KCS.

9. The professional activities considered are as follows: architects, engineers, lawyers, notaries, specialized designers, geologists, translators, psychoanalysts and psychologists, reporters, firm consultants, auditors, professional membership organizations.

10. An OMI Zone is a continuous portion of the municipal area, where the local real estate market can be considered homogeneous (cf. Osservatorio del Mercato Immobiliare [Observatory on Real Estate Market], n.d.). The delineation of the OMI Zones results from the union of one or more cadastral micro-zones, which are sized as a neighborhood, or a district.

11. See http://www.agenziaentrate.gov.it/wps/content/nsilib/nsi/documentazione/omi.

12. Available at http://www.istat.it/it/archivio/24613.

be found. A second feature regards their spatial pattern around the core area, which appears to be hierarchically ordered according to the central-place model. In fact, the most important KCS spatial cluster is surrounded by lower-ordered KCS centres, almost evenly distributed over the space. This is true for both LLS, although at a very different degree (the maximum density at the OMI Zone level is equal to 21.3 KCS/km^2 in Milan and 3.3 KCS/km^2 in Cagliari).

Table 1 – OMI Zones, KCS enterprises and urbanized areas of the Cagliari and Milan LLS

		LLS		
		Cagliari	*Milan*	*Milan/Cagliari*
N° of OMI zones		164	521	3.18
KCS enterprises	Core	1,002	20,372	20.33
	Core-related	1,327	18,223	13.73
	Collateral Activities	941	10,401	11.05
	Total	3,27	48,996	14.98
Areas (Ha)	Total	246,864	183,868	0.74
	of wich, urbanized areas	23,632	69,934	2.96
	Share of urbanized areas %	9.57	38.03	

Figure 1 – KCS Enterprises Location

Cagliari *Milan*

3.2. Spatial-econometric Analysis

The spatial-econometric analysis was split into three sub-steps. The first one consisted in performing the Global Moran Index (*Moran I*) (Anselin, 1995), which found a significative spatial autocorrelation among OMI Zones and KCS density for both KCS enterprises and professionals. The second sub-step was delineating the clusters affected by autocorrelation using LISA (Local Indicator of Spatial Autocorrelation) (Anselin, 1995) (Figures 2 and 3). In both LLSs a single cluster with High-High (HH) KCS density is located in the core area of the municipalities of Milan and Cagliari, indicating the presence of a clear monocentric hierarchical model, while a plurality of clusters with Low-Low (LL) density are located in their outskirts. The main difference between the two case-studies is that in Milan there is a larger "non-significant/sprawled" area between HH and LL clusters, thus outlining a more fragmented geography. In the last sub-step, a maximum likelihood Spatial LAG model (Anselin *et al.*, 2006) – which is a regression model controlling for spatial autocorrelation – was performed. In doing so, we first examined the correlation between KCS density and urban rent at the OMI Zone level. Based on these results, we successively investigated the relationships between intra-urban KCS density from one hand, and agglomeration and pecuniary location economies from the other.

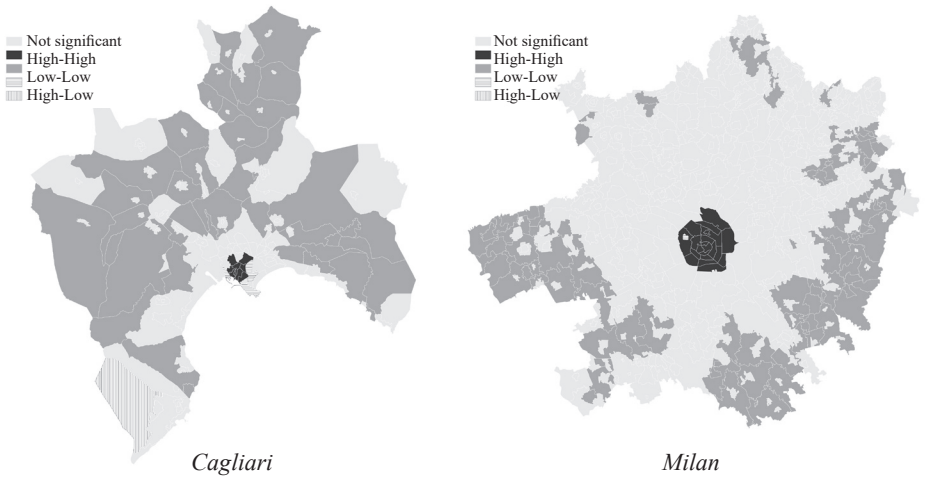
The variables used in the analysis are the following:

(a) "KCS_{ij}–density" is the dependent variable, expressing the KCS density per Ha of urbanized area of the *i-th* KCS breakdown in the *j-th* OMI Zone; (b) "UR_J" is the average urban rent (€/m^2/month) in the OMI Zone *j*, referred to Offices; (c) "$KCS_{\bar{i}j}$–density" is the KCS density per Ha in the *j-th* OMI Zone of the ī-th complementary KCS categories compared to the *i-th* category considered in "KCS_{ij} density"; (d) "$Dist_j$–infras" is the spatial distance between the *j-th* OMI Zone barycenter and, separately, the nearest highway tollgate (only for Milan), airport and the main railway station, used as proxies of the physical accessibility; (e) "$Dist_j$–hall" is the spatial distance between the *j-th* OMI Zone barycenter and the main City Hall within the LLS considered, used as proxy of centrality; (f) "$Dens_j$–metro" (only for Milan) is the density of underground stations, calculated by dividing the number of underground stations in the *j-th* OMI Zone by the value in Ha of its urbanized areas, used as proxy of intra-urban accessibility; (g) "$Dens_j$–pop" is the population density[13] of the *j-th* OMI Zone, calculated on its urbanized areas.

The variable sub (b) expresses the value of the urban agglomeration economies "as a whole"; the variable sub (c), the Marshallian economies internal to the KCS sector; the variables sub (d), (e) and (f) measure the pecuniary urban

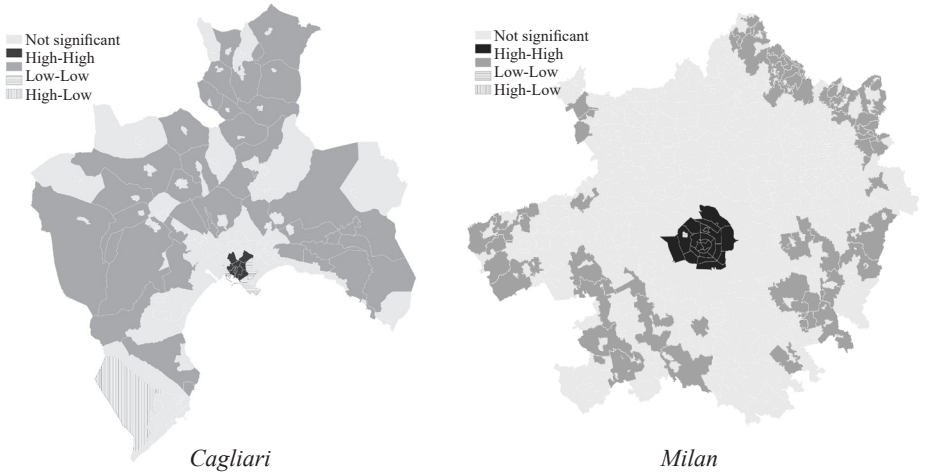
13. Population data were drawn from the Istat website (http://www.istat.it/it/archivio/104317).

Figure 2 – KCS Enterprises LISA Clusters



Cagliari *Milan*

Figure 3 – KCS Professionals LISA Clusters



Cagliari *Milan*

location economies, while the variable sub (g) represents a factor of competition between alternative uses of the urban land. All the variables were standardized.

The LAG model takes the following general form:

$$y = \rho W_y + x\beta + \varepsilon y \qquad [1]$$

where y is the dependent variable; the term ρW_y indicates the weight given to the spatial interaction between the observed variables in any spatial unit. These interactions were summarized into a contiguity matrix W_y. Borrowing from the

chess terminology, the "queen" criterion was used, meaning that two areas were considered contiguous when in direct contact through at least a vertex or a side; $x\beta$ represents the vector of the above listed independent variables; εy is the statistical error.

3.3. Outcomes of the LAG Model

The LAG model shows that there is a significant positive correlation between "KCS_{ij}–density" and "UR_J" in both LLS and for every KCS breakdown, even though the relationship is generally stronger in Milan (Table 2). These results suggest that KCS are willing to pay higher urban rent to benefit from higher levels of urban economies "as a whole". The same consideration holds true for the professional activities, even if, in this case, a bias may arise from the fact that the examined sample could systematically prefer central locations[14].

Table 2 − Spatial LAG Regression between KCS Density and Urban Rent

KCS breakdowns	*Cagliari*			*Milan*		
	Linear coeff.	*LAG coeff.* (ρ)	*p* (α)	*Linear coeff.*	*LAG coeff.* (ρ)	*p* (α)
Private Core, of which:	0.1042	0.7539	0.0005	0.0364	0,8781	0.0000
Analytical	*0.1390*	*0.4416*	*0.0038*	*0.2179*	*0,7056*	*0.0000*
Synthetic	*0.1035*	*0.7454*	*0.0005*	*0.1149*	*0,8694*	*0.0000*
Symbolic	*0.1310*	*0.6931*	*0.0004*	*0.0580*	*0,8872*	*0,0112*
Core-related	0.1329	0.6741	0.0001	0.0997	0,8854	0.0000
Collateral	0.1560	0.6566	0.0000	0.2054	0,7676	0.0000
Professionals	0.0755	0.5748	0.0040	0.3071	0,4160	0.0000

More in detail, linear coefficients do not confirm univocally that especially KCS based on face-to-face contacts (like Symbolic Core KCS) prefer a central location. In fact, Analytical Core KCS, which are mainly based on codified knowledge, show higher propensity to a central location than the former ones, in both LLSs. This behavior could depend on their need for proximity to other research centers, especially universities, as face-to-face contacts matter in their knowledge explorative phases.

Tables 3 and 4 summarize the results of the second step of the spatial-econometric analysis, aimed at ascertaining which specific kinds of externalities drive KCS intra-urban location, be they Marshallian economies internal to the KCS

14. In fact, since registration in the Yellow Pages is upon payment, these Pages are more likely to contain those activities which are more willing to pay in order to appear, which could relate to the willingness to pay urban rent.

Table 3 – Standardized Linear Coefficients of the KCS Enterprises Intra-urban Agglomeration and Location Economies

	Marshallian agglomeration economies						*Pecuniary location economies*						
	Core Analytical	*Core Synthetic*	*Core Symbolic*	*Core-Related*	*Collateral*	*Total*	*Proximity to airport*	*Proximity to rail station*	*Proximity to tollbooth*	*Proximity to city hall*	*Subway stations density*	*Total*	*Population density*
a. Cagliari (n. of obs. 153; p (α) ≤ .05)													
KCS breakdowns													
Private Core, of which:	ø	ø	ø	0.4236	0.4161	0.8397			ø		ø		-0.0640
Analytical	ø	*1.3837*			*-0.3525**	*1.0312*			ø		ø		
Synthetic	*0.1745*	ø	*0.1764*	*0.3923*	*0.1467*	*0.8899*			ø	*-0.0725**	ø	*-0.0725*	*-0.0346*
Symbolic		*0.2857*	ø		*0.6777*	*0.9634*	*-0.1236*	*0.0480**	ø	*0.1090**	ø	*.0334*	*-0.0433**
Core-related		0.5777		ø	0.2753	0.8530			ø		ø		0.0680
Collateral	-0.0615*	0.2460	0.5189	0.2384	ø	0.9418			ø		ø		0.0947
b. Milan (n. of obs.: 521; p (α) ≤ .05)													
Private Core, of which:	ø	ø	ø	0.7709	0.1705	0.9414		-.0057				-.0057	-.0178
Analytical	ø		*-0.1412*	*0.8854*	*0.1308*	*0.8750*		*0.0111*				*0.0111*	*-0.0650*
Synthetic		ø	*0.1341*	*0.8893*		*1.0234*		*-0.0036**			*0.0281*	*.0245*	*-0.0240*
Symbolic	*-0.0908*	*0.7454*	ø	*-0.2597*	*0.3790*	*0.7739*					*-0.0896*	*-0.0896*	
Core-related	0.1146	0.7828	-0.0519	ø	0.0568	0.9023					-0.0417	-0.0417	
Collateral	0.1816		0.4928	0.2568	ø	0.9312		0.0134	-0.0130*	0.0169*	0.0476	0.0649	0.1810

Note: ø: not considered factor; * .05 < p (α) ≤ .1

sector and/or pecuniary location economies. These results allow us pointing out some stylized facts.

First, internal agglomeration economies to the KCS sector (Marshallian economies) significantly affect enterprise location in both case-studies (Table 3). This is corroborated by the fact that the sum of the (normalized) linear coefficients resulting from the regression of a given KCS breakdown on the complementary KCS breakdowns ("KCS_{ij}–density") generally exceeds .85. More specifically, we can affirm that Core KCS are responsive to proximity to lower-ranked KCS, especially to Core-related KCS (except for the Analytical KCS in Cagliari), whereas the correlations between Core KCS sub-categories (Analytical-, Synthetic- and Symbolic-based) are more varied and, generally, weaker.

Second, intra-urban pecuniary location economies do not matter univocally. When positive, the total linear coefficient is lower than .065, meaning that, on average, their impact is about thirteen times lower than the impact of Marshallian economies.

Third, in both LLSs the most sophisticated KCS (Core KCS) compete with household location, while those belonging to the less sophisticated KCS (Core-related KCS and Activities Collateral to KCS) establish a symbiotic relationship with households. These results might imply the working of a gentrification process, which could be fostered, among other factors, by the presence of high-ordered KCS (Mazzoleni, 2012, 2016).

Finally, the KCS professionals (Table 4) follow a similar spatial pattern, except for their negative relationships with Core KCS in Cagliari. Here again, Core Professional KCS compete with residential land uses, whereas no specific intra-urban pecuniary location factor appears to be significant.

Together, the above results confirm that the KCS geography complies basically with a monocentric hierarchical model in both urban systems. With reference to the initial hypotheses, we can therefore conclude that, at the intra-urban scale:

a. the hypothesis that "KCS are not sensitive to urban economies as a whole" is rejected because there is a significant positive correlation between "KCS_{ij}–density" and "UR_J" in both case-studies and for every KCS breakdown;
b. the hypothesis that "KCS are not sensitive to agglomeration economies" is also rejected. In fact, in both case-studies and for most KCS breakdowns, the Marshallian economies represent the most important location factor;
c. the hypothesis that "KCS are not sensitive to pecuniary locational factors" remains ambiguous, since it does not hold significantly true for some KCS categories (although in a different way in Cagliari and Milan), while it does for other categories (again differently in the two LLSs);
d. the most sophisticated KCS compete with residential land uses in both case-studies.

Table 4 – Standardized Linear Coefficients of the KCS Professionals Intra-urban Agglomeration and Location Economies (n. of obs: Cagliari: 153; Milan: 521; p(α) ≤ .05)

		LLS	
		Cagliari	*Milan*
Marshallian agglomeration economies	Core KCS	0.3960	-0.6698
	Core-related KCS	0.2786	10.712
	Collateral KCS		0.1932
	Total	0.6746	0.5946
Pecuniary location economies	Proximity to airport		
	Proximity to rail station		
	Proximity to tollbooth	ø	
	Proximity to city hall		
	Subway stations density	ø	
	Total		
Population density		-0.0602	-0.0820

4. Conclusions

The "KCS intra-urban location rationale(s)" is a cutting-edge research program which is not receiving the attention it deserves because of both theoretical dearth and the difficulties in gathering data. Although at a very preliminary stage, the above analysis showed that KCS location at that scale is much more responsive to Marshallian economies than pecuniary location factors, both in Milan (a Large Metropolitan Area, according to the OECD) and Cagliari (a Medium-sized Metropolitan Area). At first glance, this outcome corroborates the soundness of the NEG approach also within the knowledge-driven economy. However, two other regularities arose, questioning this early conclusion: first, the KCS general willingness to pay urban rent and, second, the competition for the urban space between the most sophisticated KCS breakdowns and residential uses. Jointly considered, these two propensities suggest that both Core KCS and medium-upper dweller classes look for high-quality urbanized areas. This result turns in favor of the EEG approach, since the KCS sensitiveness to urban economies "as a whole", also at the intra-urban scale, rather than to specific pecuniary urban economies, mirrors their responsiveness to place-based generative factors (which are the most complex kind of location economies; Camagni, 2017). This conclusively means that, while admitting that the NEG approach correctly interprets the dynamics of the economic geography within an industry-based system,

it is not equally appropriate when considering the knowledge-driven economy, essentially because of the important role played by the meso dimension and the related place-based non-pecuniary economies it deliberately neglects.

Two main questions, however, deserve further investigation. Having ascertained the importance of both Marshallian economies and urban economies "as a whole" for the KCS sector, it is not yet clear enough whether these two kinds of externalities work consequentially or independently of each other. Since urban economies "as a whole" measure the milieu effect, it is possible to infer that they are the true location driver for knowledge-intensive activities at the intra-urban scale, while the Marshallian economies follow as part of them or as a secondary effect. The subsequent question regards the possibility of splintering that "whole" into its main factors, while bearing in mind that the milieu effect subtends a residual "system factor" that eludes any possible analytical recognition. Referring to the original theory of milieus proposed by Durkheim (1895) and its adaptation to the knowledge-driven economy (Cusinato, 2016), the main problem is to establish a set of indicators to signify and measure "volume/heterogeneity", "relational density" and "place symbolic power" at the infra-urban scale, whose co-working explains the milieu generative power. Whilst suitable solutions can be devised about the first two variables, how to render the symbolic intensiveness of places remains an open question because of its inherent qualitative character, and, furthermore, because it involves the actants' interpretative attitudes, which is a very elusive issue.

Some policy suggestions targeted to the KCS intra-urban location conclude. Acknowledging that the city is the suitable place for this kind of activities, policies should promote their intra-urban location while avoiding possible counterproductive effects, mainly arising from excessive competition with other land uses, and urbanization diseconomies at large, mainly urban polarization. Policies should therefore aim at reconciling the KCS propensity for central location with the necessity to limit congestion costs. Since urban rent consists in a net wealth transfer from the land user (KCS included) to the land owner, which entails lower profitability for economic activities and increasing social inequalities – a market failure, briefly – the main goal for urban policies in this sector is "widening the supply of central places". This implies making a shift from the monocentric urban pattern, which is typical of the KCS spontaneous location rationale, towards a polycentric urban pattern. In the specific case of Milan, such a strategy should consist in moving from the current monocentric hierarchical metropolitan system towards a networked metropolitan system, where various upper-ranked and specialized centralities interact, as it occurs, although to a different extent, in the Munich and the Paris Metropolitan Regions (see, respectively, Mazzoleni, Pechman, 2016; Compagnucci, 2016). A further suggestion

is to avoid specialized zooning within these centralities, by planning mixed and high-quality urban milieus, in line with the studies about the creative class (Florida, 2002) and, more widely, by fostering the urban attractiveness of symbolic activities (for instance, Dembski, 2013; Landry, 2011).

Finally, though relationships with the infrastructural networks and, in general, pecuniary location factors proved to be ambiguous, it seems hard to assume that in-and-out urban accessibility does not matter at the intra-urban scale. A better investigation of this topic represents a further issue for future research.

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Sommario

Le logiche di localizzazione infra-urbana dei *Knowledge-creating Services*: due casi-studio italiani

Nell'ambito della geografia economica si è recentemente rinnovato il dibattito sul ruolo delle economie di agglomerazione, in conseguenza del duplice passaggio dall'economia industriale all'economia della conoscenza e da un approccio di tipo deterministico ad uno di tipo evolutivo. Mentre si riconosce che anche nel nuovo contesto le economie di agglomerazione svolgono un ruolo più importante di quelle di localizzazione, il dibattito rimane aperto sulla loro specifica natura, in particolare fra la New Economic Geography e la Evolutionary Economic Geography. Il presente lavoro intende contribuire a tale dibattito attraverso nuovi o, quantomeno, poco esplorati approcci epistemologici e metodologici. I risultati ottenuti, oltre che confermare l'importanza delle economie di agglomerazione, rivalutano il ruolo delle economie di localizzazione, in particolare alla scala infra-urbana.

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The New Human Geography of Innovation between Digital Immigrants and Natives

*Stefano de Falco**

Abstract

The processes of globalization that have characterized the last 30 years, and which continue to do so with a very high dynamic, have determined significant impacts on human geography in terms of attenuation of pre-existing convergences and the generation of new divergences going on to enrich the scientific debate with new questions to be faced in finding response models. A first aspect that deserves peculiar focus is that of the digital divide: is it a paradigm that can be considered outdated in the new global social world, or accentuated by the new difference, easily becoming discrimination, between natives and digital immigrants? Moreover, what geography of innovation has been emerging as a result of global networking? The present contribution aims to provide critical and methodological reflections on these questions by evaluating both the positive and negative externalities that characterize the current global scenario dominated by the innovation paradigm.

1. Introduction: From the Sovereign States and the Peace of Westphalia to the Current "Social states"

The reading of the current phenomena filtered through the historical analysis of events that have occurred may prove to be a strategic factor both for the understanding of apparently new dynamics and for the forecast of future scenarios.

One of the crucial elements in the analysis of innovation concerns the so-called "innovation timing" that is the analysis of multifactorial and parametric context that needs to be done, for example in the launch of a new technology, to understand the most suitable moment in which to schedule this activity. Some controllable factors emerge in these analyses, often known in the modeling of the industry literature as "control factors", and others, so-called "noise factors", from which it is only possible to shield themselves but not to control them.

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The value of timing is certainly reflected in historical evolutionary analyses. One of the most studied cases in human evolution, with scientific theories often opposed, is the disappearance of the Neanderthals and the development of the Sapiens and the transition from the hunter to the farmer. From a technological innovation point of view this last step is fundamental because it was precisely following such a transformation, which took place relatively in a limited time, that the society was constituted as it is today articulated coming to be based on four fundamental characteristics: be politically centralized; economically complex; socially stratified; technologically advanced.

Over the course of history, these plans have remained fairly balanced with each other at a synchronous rate of development. In the current era, now known as the fourth industrial revolution, the technological plan has become, in terms of speed of development, asynchronous compared to the others, being characterized by a dynamic far greater than those of the other eras. The examples are now reported by the media daily with the most notable cases, for example, Uber and Airbnb that both represent business scenarios, characterized moreover by a logic of collaborative economy or the so-called sharing economy rather than by advanced technology, which have gone beyond the existing regulatory frontier.

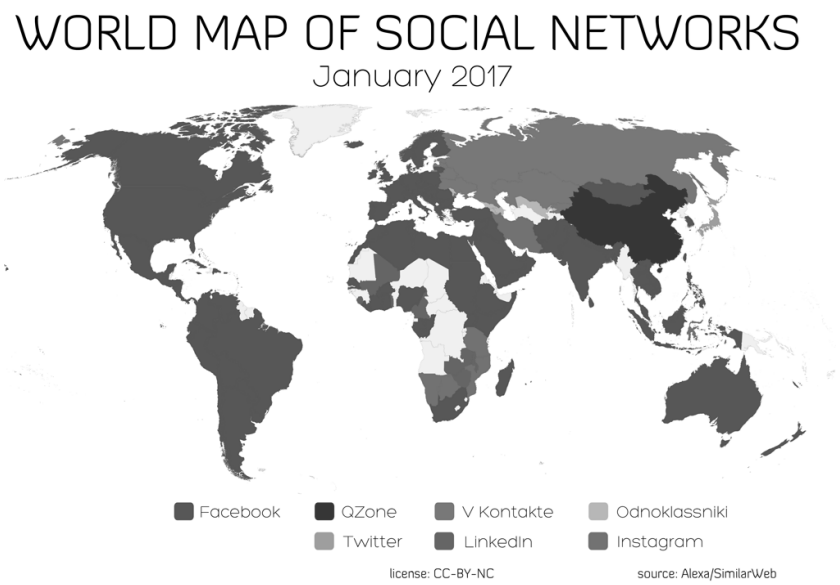
The social disruption of these phenomena, combined with the impacts of globalization and global migratory phenomena, is increasingly leading to the disintegration of those that have been consolidated geographic and geopolitical structures for almost 500 years: the Peace of Westphalia in 1648 ended the so-called Thirty Years War, which began in 1618, and the 80-year war between Spain and the United Provinces. It consisted of three treaties, two of which were signed in Münster and one in Osnabrück (remembered, in fact, as the Treaty of Münster and the Treaty of Osnabrück), both cities of Westphalia. The peace was then completed with the Treaty of the Pyrenees, of 1659, which put an end to the hostilities between Spain and France. At the origin of the Thirty Years' War was the desire of the German princes to definitively put a stop to the aspirations of the new Hapsburg emperor, the aspirations sustained by Spain. Among the emperor's claims there was, in fact, that of depriving the German princes of the right to determine the religion of their kingdoms, sanctioned by the peace of Augusta in 1555, according to the principle of "cuius regio, eius religio".

A new international order was inaugurated with the Treaty of Westphalia, a system in which states independently recognized each other as states, beyond the faith of the various sovereigns. The concept of state sovereignty assumed importance and an international community was born, very close to how it was understood until today, a period in which precisely this sovereignty is seriously questioned and undermined by the phenomena of globalization that finds their cause and their effect at the same time, mainly in technology and migratory phenomena.

The current trend that seems to find fertile ground for development in digital natives, i.e. in all those born after 1980, is expressed in a virtual world geography in which physical boundaries are subverted by technological boundaries and by joining social media networks.

From the new map of the most popular social networks by country (figure 1) concerning Alexa (Amazon) data, it is clear that Facebook has reached 1.89 billion monthly users, making it the favorite social network in 119 of the 149 countries analyzed. Some states, such as Botswana, Mozambique, Namibia, Iran and Indonesia, Instagram is predominant and in some areas of Africa LinkedIn is more widespread.

Figure 1– Distribution of Social Media in the World of 2017



Source: Alexa

2. The New Human Geography of Innovation

From the perspective of innovation, the evolution of human geography can be assessed through two aspects, one due to globalization and concerning the convergence or divergence between emerging countries and leading countries and another concerning the gap between natives and digital immigrants. The second perspective will be analyzed in more detail in the next section. As regards the

first point, it is necessary to assess the current state of reduction or the increase of what, many years ago during the initial phase of the development of modern network technologies, was called the digital divide.

When the term digital divide was coined in the 1990s by Lloyd Morrisett, the former president of the Markle Foundation, it simply referred to the inequality between people who had access to the internet and those who did not (Hoffman, Novak, 2001) and increasingly since the mid-nineties of the last century, the theory that the non-use of the Internet could give rise to a new form of social inequality that manifests itself in the gap between information *haves* and *havenots* began to spread and therefore this requires the elaboration of specific public policies aimed at guaranteeing real conditions of access to the Internet.

On 29 May 1996, the then Vice-President Al Gore of the Clinton administration used the term "digital divide" to indicate the gap between information haves and havenots within the K-12 education program ("Kindergarten through 12th grade").

The recent rapid penetration of the mobile internet led many to argue that the digital divide will soon be closed (e.g., Stump *et al*., 2008). For example, the New York Times titled "Mobile Internet Use Shrinks Digital Divide" (Wortham, 2009). Similarly, IBM suggested "… the gap between information haves and have-nots will cease to exist due to the advent of mobile technology". However, the nature and scope of the digital divide has evolved over time and the wealth of people and national economies is increasingly decided by the quality with which the internet can be used. In particular, although smartphones objectively increase digital inclusion and thus narrow the "have-internet access" digital divide, they cannot fully substitute the comfort and usability of large screen devices with keyboards and higher processing power. A recent World Bank report from 2016 on "Digital Divides" states "access to the internet from big-screen devices (PCs), with always on flat-rate access, provides a bigger boost to economic activities than access from small-screen devices (mobile phones)" (p. 208). Hence, smartphones are less appropriate than regular computers to engage in economic value-creating activities (e.g., selling online, applying for a job, or participating in an educational program).

The current geography of innovation presents a world scenario that can be characterized through two parameters: the state of innovation achieved by a country and its speed transition between states to increasing levels of innovation. This approach is an excellent source of tools for analysis in ecological modeling.

Through this characterization it is possible to comprehensively identify two macro classes of innovation for the selection of the countries in the world, those with high-level innovation countries and those with high-speed innovation; in fact the two properties are exclusive and antithetical. Therefore, countries

that have achieved a high level of innovation will necessarily have a lower rate of innovation development than countries with lower levels of innovation. In essence, the geography of innovation is regulated by a phenomenon of saturation towards high levels. This paradigm, as mentioned, is also perfectly compliant with the ecological model of intraspecific competition, a concept of ecology that intends the competition between individuals of the same species.

This competition can easily be established when a living being finds a substratum or an environment extremely suitable for its development and its proliferation, without there being external (environmental) disturbances or predators disturbing it, i.e. the case of the condition of the highest levels of innovation for which the leading countries do not find threats from emerging countries.Therefore, the models of territorial innovation seem to find a good fitting with the ecological ones.

Among the countries that have achieved the highest levels of innovation in the world are the United States and Japan and Europe, Germany and the United Kingdom, with a stronger digital momentum than its European counterparts, followed by Norway, Sweden, Switzerland, Denmark and Finland. These countries, from the point of view of an evolutionary path of innovation, can be found in what can be defined as a "digital plateau", i.e. a saturation condition in which it is necessary to look as positive benchmark at the smaller and more intense and fresh countries from the point of view of the demand for innovation, seeking, together with the actions of a strategic industrial policy, to take root in areas of greater competitiveness.

Clearly, the most exciting region in the world, in terms of digital growth, is Asia, especially China and Malaysia.

India, with many digitization drives driven by current policy strategies, including a pro-India digital campaign, and business ventures in various fields of innovation, from agriculture to services, should, however, accelerate the process of transition to methods, completely digital payments and, in parallel, to implement a series of political actions for the growth and evolution of all areas, not just digital ones, of the country, which are still in the early stage and in very undeveloped conditions. This can be an obstacle to any initiative. More extensive and more systemic changes are needed to enhance digital evolution in this type of environment.

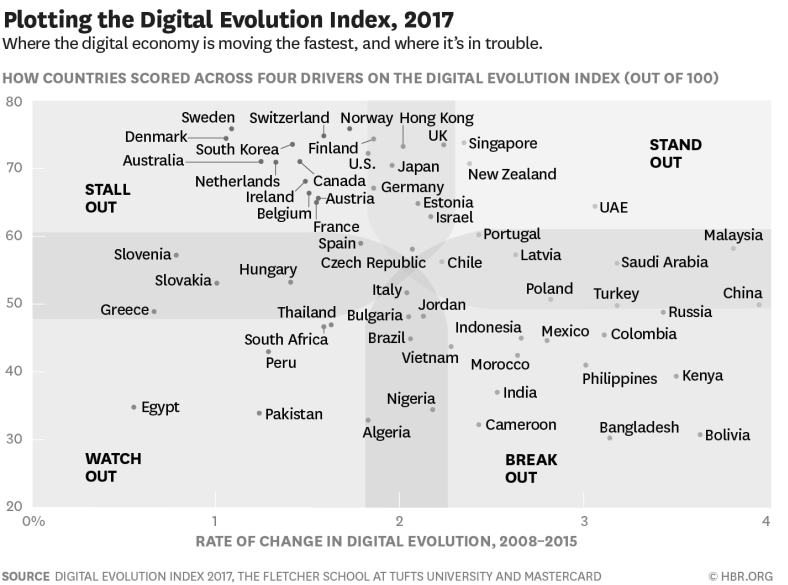
In Africa, Kenya is becoming a country characterized by a very strong digital dynamism, while the two major economies, Nigeria and South Africa, are part of those emerging countries that are rapidly evolving, characterized by a high digital evolutionary dynamics with a significant margin growth that would make them very attractive to investors, but still constrained by relatively weak infrastructure and poor institutional quality.

Similar characteristics, in terms of positioning in the digital evolutionary roadmap, to these countries of Africa, could be also found in Latin American

countries that can learn some good practices from smaller and fast-moving countries, such as Colombia and Bolivia.

Figure 2 shows the infographic (carried out by the authors Chakravorti *et al*., 2017) on the positioning of the countries of the world according to their level of digital maturity.

Figure 2 – Positioning of the Countries of the World According to their Level of Digital Maturity

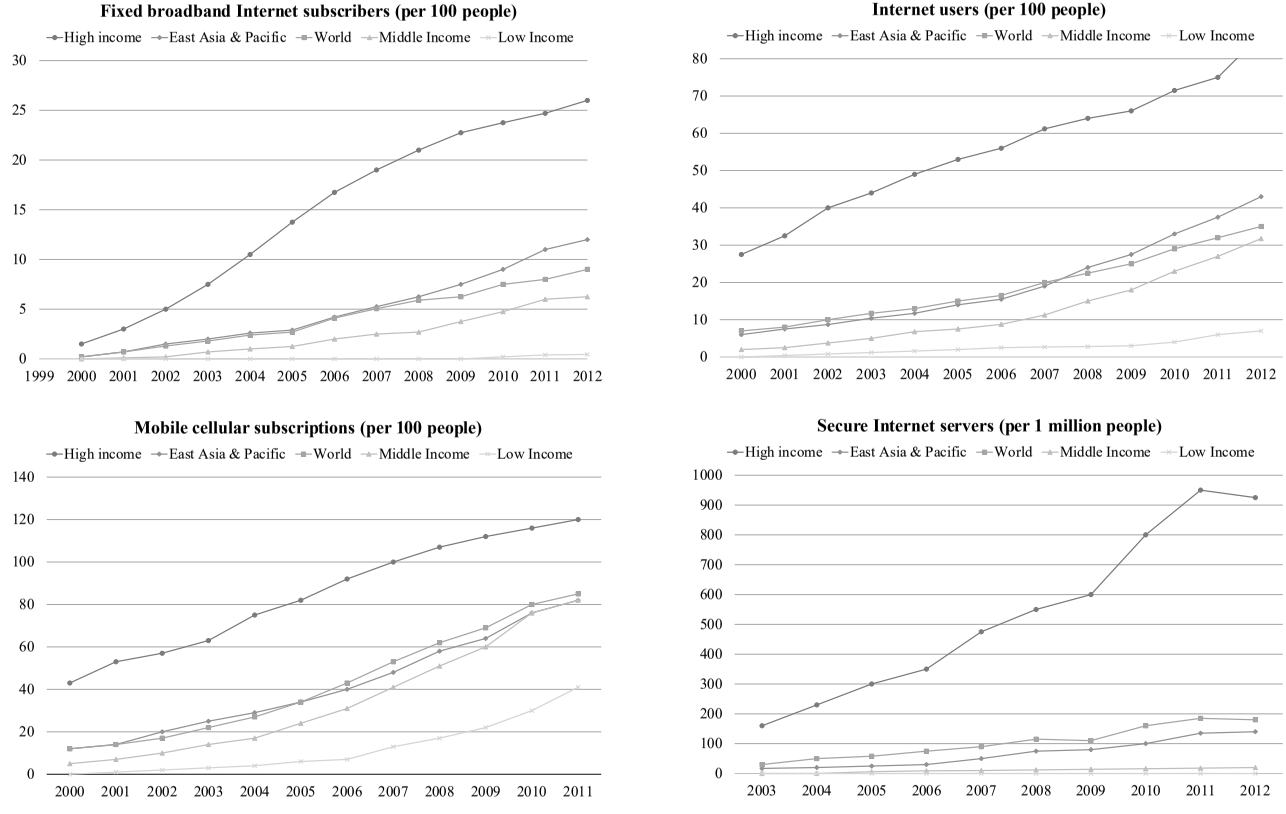


Source: Chakravorti *et al*., 2017

The economic geography is isomorphic with the geography of innovation and the GDP gap between countries of the world follows its digital divide, made manifest by real data at the national scale related to a range of different factors including subscriptions to the broadband internet network, number of internet users, mobile phone subscriptions, and secure internet server numbers, as shown in figure 3's graphs taken from World Bank data.

Currently, this digital divide is observed not only as a result of economic inequality but also as a driving force of inequality between countries. In fact, some authors consider the digital divide as a new expression of technological dualism between rich and poor countries (James, 2007). For this reason, the digital divide has become an important issue for many national policy makers and for

Figura 3 – The Digital Divide between high-, middle- and low-income Level Countries



Source: Author's elaborations onWorld Bank data

international organizations (ITU, 2007; UNCTAD, 2007; OECD, 2008, World Bank, 2006).

The variables commonly considered in the estimate of a country's digitization rate in terms of infrastructure, as seen in Figure 3, are the number of internet users, internet hosts, number of mobile phones and PCs and number of main telephone lines (Beilock, Dimitrova, 2003; Kiiski, Pohjola, 2002; Oyelaran, Lal, 2005; Bagchi, 2005).

The analysis of the diffusion of ICT technologies by a single technology separately from, for example, the use of the Internet, does not provide sufficient information about the level of digitization of a country, as digitization involves a varied spectrum of cutting-edge technologies and the approaches that are focused on just one technology show strong limitations in evaluating the progressive stages of digital development. Therefore, the researchers preferred to use multivariate methodologies in order to capture the digital divide by evaluating different technologies together (Çilan *et al*., 2009; Vicente, Lopez, 2006).

Some initial univariate studies that have used only the number of internet users or the number of mobile phones to represent the digitization of a company have nevertheless been present in the scientific debate on this topic (Chinn, Fairlie, 2007; Ahn, Lee, 1999).

Regarding the measurement of digitization at the national level, one of the most complete indices for the digital divide is the ICT Development Index (IDI), which was created by a specialized agency for ICT. This IDI index includes the digital readiness of a country (in terms of infrastructure and access), the use and capacity as the basic dimensions of ICT technologies, and covers most of the infrastructural and socio-economic variables.

Park and other colleagues (2015), have recently studied the convergence and divergence linked to digitization, through metrics based on the adoption of ICT technologies, in 108 countries in the world, and if still found a clear divergence phenomenon on the global scale, on the other hand they have also identified a convergence in particular sub-groups of countries of the world.

The first sub-group includes: Cambodia, Cyprus, the Czech Republic, Denmark, Finland, Iceland, Korea, Rep., Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Poland, Sweden, Switzerland and Andorra; the second sub-group includes: Austria, Belgium, Brunei Darussalam, Canada, Croatia, Estonia, France, Germany, Hong Kong, Hungary, Ireland, Kuwait, Latvia, Mauritius, New Zealand, Qatar, Romania, the Slovak Republic, Slovenia, Uganda, the United States; and finally the third sub-group includes: Algeria, Angola, Argentina, Bahrain, Barbados, Bolivia, Bosnia and Herzegovina, Brazil, Cameroon, Chile, China, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Fiji, Gabon, Georgia, Ghana, Greece, India, Indonesia,

Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kyrgyz Republic, Lebanon, Madagascar, Malaysia, Mexico, Moldova, Morocco, Namibia, Nepal, New Caledonia, Nicaragua, Panama, Paraguay, Peru, Philippines, Portugal, the Russian Federation, Saudi Arabia, Senegal, Singapore, South Africa, South Asia, Spain, Sri Lanka, St. Lucia, St. Vincent and the Grenadines, Swaziland, Thailand, Trinidad and Tobago, Tunisia, Turkey, Ukraine, the United Arab Emirates, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam and Zimbabwe.

Group 1 shows the highest level of convergence towards digitalization processes, while it is also characterized by the lower speed of convergence among the countries of the group, unlike Group 3 which, in the opposite way, shows the lowest level of convergence in the digitization while also showing the fastest level of convergence among the group countries compared to the other two groups.

In this same analysis, the enabling factors for the convergence in the digitalization processes were identified, relative to the per capita GDP, the rate of education, and the relationship between urban population and the share of the intangible economy mainly linked to the provision of services rather than to trade in goods and products. The higher the value of per capita GDP, the rate of access to education and the share of the intangible economy expressed through the provision of services, the greater is the probability of belonging to a group characterized by a higher level of convergence, while in negative correlation the relationship between urban population and services provided by a country to its level of convergence is inversely proportional.

In terms of sensitivity analysis of the marginal effects, the two factors are those characterized by greater elasticity on the digitization variable: the rate of enrollment in education, and training costs.

3. Digital Immigrants and Natives

The "digital natives" are defined as individuals characterized by two conditions, that of being born after 1980 and that of having grown up in a technological environment, which can determine in them an availability of technological skills different from those possessed by the members of the previous generation (Akçayır *et al*., 2016; Palfrey, Gasser, 2013; Prensky, 2001).

Digital natives show a clear propensity for the use of functionally complex technologies without particular difficulties (Rainie, 2006).

Although some differences between digital natives and individuals of the previous generation have been identified, it is not yet clear exactly what makes an individual an unequivocally and scientifically shared digital native (Teo, 2013). While Prensky (2001) focused on the age discrimination of individuals to define

digital natives, Tapscott (1998) was based on the experience gained and on the ability to use technology, i.e. digital skills, on the part of the individual.

The age criterion as a discriminating parameter between digital natives and digital immigrants obviously concede the possibility that not all young people are digital natives (Prensky, 2001). If age is considered a factor in determining whether an individual is a digital native, then it is also clear that not all young people today are digital natives (Teo, 2013).

Helsper and Eynon (2010) have shown that the age criterion, regardless of the digital abilities reached, does not allow the gap between digital natives and the previous (older) generations to be filled.

Although, as seen, the scientific debate on this topic has been going on for some years now and its distinctive characteristics are still blurred in some respects. The proof is that, concerning the descriptive terminology, there are already different names for digital natives in literature.

For example, while Tapscott (1998) described this group as the "Net generation", Oblinger and Oblinger and Lippincott (2005) described them as "Millennials". Rosen (2010), on the other hand, described them as the "i-Generation".

All these terms are however convergent in the purpose that is to underline the importance of new technologies in the life of young people (Gibbons, 2007).

Another distinctive feature of digital natives is that they are comfortable with multi-tasking (Prensky, 2001). Multi-tasking is the ability to do more than one task in the same time unit (Calderwood *et al*., 2016; Teo *et al*., 2014).

Digital natives tend to satisfy their desires by using the fastest path (Teo *et al*., 2014) and therefore prefer graphics compared to texts in their digital communication (Prensky, 2001; Berk, 2009); the same predilection also orients it in the choice of media that stand out for the quality of their graphics compared to those with a greater textual component (Teo *et al*., 2014).

Other studies (Akçayır *et al*., 2016), however, show that being born and raised after 1980 and in an environment with a strong technological characterization is not in itself a sufficient condition for the development of particular technological ability. In some studies in literature, in fact, the results indicate that digital natives may not be as adept at using the technology as expected. For example, Cameron (2005), Thinyane (2010) and Thompson (2013) conducted studies with statistically significant samples of mixed university students, natives and digital immigrants, and they all concluded that there was no such variance to differentiate the two groups with a significant statistical test value.

Thus, in some studies in literature, contrary to expectations, data on some individuals within the new generation that rarely use the technology also emerge (Bennett *et al*., 2008; Somyürek, Coşkun, 2013) and/or they do so without possessing the relevant baggage of particular and especially homogeneous digital

skills to the whole class of digital natives (Bellini *et al*., 2016; Jones *et al*., 2010; Cortijo, Javed, 2014; Thinyane, 2010).

In the face of this evidence, some studies have developed in an investigative direction of the gradients that exist among the same digital natives, exploring multiform concepts related to different aspects of the digital inclusion process, including attitudes, skills and "geometric metrics", and the evaluation of the capacity to use social tools, such as the depth and breadth of Internet use (Correa 2016; van Dijk, 2005; de Haan, 2004; Shih, Venkatesh, 2004). The depth refers to the type of content sought and the frequency of use of the social tool, while the width refers to the amount of different ways for using the tool (Gatignon, Roberston, 1991). From these studies a paradigm emerged that partly subverts the hypothesis of total decrease of the phenomenon that has characterized, in the 1980s, the birth of new rapidly growing technologies, related to the digital divide, going to affirm that in parallel with the spread of technology between different layers of the population and in different countries, digital inequalities evolve, but they do not disappear because having basic access to the network is different from being able to take full advantage of all the opportunities it offers.

With the emergence of this second phase of research on digital human geography, inequality was also defined in terms of the "use gap" (van Dijk, 2004) and the "second level digital divide" (Hargittai, 2005). Although this approach considers as key factors for the digital inclusion process those related to motivation, self-efficacy, experience and autonomy of use (Correa, 2010; Eastin, LaRose, 2000; de Haan, 2004; Hassani, 2006), two aspects have gained the main attention in most research on the topic: digital skills (Litt, 2013) and the different uses of the Web (eg. Cho *et al*., 2003; van Deursen, van Dijk, 2014; Hargittai, Hinnant, 2008).

Digital skills have generally been defined as the "ability to respond pragmatically and intuitively to challenges and opportunities in a way that exploits the potential of new technologies and in particular of the Internet" (DiMaggio *et al*., 2004). More specifically, Hargittai (2005) defines them as "the user's ability to locate content on the web effectively and efficiently" (page 372). Van Deursen and van Dijk (2010) have categorized four types of digital skills: operational skills, i.e. the ability to manage hardware and software; information skills, which refers to the ability to search, select, and process information in a network technology environment; strategic ability, which is the ability to use cutting-edge technologies and the internet to achieve certain goals; and formal skills related to schemes of use of rigid and pre-coded technologies.

A recent review of the skills literature (Litt, 2013) revealed that most of the research focused on levels of operational competence and on digital skills related to information (van Dijk, 2004). Using a scale based on four levels of evaluation from "beginner" to "expert", Livingstone and Helsper (2007) revealed that skills

are the factors with the greatest impact on the number of activities performed on the web and this correlation was prevalent compared to that with the age of the subject. Remaining on the age parameter, while for Hargittai (2005) this was negatively associated with the operational digital abilities, more recently van Deursen and van Dijk (2010) demonstrated, through statistical studies, that it was negatively correlated only with the formal skills.

As for the gender gradient, while some studies have found that gender is not related to web skills (Bunz, 2009; van Deursen, van Dijk, 2010), other investigations have revealed a more complex scenario, in which men and women do not differ much in their abilities, although women demonstrate a self-perception of their lower level of competence (Hargittai, Shafer, 2006) and in particular with regard to internet skills (Wasserman, Richmond-Abbott, 2005).

Finally, literature study on the socio-economic gradient shows that groups of individuals characterized by higher levels of education and/or higher income demonstrate higher digital skills than individuals with lower levels of education and/or income (Bonfadelli, 2002; van Deursen, van Dijk, 2009, 2010). Furthermore, van Deursen, van Dijk (2010) found educational differences for all types of digital skills.

Although young people are almost universally connected and show higher levels of skills to the point that, as initially mentioned, they were named "digital natives" (Prensky, 2001) or the "network generation" (Tapscott, 1998), the research found that they do not constitute a monolithic group with innate talent oriented to the use of new technologies (Correa, 2010; Correa, Jeong, 2011; Gui, Argentin, 2011; Hargittai, 2010; Selwyn, 2009). Digital inequalities reflect social inequalities (Helsper, 2012); young people also show differences in gender and education regarding the mastery of digital media (Correa, 2010; Gui, Argentin, 2011; Hargittai, 2010). These arguments are placed under the form of a true hypothesis of the digital natives theorem from Correa (2014; Correa, Jeong, 2011; Correa *et al*., 2015): more educated men and young adults will show higher levels of digital skills.

Hargittai and Hinnant (2008) argue that people with greater capacity are more likely to visit websites that can potentially improve their political, cultural, and knowledge capital such as government, financial and health web pages, while lower classes use simpler communication and entertainment applications (Bonfadelli, 2002; van Dijk, 2005; Howard *et al*., 2001; Peter, Valkenburg, 2006).

4. Conclusions

Man is perennially connected now. The mind modified by the interaction with the computer is reshaping the human being. Science and technology will change the body, the senses, the social, the economy and above all the politician. In order to enter

the internet age, we need to revolutionize the way we think, abandon the categories and values to which centuries of history have accustomed the different societies of the world and accept becoming something else, part of a "connective" identity, as the sociologist De Kerkhove says, together with other humans and machines.

The leader of the future will not be a man who commands but rather a visionary, able to sense the complexity that is going to be met in an era in which data multiply exponentially, elastic enough to adjust the shot and alliances from time to time, hand presenting innovations and sudden changes, keeping the route without stiffness. Certainly in more democratic and older countries such as those in Europe, the process will be much slower. It will be different, but if the data continues to grow exponentially, all that now appears consolidated will be swept away by new systems and platforms within a decade. Predicting this new human geography of innovation that is taking shape and identifying the agents that govern it, be they natives or digital immigrants, is a duty as well as a strategic action to be carried out by researchers, politicians, institutions and the media.

The human factor plays and will have to play in this fourth industrial revolution, which can represent the opportunity for a technological palingenesis based on the interconnection between humankind and machine according to a Copernican vision that repositions the human being as well as conscious thought at the center of the universe.

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Sommario

La nuova geografia umana dell'innovazione tra immigrati e nativi digitali

I processi di globalizzazione che in rapidissima ascesa hanno caratterizzato questi ultimi 30 anni e continuano a farlo con una dinamica elevatissima, hanno determinato notevoli impatti sulla geografia umana in termini di attenuazione di preesistenti convergenze e di generazione di nuove divergenze andando ad arricchire il dibattito scientifico con nuovi interrogativi cui doversi fronteggiare nel trovare modelli di risposta. Un primo aspetto che merita attenzione di analisi è quello del digital divide, un paradigma che può essere ritenuto ormai superato nel nuovo mondo globale e pervaso da piattaforme social oppure accentuato dalla nuova differenza, facilmente degenerabile in discriminazione, tra nativi e immigrati digitali? Inoltre quale geografia della innovazione si è andata delineando per effetto del networking globale? Il presente contributo ambisce a fornire

elementi di riflessione critici e metodologici riguardo tali interrogativi valutando assieme sia le esternalità positive sia quelle negative che caratterizzano l'attuale scenario globale dominato dal paradigma della innovazione.

Human Capital for Economic Growth: Moving Toward Big Data

Rita Lima

Abstract

This paper highlights the effects of human capital in generation of catching up process across countries in the age of Big Data. Indeed, within more technologically oriented economy – particularly involving innovation and sharing information and data – new methods and ideas are experienced while human capital requirements, including research and development efforts, are often driven by real inequality divergences in the diffusion of knowledge between developing and advanced countries. Here the importance of region's position and attitude towards knowledge, including innovation activities, is documented with a macro-data growth model. Results suggest that absorption capacity and skilled workers for certain lagging regions are not sufficient on their own to narrow the development gaps and reduce disparities across countries.

1. Introduction[1]

The paper intends to focus on positive externalities and spillover effects of knowledge (human capital) that can lead to economic development in Big Data context. Indeed, the recent developments in spatial organization of social flows and networks of activity and knowledge involve changes in human capital requirements and in generation of economic growth, especially in developing countries (Birkinshaw, 2014; Chen, 2016 p. 141).

Beyond the availability of massive raw data and the intention to utilize them, there needs to be capacity to understand and use data effectively to policy and planning of development programmes.

The paper proposes a panel time-series model of economic growth (in term of GDP) focusing on Sicily – one of the less developed regions of Italy – and the rest of the country. The aim is to explain divergent levels of regional growth

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1. The opinions expressed in this document are the sole responsibility of the author and do not necessarily represent the official position of the Italian National Institute of Statistics.

behavior in term of human capital (skills and investment in R&D) together with its effect of spatial contagion due to knowledge networks and innovation system: the principal challenges that Big Data for development present. The analysis has been carried out over the period 1970-2011. Multiple data sources are analysed to produce revised time-series of regional variables due to the availability of time-series, which is heavily involved in a revision procedure (Lima, 2016).

The findings show different features to national and sub-national level. Sicily's economic situation mostly depends on an higher skilled labor force, while the investment in R&D is the principal resource of growth in the rest of the country.

Therefore, although the Big Data provides new methods and ideas for economy characterized by a generalized reduction of geographical distance, the boundaries between Sicily and the rest of the country remain strongly observable. In Italy it comes naturally, then, to have a not homogeneous local development with low innovative contexts, despite the presence of skilled people, and thus a loss of traditional human capital (i.e. the brain drain in Sicily). Efforts are needed mainly on other factors (e.g. institutions, infrastructure, political stability), which affect the potential to absorb, use and assimilate knowledge in a country. Indeed, Putnam *et al*. (1993) has already suggested that one of the main reasons for perpetuation of developmental differences as between the North and South of Italy is to be ascribed to the quality of the institutions and social capital. As far as Sicilian enterprises are also probably suffer from competiveness issues due to the presence of organized crime and very low levels and low quality of infrastructure, policy intervention has identified as main opportunity for the regional innovation system oriented towards: mitigation of brain drain; contrasting the relocation of innovative enterprises outside the region; increasing competiveness in technology markets improving access to finance for innovation projects. In summary, only a complex set of relationships among enterprises, universities and government research institutes could encourage innovation and technology development through geographical boundaries.

In the remainder of this paper the conceptual framework for the analysis (Section 2), the evidence from Italy and Sicily (Section 3), the econometric model and the main results are described (Section 4). Then some implementation issues in Section 5 conclude the review and provides recommendations for further research and possible actions.

2. From the Concepts of Knowledge Economy Based on Human Capital to A New Theory of Networked Economy Based on BD

The term knowledge based economy (KE) has been used to reflect the increased importance of knowledge as a critical factor for economic performance (Santos-Rodrigues *et al*., 2010; McGuirk *et al*. 2015; Toner, 2011).

For Foray (2004) knowledge-based economies are "*essentially, economies in which the proportion of knowledge-intensive jobs is high, the economic weight of information sectors is a determining factor, and the share of intangible capital is greater than that of tangible capital in the overall stock of real capital*."

Moreover for Rooney *et al*. (2003) "[...] *a knowledge-based economy to be an economy in which knowledge is the most important productive factor*."

For Venturelli (2000): "*a nation without a vibrant labour force does not possess the knowledge base to succeed in the [Knowledge] Economy, and must depend on ideas produced elsewhere*."

For Gorji and Alipourian (2011), the following four pillars are critical to the development of KE:

- An "*economic and institutional regime*" that provides incentives for the efficient creation, dissemination, and the efficient use of existing and now knowledge and the flourishing of entrepreneurship.
- An "*educated and skilled population*" that can create, share, and use knowledge well.
- An "*effective innovation system*" consisting of firms, research centres, universities, universities, consultants and other organizations that can tap into the growing stock of global knowledge, assimilate and adapt it to local needs, and create new technology.
- A "*dynamic information infrastructure*" that can facilitate the effective communication, dissemination and processing of information.

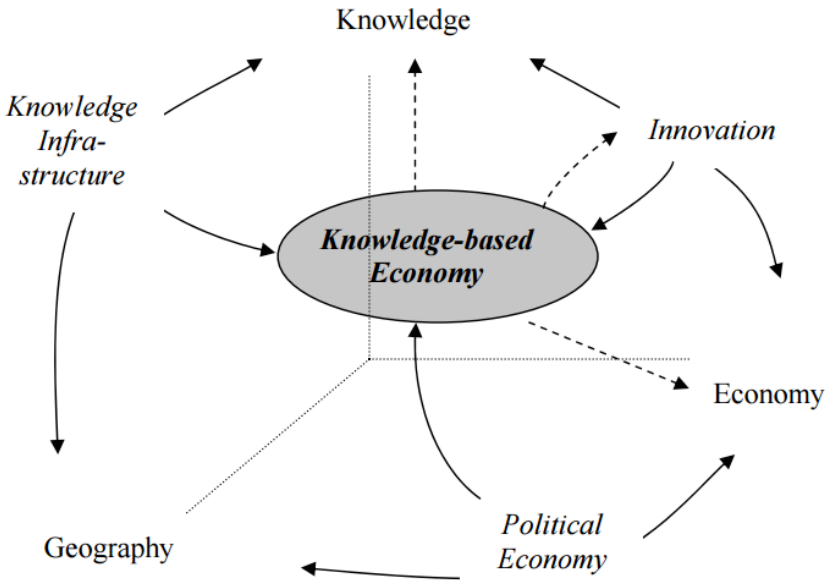
The complex dynamics of KE are unraveled by the *Triple Helix model* (Etzkowitz, Leydesdorff, 2000) in which its main institutions (university, industry, and government) constrain each other's behavior and shape each other's expectations (Figure 1) over various kinds of data (e.g. scientific publications and patents), different type of network (e.g. collaborations between individuals/institutions, citations and labour mobility) and geographic unit of analysis (e.g country, regional and sub-regional).

In this model physical distance and country borders could affect the likelihood of scientific and technological collaboration and may speed the flow of ideas, especially when a significant part of intangible knowledge is tacit and social networks tend to be strong (Scherngell, Hu, 2012; Singh, Marx, 2013).

Recently the following two prominent developments of present times have changed the Triple Helix model: (1) a massive globalization and (2) the huge increase in Information and Communication Technologies (ICT).

When focusing on the globalization, the evolution of spatial knowledge production and diffusion shorten the distance in socio-economic interactions and create challenges for collaboration across national systems of innovation (Heringa *et al*., 2014; Basu, 2016).

Figure 1 – The Knowledge-based Economy



Source: Leydesdorff, Meyer (2003)

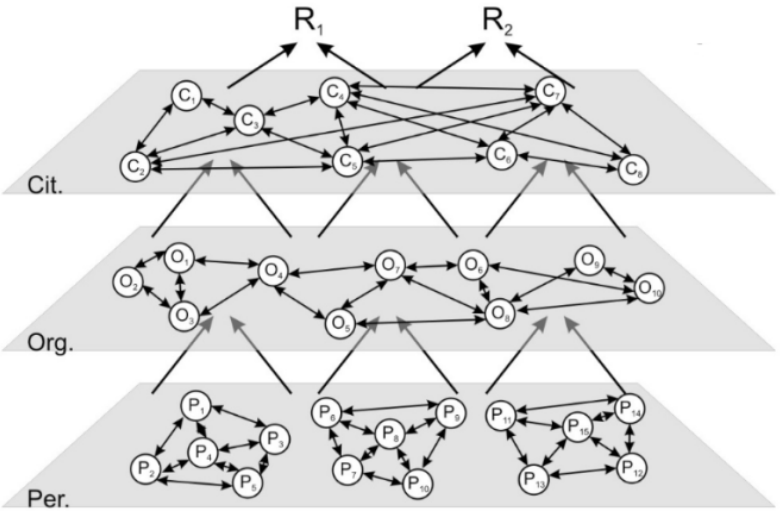
At the same time, ICT – combined with high-speed communications media form computer networks – significantly reduce the costs of outsourcing and cooperation with players outside (Figure 2), speeding the diffusion of codified knowledge and ideas and encouraging knowledge investment (human capital endowment and R&D).

Consequently, knowledge communities become agents of economic change and of innovation while positive network effects can be recombined and experimented with, over relatively long distances, within a framework of disclosure and reciprocity coupled with overall globalization.

As well as the distance does not be a limit for productive activities and innovations by means of externalities à la Marshall-Arrow-Romer, knowledge (like capital) tends to travel beyond boundaries and spatial proximity per se may have no value (Romer, 1990; Mc Kinsey, 2011; Strambach, 2015).

The implication is the entry of new players in knowledge production in an increasing multiplicity and fast-growing interconnections (networks) between possessors or potential possessors of knowledge (player) (Matos *et al*., 2015). These evolutionary mechanisms of knowledge exchange activities develop a n-tuple of helices, managing multi-nodal, multi-level, multi-lateral organizational networks at diverse perspective (Knack, 2001).

Figure 2 – The Knowledge Networks Economy



Note: Per – People; Org – Organizations; Cit – Cities; R – Regions.
Source: Matos *et al*. (2015)

In this model, the transmission of knowledge could be understood as taking place in networks generated and supported by human capital in which the nodes (or vertices) constitute the players, such as people, organizations, cities and regions, and the links (or edges) constitute the routes that knowledge must travel to reach from one node to another.

These forms of collaboration across players are greatly assisted by fundamental changes in the technologies of knowledge and information production together new fundamental factor of organization: institutional trust and political activity (Sequeira, Ferreira-Lopes, 2008); competitiveness (Arregle *et al*., 2007), innovation (Meléndez *et al*., 2012) and entrepreneurship (Huggins, Johnston, 2010).

This result in itself at the heart of a "*new networking economy*" that once became an ongoing, dynamic learning process that requires institutional framework and social network in an adaptive cycle of connectedness, especially that based on trust and networking between heterogeneous groups (*the bridging capital*), more than between like-minded people in closed networks (*the bonding one*) (Crescenzi, Rodríguez-Pose, 2011).

The sharing of open and accessible information and the understanding about opportunities enable firms to attract/develop human capital, financial investment,

new ideas and technological capabilities in a complex and adaptive socio-economic ecosystem, surrounding the ecological context (Nachira *et al*., 2007). Such an arrangement creates the opportunity for methodological learning to take place, manage model of social and economic change, allowing for a successful reorganization of growth.

But how to model this increased complexity? The proposed model will treat the highly interrelated issues of growth by enhancing human capital within the networked knowledge economy in the simplest way possible.

3. Evidence from Italy and Sicily

Although BD creates greater opportunities in human capital and in R&D and space/geographical information integration, this issue could be profoundly less important if the absorptive capacity of a region (its capability to understand, respond to, manage and create value from information) is low within a country and geographical proximity per se is neither necessary nor sufficient for breaking a sufficient condition for growth:

A particularly appropriate example is the obstacles faced by Sicily with regard to the special situation of its economic growth and the presence of its barriers (its "island" effect) in interactive learning, hampering R&D, innovation and knowledge: In Sicily GDP per capita was on average just €16,300 in 2013 among the lowest in the country and corresponding to 61.% of national GDO per capita (€26,500) and 61.3% of GDP average in the European Union (Svimez, 2014).

Over the period 2010-2013, the growth rate of its GDP per capita was -4,7% shrinking at a faster rate than the national average (-2,9%) (Svimez, 2014).

On the contrary Italy after a strong GDP growth of 5-6% per year from the 1950s to the early 1970s, and a progressive slowdown in the 1980s and 1990s, the annual average in the first decade of the 21st century equalled just 1.23% (with an average EU annual growth rate of 2.28%). This is caused by the fact that the financial crisis and the subsequent economic downturn seriously affected the Italian economy; more than the other developed economies in the world.

The economic crisis had an important impact on Sicily (job losses, periods of recession, the decline of demand) and its economy is considered to be undercapitalised, without strong internationalisation strategies, mainly regarding fast growing international markets (e.g. China), especially in the industry and building sectors. The unemployment rate (22. 2%) is also one of the highest in Italy and unemployment grew by 61% over the period 2009-2014 (Istat, 2014).

Although Sicily is considered a moderate innovator (European Commission, 2014) due to the presence of some technology districts – concentrated in the largest cities of Palermo, Ragusa, Messina e Catania – its economy depends strongly

on public spending and the links between firms and research are weak with no signs of positive growth. Gross domestic expenditure on R&D (GERD) was just 0.88% of GDP in 2012 (vs 1.26% in Italy and 2.01% in the EU) and is ca €700 million in Sicily in 2013 (the national total expenditure is under €20,000 million) mainly due to regional universities (58%), business (28%), public authorities and non-profit institutions (14%) (Istat, 2014).

The number of patent applications has decreased by three quarters since the beginning of the economic crisis (from 10,005 in 2009 to 2884 in 2012). When it comes to information, communication and technologies infrastructure, 46.6% of households have access to Internet (the national equivalent is 54.6%) while business are still at 24.4% (vs 33.6% in Italy).

Moreover, Sicily's economic system is mostly based on services provided by public administration, followed by "*financial intermediation, real estate and business*" as well as commerce: the weight of industry on the national GDP in Italy is 18,3% two times that of Sicily (Istat, 2014). Regional production is still not oriented towards high value added sectors, as most local enterprises are small and have little incentives to cooperate.

Arrighetti and Lasagni (2010) analysed the impact of these social conditions on the propensity to innovate of Italian firms and found that innovative firms tend to cluster in those provinces characterized by higher levels of social capital, based on civicness and high social interactions, and lower levels of negative social capital, generally associated with opportunistic behaviours caused by the coexistence of groups lobbying for specific interests.

These factors couple with other specific aspects seriously restrain the economic performance of Sicily, among which: inadequate entrepreneurial culture, low technology potential and innovation propensity, scarce services to firms, weak financial system, insufficient promotion of internationalization processes, weak linkages with global markets and networks.

4. A Simple Model of Economic Growth

4.1. Model Estimation

The paper addresses the following methodological questions:

- Are huge macro difference between Italy and Germany in term of human capital? Is Sicily, one of the Italian lagging regions, more constrained than the counterparts?
- How does it affect national economic grow paths?

A macro-panel time series analysis, therefore, has been carried out over the period 1970-2011 across a sample composed by two areas Sicily vs Italy

(excluding the Island) to explain Italian gap in GDP outcomes compared to the GDP of Germany, the benchmarking country performing much better in tailoring productivity, innovation and knowledge.

The following regression analysis is performed:

$$y_{it} = x'_{it}\beta_1 + z'_i\beta_2 + \alpha_i + \varepsilon_{it} \quad [1]$$

where i= 1, 2 (respectively, Italy – excluding the Islands – and Sicily) while:

a. y_{it} is the economic performance (competitiveness variable) measured by the GDP per capita compared to the GDP of Germany[2] (GAPGE);
b. x'_{it} are the explanatory variables concerning the main innovation and knowledge sources and the degree of network's connection which are:
   - the investment of the business enterprise R&D measured by the percentage of the amount of gross fixed capital accumulation (RINSV) as the proxy of regional accessibility to knowledge;
   - the quota of technical-scientific graduates measured by the percentage of the active population aged 25 to 64 years (DEGREE) as the proxy of the level of human capital driven by the region's absorption capacity.
   - the local amount of credit available to an area from the banking system measured by the percentage of GDP (LOAN) as the proxy of the knowledge synergy among social and human capital[3].
c. z'_i are the dummy variables for each of the areas and years (capturing the influence of aggregate time-series trends).

All the above variables, expressed as logarithms to mitigate the implications of possible cross-sectional shock, could be interpreted as elasticity, which means they approached the percentage variation of the dependent variable (GAPGE) associated with a variation of the explicative (RSINV, DEGREE and LOAN)[4]. The estimation of parameters was carried out using STATA.

The splitting analysis is framed in the never-ending debate on the "*Southern Question*" and Sicily, the historical lagging area in Italy:

- its economy slightly underperform with respect the national average;
- its location disadvantages (no neighbouring area and low spatial correlation effects) may influence its no catching-up within the whole country.

2. Innovation Union Scoreboard, 2011; Broekel, 2015; European Commission, 2015.

3. Relation between banks and firms is trust intensive in itself and very often it is based on a fiduciary basis that is a serious impediment to the expansion of credit institutions. However, the volume of credit as an indicator of the extension of trust networks may be biased downwards in financial systems strongly oriented to the financial markets, in which credit has less weight (Pérez Garcia *et al*. 2005).

4. Probably investments in the collection of territorial data shall be improved and extended (i.e. better indicators of human and social capital could be the degree of access to bank credit or data on workers' education at the Local Labor Market). See Lima (2016) for summary information about the data sources used, and which indicators are based on each source.

Unfortunately, the effective availability of regional time-series (often heavily involved in a revision procedure) and the deficiency of inadequate sample size (most of the empirical literature of time-series investigation used 30 to 40 years data) have been unravelled by using different modern panel technique regarding to.

- parameters (heterogeneity across units not just time-invariant effects)
- dynamics (non trivial effects of economic crisis and the marked slowdown in global trade as puzzling as the tepid GDP growth)
- variables properties (such as units roots and other non-stationaries, e.g. trends)
- endogeneity (in actual practice lack of valid instruments instrument strength, instrument contamination and sample size)
- cross-section dependence (unobserved factors common to the above areas tested and accommodated, but structure not analysed).

Modern panel unit root tests (the "*second generation*" tests) and panel cointegration analysis have been used to reveal whether there is a linear combination of regional diffusion of economic performance and human capital (in all its form) in the whole sample or if the variables share a conjoint long run relation within the corresponding areas of analysis[5].

4.2. Research Finding and Discussion

Table 1 presents the panel cross-sectionally CD-test. As seen in the table spatial dependence and spillover effects between areas are strongly suggested.

However, a lower correlation parameter estimate (the LOAN's coefficient) would confirm the consolidated level of gap between the capacity of banks to provide loans, investments and flows of networking knowledge at local level.

Hence in the presence of cross-sectional dependencies across panel members, "*first generation*" panel unit root tests tend to reject the null hypothesis of a unit root excessively. Thus the Pesaran panel unit root test (CIPS statistics), the MW and the CADF tests have been used. They reveal that the null hypothesis of a unit root should not be rejected[6].

It is not the only solution; the ZA test is an alternative test, which will be a better solution under nonlinearity assumptions and possible structural breaks in individual time-series within each area's panel (Table 2). A challenging question is how to find a valid estimation and testing procedure for panel cointegration models that have cross-sectional correlation. Table 3 presents the results for Westerlund's cointegration error-correction test, with bootstraped p-values,

5. Panel time-series or "nonstationary panel econometrics" modelling is a relatively new field of study: Theory starts in early 1990s and is most activity over past 5-10 years; relatively few researchers are using the proposed methods; there is not much accessible literature yet and many of the theoretical concepts are rather intuitive (there are no textbooks, but some introductory readings: see Baltagi, 2008).

6. The performance of panel unit-root tests is moderate for the relatively small data sets.

accounts for cross-section dependence. The test statistics show strong evidence of no cointegration relationship: in other words, ruling out the existence of long-run equilibrium between the panel variables across areas are, no model combines both long-run and short-run behaviors and any indication is of the existence of causal linkage between variables in the panel time-series.

Table 1 – Pre-estimation Test on Cross-section Correlation (CD)

Variable	*CD-test*	*p-value*	*corr*
lnGAPGE	4.03	0.0000	0.621
LnDEGREE	2.94	0.0000	0.765
LnLOAN	6.03	0.0003	0.454
lnRSINV	4.96	0.0000	0.930

Note: Under the null hypothesis of cross-section independence CD ~ N (0,1)

Table 2 – Results of the ZA Test, 1970-2011

Variable	*Area*			
	Italy (net Sicily)		*Sicily*	
	TB test	*t-test*	*TB test*	*t-test*
loGEGDP	2004	-2.861	1984	-2.492
loRSINV	1988	-3.423	1976	-3.563
loDEGREE	1991	-3.472	1990	-4.319*
loLOAN	1991	-3.608	1995	-2.291

Note: TB = break point. The optimal lag length was selected via a TT test. Critical values: 1%: -4.93 5%: -4.42 10%: -4.11

Table 3 – Westerlund's Cointegration Tests for Cross Sectionally Dependent Panels, 1970-2011

	Specification constant without trend			*Specification constant and trend*		
Statistic	*Value*	*Z-value*	*Robust P-value*	*Value*	*Z-value*	*Robust P-value*
Gt	-1.929	0.456	0.498	-1.626	1.750	0.870
Ga	-6.388	0.920	0.550	-6.715	1.551	0.858
Pt	-2.899	-0.173	0.385	-2.721	0.811	0.725
Pa	-6.292	0.252	0.463	-6.884	0.981	0.755

Note: The tests take no co-integration as the null. (a) Gt and Ga are group mean tests, Pt and Pa are panel mean tests over all the cross-sectional units with cross-section dependence based on bootstrapped distribution (200 bootstrap replications). (b) Tests are computed with individual effects and time trends. (c) The Bartlett kernel is used for the semiparametric corrections. (d) The leads and lags in the error correction test are chosen using Akaike criterion

Since the null hypothesis of non-stationarity is not rejected, two Seemingly Unrelated REgression models in first difference (for the same cross-section units) are performed. Being not "sure" about the structural equations whose errors are believed to be correlated. SURE is an attractive estimator relative to pooled OLS, or even in comparison with fixed effects, allowing each unit to have its own coefficient vector. Not only the constant term differs from unit to unit, but each of the slope parameters differ as well across areas.

As presented in the SURE "*separate*" equations [2] and [3], R&D investment is crucial for economic growth in Italy (excluding Sicily).

However, this investment is mainly public. That's probably means that it is a lower link between the needs of territorial economy and publicly funded research to reduce the gap between our country and Germany.

Moreover, there is the need to be at least smart especially in Sicily, where there are less resources to develop its economy, structures and entrepreneurial capabilities are weak underdeveloped regional innovation systems and poor institutional quality hamper competitiveness and investment decisions more than lack of geographical proximity.

$$\underset{}{DlogGAPGE_1} = \underset{(0.005)}{0.003} - \underset{(0.016)}{0.621}DogRSINV + \underset{(0.035)}{.034}DlogDEGREE - \underset{(0.041)}{.050}DlogLOAN \quad [2]$$

$$DlogGAPGE_2 = \underset{(0.007)}{0.003} - \underset{(0.028)}{0.021}DogRSINV + \underset{(0.053)}{.019}DlogDEGREE - \underset{(0.033)}{.001}DlogLOAN \quad [3]$$

These findings are consistent with the burdens of the Sicilian economic activities such as the higher degree of fragmentation on labor productivity, an unresolved problem of brain drain (with the complementary inability to attract skilled labor force from abroad), the local innovation system mainly based on micro enterprises still not oriented towards high value-added sectors (as most local enterprises are small and face few incentives to cooperate), a greater vulnerability of a financial system to the recent financial crisis, the presence of organized crime together with a consistent informal and shadow economy and a very low levels and low quality of infrastructure, especially in the transport sector.

5. Conclusion and Further Development

Overall results consolidate general economic principles, highlighting the importance of human capital and innovation (*endogenous growth theory*), agglomeration and distance (*new economic geography*), and institutions (*social capital and economics*) in convergence in growth between Italy and Germany, the benchmark innovative country.

Findings confirm that R&D efforts strongly drives the Italian "ecosystem" while the endowment of skilled workers is not sufficient on its own to narrow the development gaps and reduce disparities across countries. As the world of BD becomes increasingly globalized in terms of knowledge transfers and innovation, lagging regions need to be at least smart, if they have less resources to develop their economies. The reality is, universities and banks could suffer some sort of impediment to be crucial local-based spillover effects of knowledge networking:

- universities do not respond to the actual needs of the labour market, focusing on research vs. innovation;
- banks often built their relations with firms or households on a "*fiduciary basis*".

Thus, although in BD era cities are the absence of physical space between people and companies, territorial externalities and capabilities that need to be integrated yet may be implemented to secure the whole economic system. However, besides the main objectives of the study of the relation between knowledge (in term of human and social capital) and economic growth, the paper examined the promises and limitations of big data to help policymakers ensure rapid expansion of regions within countries. There are several shortcomings and limitations to measure how big data sources can facilitate measurement when government economic statistics are lacking. In fact, the largest obstacle to a regional analysis is the lack (and low quality) of longer time-series; and the consequent less wide class of indicators of human and social capital for a panel time-series context. Hence the study may be a useful starting analysis to the toolkit of the "*small N, large T*" problem working with the violate basic assumption of standard statistical analysis and power properties.

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Sommario

Capitale umano per la crescita economica: andare verso i *Big Data*

Questo lavoro vuole evidenziare gli effetti del capitale umano nella generazione di processi di recupero in crescita economica tra paesi nell'era dei *Big Data*. In effetti, all'interno di un'economia più tecnologicamente collaborativa e orientata – con una particolare attenzione all'innovazione e alla condivisione di informazioni e dati – vengono sperimentati nuovi metodi e idee di crescita mentre la dotazione di capitale umano, compresi gli sforzi di investimenti in ricerca e sviluppo, sono spesso guidati da reali divergenze nella diffusione della conoscenza tra paesi avanzati e aree in via di sviluppo. Qui l'importanza della posizione e dell'attitudine di un'area nei confronti della conoscenza, comprese le attività di innovazione, è verificata mediante un modello di crescita macroeconomica. I risultati suggeriscono che la capacità di assorbimento e la dotazione di lavoratori qualificati per le regioni in ritardo di sviluppo non sono sufficienti da soli a ridurre i divari di sviluppo tra i paesi.

The Composite Index of Cultural Development. A Regional Experimentation

Alessandro Caramis, Fabrizio Maria Arosio*, Matteo Mazziotta°*

Abstract

The study shows the results of an experimental activity aimed at building and testing a composite index able to supply a summary measure of the cultural development of the Italian Country and regions. The experiment was born as an attempt to adapt and apply to the national context the conceptual and methodological framework proposed by Unesco within the project "Culture for Development Indicators, CDIS", an international initiative with the aim of identifying a set of indicators able to measure when and how much the different cultural factors contribute to growth with specific reference to the developing countries. In the proposed experimentation, the Unesco's CDIS has been borrowed, trying to resume the conceptual scheme that inspired it, adapting and reinterpreting it at the same time, to pursue a greater correspondence to the specific context of national observation as to the declination of phenomena in a national scale. In this first analysis, to be able to operate a national comparison, only data from official statistical sources were used, on this basis seven composite indices were constructed for each dimension of cultural development and an index of final analysis was built through their combination.

1. Introduction[1]

The construction of a composite index of cultural development is an extremely complex practice. Facing the multidimensionality of cultural phenomena, we decided to borrow and adopt the referral model of an influential institution as starting point: the "Culture for Development Indicators, CDIS" methodology proposed by Unesco.

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1. The considerations set out in this chapter reflect only the authors' thoughts and are not representative of the position of the Entity of belonging. Although the work is the result of a joint reflection on the themes presented, paragraphs 1 and 2 were written by Fabrizio Maria Arosio, paragraphs 3.1, 4.2 and 4.3 were written by Alessandro Caramis, and paragraphs 3.2, 4.1 and 5 were written by Matteo Mazziotta.

The said methodology was developed in the context of a project defined as "pioneering" aimed to "identify a set of indicators able to underline in what extent culture contributes to the development at national level, promoting economic growth and helping individuals and communities to improve their own life opportunities and their adaptation to change" (Unesco, 2014).

In particular it deals with a defined and implemented model, originally with specific reference to the reality of low and middle income Countries, but it seemed interesting to experiment its applicability to the national context, as it proposes on one side a conceptual and holistic approach which allows to fully value the complexity of the conceptual dimension, on the other a flexible and pragmatic one that allows to handle the complexity of cultural statistics at methodological level.

After a first experimentation of the CDIS at European level (Arosio, 2016), what encouraged the unpublished experiment of a regional declension at NUTS2 level was the recognition of the role of culture in contributing to the pursuit of Europa 2020's strategical purposes. The European Council of the contribute of culture in realizing Europa 2020's strategy (Council of the European Union, 2011) and the Committee "exploiting the cultural and creative sectors to promote employment growth in EU (EC, 2012) recognize the potential of the cultural and creative sector for each cornerstone of Europa 2020's Strategy: smart growth, sustainable growth and inclusive growth (EC, 2010). Such recognition is confirmed by the strategic role assigned to culture in the various community planning cycles financed in Italy by the Structural Funds, including the last partnership agreement that places cultural resources as "potentially decisive assets for territorial development with reference to the touristic system and more generally to the territorial and social cohesion", PON Culture and development 2014-2020 (MIBACT, 2014).

Therefore the first step of this experimentation consisted in declining the CDIS scheme, to adapt it to the peculiarities of the regional context and to the specific promoter's information needs, integrating it – where required – on data basis and available information.

This work asks the following:

- it is possible, starting from the theoretical frame of the CDIS model, to construct a composite index that allows to measure cultural development at regional level in Italy over time as a cyclical phenomenon?
- are there any differences in the final ranking order in which the regions are placed in relation to each dimension and how are the results of the different dimensions compared with the total index?
- it is possible to find through the development index a geography that shows evidences and gradualities different from those proposed by the usual North-Central-South hierarchy?

2. The Model

The choice of the CDIS-Unesco indicators model as basis of reference is founded on the fact that this last is inspired by an inclusive definition of culture, which does not end in the aspects linked to industry and cultural consumption, but attempts to understand the multidimensional role of culture in relation to cultural processes, widening attention and observation to fundamental intangible aspects such as training process and learning, landscape and environmental heritage, tolerance and respect for diversity, social cohesion, as well as attitudes and key competences for individual and social empowerment as knowledge, critical thinking, creativity, digital skills.

The reference is therefore addressed to the wide range of skills that are considered fundamental for the growth of human resources and they are able to promote employability, competitiveness and growth of Italian regions in the European context. This skills are the same to which the Skills Agenda For Europe adopted by the European Commission refers; indeed, as stated by Tibor Navracsics, commissioner of education youth and sport: "... The Skills Agenda defines skills broadly and seeks to promote the full range of transversal skills that help people succeed in our fast-changing economies and become engaged citizens leading independent, fulfilling lives" (European Commission, Bruxelles, July 10 2016).

However, this aspects fall within the same work plan for culture 2015-2016, adopted in December 2014 by the ministers of culture of EU countries (EC, 2014),

which establishes four main priorities for collaborating at European Level in the field of cultural policies:

- to guarantee the accessibility of cultural resources to everyone;
- to protect cultural heritage;
- to support the creative economy and innovation of the cultural and creative sectors;
- to promote cultural diversity.

Operationally the CDIS-Unesco, so far tested in 11 countries, is based on the articulation of the "Culture" domain in 7 dimensions and the description of their contribution to development through 22 key indicators.

In detail the dimensions considered in Unesco model contain the following core indicators (Table 1).

3. The Experimentation

3.1. The Identification of Individual Indicators

For each of the CDIS-Unesco framework dimension a set of individual indicators is provided, whose values are in turn synthesized in other composite indices through an aggregation algorithm using a weighting system.

Table 1 – Core Indicators of Composite Index CDIS-Unesco

Dimensions	*Individual Indicators*			
Economy (cultural production, cultural employability, cultural consumption)	% of private cultural activities contribution to GDP (gross domestic product)	% of employed people in the cultural sector out of the total number of employees	% of household's final consumption spent on the purchase of cultural goods or services on total expenditure	
Educational and informative dimension (schooling, multilingualism; art education; vocational training for the cultural sector)	Average number of years of population schooling aged 17 to 22 years old, weighted according to the share of the population of the same age group in conditions of educational deprivation (less than 4 years of schooling)	% of hours spent in teaching languages on the total number of teaching hours in the first two years of secondary school	% of hours spent in teaching art on the total number of teaching hours in the first 2 years of primary school	Index of coherence and coverage of professional technical training and university education in the cultural field
Governance (structure of institution, policies and regulation in the cultural field)	Development index of institutional apparatus on policies and rules for cultural protection and promotion of culture, "cultural" rights and cultural diversity	Development index of political and institutional frame work for protection and promotion of culture, cultural rights and cultural diversity	Index of endowment and coverage of infrastructures, public cultural utilities and their distribution in the territory	Index of ability to promote the cultural operator's and minorities (associations, unions, non-profit organizations, representative independent of the government) participation in the formulation and implementation of policies, initiative and cultural programs concerning them
Social participation (use and participation levels in cultural activities; intercultural integration; quality of social relationships; freedom and capacity for self-determination, etc.)	% quote of population that has participated at least once in the last 12 month in "non-domestic" cultural activities, which implies the use of physical meeting places and high levels of social interaction	% quote of population that has participated at least once in the last 12 month in cultural activities oriented towards "identity building" (including amateur activities, membership of cultural associations, practices related to tradition, popular culture, youth culture, etc.)	Index of degree of tolerance within a society towards people from different cultural backgrounds	Index of interpersonal trust degree & Median of the score given by people to the perceived degree of freedom and self-determination perception, on a scale of 1 to 10

Dimensions	*Individual Indicators*		
Discrimination against gender equality (objective and perceived gender discrimination)	Index of the gap between men and women in politics, education, work, legislative and regulatory framework (objective conditions)	Index of gender equality satisfaction degree (subjective conditions).	
Communication (media's expression freedom, effective accessibility of ICT, television use models)	Index of expression freedom of press, media and information on the internet	Percentage of people, out of total population, who have used the internet in the last 12 months, connecting to the network using a computer or any other device, including mobile phones (smartphones)	% quote of annual broadcasting hours of fiction programs by national production and co-production, out of the total number of hours broadcasting fiction programs by national public channels (free broadcast)
Cultural heritage (endowment, development and management of tangible and intangible cultural heritage resources)	Multidimensional index of cultural heritage sustainability (quantitative indicator on the availability / allocation of factors corresponding to three main activities: cataloging and inventorying, sensitization and mobilization)		

In the proposed experimentation in order to guarantee greater reference framework responsiveness to the specific observation context, three fundamental aspects have been considered:

a. The relevance of the categories considered in the Italian regional context.
b. Availability and quality of data, in terms of updating, completeness, reliability and comparability.
c. The aggregation model robustness and clarity.

Based on this criteria, the composite index of cultural development was built in three steps:

1. Data collection in Italian regions and autonomous provinces of Trento and Bolzano; construction of each dimension's individual indicator;
2. Construction of a non-compensating composite index of cultural development for each dimension, based on the "non-substitutability" of the components;
3. Construction of a non-compensating composite index of cultural development based on the synthesis of the 7 composite indices for each dimension of cultural development.

With regard to point 1, the following selection and re-articulation of dimensions and respective individual indicators was made, following an activity of data reconnaissance and critical analysis.

In this first experimentation, we have moved from the 22 indicators in the CDIS-Unesco model to a 27-indicator model, identifying no more than 4 and not less than 3 for each dimension in which the concept of cultural development is declined.

To be able to operate a comparison at regional level only official data from national statistical sources were used (ISTAT, ICCU, SIAE, MMTTM, etc.), referring to the subset of regions for which all the considered data were available.

Among the 27 considered individual indicators, 5 are attributable to Unesco (economical dimension, communication and social participation); 7 are borrowed from the structure of BES indicators, Fair and Sustainable Wellness (Istat, 2016); 5 are borrowed from the SDG (Sustainable Development Goal Indicators), two of which are the same international indicators at regional level. The dimensions that incorporate the BES and SDG indicators are: educational-informative (BES and SDG), heritage dimension (SDG), social participation and inclusion dimension (BES).

For the construction of composite indices, with the exception of the indicator "18-24 years old who have only achieved the middle school certificate and are not included in a training program" (educational-training), all the indicators have positive polarity. The objective/subjective nature of the indicators in total is distributed as follows: 17n objective indicators (actual levels of supply and use); 10 subjective indicators (behaviors perceived and declared by the interviewed subjects).

To take into account the economic evolution of the indices, the values of the indicators are considered historical and go from 2008 and/or 2010 for each dimension, as starting year to 2014 and/or 2015 as last year available. For all the considered indicator's dimensions, the 2010 – placed equal to 100 for comparison – is the base year.

At a theoretical-conceptual level, the experimentation follows the interpretation of cultural development as a multidimensional process linked to different factors ranging the economic to educational-training, from governance to social participation, from gender equality to communication, up to an enlarged dimension of material and immaterial cultural heritage.

Comparing to the original model, it was considered appropriate to extend the specific dimension dedicated to "gender Equality" – an obvious essential factor for cultural processes in developing countries – to consider a wider category, which would allow to evaluate the degree of respect and trust in the neighbor, as well as the capacity for integration and social inclusion related to people coming from different cultural backgrounds. This aspects represent "critical" themes – of dramatic actuality sometimes – they are in fact to be considered qualifying elements of cultural development and civilization degree for advanced countries, with which European policies are being measured (EC, 2017). Based on these considerations, the dimension was named "Social inclusion" and the "inter-marriage" as well as "People aged 14 or more who consider the majority of the population to be trustworthy" indicators were included, the latter was originally included in the social participation dimension.

For the "Education and training" dimension, reference was made where possible to the strategic indicators defined and adopted by the European Union for sustainable development policies (SDG's) and to measure the achievement of the targets set by European Agenda 2020.

In the Governance related dimension, given the difficulty in obtaining official data, it was considered appropriate to refer to a broad conception of cultural policies, considering also the public policies aimed at encouraging the diffusion of services for the quality of life and improving territorial attractiveness, enhance the natural resources for attractiveness and development and finally promote the reception and social inclusion of foreigners in the territory. This dimension, compared to the indexes proposed to the CDIS-Unesco model, can be considered in comparison to others still in preliminary "testing" phase, therefore it will be further implemented by creating (following the CDIS-Unesco model) individual indicators/composites indices in relation to strategic policies in the cultural, social and landscaping fields.

The "Heritage" dimension has also been extended to include as part of a territory's cultural offer non only museum properties (state or not-state) but also the

Table 2 – Individual Indicators of Composite Index of Regional Development (by source)

Dimensions	*Individual Indicators*			
Economy	Incidence of household spending on recreation and culture (Istat, household consumption survey)	Impact of the cultural production system's added value (cultural and creative companies) on the total economy (Symbola foundation)	Employee location quotient of companies in the recreation and culture sector (Istat ASIA)	Index of entrepreneurial density of companies in the recreation and culture sector (on 10 thousand inhabitants) (Istat, ASIA)
Education and training	Tertiary education rate in the 30-34 age group (Istat, work force detection)	25-64 years old who participated in education and training activities in the 4 weeks prior the interview (Istat, work force detection)	18-24 years old who have only achieved the middle school certificate and are not included in a training program (Istat, work force detection)	People aged 6 who have read at least one book in the last 12 month (Istat, multipurpose survey, "Aspects of daily life" AVQ)
Governance	Incidence of PA expenditure in the "culture and recreational services" sector on total expenditure (territorial public accounts)	Impact of projects aimed at improving the territorial attractiveness initiated and financed through Structural Founds on total projects (OpenCoesion)	Receptions facilities (residential and non-residential) per 100 thousand inhabitants (Ministry of Internal Affairs)	
Social participation	People aged 6 or more who have practiced 3 or more cultural activities in the 12 month prior the interview (Istat, AVQ)	People aged 14 or more who have performed at least one social participation activity in the last 12 month (Istat, AVQ)	People aged 6 or more who have played sport continuously during the last 12 month (Istat, AVQ)	People aged 14 or more by level of leisure satisfaction (Istat, AVQ)
Social inclusion	Relationship between the employment rate of women aged 25-34 with at least one preschooler and women without children (Istat, work force detection)	People aged 14 or more who consider the majority of the population to be trustworthy (Istat, AVQ)	Incidence of women mayors on total number of mayors of the entire region (Ministry of Internal Affairs)	Inter-marriage (% incidence of marriages with at least one foreigner) (Istat)
Communication	People aged 6 or more who have used the internet in the last 3 month by uploading content of their own creation (Istat, AVQ)	People aged 6 or more who have used the internet in the last 3 month to enjoy cultural content (Istat, AVQ)	People aged 3 or more who listen to the radio every day (Istat, AVQ)	People aged 18 or more who read newspapers at least once a week (Istat, AVQ)
Heritage (cultural and natural)	Average number of visitors for state and non-state museums (Istat, survey on museums and similar institution)	Number of libraries out of 10 thousand inhabitants (ICCU)	Number of live shows (cinema, theater, music, sport, etc.) on total entertainment places (SIAE)	Impact of the Natura 2000 Protected Areas Network on regional surface (MATTM)

environmental heritage related to biodiversity, the dissemination of public libraries and cultural events related to the entertainment world (cinematographic, theatrical, concert, dance, traveling shows, exhibition and activities with gender plurality).

For the social relevance held in Italy, a further element to be considered a constitutive part of the cultural dimension is sporting practice. This phenomenon is described through "subjective" variables considered with reference to social participation (People aged 6 or more who have played sport continuously during the last 12 month) and through "objective" variables included in the heritage dimension (number of sporting events for report venues).

The main difficulty encountered in the phase of recognition and selection of individual indicators is due to the lack of annual updating of important indicators, such as to make impossible to build a historical series and to make them available for all the considered territorial levels.

Having as objective the cyclical analysis (to answer the question whether the development process showed variations over time) and the territorial comparison (to evaluate regional differences), in this first test we renounced indicators that, while being coherent and relevant to the theoretical conceptual approach of the considered dimension, they lacked the requisite of updatability and comparability.

Therefore being a first experimentation, the specific framework of the individual indicators remains in any case revisable an upgradable on the basis of further tests of deepening and experimentation.

3.2. Synthesis Methodology

The reference approach for the selection of indicators is "formative"[25] (like most social-economic factors), therefore each indicator has been selected for its informative contribution regarding the theoretical framework and not depending on the mutual dependence (Diamantopulos *et al*., 2008).

The exploratory analysis, carried out on the individual indicators of each dimension, nonetheless highlighted, in prevalence, weak correlation. Therefore the only dimension in which correlation appear strong is the one related to "Participation". With the exception of few cases, it is generally possible to suppose a low-level of information redundancy.

Based on the collected and selected information elements, various aggregation procedure were applied and tested for the construction of composite indices.

2. The formative indicators model assumes that indicators are seen as the "cause" of the phenomenon to be measured, consequently a change in hidden variable does not necessarily imply a change in all the observed indicators, on the contrary, the reflective indicators based model assumes that the indicators are seen as an effect of the phenomenon to be measured, whereby a change in hidden variables is reflected in a change in the indicators under observation.

The standardization and aggregation method used to obtain the indices related to the considered dimensions was based on the calculation of the AMPI – Adjusted Mazziotta-Pareto Index (Mazziotta, Pareto, 2016), used by Istat also for the construction of the BES (Equitable and Sustainable Well-being) composite indicators index and in the other composite indices experimentation (De Muro, Mazziotta, Pareto, 2011). This method consists in aggregating, through arithmetic mean, the individual indicators transformed by min-max[36] method. The AMPI base value is set at 100 and the index trend, which varies between 70 and 130, is read regarding this base value. The AMPI was again applied to the seven composite indices related to the dimensions in order to obtain a super composite index for the Italian regions under investigation.

The reference year for the composite indices of the seven dimensions and for the composite index of Cultural Development is 2010. After which, depending on the availability of the series for each dimension, the first and the last reference year could vary from domain to domain. Except for some cases, the analysis of the influence applied to single dimension show that the weight of indicators on the synthesis is approximately the same, therefore, the validity of the theoretical framework adopted by Unesco and the choice of the individual indicators chosen to represent it is empirically confirmed.

4. Results

4.1. Geography and Evolution of Cultural Development in Italy

The analysis of Cultural Development index performance, based on the 7 composite indices synthesis of the dimensions composing it, shows overall a positive record of the northern and central Italian regions. In particular the provinces of Bolzano e Trento, Friuli-Venezia Giulia, Lazio e Toscana, Piemonte, Lombardia e Emilia-Romagna show higher values than the average. On the contrary, the southern regions show considerably lower values than the average. The geography represented by the development index does not seem to show any particular novelty compared with the usual and recurrent hierarchical tripartition of the country, which sees the most developed regions of central and northern Italy compared to the southern ones (Table 3).

The diachronic trend of Cultural Development index at national and regional level does not highlight any particular changes between 2010 and 2014. In the considered five-year period, the values of Composite Indices remain substantially

3. The values are normalized by subtracting the minimum of the whole from each value and dividing the result by the difference between minimum and maximum values. In this version of the index, the average obtained is penalized by the "horizontal" variability of the indicators.

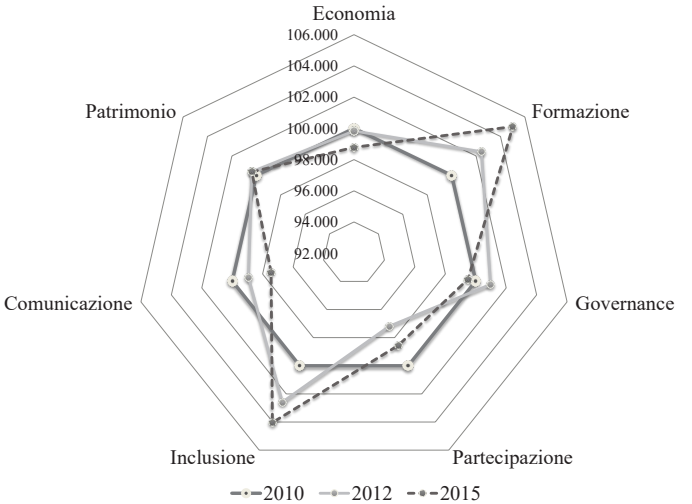
Table 3 – Composite Indices of Italian Regions- Years 2010- 2014. AMPI Method. 2010=100

	2010	*2011*	*2012*	*2013*	*2014*	*Ranking 2014*	*Ampi Difference 2010-2014*
Bolzano/Bozen	108,1	109,5	109,6	113,1	114,2	1	6,1
Trento	107,6	109,0	108,7	109,4	110,9	2	3,3
Friuli-Venezia Giulia	105,8	105,8	104,3	104,3	107,3	3	1,5
Lazio	105,4	104,7	105,3	105,4	106,2	4	0,8
Toscana	104,9	104,3	104,1	103,5	105,8	5	0,9
Piemonte	102,9	103,3	103,8	102,0	104,8	6	1,9
Lombardia	104,7	104,6	105,7	104,0	104,6	7	-0,1
Emilia-Romagna	103,1	103,1	104,1	103,4	104,4	8	1,3
Umbria	100,7	101,1	101,1	102,0	103,1	9	2,4
Veneto	103,3	103,8	103,3	102,0	103,0	10	-0,3
Valle d'Aosta/Vallée d'Aoste	101,3	102,7	103,5	103,0	102,6	11	1,4
Marche	100,6	101,4	100,3	100,7	102,2	12	1,6
Liguria	99,5	100,0	100,3	99,2	99,6	13	0,1
Sardegna	97,7	98,4	96,9	97,0	98,7	14	1,0
Abruzzo	97,2	98,7	98,1	97,3	98,2	15	0,9
Molise	96,2	96,3	95,3	94,3	96,6	16	0,4
Calabria	92,5	90,8	91,4	90,8	93,2	17	0,7
Basilicata	91,0	91,0	92,1	92,8	92,4	18	1,4
Puglia	90,1	90,5	90,0	90,5	90,8	19	0,8
Campania	90,5	89,3	90,9	89,0	89,7	20	-0,8
Sicilia	88,1	87,9	88,6	86,6	89,0	21	0,9
Italia	100,0	100,0	100,3	99,5	100,7	-	0,7

Source: Processing on Istat, Symbola, OpenCoesione, CPT, Ministry of Internal Affairs, MATTM, ICCU, SI data

unchanged. The ranking positioning of all Italian regions remains essentially stable over the years with a significant variation only for Piemonte (from ninth to sixth), which has gained three positions in the ranking, as well as for the Veneto region, which has instead lost three positions (from seventh to tenth). On the other hand, the picture appears more dynamic with specific reference to the different dimensions. Between the last available year and 2010 there are in fact some progress for the Training related and Social Inclusion domains, a substantial stability for the Governance and Heritage dimensions and a slight decrease

Figure 1 – Composite Indices of Italy. Years 2010/2012 and 2014/2015. AMPI Method. 2010=100



Source: Elaboration on Istat, Symbola, OpenCoesione, CPT, Ministry of Internal Affairs, MATTM, ICCU, SIAE data

for the Social Participation and the Economy, with a slightly more pronounced gap in the Communication dimension (Figure 1). This result leads to the hypothesis that, despite the negative economic period, the processes of social inclusion and cohesion combined with the educational-training outputs have been an important resource thanks to which the cultural development of the country has not suffered negative repercussions in recent years.

4.2. Cultural Development in the Italian Regions: Focused on 2014

To provide a more detailed analytical framework, it was found that there were significant differences in the final regional ranking among the composite indices of the 7 developmental dimensions. Taking 2014 as the reference year, the geography of cultural development for the different dimensions does not differ overall from the traditional hierarchical tripartition of the "North-Central-South" territory. However, for some dimensions some interesting exceptions emerge relating to the traced geography and the rank differences within each dimension that, even in a "stable" overall cultural overview, highlight the weight and the specificity of some regions compared to others in a specific reference domain (Table 4).

Synthetically, compared to the "Governance" and "Heritage" dimensions, the geography of the most virtuous regions differs more than that reflected in the

Table 4 – Composite Index of Regions for Dimensions of Cultural Development – Year 2014. AMPI method, 2010 = 100

Regions	*Economy*	*Training*	*Governance*	*Participation*	*Social inclusion*	*Communication*	*Heritage*	*Cultural Development*
Bolzano/Bozen	98,5	116,9	124,0	129,7	117,7	114,4	104,1	114,2
Trento	96,7	121,9	121,7	116,4	113,4	104,2	106,7	110,9
Friuli-Venezia Giulia	96,9	119,7	105,2	104,4	117,4	108,1	103,0	107,3
Lazio	109,7	114,1	96,4	102,9	106,5	102,7	113,5	106,2
Toscana	98,6	110,7	105,8	102,4	119,8	104,9	101,2	105,8
Piemonte	102,9	110,1	105,7	101,9	114,8	102,7	97,3	104,8
Lombardia	113,9	111,9	95,4	103,4	111,4	101,4	97,7	104,6
Emilia-Romagna	98,5	113,0	101,6	105,8	118,1	104,9	92,9	104,4
Umbria	100,4	113,0	102,2	98,1	109,9	103,3	97,0	103,1
Veneto	98,3	110,6	95,7	100,5	117,9	99,7	102,1	103,0
Valle d'Aosta/Vallée d'Aoste	93,8	105,1	91,8	104,9	112,9	103,9	109,6	102,6
Marche	100,4	108,3	110,9	97,8	107,7	99,8	92,8	102,2
Liguria	83,5	115,6	96,5	99,3	111,6	95,9	101,4	99,6
Sardegna	92,4	98,8	97,3	95,9	102,1	105,7	99,8	98,7
Abruzzo	90,3	104,3	97,2	91,3	105,5	99,6	101,1	98,2
Molise	90,0	103,7	100,7	91,3	93,7	95,5	103,4	96,6
Calabria	88,5	94,3	101,0	82,2	94,3	97,7	96,8	93,2
Basilicata	90,2	93,1	99,2	85,7	96,5	89,5	93,9	92,4
Puglia	87,1	90,4	98,1	81,8	92,6	92,4	95,3	90,8
Campania	86,5	88,7	91,2	78,6	89,1	92,0	106,6	89,7
Sicilia	81,8	82,9	106,6	82,0	86,5	91,6	97,5	89,0

Source: Processing on Istat, Symbola, OpenCoesione, CPT, Min. of Internal Affairs, MATTM, ICCU, SIAE data

Composite Index. In particular, this difference is found above all in the South and in the Islands, where the Index has a higher value than the media. As for the "Heritage", the positions of Campaign, Molise and Sicily, which rank respectively in the third, sixth and thirteenth positions, improved significantly. Also regarding to the "Governance" dimension, they have higher positions than the Composite Index of Marche, Calabria, Sicily and Basilicata (first, sixth, seventh and tenth respectively). The reasons for these differences are attributable in the first case (Heritage) to a greater presence of average visitors for museums and similar institutions and a greater number of shows and live events for entertainment venues in the central and southern regions; in the second case (Governance) for a strong incidence in the Southern regions: spending on recreation and culture of public administration, projects financed by Structural Funds aimed at improving territorial, cultural and social attractiveness and per capita reception facilities for foreigners.

As regards the individual specific domains, the following specificities are observed: Lombardy, Lazio, Piedmont, Umbria and Marche are the most virtuous regions from the culture economy point of view. This figure indicates an excellent performance, not only of Lombardy and Lazio, which regarding the added value, brought by the cultural and creative industries, have always guided this type of classifications; but also of Umbria and Marche, which rank among the first in terms of household spending for recreation and culture and for employees in the recreation and culture sector.

On the domain of cultural fruition through the media (digital and otherwise) the first positions go to the Autonomous Province of Bolzano, Sardinia, Emilia-Romagna, Valle d'Aosta and Tuscany. Regarding this composite index of "Communication" dimension, is pointed out the virtuous position of Sardinia, which has the primacy of "People aged 6 and over who have used the Internet in the last 3 months to enjoy cultural content" and is the second in Italy for reading newspapers at least once a week (61.5%).

The "Training" dimension is more in line with the Cultural Development Index, with the exception of Umbria region, which has a higher performance thanks to the higher percentage of graduates (31.8%) at the national level.

Also the "Social inclusion" and "Participation" dimensions do not differ overall from the ranking. Compared to the general geography two specificities are observed: the Valle d'Aosta, in third position as regards the value assumed with compared to the level of "Social participation", mainly due to the high percentage of people who have carried out sports, cultural activities, and social and the presence of high levels of satisfaction with free time; as in Veneto, where is registered the highest level of "Inclusion" (followed by Emilia-Romagna, Tuscany and the autonomous provinces of Bolzano and Trento), thanks to the high values related to the employment rate of women aged 25-49 with at least a preschool child, mayoral

women and mixed marriages with at least one foreigner. The dispersion degree of the composite indices value compared to the average, for each of the seven dimensions of cultural development and the composite index, measured by calculating the average square deviation, shows how the dimensions "Participation", "Training" and "Social Inclusion" they present a more unbalanced territorial geography; on the contrary, the "Heritage" and "Communication" dimensions present more balanced values. Thanks to this information we observe how while the supply of assets and access to information resources are available in a widespread form, regardless of administrative boundaries, in the opportunities for social/cultural participation, in social cohesion and in educational/training levels the territorial divisions they remain ample. As a consequence, the chances of having a fair, sustainable and widespread cultural development throughout the country remain conditioned in these specific areas by the disparities between regions.

4.3. Index of Cultural Development and Other Composite Indices

How is the Cultural Development Index correlated with the dimensions that comprise it and with the Composite Index par excellence, which is GDP per capita?

In 2014, composite indices of all dimensions except for those relating to "Governance" and "Equity" are strongly correlated with the Cultural Development Index. A very strong correlation[47] of the composite index is found with the dimension of participation (0.96), training (0.93) and social inclusion and communication (0.89). Conversely, a more modest correlation emerges with the Economic Index (0.70), weak with the Governance Index (0.54) and almost entirely absent with the size of the Assets (0.32).

From these reports it emerges that the country's supply of cultural heritage, even if it is understood in an enlarged sense, including the environmental offer, the manifestations of the live show, etc., is a necessary but not sufficient condition to trigger processes of cultural development. The very same expansion of the cultural and creative industry and the increase in cultural and recreational products consumption and services does not automatically lead to identifying processes of cultural development. In order to do so, the processes of, training and learning, social inclusion and communication play a fundamental role in fostering development. Where these intangible aspects are absent, as we have seen from territorial differences, cultural heritage and the very presence of a cultural industry are not sufficient to guarantee those processes of growth of individual and collective empowerment aimed at generating processes of cultural development.

As also shown in the analyzes conducted at international level, the Cultural Development Index and per capita GDP show a very high positive correlation

4. Linear correlation coefficient. Index that measures the degree of linear relation (which varies from -1 to +1) between two variables.

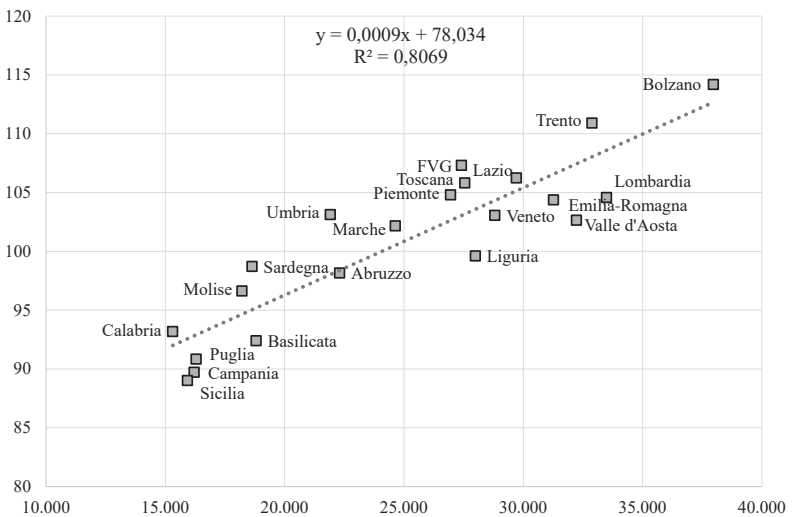
(coefficient 0.91) (Figure 2). With a few exceptions, the regional ranking of GDP per capita appears to be aligned with the one built on the basis of the Cultural Development Index. This strong correlation shows how the geography of the income of the Italian regions easily overlaps with the map of cultural development. We cannot say what the relationship is in terms of cause and effect, nevertheless the strong intensity of the relationship indicates how richness constitutes an essential discriminator for the processes of cultural development.

5. Preliminary Considerations

The illustrated results represent a first analysis on the experimentation of Cultural Development Index which, starting from the CDIS-Unesco theoretical framework, tries to translate a model of cultural development at the regional level (Nuts2) from the theoretical-conceptual to an empirical level. Therefore, the attempt to translate this theoretical-conceptual framework and the research questions posed, will be able to have a more exhaustive answer only at the conclusion of more accurate analyzes on the vast wealth of information gathered about it.

The same work of recognition and analysis of the individual indicators, for each dimension, needs to be deepened in order to identify and improve a set of indicators that are as non-redundant as possible, congruent with the conceptual

Figure 2 – Linear Correlation between AMPI and Per-capita GDP



Source: Elaboration on Istat, Symbola, OpenCoesione, CPT, Ministry of Internal Affairs, MATTM, ICCU, SIAE data

framework of the represented, non-replaceable and updatable dimension in historical series. However, already from these first results it is possible to draw some considerations, which can be useful for the purposes of the research paths to be explored at the end of this work.

The idea of constructing, starting from the theoretical framework of the CDIS-Unesco model, a composite index of cultural development of our country at a regional level, which can be measured as a cyclical phenomenon over time, like traditional indicators of an economic nature (GDP, employment, etc...), faces an obstacle: the value of the cultural development Index does not change much over the years, or rather, does not undergo annual changes such as to make evident, to the eye of the observer, changes or significant evolution which would allow to speak of "cultural leaps" in terms of development. The reason for this is that the Cultural Development Index describes a concept related to social phenomena and processes, and as such, they are susceptible to very slow changes over time, only visible by analyzing a much longer period of time. From this point of view, the percentage variation of some point or zero point in the value of the Index, in terms of consequences on associated life, is less significant than the change in GDP or public debt.

Therefore, the Index, rather than showing a conjunctural picture of cultural development in the Italian regions, is effective in providing a picture of territorial disparities. From this point of view the differences appear much more evident. The North-Central-South hierarchical tripartition of the country is also reflected in this case. Cultural development, with a few exceptions, reflects the different distribution of wealth in the country. The only differences on the ranking are found in some dimensions of Cultural Development, such as "Heritage" and "Communication". These dimensions, being attributable to phenomena independent of administrative boundaries and social differences in the regions, show a different geography of development than those conventionally known. In the light of the further results that emerged, different analysis paths to be undertaken in the future could be evaluated, recalibrating the research objectives and assessing the most appropriate conceptual and methodological tools in order to undertake them.

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Sommario

L'indice composito di sviluppo culturale. Una sperimentazione regionale

Lo studio proposto ha l'obiettivo di misurare lo sviluppo culturale del Paese e le differenziazioni territoriali al suo interno attraverso un indice composito in grado di fornire una misura di sintesi dei diversi fenomeni riconducibili alla cultura nelle Regioni italiane. Tale esercizio ha implicato la scelta di un modello di rappresentazione e misurazione dei processi culturali, che è stato individuato nello schema proposto e sviluppato da Unesco nell'ambito del progetto "Culture for Development Indicators, CDIS", un'iniziativa internazionale che si pone l'obiettivo di individuare un set di indicatori in grado di evidenziare in che misura diversi fattori contribuiscono allo sviluppo e alla crescita culturale di un Paese. Nella sperimentazione proposta, si è mutuato il modello CDIS di Unesco, cercando di rimanere fedeli allo schema concettuale e nel contempo di reinterpretarlo ed adattarlo, per perseguire una maggiore rispondenza al contesto specifico di osservazione nazionale e alla declinazione dei fenomeni a livello regionale. In questa prima analisi, per poter operare un confronto a livello inter-regionale, sono stati utilizzati esclusivamente dati di fonti statistiche ufficiali, sulla base dei quali per ciascuna dimensione dello sviluppo culturale sono stati costruiti, in serie storica, sette indici compositi ed un indice di sintesi finale creato attraverso la loro combinazione.

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Shirking and Social Capital: Evidence from Skilled vs Unskilled School Workers

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Abstract

Italian data show that there is a significant regional heterogeneity in school workers absenteeism rates. Moreover, they also show that once we take into account separately the behavior of two different school workers categories, namely, teachers (high skill) and technical and administrative staff (low skill), the regional distribution of the days of absence is not alike. Different local factors may explain this evidence, with regional endowments of social capital levels representing one of the most important. Our empirical evidence suggests that the correlation between social capital and absenteeism is stronger for more skilled workers, the teachers, while it seems to be non significant for the lower skill school staff.

1. Introduction[1]

This paper exploits the availability of a very rich dataset provided by the Italian Ministry of Education (MIUR) to investigate whether the regional level of social capital affects the degree of school workers' absenteeism rates. This dataset includes information on the level of employees' absences for each school in Italy during the school year 2010/11 for both teachers (high skill) and technical and administrative staff (low skill). Unlike other studies in this literature, the availability of information on two skill-types of employees working in the same place enables us to investigate if the relationship between regional social capital and absenteeism is the same for low and high skill workers'; indeed, evidence of

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1. The research leading to these results has received funding from the Autonomous Region of Sardinia's Regional Law 7/2007 (Capitale sociale e divari economici regionali, year 2012). We thank the seminar participants at the Conference "Capitale sociale e divari economici regionali", June 2016, University of Cagliari, for useful comments and suggestions.

different pro-social behavior among workers with different skills has been found by Mas and Moretti (2009) and Cornelissen *et al*. (2017) and for the educational sector by Chaudhury *et al*. (2006).

Indeed, different factors may affect workers absenteeism rates, with regional endowments of social capital levels possibly representing one of the most important. Italian data are very suitable for studying the role that social capital levels have in workers' absenteeism rates. First, due to the significant regional differences in social capital endowments, within the large literature on social capital and development the Italian data still represent one of the most commonly used case-study for empirical analysis. This high regional heterogeneity has its roots in the high levels of political and cultural fragmentation that has characterized the Italian history over centuries (Di liberto, Sideri, 2015), and studies on the Italian regions' case dates back to Banfield (1958).[2] Second, there is a large literature that stresses the presence across the Italian regions of a substantial regional heterogeneity not only in social capital endowments but in most development indicators, with a clear duality in the Italian economy between the developed North-Centre and the less-developed South.[3]

Our analysis emphasizes the presence of a significant regional heterogeneity in school workers absenteeism rates. Moreover, it also shows that, once we take into account separately for the behavior of our two different school workers categories, the regional distribution of the days of absence is not alike. Overall, our results suggest that social capital has a negative correlation with the absenteeism rates of teachers, while this is not true for the Administrative, Auxiliary and Technical (ATA henceforth) staff. In other words, our findings suggest that, while regional characteristics are possibly important factors for explaining absenteeism rates, the mechanisms are different between low and high skill workers, i.e. the strength of social capital for absenteeism is stronger for more skilled workers, while it seems to be ineffective for the lower skill staff.

The next section of the paper is devoted to data and descriptives, while Section 3 contains the empirical evidence and a brief discussion on our main findings.

2. Data and Descriptives

The MIUR (Ministero dell'istruzione, dell'università e della ricerca) "La scuola in chiaro" dataset includes a large number of variables for 10,197 Italian

2. On differences in social capital endowments across Italian regions see among the many others the recent papers by Putnam (1994), Guiso *et al*. (2008), Tabellini (2010), de Blasio and Nuzzo (2010) and Di Liberto and Sideri (2015).

3. Among the numerous papers we only mention here Felice (2015), Daniele and Malanima (2012), and on educational attainments Di Liberto (2008) and Di Liberto *et al.* (2015).

schools during the school year 2010-11, approximately 90% of the Italian public primary, lower and upper secondary schools located in 100 Italian NUTS3 regions. Note that, unless otherwise stated, in the following analysis with the term ”regions” we identify the 100 Italian *Province*.[4] These data are also merged with additional variables from different sources that help to control for area characteristics. The full details on the variables can be found in Appendix Table A1.

Table A2 reports the main descriptives of the variables included in our empirical analysis. Since we use variables with two different levels of aggregation (schools and regions) the number of observations varies from 10,197 (schools, from the MIUR dataset) to 100 (regions).

Table A2, Panel A, starts including the statistics of our two dependent variables, the teachers and ATA school workers days of absence due to illness. A number of studies show that, unlike other types of absences, sick leaves can be both involuntary because of health problems, or voluntary because of shirking behavior by workers. In particular, public sector workers, as school ones, are typically covered by the national insurance system when sick (as in the Italian case), but their effective state of health cannot be efficiently and costless monitored. This implies an incentive to cheat, with workers that take more days off than what it is necessary, preserving the whole wage. For that reason, a vast literature use information on the absence episodes classified as “due to illness” as a measure of the worker’s shirking (Ichino, Maggi, 2000; Scoppa, Vuri, 2014; Bradley *et al*., 2007, among the many others).

Following the literature, we use sick leaves as a proxy for potential shirking behavior among school workers. Data show that, on average, Italian teachers take approximately 8 days of sickness absences per school year. The range goes from zero to 25 and the standard deviation is 3.57. The second indicator measures the absenteeism rate of the ATA school workers. In this case the average number of days of absence is much higher: the days of sick leaves per school year are on average almost the double, 15.06, with a standard deviation of 8.46 and a maximum value observed of 56 days. Thus, data suggests that the potential shirking behavior of the two groups of workers within the same working environment is different, and that the absence rate of high skill (teachers) is significantly lower than that of low skill (ATA). We identify the former as high skill since Italian teachers have for the most part attained a tertiary education degree, while the ATA staff is more heterogeneous but the large part of its workers has mostly completed lower and upper secondary education studies.

However, the national averages reported in Table A2 may hide the presence of differences in the geographical distributions of the days of absence of Italian

4. In particular, we have information about all Italian regions except for the three autonomous regions of Aosta, Trento and Bolzano. Our data correspond to the 89.3% of Italian schools.

school workers. Thus, Table A3 further disaggregates both teachers' and ATA workers absences by the three standard Italian macro-regions: North, Centre and South. In this case, numbers show for teachers more days of absences in the Central and Southern regions, respectively 8.27 and 9.20, while in the North we have less days of absences, 6.81. Conversely, absences for ATA workers are, as said, much higher in all areas, and North-South differences are less remarkable.

To further investigate this issue, we report in Table A4 the average days of absence of both teachers and ATA workers at NUTS2 regional level.

We see, in particular, Sicily, Sardinia, Calabria, Basilicata (all located in the South) and Lazio (the region with the capital, Rome), are the NUTS2 regions where the teachers' absenteeism is higher. As expected, the lowest values of teachers' absenteeism can be found in the North, with Piemonte showing 6.45 days of absence. Conversely, the region with the highest absenteeism rate is Calabria (South) with 11.16 days on average per school year.

On the other hand, the regional average of absenteeism for ATA workers tells us a very different story. In fact, there is no clear North-South duality. Although the worst performers are still located in the South (Sicilia, Calabria and Sardegna), we can also find a significant number of northern regions with high levels of absenteeism and southern areas with less than average absenteeism rates.

The remaining variables included in Table A2 are all considered as important determinant of school workers absenteeism at regional level and are included as control in our regression analysis of Section 3. Among the variables collected at school level we find a number of schools' and teachers' characteristics considered in the education literature as important factors in determining the absence rates in schools. In particular, for each school the MIUR dataset enables us to include in our analysis: the total number of teachers, the share of teachers with a short term contract, the share of female teachers, the share of teachers aged over 55 and the teachers' turnover rate. Moreover, merging our MIUR data with those from ISTAT, we are also able to construct two dummy variables capturing whether the school is located in a rural or mountainous area.[5]

In Panel B of Table A2 we insert the list of descriptives of our additional controls available at regional level. In row 3 we find our main regressor, that is social capital. As in Di Liberto and Sideri (2015), we use a synthetic social capital index at NUTS3 level, provided by Cartocci (2007), which merges data on blood donations, sport participation, dissemination of newspaper and voter turnout. This indicator has the main advantage that it covers different important aspects of social capital. In particular, blood donations data are used to assess the role of generalized morality, sport participation is assumed to influence social capital since it supports the building of groups of mutual interest and promotes pro-social while diminishing

5. These data are provided by ISTAT in the *Atlante statistico dei comuni* dataset (ISTAT, 2017).

anti-social behavior and, lastly, both newspaper dissemination and voter turnout should capture people's interest in politics. Di Liberto and Sideri (2015) show as the Italian regions are highly heterogeneously endowed: most southern provinces have the lowest social capital endowments (with Vibo Valentia bottom rank) while North-Center provinces have the highest (with Bologna and Parma top rank).

Further, since job security is considered an important control in this kind of analysis we introduce the unemployment rates variable. In fact, we could expect that absenteeism rates were negatively related to the regional unemployment rates. The result of unemployment as deterrent for shirking has been found for private sector workers. However, this may not be the case for public sector employees, like school workers, as previous studies also find a positive correlation between employees' sickness absences and the degree of job security (Ichino, Riphahn, 2005).

Similar results have been found by Scoppa and Vuri (2014) for the Italian case. Finally, other controls include the mortality and alcohol consumption rates, plus the extortion rates and an index of regional educational infrastructures. The index include data on the percentage of (public) primary schools provided with meals and equipped with a school-bus, the percentage of special classrooms in (public) secondary schools and the number of teachers for every 100 students and it represents a proxy of the regional expenditure on the education sector that, as stressed by Chaudhury *et al*. (2006) may be relevant influence in reducing absenteeism rates.

All these variables show significant regional heterogeneity and may possibly affect our analysis. In particular, mortality rates take into account for possible overestimation of the absenteeism phenomenon. Ichino and Maggi (2000) and Scoppa and Vuri (2014) argue that excluding it would possibly overestimate their results due to real illness episodes. For the same reason we also include the alcohol consumption rate as a measure of "unhealthy habits". The extortion rate is calculated as the rate of extortions over 1,000 inhabitants and it captures the effect of corruption and the presence of organized criminal groups. Again, data show a significant heterogeneity across Italian regions, with Treviso (Veneto) the province with the lowest crime rate, and Catania (Sicily) as the poorest performer.

3. Some Empirical Results and Discussion

Our analysis on the relationship between social capital and the school staff absences continues with a simple OLS regression setting of the form:

$$Y_{ij} = \alpha + \beta SK_j + \gamma X_{ij}^{'} + \delta Z_j^{'} + \upsilon_{ij} \qquad [1]$$

Where Y_{ij} is either the ATA or teachers' absenteeism measure in school i and region j, SK_j is our indicator of social capital in region j, X_{ij} is a set of school

controls (number of teachers, share of teachers with a short term contract, share of female teachers, share of teachers aged over 55 and teachers' turnover rate, repeating students, school location dummies) and Z_{ij} a set of regional additional controls (mortality rate, unemployment, added value, extortion rate, alcohol consumption rate and educational infrastructures index), as described above.

Table A5 includes the OLS results when we use as dependent variable, respectively, our measure of the absenteeism for teachers (models from 1 to 5), and our measure of the absenteeism for the ATA staff (models from 6 to 10). Since our dependent variable is identified at school level but the independent variable of interest only varies across regions, we always cluster the standard errors (reported in parenthesis) at the regions NUTS3 level (on these see Angrist, Pischke, 2008).

As suggested by the previous literature, we expect in all models from 1 to 10, a negative sign on β, implying lower absenteeism rates in areas with higher social capital levels (see for instances Chaudhury *et al*., 2006).

Results on teachers show the expected negative and significant coefficient for social capital in all specifications. Model 1 shows the results for our most parsimonious specification, while, model 2 introduces a set of school level dummies, namely, primary schools (pupils aged 6 to 11 years old), lower secondary schools (students aged 11 to 14 years old), and *Istituti comprensivi*, a specific type of school that includes both primary and lower secondary classes (with pupils aged from 6 to 14 years old). The omitted dummy variable refers to the upper secondary school level. The coefficients imply that the level of schooling matters, and suggest that teachers of younger pupils take more days of sick leave. Model 3 includes our additional school-specific controls. Consistently with previous studies (Bradley *et al*., 2007; Herrmann, Rockoff, 2012), we find a positive and significant coefficient for the share of female teachers, the share of older teachers and the turnover rate variable. The type of teachers' contract variable is never significant, while our proxy for school size (the number of teachers) shows a positive and significant coefficient only when additional variables are included (in models from 4 to 7).

Model 4 adds the first set of our area controls. First, since the literature on absenteeism recognizes the school location as an important determinant, we include two dummies that identify if a school is located in a rural or a mountainous area. In Table A5, the coefficient of the rural area dummy is never significant, while the mountainous area coefficient is always positive and significant. Moreover, our measures of the regional level of development (per capita value added) and unemployment rates show that only the latter is positively and significantly related with teachers' absenteeism.

Finally, in model 5 we further include additional area characteristics that are considered important in this literature. Overall, these remaining variables

(regional mortality rates, the extortion and alcohol consumption rate, and the educational infrastructures index) are never or hardly significant.

Models from 6 to 10 that focus on the ATA staff reveal a different picture. First of all, as already suggested by our descriptive analysis and unlike the teachers', we do not identify a negative relationship between social capital and the days of absence of the ATA staff. Indeed, in models 6 to 10, the social capital shows a non-significant coefficient in all specifications. Further, also the additional variables coefficients seem to confirm that the mechanism and local factors that affect the absenteeism decisions are different between high and low skill workers. In model 7 the level of schooling does not appear to be an important determinant, with the partial exception of the primary schools dummy. In model 8, we do not have variables on the ATA workers characteristics, such as the share of female or older employees, as for the teachers, but we still include these variables since they may be also considered as school (or working environment) characteristics.[6] In this case, results are similar to those found for teachers. In model 9, the coefficients on school location (rural or mountainous areas) are never significant, while results suggest the presence of a positive relationship between the level of development of a region and the days of absence of the ATA school workers.

In sum, these results imply that local social capital levels may possibly play an important role for absenteeism, but only for high skill school workers. For these, the teachers, the usual North-South divide seems to work, and OLS results stress that social capital is positively correlated with absenteeism. Conversely, for low skilled school workers both descriptives and the regression analysis do not identify a clear relationship. Moreover, this analysis implies that, while school characteristics seem to play a similar role for both teachers and lower skill school staff, the regional characteristics are also playing an important role for absenteeism. However, the specific factors are not alike for the two diverse workers categories. Indeed, not all factors that seem to affect the absenteeism rates of teachers, show a significant coefficient when the absenteeism of the ATA workers is used as dependent variable.

Overall, this analysis suggests that regional characteristics are playing an important role for absenteeism, but that the specific factors (and, therefore, policies) are different for diverse workers categories. Needless to say, these results represent a first step and the link between local social capital and low/high skill workers absenteeism needs to be further investigated. In particular, one of the main concerns in these empirical analysis is the endogeneity problem between the level of absenteeism and of social capital, and more work should also be done in order to disentangle the possible mechanisms at work. Future research will try to deal with these issues.

6. Excluding them from the models does not change the results.

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Sommario

Comportamento opportunistico e capitale sociale: dati e confronti tra insegnanti e personale ATA

I dati italiani mostrano una significativa eterogeneità regionale nei tassi di assenteismo del personale scolastico. Inoltre, essi evidenziano anche che, analizzando separatamente il comportamento di due diverse categorie di lavoratori della scuola, vale a dire gli insegnanti (high skill) e il personale tecnico e amministrativo (low skill), otteniamo una distribuzione regionale dei giorni di assenza dissimile. Questa evidenza può essere spiegata da diversi fattori locali, e le dotazioni regionali dei livelli di capitale sociale rappresenta uno dei più importanti. Alcuni risultati preliminari sembrano suggerire che la correlazione tra il capitale sociale e l'assenteismo è più forte per i lavoratori più qualificati, gli insegnanti, mentre sembra essere non significativa per il personale scolastico meno qualificato.

Appendix

Table A1 – Variables Description

Variable	*Level*	*Description*	*Source*
Absenteeism rate – ATA	School	Average number of sickness leaves per ATA worker	MIUR data
Absenteeism rate – teachers	School	Average number of sickness leaves per teacher	MIUR data
Log of Number of teachers	School	Logarithm of the number of teachers	Elaborations on MIUR data
Teachers short term contract (%)	School	% of teachers with a short term contract	MIUR data
Female teachers (%)	School	% of female teachers	MIUR data
Teachers over 55 (%)	School	% of teachers aged over 55 years old	MIUR data
Teachers turnover (%)	School	% of teachers moved to another school	MIUR data
Retention rate (%)	School	% of rejected students (average of first three years of upper secondary school)	MIUR data
Unemployment rate	NUTS3	% of people aged 15-64 unemployed actively seeking employment, 2009	ISTAT
Added value per capita	NUTS3	Added value per capita, 2010	ISTAT
Social capital	NUTS3	Broad measure of social capital that merges data on 1) blood donations, 2) sport participation, 3) dissemination of newspaper and 4) voter turnout	Cartocci (2007)
Extortion rate	NUTS3	Average rate of extortions over 10,000 inhabitants	Fiaschi, D., Gianmoena, L. and Parenti, A. (2011)
Average temperature 00-09	NUTS3	Average temperature (centigrade) during the years 2000-2009	Elaborations on ISTAT (2013) data
Mortality rate, 09-11	NUTS3	Average mortality rate in the period 2009-11	ISTAT
Rural area	LAU2	=1 if municipality located in a rural area; 0 otherwise	ISTAT

Variable	*Level*	*Description*	*Source*
Mountain area	LAU2	=1 if municipality located in a mountain area; 0 otherwise	ISTAT
Alcohol consumption rate	NUTS3	Share of people that consume alcohol between meals per 100,000 inhabitants	Detotto, C., Sterzi, V. (2010)
Educational infrastructure	NUTS3	It merges: % of public primary schools provided with meals; % of public primary schools equipped with school-bus; % of special classrooms in public secondary schools; number of teachers every 100 students	Di Liberto and Sideri (2015)
Normans	NUTS3	Number of years of Norman domination	Di Liberto and Sideri (2015)
Swabians	NUTS3	Number of years of Swabian domination	Di Liberto and Sideri (2015)
Anjou	NUTS3	Number of years of Anjou domination	Di Liberto and Sideri (2015)
Spain	NUTS3	Number of years of Spanish domination	Di Liberto and Sideri (2015)
Bourbons	NUTS3	Number of years of Bourbons domination	Di Liberto and Sideri (2015)
Papal state	NUTS3	Number of years of Papal domination	Di Liberto and Sideri (2015)
Venice	NUTS3	Number of years of Venitian domination	Di Liberto and Sideri (2015)
Austria	NUTS3	Number of years of Austrian domination	Di Liberto and Sideri (2015)
Savoy	NUTS3	Number of years of Sabaudian domination	Di Liberto and Sideri (2015)
Independent	NUTS3	Number of years of independence	Di Liberto and Sideri (2015)

Note: MIUR data are all referred to schooling year 2010/2011

Table A2 – Descriptive Statistics

Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
Panel A: school level data					
Teachers' absenteeism rate	10,197	8.187	3.572	0	25
ATA absenteeism rate	10,197	15.063	8.463	0	56
Teachers short term contract (%)	10,197	10.899	10.178	0	100
Rural area	10,197	0.235	0.424	0	1
Mountain area	10,197	0.361	0.480	0	1
Log of Number of teachers	10,147	4.122	0.407	1.39	5.63
Female teachers (%)	10,147	81.416	14.705	22.5	100
Teachers turnover (%)	10,145	6.299	5.824	0	100
Teachers over 55 (%)	10,136	33.061	11.745	2.2	87.433
Early leavers (%)	7,918	0.458	1.848	0	31.28
Retention rate (%)	3,091	12.823	7.872	0	64
Panel B: NUTS3 regions data					
Teachers' absenteeism rate (prov)	100	7.818	1.566	4.78	13.09
ATA absenteeism rate (prov)	100	15.044	2.095	10.05	20.86
Social capital	100	-0.075	3.136	-6.43	5.47
Mortality rate	100	103.403	14.236	81.055	142.062
Unemployment rate, 2009	100	7.956	3.662	2.09	17.64
Added value per capita, 2010	100	21857.13	5611.00	13097.14	45839.81
Average temperature 00-09	100	13.718	2.501	6.1	18.3
Extortion rate	100	6.362	3.697	1.71	19.45
Alcohol consumption rate	100	23.686	5.864	13.15	37.3
Educational infrastructures	100	2.017	0.516	0.78	2.91

Table A3 – Absenteeism Rate, by Macro-region

Variable	*Obs.*	*Mean*	*Std. Dev.*	*Min*	*Max*
North					
Teachers' absenteeism rate	3602	6.806774	2.817927	0	22
ATA absenteeism rate	3602	14.63937	7.48799	0	50
Center					
Teachers' absenteeism rate	1858	8.267313	3.341308	0	24
ATA absenteeism rate	1858	15.41362	7.884136	0	54
South					
Teachers' absenteeism rate	4737	9.20456	3.817461	0	25
ATA absenteeism rate	4737	15.24805	9.325534	0	56

Table A4 – Absenteeism Rate, by NUTS2 region

	Teachers		*ATA*	
Region	*Mean*	*Std. Dev.*	*Mean*	*Std. Dev.*
Abruzzo	8.30	3.74	13.52	8.31
Basilicata	9.35	3.64	14.49	8.86
Calabria	11.16	4.41	17.89	10.91
Campania	8.87	3.56	13.69	8.18
Emilia-Romagna	7.27	2.76	15.53	7.59
Friuli-Venezia Giulia	6.85	3.36	14.43	7.89
Lazio	9.53	3.55	16.28	8.03
Liguria	7.10	2.56	15.26	8.17
Lombardia	6.81	2.83	14.79	7.50
Marche	6.66	2.56	13.41	6.63
Molise	7.42	3.15	10.99	8.87
Piemonte	6.45	2.64	14.66	7.62
Puglia	7.91	3.31	13.75	8.72
Sardegna	9.61	3.96	18.13	10.27
Sicilia	9.88	3.70	16.86	9.45
Toscana	7.09	2.36	14.99	7.73
Umbria	7.64	3.28	15.24	8.68
Veneto	6.67	2.86	13.50	6.78

Table A5 – OLS results

Variables	*(1)* *Teachers*	*(2)* *Teachers*	*(3)* *Teachers*	*(4)* *Teachers*	*(5)* *Teachers*	*(6)* *ATA*	*(7)* *ATA*	*(8)* *ATA*	*(9)* *ATA*	*(10)* *ATA*
Social capital	-1.2764***	-1.2474***	-1.1445***	-0.6606***	-0.8282***	-0.1205	-0.1193	-0.1515	0.1200	-0.2173
	(0.168)	(0.168)	(0.168)	(0.245)	(0.289)	(0.137)	(0.136)	(0.137)	(0.171)	(0.228)
Istituti comprensivi		2.8614***	1.9016***	2.0496***	1.9314***		0.7110	0.7553	0.9733*	0.8030
		(0.428)	(0.448)	(0.442)	(0.420)		(0.476)	(0.540)	(0.496)	(0.486)
Primary schools		6.9809***	6.1169***	5.9705***	5.8456***		1.3954***	1.4160**	1.3105**	1.2403*
		(0.697)	(0.786)	(0.819)	(0.786)		(0.514)	(0.648)	(0.650)	(0.652)
Lower secondary schools		0.1487	-1.7621**	-1.7275**	-1.5510**		-0.2170	-0.1521	-0.2130	-0.0090
		(0.679)	(0.850)	(0.831)	(0.765)		(0.635)	(0.693)	(0.656)	(0.641)
Log number of teachers			1.3660	1.7146	1.8255***			3.2168***	3.0553***	3.2607***
			(0.923)	(0.670)	(0.626)			(0.629)	(0.505)	(0.490)
Teachers short term contract (%)			0.0152	0.0220	0.0166			-0.0124	-0.0064	-0.0118
			(0.029)	(0.023)	(0.021)			(0.024)	(0.024)	(0.024)
Female teachers (%)			0.0849***	0.0904***	0.0914***			0.0426***	0.0431***	0.0460***
			(0.019)	(0.012)	(0.012)			(0.016)	(0.015)	(0.015)
Teachers over 55			0.1387***	0.1303***	0.1165***			0.0829***	0.0787***	0.0680***
			(0.027)	(0.025)	(0.023)			(0.022)	(0.023)	(0.022)
Teachers' turnover (%)			0.2118***	0.2083***	0.2059***			-0.0056	-0.0064	-0.0006
			(0.043)	(0.043)	(0.042)			(0.035)	(0.036)	(0.035)
Rural area				-0.4841	-0.5857				-0.7088	-0.7891
				(0.476)	(0.449)				(0.595)	(0.564)

Variables	(1) Teachers	(2) Teachers	(3) Teachers	(4) Teachers	(5) Teachers	(6) ATA	(7) ATA	(8) ATA	(9) ATA	(10) ATA
Mountain area				1.9094**	1.8470**				0.8893*	0.7965
				(0.751)	(0.748)				(0.525)	(0.496)
Unemployment rate, 2009				0.7988***	0.8523***				0.5419***	0.6388***
				(0.171)	(0.211)				(0.164)	(0.167)
Added value per capita, 2010				0.0002	0.0002*				0.0001***	0.0002***
				(0.000)	(0.000)				(0.000)	(0.000)
Mortality rate, 09-11					0.0620					0.0803**
					(0.037)					(0.036)
Alcohol consumption rate					0.0787					0.1939**
					(0.119)					(0.089)
Extortion rate					0.2073*					0.1558
					(0.117)					(0.126)
Educational infrastructures					0.0963					-0.1359
					(1.749)					(1.502)
Observations	10,197	10,197	10,135	10,135	10,135	10,197	10,197	10,135	10,135	10,135
R-squared	0.080	0.108	0.127	0.149	0.153	0.001	0.002	0.012	0.021	0.027

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

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Parte III

In onore di Giacomo Becattini: dibattiti interdisciplinari intorno alle scienze regionali

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Becattini e le scienze regionali, ovvero il distretto industriale rivisitato

*Fabio Sforzi**

Grande giorno sarà quello in cui gli studiosi – nel caso gli "scienziati regionali" – saranno messi nella condizione di registrare i fenomeni sociali secondo partizioni territoriali che siano, congiuntamente, "condizione" e "risultato" del processo di cambiamento della cosa stessa.
G. Becattini, G. Bianchi – Firenze, Conferenza AISRe 1983.

Sommario

Giacomo Becattini è stato uno scienziato sociale animato da una forte passione conoscitiva e un medesimo impegno civile. Queste note si limitano a darne conto per sommi capi. Non è esagerato né riduttivo affermare che tutta la sua opera ruota intorno al concetto di distretto industriale, che non è semplicemente una forma organizzativa della produzione storicamente determinata, ma un modo per interpretare il cambiamento economico.

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L'autore di queste note è stato membro del Consiglio direttivo dell'AISRe dal 1984 al 1992 e ha servito l'Associazione come segreterio negli anni 1986-1989. Ha collaborato con Giacomo Becattini alla stesura del documento sullo sviluppo economico della Toscana del 1975 (Becattini, 1975a). Sullo stesso argomento, l'industrializzazione leggera della Toscana, ha curato per Becattini il libro pubblicato dall'IRPET (Becattini, 1999) e il volume primo della raccolta "Scritti sulla Toscana" (Becattini, 2007). Ha curato la raccolta dei principali scritti di Becattini sul distretto industriale (Becattini, 2000). Durante l'esperienza degli Incontri di Artimino – di cui è stato cofondatore e segretario del Comitato scientifico dalla fondazione, dal 1991 al 2006 – ha raccolto in volume le lezioni inaugurali dei primi dieci anni (Becattini, Sforzi, 2002) e, sul finire di quell'esperienza, con la sua lezione inaugurale del 2005 ha contribuito a fissare le coordinate concettuali del passaggio dal distretto industriale allo sviluppo locale (Sforzi, 2005).

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1. Prima i fatti

Giacomo Becattini è noto ai più per la concettualizzazione del distretto industriale, alla quale egli giunse dopo una continuativa e accurata osservazione dei fatti economici che avevano contraddistinto l'industrializzazione della Toscana, prima (Becattini, 1969a, 1975a) e le trasformazioni dell'economia locale di Prato, poi (Becattini, 1997) nel secondo dopoguerra.

Ma l'osservazione dei fatti economici, da sola, non sarebbe stata sufficiente a permettere la formulazione del concetto di distretto industriale se non fosse stata sostenuta da un'utilizzazione non conformista, al limite dell'eresia accademica, di categorie economiche disponibili nella cassetta degli strumenti dell'economista. È il caso, per esempio, del concetto d'industria, che egli sottrasse al semplicistico criterio della similarità tecnologica (i settori tradizionali della statistica), proponendo di sostituirlo con il senso di appartenenza dei produttori a una determinata industria (Becattini, 1962a).

La familiarità con le categorie economiche era connaturata al mestiere di economista, mentre la familiarità con i fatti era dovuta alle ricerche sul campo che egli svolgeva in parallelo con la riflessione storico-teorica.

2. La riflessione teorica

Nel periodo che precedette la stesura dell'Ipotesi '69 (il *nickname* con il quale è noto il primo studio sull'interpretazione dello sviluppo economico della Toscana) Becattini si era principalmente dedicato a studi su problemi di teoria economica, anche attraverso la divulgazione in Italia dell'opera di economisti quali Joseph Steindl: *Maturità e ristagno nel capitalismo americano* (Becattini, 1960), Joan Robinson: *Ideologie e scienza economica* (Becattini, 1966a), Roy Harrod: *Verso una nuova politica economica* (Becattini, 1969b). Di questi libri, talvolta egli aveva curato la traduzione (è il caso di Steindl e di Harrod), mentre di ciascuno di essi aveva scritto l'introduzione.

Nell'ambito di questa attività di studi storico-teorici non si può trascurare la monografia sul concetto d'industria (Becattini, 1962a) che anticipò il saggio sul distretto industriale come unità d'indagine (Becattini, 1979). Questo lavoro è non meno importante per il modo originale con il quale, in uno dei capitoli, Becattini affrontò l'analisi del sistema di pensiero di Alfred Marshall. Il capitolo rappresenta l'antecedente del suo più noto saggio su Marshall: *Invito a una rilettura di Marshall*, introduttivo alla traduzione italiana di *The Economics of Industry*, il libro dei coniugi Marshall (Becattini, 1975b).

Non è questa la sede per entrare nel merito degli interessi teorici di Becattini che emergono dalla lettura delle sue introduzioni. Tuttavia, c'è un aspetto che

vale la pena di segnalare: l'attenzione per la filosofia sociale da cui l'economista attinge il sistema dei suoi problemi, poiché – egli afferma – non c'è costruzione teorica dell'economia che non affondi le sue radici in una concezione generale della vita e della società (Becattini, 1966a).

Perciò Becattini aveva affrontato l'analisi del sistema teorico marshalliano dal lato della filosofia sociale di Marshall, mostrando come il fulcro di essa fosse costituito dal modo in cui egli concepiva il lavoro: non una merce, né un puro mezzo di esistenza, ma lo scopo della vita, anzi, di più: la vita stessa (Becattini, 1962a). Ne discende che gli esseri umani si evolvono soprattutto attraverso il lavoro e, quindi, si evolvono in modo diverso in luoghi di vita – cioè, comunità locali dove ciascun individuo definisce la propria identità – diversi per il modo in cui le attività produttive, attraverso l'organizzazione, si compenetrano fra loro e con la popolazione locale.

3. L'osservazione dei fatti

Le più importanti ricerche empiriche di quegli anni – condotte attraverso indagini sul campo – ebbero come argomento l'industria del mobile in Italia, con particolare riguardo alle Marche e alla Toscana (Becattini, 1962b, 1962c), e la localizzazione delle industrie nella piana di Lucca, ancora in Toscana; una ricerca, quest'ultima, condotta attraverso l'ITRES (Becattini, 1966b).

Fra gli aspetti notevoli di queste ricerche, due sono rilevanti ai fini di queste note: a) un accenno alle economie esterne come causa dell'elevata produttività per addetto; b) la scoperta dei limiti della teoria della localizzazione industriale. Se la teoria spiegava abbastanza bene la distribuzione territoriale delle imprese che rispondevano alla logica dell'investimento di capitale per ottenere il ritorno più alto, essa non spiegava affatto la logica retrostante alle imprese che rispondevano al bisogno di individui che avevano avviato un'attività produttiva in proprio per risolvere il problema del lavoro. In questo secondo caso, il capitale da investire nasceva già localizzato, perché si trattava del luogo abituale in cui l'aspirante imprenditore viveva. Inoltre, l'impresa nasceva individuata nella sua specializzazione produttiva, perché l'aspirante imprenditore sapeva in quale industria gli altri imprenditori, quelli già presenti nel luogo, gli riconoscevano le competenze per fare certe cose (Becattini, 2001).

Questa osservazione sui limiti della teoria della localizzazione industriale porterà Becattini a fissare una distinzione tra imprese *progetto di vita* e imprese *nucleolo di capitale*. Una distinzione, da ultimo, che separerà concettualmente la coppia *economie esterne locali-distretto industriale* dalla coppia *economie di agglomerazione-cluster*.

4. L'interazione tra riflessione teorica e osservazione dei fatti

Sarebbe una comoda scorciatoia interpretativa sostenere che queste due linee di ricerca: la riflessione storico-teorica e l'osservazione dei fatti economici, che nell'esperienza di Becattini si sviluppavano in parallelo, erano praticate nella consapevolezza che la loro interazione avrebbe potuto convergere verso un rinnovamento teorico del modo di interpretare la realtà sociale. È pur vero, tuttavia, che la concezione che Becattini aveva dell'economia non si fondava sulla separatezza tra riflessione teorica e osservazione dei fatti, tutt'altro! Queste due attività erano considerate fasi complementari di un'unica spirale cognitiva riflessione-osservazione-riflessione, assegnando un'importanza relativa a quale delle due fasi avvia l'analisi. In Becattini, la compresenza attiva di interessi teorici e di attenzione per i problemi concreti, anche in vista di una loro regolazione politica, è il tratto distintivo della sua personalità scientifica che si riflette nella sua attività di studioso.

Di passaggio, perché lo sviluppo dell'argomento richiederebbe uno spazio editoriale maggiore di quello concesso a queste note, l'idea che Becattini abbia maturato come coordinate di una politica economica territoriale la "complessità" e la "leggerezza", corrisponde solo parzialmente al suo pensiero.

Pur nutrendo una fondata sfiducia nelle capacità della classe politica di attuare iniziative mirate a suscitare le potenzialità delle forze locali, è questo lo scopo che dovrebbe avere una politica economica coerente all'interpretazione dell'economia nazionale come un complesso di economie locali variamente interdipendenti: agevolare l'innesco di meccanismi autopropulsivi locali, intervenendo dapprima in quei sistemi locali che risultano più prossimi degli altri al decollo industriale. Un'attività che i soggetti che operano nelle singole economie locali non possono svolgere da soli, nell'isolamento e nell'indifferenza della cultura e della politica nazionale. Essa richiede il concorso, accanto alle forze locali, sia dei corpi istituzionali intermedi sia del governo centrale (Becattini, 1998).

La riflessione sulla politica per le economie locali è un'attività che Becattini ha coltivato "sottotraccia" per l'intero arco temporale della sua esperienza di studioso, con particolare intensità negli anni della programmazione regionale e del dibattito sull'economia toscana.

5. L'interazione consapevole fra teoria e fatti

Ciò che si è scritto finora ci porta ad affermare che non si può rivisitare criticamente il distretto industriale concettualizzato da Becattini, ben oltre le pur fondamentali suggestioni marshalliane, senza chiamare in causa tutto il suo pensiero. D'altra parte, in più occasioni Becattini ci ha fatto capire che nel suo percorso intellettuale di economista eretico il distretto industriale ha svolto un

ruolo centrale, poiché egli vi ha trasfuso la sua personale visione del mondo e, di riflesso, il suo modo di concepire l'economia come scienza sociale – si veda, in proposito, l'articolo scritto con Luigi Burroni nel quale, sviluppando un'idea già in nuce nel saggio del 1979, affida al distretto il ruolo di strumento di ricomposizione del sapere sociale (Becattini, Burroni, 2003).

Naturalmente, chiamare in causa tutto il pensiero di Becattini "it's a long way to Tipperary", poiché si tratta di un'impresa che richiede tempo e un impegno intellettuale fuori dal comune. E, forse, neppure questo sarebbe sufficiente, se – come lo stesso Becattini afferma – chiunque abbia studiato il pensiero di un autore sa che il problema di rintracciare l'inizio di una linea di riflessione è quasi sempre senza soluzione.

Ciò nonostante, Becattini ci aiuta in questa impresa poiché dissemina qua e là nei suoi scritti indicazioni come "briciole di pane" che segnano il percorso.

Se nel periodo iniziale dei suoi studi le due linee di ricerca di cui si è detto (la riflessione storico-teorica e l'osservazione dei fatti) erano relativamente distinte fra loro, dopo i due lavori sullo sviluppo economico della Toscana condotti attraverso l'IRPET (Becattini, 1969a, 1975a), la situazione cambiò perché – è l'opinione di chi scrive queste note, almeno allo stadio attuale della riflessione – Becattini si era fatto convinto della necessità di una loro effettiva compenetrazione.

A questo cambiamento non fu estraneo il dibattito politico che i due documenti dell'IRPET avevano provocato in Toscana negli ambienti della sinistra di governo, in particolare quella comunista. Un dibattito che era ancora vivace agli inizi degli anni Ottanta, dominati dalle controversie sul fenomeno del decentramento produttivo e dell'economia sommersa. Le critiche al modello interpretativo riguardavano il meccanismo autopropulsivo dello sviluppo toscano e il ruolo svolto dalla piccola impresa, nonostante le due ricerche avessero chiarito che a) si trattava di imprese piccole perché specializzate in fasi complementari dello stesso processo produttivo; b) le economie esterne della produzione di cui godevano le imprese di fase dipendevano dalla loro prossimità organizzativa e territoriale, oltre che dall'interazione tra aspetti economici e socio-culturali; c) la vitalità della formula toscana era legata alla produzione di beni a domanda frammentata e variabile.

Le critiche provenienti dal campo della politica non potevano lasciare indifferente Becattini, convinto sostenitore della funzione sociale del mestiere di economista quale soggetto partecipe – attraverso ciò che decide di studiare e il modo in cui lo studia – della trasformazione consapevole della società.

La convergenza fra le due linee di ricerca – nel merito: la rilettura di Marshall, dopo aver risciacquato i panni nel Cam, e il modello toscano di sviluppo, dopo il dibattito politico che aveva provocato – sboccò nella proposta del distretto industriale come unità d'indagine (Becattini, 1979). Si trattava di una proposta innovativa sul piano teorico che capovolgeva l'approccio seguito nella

spiegazione dello sviluppo toscano, poiché marcava un evidente superamento del problema relativo al ruolo della piccola impresa.

La proposta spostava l'attenzione dall'impresa al luogo dove si forma l'imprenditorialità, in relazione alla specializzazione della comunità locale in una determinata forma di organizzazione del processo produttivo di una determinata industria (grappolo di beni). Il distretto, dunque, non costituiva soltanto una specifica forma organizzativa, ma anche una nazione economica: un'entità socio-territoriale intermedia tra il singolo processo produttivo e il sistema economico generale "in cui si fondono componenti oggettive di concomitanza di interessi e componenti soggettive di tipo storico-culturale" (Becattini, 1979).

6. Il distretto come teoria del cambiamento economico

La compiuta realizzazione di questo disegno metodologico avverrà più avanti nel tempo, dopo che Becattini avrà esplicitato le caratteristiche del distretto industriale come forma organizzativa della produzione, rivendicandone l'origine all'interno dell'economia politica e ancorandolo alla filosofia sociale di Marshall, prima ancora che alla sua economia, ma aprendolo anche al contributo di conoscenze specifiche di altre discipline. Conoscenze, tuttavia, non estranee alla pratica di un economista "non accasato" qual era Becattini, che non apparteneva ad alcuna delle famiglie teoriche del pensiero economico tradizionale (Becattini, 1989).

A Becattini, questa apertura disciplinare non costava alcuno sforzo intellettuale, poiché non si trattava di oltrepassare i confini dell'economia. La lettura "insistita e appassionata" di Gramsci, che aveva influenzato la sua formazione giovanile, lo aveva educato a liberarsi dalla gabbia degli apparati di pensiero precostituiti e a elaborare un suo personale modo di affrontare l'interpretazione della realtà sociale.

Il passaggio dal distretto come *forma organizzativa* al distretto come strumento di analisi dei fenomeni sociali, retroagendo sul distretto come *unità d'indagine* (Becattini, 1979), si concluderà con la proposta del distretto come un *nuovo modo di interpretare il cambiamento economico* (Becattini, 2000).

Se il distretto industriale è ancora importante come via d'industrializzazione (si vedano i casi dell'Italia e della Spagna contemporanee: Sforzi, Boix, 2016), il distretto industriale come teoria del cambiamento economico, che si fonda inevitabilmente sul distretto come unità d'indagine, lo è ancora di più. Le forme di organizzazione della produzione mutano nel tempo, e possono perdere di attualità come modello di riferimento di una determinata economia nazionale. Ma l'attualità del distretto come teoria del cambiamento economico non dipende dalle vicende dei singoli distretti, né dal modello distrettuale di produzione. Essa dipende, in definitiva, come affermano le parole messe in esergo a queste note, dalla capacità degli scienziati regionali di osservare il cambiamento dei

fenomeni sociali attraverso un'unità d'indagine che sia, congiuntamente, condizione e risultato del processo di cambiamento. Nel quadro di un approccio genuinamente dinamico anche l'unità d'indagine è soggetta al cambiamento.

Se questa possibilità può sembrare di difficile realizzazione pratica, allora si dovrà tornare a spiegare il ruolo svolto nella distrettualistica dai sistemi locali del lavoro, i confini dei quali cambiano nel tempo – statisticamente: da un censimento all'altro – e quindi cambia anche la loro numerosità, perché cambiano le condizioni di riproducibilità locale delle relazioni socio-economiche che li costituiscono. Stabilire se queste cambino per cause interne piuttosto che per cause esterne al sistema locale oggetto di studio è precisamente il compito della ricerca. Da ultimo, è il caleidoscopio dei cambiamenti delle singole economie locali e dei loro legami inter-locali che genera il cambiamento generale del sistema economico nazionale.

7. Perché non abbiamo capito prima

Nella stesura di queste note sono stati trascurati alcuni riferimenti alla letteratura distrettuale di scuola fiorentina, e chi scrive ne è consapevole. Si tratta di una letteratura relativamente recente e meno recente, ma tuttavia conosciuta. Sono stati trascurati anche i contributi di idee all'evoluzione del concetto di distretto industriale prodotti da esperienze formative che hanno visto Becattini protagonista, la più nota delle quali è stata la "libera scuola" di Artimino sullo sviluppo locale, che continua con i suoi incontri annuali. E che per quasi un decennio si è intrecciata con la Storia di Prato.

Così come si è deciso di non affrontare i temi trattati da Becattini nei suoi ultimi scritti: dalla coralità produttiva alla coscienza dei luoghi, anche se pertinenti all'argomento di queste note. Il motivo di quest'ultima omissione è dovuto al fatto che, anche in questo caso, i temi trattati hanno radici antiche nelle riflessioni sviluppate da Becattini nel campo della storia del pensiero economico, ancora da esplorare.

Sulle difficoltà che il distretto industriale ha dovuto superare per entrare a far parte dei concetti delle scienze regionali, chi scrive si è già espresso alcuni anni fa in un articolo apparso sulla rivista dell'Associazione spagnola di scienze regionali (Sforzi, Boix, 2015). Anche se quell'articolo non ha riscosso l'attenzione desiderata, non è il caso di insistere sulle cause di quelle difficoltà, che sono molteplici. Tuttavia, poiché questa sede è adatta all'argomento, tornano di attualità alcune riflessioni sulla diversità tra il progetto scientifico del fondatore della Regional Science, Walter Isard, e quello di Becattini.

Tutto ebbe inizio con l'attacco postumo di Isard a Marshall, che avrebbe avuto il torto di anteporre l'importanza del tempo a quella dello spazio nell'analisi dei processi economici. Con la conseguenza – sostiene Isard – che da allora in avanti gli economisti si dedicarono principalmente alla costruzione di modelli di

natura dinamica, trascurando il problema dell'inserimento dello spazio nell'analisi economica.

Da quanto appena riportato, è evidente il diverso progetto scientifico di Becattini e di Isard: laddove l'economista americano sosteneva la causa di un riorientamento spaziale dell'impostazione economica tradizionale, l'economista fiorentino postula il rovesciamento di quell'impostazione attraverso la definizione del distretto come unità d'indagine; e così facendo pone le basi per un'effettiva teoria del cambiamento economico.

L'obiettivo di Isard era la ricerca delle logiche economiche sottostanti alle scelte localizzative delle imprese che portasse a una teoria generale della localizzazione industriale e, quindi, a una scienza economica regionale. Da questa impostazione teorica, che presupponeva la globalità, non sarebbe potuta discendere una teoria del cambiamento economico senza affrontare il problema della fondazione teorica dell'unità d'indagine.

E qui, Becattini, d'accordo con Marshall, ci ricorderebbe che l'economia è più importante come parte dello studio dell'uomo in società che come studio della ricchezza. Uno studio, va aggiunto, per Becattini, come per Gramsci, d'altronde, sempre storicamente (e geograficamente) determinato.

Ebbene, lo studio dell'uomo in società parte dalla comunità locale, cioè dal luogo in cui, propriamente, si svolge la vita. Partire dai fenomeni di agglomerazione spaziale delle imprese, anziché degli uomini, comporta l'impossibilità di procedere nell'analisi dell'uomo in società e, in definitiva, rappresenta un'inversione logica fra i mezzi e i fini.

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Abstract

Becattini and the Regional Sciences, or the Industrial District Revisited

Giacomo Becattini was a social scientist driven by a strong cognitive passion and a same civil commitment. These notes only present an overview of both. It is neither

overstated nor limiting to say that all his work revolves around the concept of industrial district, which is not simply an organizational form of production historically determined, but an approach to economic change.

I contributi di Becattini fra distretti industriali e sviluppo economico

*Gioacchino Garofoli**

Sommario

Questo capitolo analizza il profilo scientifico di Giacomo Becattini, uno dei principali economisti italiani della seconda parte del Novecento e della prima parte di questo secolo, sottolineando soprattutto il suo contributo all'analisi dei distretti industriali e dello sviluppo economico. L'articolo ricorda i principali interessi di ricerca di Becattini e mette in evidenza la sua costante attenzione al difficile rapporto tra teoria e realtà. Il lavoro sottolinea, inoltre, la sua attenzione alla responsabilità sociale dell'economista e al suo ruolo di mediatore tra attori sociali e policy maker per la soluzione dei principali problemi economici e sociali e per il miglioramento del benessere collettivo.

La posizione di Giacomo Becattini è almeno atipica nel panorama degli economisti, avendo sin da giovane alimentato l'interesse al rapporto tra la costruzione teorica e la capacità di interpretare i processi economici reali, interrogandosi continuamente sul ruolo dell'economista come scienziato sociale, capace cioè di comprendere "i problemi della società nella loro concretezza e completezza, nella loro prospettiva storica, nel loro quadro istituzionale" e, possibilmente, di fornire indicazioni ai "policy maker" per la loro soluzione[1]. Il lavoro di Becattini è inoltre costantemente ispirato ad "un radicato sentimento di passione per il rigore e l'indipendenza del pensiero teorico che non sopporta il conformismo metodologico e la sudditanza alle mode che spesso immiseriscono la nostra professione" (Gay, 2004, p. 521).

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1. Non va dimenticato che G. Becattini, per circa un decennio a cavallo del 1950 è costretto ad affiancare al ruolo, prima di studente e poi di assistente volontario, quello del "venditore di mobili". L'esperienza di vita nel mondo reale e a stretto contatto con le imprese probabilmente sarà determinante nello spingerlo a creare costantemente un ponte tra realtà concreta e le ipotesi teoriche dell'economia, influenzando la sua metodologia di ricerca. Tra i primi lavori pubblicati di economia applicata – che saranno anticipatori dei suoi approfondimenti sui distretti industriali – ci sono due ricerche sul campo dei primi anni '60 su due aree di produzione del mobile nelle Marche e in Toscana (Becattini, 1961; 1962b).

Giacomo Becattini, in un saggio pubblicato sulla Rivista QA (Becattini, 2005), discute la sua visione del mestiere di economista e torna sulla questione sollevata da un gruppo di economisti (tra i quali, oltre allo stesso Becattini, Giorgio Fuà, Paolo Sylos Labini e Siro Lombardini) con una lettera al Direttore di Repubblica nel settembre del 1988 e che suscitò ampie polemiche. Nella lettera si rammentava come i maestri dell'economia si fossero dedicati ai grandi problemi della società in cui vivevano; all'epoca "economia politica e riforma sociale si presentarono spesso al pubblico come un binomio inscindibile. Ma oggi una frazione crescente di coloro che si presentano come economisti tende a trascurare l'oggetto sociale della disciplina per concentrare tutto il suo interesse nello studio di strumenti sempre più raffinati". In altri termini, la lettera sottolineava il rischio dell'autoreferenzialità accademica e di uno specialismo fine a se stesso e che diventa "gabbia mentale". Rischio che, tra l'altro, è fortemente cresciuto tra fine anni '90 e inizio del 2000, tanto da rilanciare il dibattito sul mestiere di economista (con forti prese di posizione in Francia contro l'autismo nella scienza economica e spingendo la Società Italiana degli Economisti ad organizzare un Convegno su questo tema a Milano nel settembre 2004) e, poi, soprattutto negli ultimi anni con l'esplodere del profondo conflitto metodologico dopo l'introduzione dei cosiddetti parametri oggettivi per la valutazione delle ricerche e per la progressione della carriera accademica.

Giacomo Becattini è stato un maestro, con l'organizzazione di una vera e propria scuola di economisti, come hanno fatto Giorgio Fuà, Federico Caffè, Paolo Sylos Labini e Augusto Graziani che, assieme ad Alberto Bertolino, sono stati gli economisti con i quali Becattini ha avuto i più intensi rapporti intellettuali. La "scuola" di Becattini ha travalicato gli obiettivi di riproduzione accademica e si è estesa territorialmente coinvolgendo studiosi e ricercatori di diverse regioni e paesi. Basti pensare al ruolo assunto dalle settimane di Artimino sullo sviluppo locale (organizzate annualmente a partire dal 1991)[2] che, oltre a coinvolgere numerosi studiosi delle scienze sociali, ha rappresentato una fondamentale palestra per i giovani economisti e altri scienziati sociali. Giacomo Becattini ha sempre avuto la capacità di attrarre attorno a sé molti economisti ed altri scienziati sociali, con l'organizzazione di convegni e seminari e con il coordinamento di diversi gruppi di ricerca. Basti pensare, a questo proposito, al coordinamento di un programma di ricerca quadriennale con il titolo "Per una rilettura territoriale delle trasformazioni dell'economia italiana", che ha coinvolto venti gruppi universitari italiani e i cui risultati sono stati in gran parte pubblicati nel 2001 da Rosenberg e Sellier nel volume *Il caleidoscopio dello sviluppo locale*. Anche in questo caso c'è una forte analogia con il coordinamento di ricerche e con gli incontri organizzati ad Ancona da Giorgio Fuà e il volume appena richiamato sembra una sorta di continuazione

2. Assieme ad Arnaldo Bagnasco, Sebastiano Brusco e Paolo Giovannini.

ideale del progetto finalizzato di ricerca CNR "Struttura ed evoluzione dell'economia italiana", sottoprogetto "Diffusione territoriale dello sviluppo", realizzato nella seconda metà degli anni '80. Non va dimenticato che Giorgio Fuà lancia nel 1994 un grande progetto di ricerca interuniversitario sulla "Trasformazione dell'Economia e della Società in Italia" (TESI), in cui Giacomo Becattini ricoprirà il ruolo di "braccio destro" (e successivamente quello di coordinatore, dopo la grave malattia e, poi, la scomparsa di G. Fuà).

I campi di interesse dell'ampia produzione scientifica di Giacomo Becattini, coerentemente a quanto prima ricordato, sono stati piuttosto variegati, toccando sia questioni di teoria economica (a partire dal suo primo libro *Il concetto di industria e la teoria del valore*, pubblicato da Boringhieri – Becattini, 1962a) sia argomenti di storia del pensiero economico (soprattutto con la rilettura di Marshall; si pensi alla cura della pubblicazione italiana – con una lunga introduzione di oltre 100 pagine – di "Economia della produzione" di Alfred e Mary Marshall, la cui pubblicazione originaria risale al 1879); sia ricerche di economia applicata – soprattutto gli studi sull'economia toscana, a partire da "*Lo sviluppo economico in Toscana*" (Becattini, 1975) – con la fertile interazione con il gruppo di ricerca dell'Irpet[3], oltre agli studi sullo sviluppo locale; sia ricerche sullo sviluppo economico italiano – cfr. soprattutto *Distretti industriali e Made in Italy* (Becattini, 1998) e *Il calabrone Italia. Ricerche e ragionamenti sulle peculiarità economiche italiane* (Becattini, 2007)[4]; sia scritti sull'etica dell'economia e sui rapporti economia-società-territorio come *Miti e paradossi del mondo contemporaneo* (Becattini, 2001a), *Capitalismo dal volto umano* (Becattini, 2004) fino a *La coscienza dei luoghi* (Becattini, 2015).

I contributi analitici forse più importanti di Giacomo Becattini e certamente quelli che più ne hanno consentito la diffusione in Italia e all'estero sono quelli sui distretti industriali; ciò che è importante ora sottolineare è che tali contributi (Becattini, 1979, 1987, 1989a, 1998, 2000a, 2000b) scaturiscono proprio dall'interazione dei campi di interesse appena richiamati, dall'interazione tra teoria e analisi dei fenomeni reali, dalla profonda conoscenza degli scritti di alcuni grandi maestri, dalla profonda passione a comprendere gli aspetti sociali della realtà economica e dalla necessità di individuare linee di intervento collettivo per il miglioramento del benessere sociale. Quanto sia rilevante il contributo delle ricerche sui distretti industriali è ricordato da Marcello De Cecco quando osserva a proposito della

3. Ma si pensi anche a *L'industrializzazione leggera della Toscana. Ricerca sul campo e confronto delle idee*, pubblicato nel 1999 e che riprende parte degli scritti sulla Toscana in oltre 35 anni (Becattini, 1999).

4. È utile ricordare il confronto di idee con Augusto Graziani sullo sviluppo del Mezzogiorno apparso su *il manifesto* (*Dibattito sul Mezzogiorno*) (cfr., per un'analisi critica, Giannola, 2016).

letteratura distrettualistica: "né so che altro possa vantare l'Italia nel campo degli studi economici di frontiera nell'ultimo mezzo secolo" (De Cecco, 2004, p. 301).

Per ripercorrere la produzione scientifica di Giacomo Becattini e soprattutto per ridiscutere alcuni temi cruciali evidenziati dalle sue ricerche, mi soffermerò soprattutto su cinque questioni cruciali dell'analisi di Giacomo Becattini sui distretti industriali e sullo sviluppo economico:

a. le relazioni sociali e l'identità locale del distretto industriale;
b. l'efficienza economica della piccola impresa distrettuale;
c. le economie esterne e la produzione di beni pubblici;
d. la regolazione del sistema produttivo;
e. processi di cambiamento nei distretti industriali e fattori competitivi.

Il distretto industriale rappresenta una costruzione sociale: il distretto industriale è, infatti, sia un modello di organizzazione della produzione (alternativo a quello/quelli basati sul ruolo predominante della grande impresa) sia un modello di relazioni sociali ed umane. Il distretto è caratterizzato dalla "compresenza attiva … di una comunità di persone e di una popolazione di imprese industriali" (Becattini, 1989b). Dal punto di vista dell'organizzazione produttiva esistono numerose piccole imprese specializzate nelle diverse fasi del ciclo di produzione di un bene tipico dell'area che determina un processo di cooperazione e di integrazione orizzontale attraverso il quale si realizza un sistema complesso di produzione che è basato sul bilanciamento di competizione e collaborazione tra imprese. Ma tutto questo non basta senza prendere in considerazione la "comunità di persone" che vive ed opera nel distretto, ovvero l'esistenza di una identità locale caratterizzata da un sistema di valori condiviso (e che coinvolge i diversi gruppi sociali) e che è rinforzato e sostenuto dalle istituzioni locali (Trigilia, 2004). Le analisi sui distretti fanno emergere il ruolo del territorio, come luogo delle interazioni sociali, come luogo di riproduzione di conoscenze, come luogo di produzione di specifiche competenze e risorse altrove non utilizzabili e che quindi rappresentano vantaggi competitivi per le imprese che vi sono localizzate. Il territorio rappresenta il punto di incontro tra gli attori dello sviluppo, è il luogo delle forme di cooperazione tra le imprese, è il luogo in cui si decide la divisione del lavoro tra le imprese: è, in definitiva, il punto di incontro tra le forze di mercato e le forme di regolazione sociale (Becattini, 1987; Garofoli, 1991; 1992). I distretti sono stati, dunque, laboratori per lo studio della produzione di territorio (Rullani, 2004, p. 117).

Con riferimento alla seconda questione, le ricerche condotte sui distretti industriali hanno consentito di eliminare alcuni diffusi pregiudizi – sia tra gli economisti che tra i *policy maker* – sull'inefficienza produttiva e sulla marginalità della piccola impresa e basati su un'impropria estensione del principio delle economie di scala. Le analisi sui distretti hanno consentito di evidenziare non solo le opportunità di

raggiungere elevati livelli di efficienza produttiva nella piccola impresa specializzata per fase (cfr. Brusco, 1975; 1989) ma anche le forti potenzialità innovative delle imprese distrettuali. Efficienza economica ed innovazione possono dunque combinarsi con la piccola dimensione d'impresa, purché inserita in una rete di relazioni che consente l'accesso ad un *pool* di risorse specifiche e pregiate (Garofoli, 1999). In diverse occasioni[5] Giacomo Becattini affronta il tema dell'efficienza economica della piccola impresa che rappresenta una questione teorica rilevante e che lo obbliga a confrontarsi criticamente con le opere di due economisti che apprezzava molto (Steindl, 1945; Sylos Labini, 1975 – orig. 1956 e 1986)[6].

L'organizzazione orizzontale della produzione nel distretto industriale evidenzia l'opportunità di seguire modelli organizzativi diversi da quello dell'integrazione verticale della produzione attraverso una crescente divisione del lavoro tra imprese tra loro interrelate e una crescente specializzazione a livello di impresa e di impianto. Ciò è facilitato dalla decomponibilità del processo produttivo per fasi e lavorazioni, come messo in evidenza da Piero Tani con l'applicazione dello schema fondo-flussi di Georgescu-Roegen (Tani, 1976, 1987, 2004).

La terza questione rilevante nell'analisi dei distretti è quella relativa al ruolo delle economie esterne all'impresa (ma interne al distretto). Le economie esterne rappresentano l'insieme dei fattori che costituiscono "l'atmosfera industriale" di Marshall e che sono difficilmente valutabili *ex ante* ma che *ex post* possono spiegare per quale motivo imprese in regioni e paesi con costi più elevati dei "fattori standard" riescano a registrare buone performance e a guadagnare quote di mercato. Le economie esterne sono prodotte dalla storia di investimenti (pubblici e privati) in conoscenze e competenze specifiche che determinano l'esistenza di risorse specifiche nel territorio del distretto e che non sono trasferibili ad altre aree. Si incorporano, dunque, in conoscenza tacita (Becattini, Rullani, 1993) (che si trasmette esclusivamente attraverso le relazioni interpersonali e sociali), in valori e regole di comportamento, in rapporti fiduciari, in bassi costi di accesso a risorse specifiche e pregiate, in bassi costi di transazione. In altri termini, esistono veri e propri beni pubblici, il cui accesso è garantito a tutte le imprese locali (spesso a costo zero), che hanno dunque un carattere strettamente contestuale (legato cioè alla storia, alla cultura e ai comportamenti della "comunità di persone e della popolazione di imprese" che insistono su quel territorio) e che sono base fondamentale per l'esistenza di economie esterne distrettuali.

5. Si possono ricordare, soprattutto, i due articoli riprodotti sul libro *Il calabrone Italia* e scritti negli anni 2000 assieme a Bellandi e a Coltorti.

6. Non vanno dimenticate le ricerche che hanno mostrato l'inesistenza di una relazione diretta tra efficienza economica (ma anche profittabilità) e dimensione d'impresa (Garofoli, 1994b; Coltorti, Garofoli, 2011) oltre ai più elevati tassi di formazione di nuove imprese nei distretti industriali e nelle aree di piccola impresa (Garofoli, 1994a).

Per garantire la durabilità e la sostenibilità del modello distrettuale, è necessaria la riproduzione delle economie esterne ed è auspicabile la produzione di nuove esternalità. Per costruire beni pubblici appropriati in qualità, e nei tempi opportuni, diviene tuttavia spesso necessaria l'azione collettiva (Bellandi, 2004, p. 64), come è stato storicamente dimostrato in molti distretti sia in Italia che all'estero. In questi casi occorre un'azione strategica di regolazione e adattamento a livello di sistema di produzione e di distretto (Bellandi, 2004, p. 67).

Questa ultima considerazione ci porta immediatamente alla quarta questione che riguarda la regolazione del sistema produttivo. Giacomo Becattini è stato sempre molto attento all'analisi del ruolo delle istituzioni locali e all'analisi dei processi di negoziazione e di concertazione tra le parti sociali, approfondendo in particolare il caso di Prato (Becattini, 2000b e 2001b). Questo argomento è stato affrontato anche dalla sua allieva Gabi Dei Ottati, che in diverse occasioni ha analizzato questi problemi (cfr. Dei Ottati, 1995; 2004), applicando i concetti di uscita e voce di Albert Hirschman (1970) per analizzare il rapporto di lavoro dipendente (cfr. la contrattazione collettiva attraverso i sindacati) e le relazioni di sub-fornitura (cfr. la negoziazione e gli accordi per la definizione delle tariffe per le varie lavorazioni attraverso la voce collettiva dei sub-fornitori).

Nel distretto, come sottolinea Giacomo Becattini, "i lavoratori e i sub-fornitori sanno di non essere inermi nelle mani delle imprese finali" e ciò rappresenta la base per una realistica concertazione. "È come se, dentro la testa dei rappresentanti delle parti, ci fosse un modello semplificato del funzionamento del distretto, che definisce …il margine di oscillazione del saggio medio di salario e del prezzo delle singole operazioni trasformative (filatura, tessitura, tintura, ecc). Quel margine non è molto ampio e ognuno dei contraenti avrà cura di non distruggere, insieme alla controparte, la gallina dalle uova d'oro... del vivere in un sistema locale di tipo distrettuale" (Becattini, 2002, p. 169).

La crescente suddivisione in fasi, l'induzione di processi collaterali e la formazione di squadre aperte di imprese specializzate determinano la nascita di mercati interni al distretto e di un "sistema locale dei prezzi". Ma non si potrebbe comprendere la formazione di questo plesso di mercati interni se non si considerasse "il coagularsi … di istituzioni formali … e informali… che hanno la funzione … di costruire... la fiducia di poter vendere la propria specialità ad un prezzo mediamente remunerativo" (Becattini, 2002, p. 168). Intervengono, dunque, istituzioni intermedie (strutture di interfaccia) che giocano un ruolo di "integratori versatili" (Becattini, 2000b, p. 106), combinando saperi e competenze diverse per risolvere problemi comuni a numerose imprese e consentendo l'up-grading delle imprese e del sistema locale nel suo complesso. In altri termini il gioco delle interrelazioni delle istituzioni e delle varie organizzazioni

locali, con il contributo degli "integratori versatili", consente la governance di processi complessi, come sono quelli del cambiamento del distretto.

Si introduce in tal modo l'ultimo argomento da discutere, quello relativo ai processi di cambiamento dei distretti e ai fattori di competitività[7]. Il distretto industriale rappresenta un modello dinamico, che deve incorporare e metabolizzare il processo di cambiamento, adattandosi ai (o, meglio, anticipando i) cambiamenti nelle tecnologie e nei mercati. "Paradossalmente, quanto più il distretto è capace di rinnovarsi, di innestare nuovi settori su vecchi settori, di articolare per fasi sempre più specializzate… la propria industria originaria, tanto più esso mantiene la sua identità come distretto industriale" (Becattini, 1979, p. 20). Si potrebbe, dunque, dire che ciò che contraddistingue l'evoluzione del distretto industriale è rappresentato dalla continuità nel cambiamento. Enzo Rullani, riprendendo Becattini, ci ricorda come il distretto viva "*de-distrettualizzandosi* e *ricostruendosi* successivamente attraverso un opposto (o meglio complementare) processo di distrettualizzazione.

I distretti non vivrebbero a lungo se non fossero continuamente decostruiti e ricostruiti dagli attori che – con le loro scelte ad azioni – fanno (e disfano) il territorio, ossia il sistema della loro interazione" (Rullani, 2004, p. 135).

Accoppiando queste considerazioni sui sentieri evolutivi dei distretti con l'analisi dei fattori competitivi di questo modello organizzativo, avremo indicazioni forti sul "che fare", sulle strategie politiche di sostegno delle imprese distrettuali. È chiaramente evidenziato in tutta la letteratura distrettualistica italiana che i fattori di competitività delle imprese distrettuali sono identificabili nell'innovazione continua (specie con l'introduzione di nuovi prodotti), nel perseguimento della qualità produttiva, nella creatività e nella capacità di risolvere i problemi delle imprese complementari della filiera produttiva. Dunque le variabili sulle quali lavorare, anche attraverso l'introduzione di azioni collettive (o di "azioni deliberate" per dirla con Marshall) sono quelle che identificano "*fattori rilevanti e non sostituibili*" e che consentono di generare un "*differenziale positivo* rispetto a contesti diversi" (Rullani, 2004, p. 148); occorre quindi lavorare continuamente sull'apprendimento e sulla creatività, bisogna investire sul miglioramento della dotazione di conoscenze e competenze distintive, sul processo di *moltiplicazione cognitiva* (Rullani, 2002). Le politiche più opportune sono, dunque, quelle che favoriscono gli investimenti in conoscenza da parte delle istituzioni presenti sul territorio (scuole, università, centri di ricerca) ma anche da parte delle imprese radicate sul territorio. "Quello che conta è che cresca la complessità del sapere che è sedimentato nel sistema locale, agendo sulla qualità della sua cultura produttiva" (Rullani, 2004, p. 165).

7. Questo argomento è stato trattato da diversi autori anche nel volume collettaneo curato da Becattini, Bellandi e De Propris (2009).

Queste considerazioni sono particolarmente importanti in relazione al dibattito sulle prospettive dell'economia italiana e sul presunto declino industriale. Ancora una volta è necessario sottolineare come i contributi degli studiosi sulle prospettive evolutive dei distretti industriali (e, quindi, in gran parte dell'economia italiana) siano sempre stati particolarmente espliciti, mentre purtroppo le scelte delle strategie aziendali e delle politiche (o, meglio, dell'assenza di politiche coerenti) pubbliche siano andate in tutt'altra direzione, enfatizzando la questione della competitività basata sui costi di produzione. Serve, infatti, una strategia ed una politica industriale che non sia meramente difensiva, ma che anzi sia proattiva nei riguardi dei cambiamenti in atto e che favorisca l'orientamento all'innovazione e l'introduzione di nuovi saperi e competenze di alto livello nelle imprese distrettuali e nelle istituzioni di raccordo del sistema locale. Sono, dunque, necessarie politiche economiche (industriali e di sviluppo) "leggere" (Becattini, 1998); le politiche economiche non devono facilitare l'acquisto di macchinari ma devono agire in termini culturali e di cambiamento dei processi decisionali: politiche di accompagnamento che favoriscano investimenti in risorse umane e in capacità di progetto, oltre che di relazioni con il mondo della ricerca (Garofoli, 2006).

I contributi analitici sui distretti industriali sono stati determinanti per comprendere la molteplicità dei sentieri di sviluppo locale[8] e per garantire consapevolezza agli attori locali per lanciare strategie di sviluppo "*dal basso*" e per utilizzare gli strumenti di sviluppo locale che sono stati introdotti tra fine degli anni '90 e inizio degli anni 2000 (dai patti territoriali alla progettazione integrata territoriale); il passaggio analitico e normativo *dal distretto industriale allo sviluppo locale* (Becattini, 2000a; Becattini *et al.*, 2001; Garofoli, 1991) è stato particolarmente importante soprattutto per l'organizzazione di azioni collettive per lo sviluppo in contesti economico-sociali molto diversi ed ha riaperto alcuni spazi rilevanti (anche per gli studiosi italiani) per la riflessione sulle tematiche (sulle teorie e sulle strategie) dello sviluppo economico.

In conclusione occorre rammentare l'importanza delle analisi del nostro Maestro non solo per l'individuazione delle caratteristiche strutturali e dei processi di cambiamento dei distretti industriali ma anche (se non soprattutto) per l'analisi dei fenomeni reali e per la loro interpretazione con strumenti teorici adeguati e per l'individuazione del "*che fare*" per l'economia italiana e per tutti i sistemi economici che non possono perseguire strategie di competizione basate sui costi di produzione.

8. L'analisi della molteplicità dei sentieri di sviluppo locale e della tipologia dei modelli di sviluppo locale è stata affrontata alla fine degli anni '80 e all'inizio degli anni '90 (cfr. Garofoli, 1991, Storper, Harrison, 1991; Leborgne, Lipietz, 1992) e successivamente anche da Bellandi e Sforzi (2001).

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Abstract

The Contributions of Becattini between Industrial Districts and Economic Development

The paper draws the scientific profile of Giacomo Becattini, one of the most important Italian economists in the second part of the twentieth century and beginning of this century. The paper emphasizes his contribution to the analysis of industrial districts and economic development. The paper underlines the main research interests and highlights the constant attention of Becattini on the relationships between economic theory and the real world. The paper, moreover, underlines how much he paid attention to the social responsibility of the economist due to his role of mediator between social actors and policy makers, fostering the solution of the main economic and social problems and the improvement of collective wellbeing.

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Becattini e l'economia territoriale: un lascito teorico da reinterpretare

*Roberto Camagni**

Sommario

Becattini è stato un grande economista innanzitutto, e un grande economista industriale che, attraverso Marshall, ha introdotto i rapporti sociali e locali nell'interpretazione dell'organizzazione industriale, rompendo credenze consolidate sulle limitate potenzialità delle piccole imprese. La mia tesi è che sia stato più di tutto questo: l'iniziatore di un nuovo paradigma scientifico in economia territoriale, basato sul capitale relazionale e identitario, attraverso il quale è possibile interpretare non solo una forma di organizzazione produttiva specifica come il distretto industriale, ma anche tutte le altre differenti forme di organizzazione territoriale; prima fra tutte la città, e la grande città che nel paradigma cognitivo-culturale post-industriale va acquisendo un ruolo primario. Questa interpretazione permetterebbe di continuare la sua opera scientifica e interpretativa senza correre il rischio, che vedo presente, di una chiusura cognitiva attorno al concetto, contingente e riduttivo rispetto alla sua teoria, di distretto industriale.

1. Introduzione: nani sulle spalle dei giganti

L'anno passato, il giorno in cui Giacomo Becattini ci lasciò, inviai un messaggio agli amici dell'Irpet, l'Istituto di Ricerca della Toscana di cui Giacomo fu il primo direttore, per trasmettere un segno del mio grande rispetto per l'uomo e lo studioso. Dicevo: "siamo nani seduti sulle spalle di giganti". Utilizzavo un noto aforisma medievale attribuito a Bernardo di Chartres, filosofo e gran maestro di retorica alla scuola cattedrale di Chartres nei primi decenni del XII secolo.

Al di là del senso esplicito che la metafora dei nani e dei giganti trasmette, mi sembra importante sottolineare che l'aforisma, come ci ha mostrato Umberto Eco (Eco, 2017) può avere tre interpretazioni, tutte importanti quando riferite al lascito teorico e intellettuale di Becattini. La prima interpretazione, la più diretta e nota, si riferisce all'ossequienza tipicamente alto-medievale per la *auctoritas*, l'autorità religiosa e filosofica. Il compito affidato agli studiosi era quello

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dell'interpretazione, della aggiunta di glosse e commenti alle opere degli antichi: *non nova sed nove*, non cose nuove ma cose dette in modo nuovo.

Ma esiste naturalmente una seconda interpretazione: lo studioso contemporaneo fruisce certamente della sapienza degli antichi, è seduto sulle loro spalle, ma proprio per questo può vedere più lontano, può costruire su queste fondamenta e generare progresso. È questa la nuova interpretazione che si fa strada con la rinascita materiale e intellettuale del medioevo centrale seguita all'anno 1000, fra l'XI e il XIII secolo; proprio l'interpretazione cui si riferiva Bernardo per incitare i suoi allievi a non copiare pedissequamente gli antichi. La terza interpretazione, più estrema e probabilmente più moderna, ci suggerisce la possibilità che, stando sulle spalle dei giganti, si finisca per esserne prigionieri: di qui la necessità, almeno, di ispirarsi agli antichi per essere altrettanto creativi o, più radicalmente, di innovare rispetto ai paradigmi scientifici ereditati dal passato.

Voglio ispirarmi a questa antica diatriba, che interpreto come un invito ad essere contemporaneamente umili (siamo nani) e superbi (abbiamo la possibilità di vedere più lontano dei giganti) nel lavoro di ricerca, per proporre una lettura dell'eredità scientifica di Becattini diversa da quella corrente, che eviti il rischio di imbalsamare il suo pensiero o di chiuderlo in una interpretazione riduttiva e contingente. Una lettura, la mia, forse provocatoria ma che sento vicina al carattere "scandaloso" che Giacomo aveva sempre rivendicato come cifra della sua ricerca[1].

Ritengo che il messaggio teorico fondamentale di Becattini vada ben al di là di una riscoperta concettuale (il "ritrovamento" del distretto industriale marshalliano) e della descrizione di un modello di organizzazione industriale-territoriale fra i tanti possibili. Un modello, beninteso, di grande capacità interpretativa, che individua perfettamente una specificità dello sviluppo e del capitalismo italiano; che si è rivelato molto ben esportabile per l'interpretazione di tanti casi internazionali e che storicamente è stato in grado di rompere credenze consolidate in economia industriale (come la maggiore efficienza della grande impresa e dei processi produttivi verticalmente integrati). Ma comunque un modello riduttivo della molteplicità dei percorsi territoriali di sviluppo, inadatto a comprendere il ruolo di altre forme di organizzazione territoriale, oggi tendenzialmente prevalenti, come – per fare un esempio macroscopico – la grande città.

Il vero contributo teorico di Becattini consiste invece, a mio avviso, nella costruzione di un nuovo paradigma economico-territoriale per l'interpretazione dello sviluppo complessivo della società e nell'avvio della moderna teoria economica territoriale e regionale: una teoria liberata dai limiti di una concezione fisico-metrica dello spazio (Capello, 2015) qual'era quella della tradizionale teoria della localizzazione, da Alfred Weber ad August Loesch, e dai limiti della sempre tradizionale concezione di uno spazio regionale omogeneo (che

1. Si veda Dardi, 2017, p. 387.

consentiva l'utilizzo di una modellistica macroeconomica semplificata). Si passa da uno spazio puramente geografico a uno spazio economico-relazionale (Camagni, 1980; 1991a) in cui società, tradizioni, appartenenza e coscienza collettiva giocano un ruolo fondamentale; a "una storia fortemente territorializzata e/o una geografia fortemente storicizzata" (Becattini, 1987, p. 33), che richiedono necessariamente un approccio interdisciplinare. Come dicevo, si tratta del passaggio a un nuovo paradigma scientifico e interpretativo. Questa è la vera grandezza del pensiero di Becattini.

In sottordine, ritengo che il primo a limitare il significato e il senso della sua teoria sia stato Becattini stesso: per il suo attaccamento sentimentale e scientifico alla realtà distrettuale Toscana; per il privilegio analitico accordato al "concetto di industria" piuttosto che a quello, pur emergente nel suo pensiero, di spazio/territorio (in compagnia dobbiamo dire di gran parte della cultura economica, italiana e non), nonché per la innegabile capacità interpretativa di gran parte dello sviluppo italiano che il concetto di distretto industriale possiede, almeno fin quasi alla fine del secolo scorso.

Ma una responsabilità in questo senso va attribuita anche a discepoli e continuatori che attorno al distretto industriale marshalliano hanno costruito una sorta di chiusura cognitiva, autorizzando la creazione di una sotto disciplina "distrettualistica" che ha limitato il potenziale scientifico, interpretativo ed evolutivo della teoria.

2. Il nuovo paradigma economico-territoriale becattiniano

Nella sua bellissima introduzione al volume "Mercato e forze locali: il distretto industriale", Becattini (1987) presenta il concetto di distretto industriale marshalliano come meglio non si potrebbe. Nella sua definizione vediamo infatti emergere appieno le caratteristiche del nuovo paradigma interpretativo: "non si tratta semplicemente di una "forma organizzativa" del processo produttivo di certe categorie di beni, ma di un "ambiente sociale" in cui le *relazioni* fra gli uomini, dentro e fuori dai luoghi della produzione, nel momento dell'accumulazione come in quello della socializzazione, e le *propensioni* degli uomini, verso il lavoro, il risparmio, il gioco, il rischio, ecc., presentano un loro peculiare timbro e carattere." (p. 8). "Il partire da un sistema socio territoriale ci consente di integrare in modo sistematico gli elementi di "costruzione sociale" del mercato, ovvero di accogliere la complessa dialettica fra il mercato e le altre istituzioni della società e fra gli elementi di concorrenza, di consuetudine e di cooperazione che si intrecciano fittamente nel concreto operare degli uomini" (p. 33).

Questa virtuosa integrazione alla pari fra elementi economici sociali culturali e storici rimarrà una costante in tutta la sua produzione, dagli approfonditi studi

sulla storia di Prato (Becattini, 2000a) agli interventi più recenti: "Bisogna riuscire a pensare l'industria manifatturiera più che in termini di settori industriali o di imprese singole, come una realtà di industrie localizzate che trae parte rilevante della sua competitività dal felice congiungimento di un assetto produttivo con un patrimonio storico, infrastrutturale e culturale, consolidatosi nel tempo lungo" (Becattini, 2011).

Emerge una sintesi davvero inter-disciplinare come quella che aveva a cuore un grande storico come Fernand Braudel[2] – chiamato a dirigere lo studio sulla storia di Prato, che a sua volta non a caso chiamò Becattini a occuparsi dell'analisi economica – ed emerge una fusione degli elementi di socialità, fiducia, reciprocità, senso di appartenenza in una sintesi interpretativa a carattere economico (come spiegare competitività, sviluppo e stabilità in un contesto di piccola impresa) con largo anticipo sulle coerenti ma successive analisi teoriche ed empiriche sul "capitale sociale" (Coleman, 1988; Putnam, 1993).

Come giunge Becattini a un risultato di questa importanza? Il suo percorso è mirabilmente sintetizzato da Marco Dardi (2017): da una parte, attraverso una profonda adesione all'insegnamento del suo maestro Alberto Bertolino, economista e filosofo idealista, che vede i comportamenti di vita degli individui come una proiezione della loro filosofia morale e nella "cultura sociale" un ricomposizione delle tante filosofie individuali. Pertanto, "una scienza economica limitata allo studio dei soli fenomeni sociali riferibili a quantità e calcolo, senza una sufficiente attenzione per i caratteri della cultura sociale che li genera appare un'impresa conoscitiva monca, di valore scarso o nullo" (p. 371-72). In secondo luogo, attraverso una conseguente meditazione sulle categorie utilizzate dalla disciplina economica e sulla necessità di rielaborare una teoria del valore in cui le finalità dell'individuo ed anche il suo "tornaconto" siano riportati in sintonia con la natura sociale dell'uomo[3].

Il Marshall del Libro IV cap. X dei Principles – *social forces here cooperate with economic* (Marshall, 1977, p. 226) – del libro VI sulla teoria della distribuzione, di *Industry and Trade* e più in generale il Marshall vittoriano "di un capitalismo che evolve spontaneamente verso una specie di socialismo di mercato basato su cooperazione, responsabilità sociale degli imprenditori e welfare state" (Dardi, 2017, p. 375) gli appare fornire una valida ipotesi di lavoro alla sua ricerca di una teoria del valore aggiornata storicamente rispetto a quella

2. "Per me non esistono scienze umane dai confini limitati, ciascuna di esse è una porta aperta sull'insieme del sociale; (…) ciò che è economico, storico, geografico è diffuso in tutto il sociale". Cfr. Braudel, 1986, citato in Becattini, 2000, p. 231.

3. "Non si tratta certo di sostituire *d'amblée* un mondo armonioso costruito a tavolino al solo mondo di cui disponiamo, ma semmai di orientare le tendenze connaturate all'uomo, prima di ogni altra la molla formidabile dell'interesse individuale, verso approdi complessivi, moralmente ed ecologicamente sostenibili". Cfr.: Becattini, 2000, p. 220-221.

dei suoi economisti di riferimento, Ricardo e Marx[4], e insieme opposta a quella basata sull'individualismo atomistico della teoria neoclassica walrasiana.

Sfortunatamente, su questo secondo fronte, Becattini troverà una incongruenza ("anomalie") fra la sintesi logica della teoria marshalliana del valore (libro V dei *Principles*)[5] e l'innovativa analisi sociologica sulla natura del distretto industriale (Becattini, 2000b). Conseguentemente concentrerà il suo interesse scientifico sul concetto di distretto industriale, enfatizzando gli elementi socio-territoriali che lo caratterizzano accanto a quelli di organizzazione industriale. Il distretto industriale è sì "un ispessimento localizzato (…) di relazioni interindustriali", ma "ciò che tiene insieme le imprese (…) è una rete complessa ed inestricabile di economie e diseconomie esterne, di congiunzioni e di connessioni di costo, di retaggi storico-culturali, che ravvolge sia le relazioni interaziendali che quelle più squisitamente interpersonali"[6].

Desidero a questo punto sottolineare che tutte queste indicazioni metodologiche e concettuali mi paiono valide ben aldilà dell'interpretazione di una realtà contingente come sono i distretti industriali. Non potrebbe il distretto essere solo uno degli archetipi di organizzazione territoriale che è possibile studiare con questi strumenti? Becattini sembra avvicinarsi a un esito più ampio di questo genere quando afferma: "questo ancoraggio intrinsecamente storico e geografico di un discorso sullo sviluppo socio-economico è, malgrado la sua apparente limitatezza e peculiarità, un possibile punto di partenza di una *riflessione*

4. Il modello ricardiano-marxiano (la loro teoria del valore) si può chiudere in modo coerente attraverso l'assunzione, storicamente accettabile, di un salario di sussistenza e di un fattore lavoro inteso come merce, omogeneo e "alienato", ma in un mondo in cui il lavoro riconquista dignità, qualità e differenziazione, questa operazione non è più accettabile. "Nella misura in cui l'interpretazione socialista della vita conquista i lavoratori e fa di essi un termine attivo nella lotta per la spartizione del "prodotto netto", il sistema ricardiano viene "falsificato" dalla realtà" (Becattini, 1962, p. 71-72).

5. Una sintesi, quella marshalliana, comunque innovativa nel panorama della teoria neoclassica, che non si appiattisce sulla logica *demand driven* di Jevons e rivaluta la forte enfasi sugli elementi di offerta da parte di Ricardo nella condizione di equilibrio di lungo periodo. Anche sui problemi della distribuzione Marshall dice in sostanza che "noi dobbiamo metter da banda l'idea di poter trattare le forze economiche come se fossero forze puramente meccaniche. Esse vanno invece considerate come forze biologiche, cioè come forze la cui azione ha per risultato l'accrescimento o la diminuzione di vita di un organismo; e l'equilibrio della domanda e dell'offerta nei più complessi problemi della distribuzione dev'essere concepito non già come un semplice equilibrio meccanico, ma come un equilibrio fra le forze organiche della vita e quelle del deperimento. "La Mecca dell'economista è la biologia economica piuttosto che la dinamica economica." Cfr. Jannaccone, 1905, p. 59-61. Di qui la metafora del bosco, con alberi di diversa età che si succedono nel tempo, spesso usata da Marshall per illustrare il suo concetto dinamico ed evolutivo di concorrenza.

6. Cfr.: Becattini, 1987, p. 47. Sulla stessa linea si veda Bellandi, 1987, p. 53. Fabio Sforzi (2008) individua giustamente proprio nella natura socio-territoriale del distretto la sua diversità intrinseca con il concetto di cluster di Porter: "Il distretto nasce da una comunità locale; (…) il cluster nasce come agglomerazione territoriale di imprese" (p. 75).

generalizzante che tagli ad angolo retto il discorso, egemonizzato dell'economia standard, oggi dominante" (Becattini, 1987, p. 33; corsivo mio). Ed anche una convergenza fra economia, geografia e scienze regionali gli sembra a portata di mano negli anni '70-'80 (p. 26-27), grazie all'istituzione delle Regioni e alla creazione della Associazione Italiana di Scienze Regionali.

Ma il suo programma di ricerca resterà limitato al "distretto industriale marshalliano come unità di indagine dell'economia industriale" grazie alla "sua relativa congruità alla situazione storica vissuta dall'Italia" (p. 29). Il programma più generale, non legato a una contingenza spazio – temporale specifica, un programma che si potrebbe sintetizzare nella frase "il territorio come dimensione di indagine dell'economia", non lo vedrà protagonista che solo indirettamente, attraverso i frutti che il suo pensiero ha generato nell'elaborazione delle scienze regionali italiane[7]. Un ampiamento del concetto di distretto industriale è bensì avvenuta negli ultimi anni, ma in una direzione volutamente utopistica (anche appoggiata al ritrovamento di alcuni scritti, giovanili e senili, di Marshall): una "dilatazione da unità fondamentale dell'analisi applicata (…) a modello di vita associata, che permette di tenere insieme tratti di "buona vita" e di efficienza economica" (Dardi, 2017, p. 383).

3. Il territorio e il capitale territoriale

Una analisi delle elaborazioni scientifiche che si sono sviluppate, non solo in Italia, a partire dall'insegnamento di Becattini va ben oltre i limitati scopi di questo articolo. Voglio qui solo tratteggiare il percorso che il nostro gruppo di ricerca in economia regionale e urbana del Politecnico di Milano ha perseguito negli anni, che ritengo caratterizzato da una intrinseca coerenza e continuità e che può a mio avviso esemplificare bene alcune delle potenzialità evolutive del nucleo teorico becattiniano.

Nel 1980, cercando una necessaria e possibile convergenza fra percorsi di ricerca paralleli e distanti – quali la teoria della localizzazione tradizionale, i contributi più radicali di economia spaziale (Aydalot, 1976; Friedmann, 1977) e di economia internazionale sullo scambio ineguale e il sottosviluppo (Myrdal, 1959; Emmanuel, 1972), l'economia delle imprese multinazionali e l'emergente ruolo dell'informazione (Magee, 1976) – e non avendo ancora intercettato la contemporanea riflessione di Becattini (1976), avevo interpretato lo spazio

7. Nell'ultima parte della sua vita, Becattini si è detto favorevole a un generale progetto di ricerca comparativo e interdisciplinare, che utilizzi il concetto cattaneano di territorio come "realtà costruita dall'uomo" e come "termine riassuntivo che permette di approfondire attraverso l'analisi comparata *lo sviluppo differenziato dei luoghi*" (Becattini, 2011). Ma il riferimento è sempre a realtà distrettuali di piccola impresa, di medio-piccola città...

economico come "spazio relazionale": "l'insieme delle relazioni funzionali e gerarchiche tendenti in ogni istante a definire la divisione del lavoro fra le diverse unità territoriali che compongono lo spazio geografico" (Camagni, 1980, p. 183).

Nel decennio successivo, grazie al *melting pot* scientifico realizzato dall'entusiasmo dei primi anni dell'AISRe, grazie all'incontro con Becattini e i becattiniani Giuliano Bianchi e Fabio Sforzi (impegnati in ruoli di rilievo nell'Associazione) e alla riflessione realizzata a livello internazionale sui *milieux innovateurs* (Aydalot, 1986; Perrin, 1995; Camagni, Maillat, 2006), è stato possibile porre le basi per una teoria dinamica dello spazio economico (Camagni, 1991a; 1991b). Essa si basa sul concetto di *milieu*, definito come la convergenza su un territorio di un sistema di competenze e di produzioni, di un sistema di relazioni sociali e di rappresentazioni collettive – un concetto inimmaginabile in assenza del lavoro di Becattini. Col *milieu* viene avviata una nuova interpretazione, dinamica, del ruolo dello spazio locale: la trascodifica dell'informazione, realizzata in forma socializzata nello spazio locale; la riduzione dell'incertezza, statica e dinamica, che caratterizza i processi e le decisioni di innovazione[8]; l'apprendimento collettivo, che anch'esso si realizza in modo socializzato grazie alle relazioni interpersonali e alla forte mobilità del lavoro specializzato e qualificato all'interno del *milieu*. Un modello teorico con cui è possibile interpretare anche la dinamica di sistemi territoriali più complessi, come le città (Crevoisier, Camagni, 2000), che è stato definito una *evolutionary regional economics* (Calafati, 2009). Esso getta luce non solo sull'efficienza e la competitività dei sistemi locali ma soprattutto sulla loro dinamica innovativa: come ha affermato Allen Scott a una nostra conferenza alla fine degli anni '80, siamo in presenza non più di una teoria della localizzazione ma di una teoria dell'innovazione. Viene anche introdotta l'idea di un rapporto sinergico fra *milieu* locale, organizzato su reti sociali informali, e reti di cooperazione di lunga distanza, formalizzate e selettive: un rapporto di forte complementarietà, che evita il rischio di chiusura autoreferenziale del distretto su sé stesso, rendendolo adatto anche a innovazioni radicali e non solo a carattere incrementale.

Negli anni 2000 il programma di ricerca è ampliato in due direzioni principali, perfettamente complementari. Da una parte, nel senso di un allargamento dell'approccio socio-relazionale all'insieme dei possibili modelli di organizzazione territoriale: dal distretto non solo industriale ai sistemi metropolitani, ai sistemi urbani policentrici, alle grandi direttrici geografiche di sviluppo. Il nuovo concetto di "capitale territoriale", lanciato dall'OCSE nel 2001 nel suo *Territorial Outlook* e assunto per un certo periodo dalla Commissione Europea (EC, 2005), viene sistematizzato e analizzato nelle sue diverse componenti geografiche,

8. Anche nel bel saggio di Gabi Dei Ottati (1987) si parla di incertezza, ma con riferimento a un contesto statico di pura efficienza e di riduzione di costi di transazione.

economiche, umane e sociali, nelle interrelazioni fra le diverse componenti e nei diversi sistemi di *governance* che richiede. Esso è definito (sulla base di una matrice 3x3) come quell'insieme di elementi, beni e fattori a diverso grado di rivalità – beni privati, beni pubblici, beni comuni, beni di club – e di materialità/immaterialità che rappresentano il potenziale di sviluppo dei singoli territori (Camagni, 2009). Essi possono essere naturali e artificiali, economico-produttivi e geografici, umani, sociali, istituzionali, cognitivi e relazionali; mentre i primi sono più tradizionali, gli ultimi quattro presentano i maggiori elementi di novità.

La crescente disponibilità di dati statistici a livello regionale e locale, anche riferiti ad elementi di carattere immateriale e psico-culturale (fiducia, appartenenza, *perceptions*, disponibilità alla cooperazione e all'associazionismo e finanche identità locale), hanno consentito una misura dei diversi elementi di capitale territoriale in modo sistematico e comparabile nello spazio europeo e la conseguente possibilità di trattarli come gli argomenti di una astratta funzione di produzione e di crescita territoriale a capitale eterogeneo (perfettamente accettabile dalle "due Cambridge" che si sono affrontate negli anni '70, e cioè dalla scuola economica ortodossa e non) (Camagni, 2017a).

Questo ci porta alla seconda direzione avviata nel nostro programma di ricerca, e cioè alla scommessa sulla possibilità di far convergere approcci teorici allo sviluppo di carattere solo qualitativo (verificabili nella realtà solo attraverso approfonditi studi di caso) e approcci teorici formalizzati, ma non astratti, passibili di verifiche econometriche (Capello, 2015, Introduzione): di non rinunciare alla creatività e alla profondità di tante elaborazioni teorico-qualitative ma neanche alla possibilità di una loro formulazione stilizzata incorporabile in modelli formali, quantitativamente falsificabili. Si tratta di un conflitto metodologico che spesso ha caratterizzato i rapporti fra scienze umane e scienze "esatte" ma che si è verificato anche fra scuole economiche italiane proprio a seguito della "scandalosa" provocazione di Becattini e della sua idiosincrasia per gli approcci formalizzati astratti.

La nostra scommessa ha permesso fin qui di ottenere risultati che giudichiamo positivi e convincenti, superando un limite di verificabilità delle teorie del distretto e del *milieu* locale che col tempo era diventato evidente. Si è potuto ad esempio verificare quantitativamente la presenza di "effetti *milieu*" comparando sistemi locai differenti (Capello, 1999); dare un valore alla efficacia della presenza di elementi immateriali del capitale territoriale, come il capitale cognitivo (Capello *et al*., 2011); mostrare come il ruolo degli elementi a carattere immateriale consista eminentemente nell'aumento dell'efficienza e dell'efficacia dei complementari elementi di capitale materiale (Perucca, 2014; Camagni, 2017a). Infine, nelle analisi sullo sviluppo delle città e delle regioni europee nonché delle province italiane, è stato possibile dimostrare la forte rilevanza di

elementi di carattere sociale (associazionismo, fiducia), cognitivo (creatività) e culturale (*heritage*) (Cerisola, 2016; 2018), ambientale (forma urbana, qualità urbana) (Camagni *et al.,* 2013). Il capitale territoriale è stato infine introdotto direttamente nella spiegazione dello sviluppo regionale in Europa in un modello econometrico a carattere sia macroeconomico che territoriale (Capello *et al*., 2008), ampliato e aggiornato successivamente varie volte (Capello *et al*., 2016).

Naturalmente restano molte aree ancora aperte a una riflessione più approfondita, a partire dal lascito di Becattini. Come detto in precedenza, il territorio può essere interpretato come un insieme di relazioni: sociali, funzionali e gerarchiche. Proprio quest'ultima dimensione di analisi, quella del potere e dei conflitti di interesse, resta abbondantemente ancora da affrontare, nella maggior parte della disciplina economico-territoriale ma anche nella teoria distrettualistica. Le stesse trasformazioni dei distretti industriali, analizzate spesso solo come effetti di trasformazioni tecnologiche e organizzative[9], non possono essere comprese senza un'osservazione del mutamento dei rapporti di forza interni, dell'intervento di grandi imprese esterne e delle loro conseguenze sulla coesione sociale locale. Similmente, su un piano solo apparentemente differente, si apre la necessità di nuove riflessioni sulla capacità di auto-organizzazione dei distretti nel medio e lungo termine, dal momento che ad essi la teoria ha tradizionalmente attribuito forti istituzioni informali ma non forti istituzioni formali: istituzioni civili e politiche che presiedono alla selezione delle élite locali (e alla loro moralità), alla distribuzione del reddito e in particolare al governo della rendita fondiaria e immobiliare; istituzioni pubbliche che governano la fornitura e la difesa dei beni comuni e una pianificazione territoriale efficiente (pensiamo solo al disastro paesaggistico e ambientale della piana toscana, da Firenze a Lucca, ma anche della Brianza nord-milanese). Se non si affrontano questi temi, la teoria resta monca e ogni utopia che si fondi su questa teoria rischia di restare letteralmente solo una *u-topia*[10].

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9. Si veda ad esempio il recente contributo di Bellandi e De Propris (2017).

10. Ho svolto alcune riflessioni a proposito della utopia becattiniana di una "coralità territoriale" in Camagni (2017b), cui rinvio.

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Abstract

Becattini and the Territorial Economy: A Theoretical Heritage to Be Reinterpreted

Becattini was a great economist and a great industrial economist, who, through Marshall, brought social and local relationships inside the interpretation of industrial organisation, breaking consolidated and skeptical beliefs concerning the potential of small firms. My thesis is that he was much more than that: the creator of a new scientific paradigm in spatial and territorial economics, based on relational and identitarian capital, which could be used for the interpretation of almost all the different forms of spatial organisation of production; in particular the city, and the large city that is acquiring momentum in the present era characterised by a cognitive and cultural paradigm. This interpretation would allow to continue his scientific work overcoming the present risk of a cognitive lock-in inside the historically contingent and reductionist concept of the industrial district.

Becattini, “industria leggera” e programmazione regionale

*Fiorenzo Ferlaino**

Sommario

L’articolo tratta dell’influenza del pensiero di Giacomo Becattini nei lavori dei due istituti regionali di ricerca che maggiormente contribuirono alla nascita e crescita delle scienze regionali italiane: l’IRES e l’IRPET. Viene ricostruito il ruolo che ebbero i due istituti nella definizione normativa dei distretti industriali e nella programmazione della piccola e media impresa italiana. Insieme all’originalità del pensiero di Becattini emergono tratti problematici nonché conflitti e “dimenticanze” della teoria dello sviluppo locale, soprattutto inerenti la questione ambientale. Il lavoro termina evidenziando la crisi e i cambiamenti in atto dell’industria leggera e auspicando una espressione circolare e ambientale della “coralità” dei territori.

1. Introduzione

Ci sono date importanti nella storia economica del dopoguerra dell’Italia e dell’Europa. La crisi energetica del 1973 è forse quella più importante. C’è un “prima” e c’è un “dopo”di questo intorno temporale e il “dopo” è contraddistinto da un cambiamento profondo, uno sguardo diverso, un modo differente di percepire e interpretare i fatti sociali e economici. Questo “dopo” non si identifica con accoppiamenti oppositivi (crescita/stagnazione, coesione/frammentazione, ecc.) ma con processualità di medio e lungo periodo: prima c’era il “progresso” (fin dalle “magnifiche sorti e progressive”), poi lo squilibrio economico e territoriale, poi, ancora, si sono evidenziati i limiti della crescita; prima, il “fumo di Londra”, poi lo “smog”, quindi la risposta della “crescita zero”; prima, la modernità, poi la post-modernità e quindi la società liquida. Qui si intende narrare brevemente il “prima” e il “dopo” intorno alla figura di un economista eterodosso e complesso, Giacomo Becattini, che non fu ben capito allora e che oggi rischia di essere eccessivamente caricato di una proposta olistica dello sviluppo del territorio, che forse è più un nostro bisogno che un suo lascito.

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2. Prima dell'industria leggera

L'IRES nasce nel 1958 grazie alla Provincia e al Comune di Torino, suoi enti fondatori, cui si affiancarono poi la Camera di Commercio e la Cassa di Risparmio di Torino e, tra gli enti privati (che giocarono tuttavia un ruolo secondario rispetto a quelli pubblici) la Fiat, la SIP e l'Olivetti (Piperno, 2009). Questa centralità torinese è un *imprinting* che è facilmente leggibile nelle pubblicazioni IRES almeno fino agli anni ottanta ed è particolarmente evidente negli anni successivi alla sua nascita: gli anni della predisposizione dei piani e delle analisi per la futura programmazione regionale. Le Regioni nasceranno nel 1970. Sono gli anni della "Teoria della polarizzazione" di Francois Perroux (1955): una "vision" importata in Italia dalla Francia e fatta propria dall'IRES per l'interpretazione e la valutazione dei processi socioeconomici in atto.

Per questo modello interpretativo lo sviluppo economico avviene in modo disomogeneo, si concentra nei cosiddetti "poli di crescita", le grandi città industriali, fondati su una o più "imprese motrici" e un "complesso industriale" formato dall'indotto generato dalle grandi imprese esportatrici. I "poli" esprimono territori economicamente e socialmente attrattivi ma instaurano squilibri demografici e economici notevoli che le Regioni sono chiamate a governare e gestire. Requisiti quindi in gran parte spontanei che chiedono alla pianificazione e alla programmazione territoriale di ridurre gli squilibri, di ricomporre il passato agricolo col presente industriale, di ricucire le aree periferiche con quelle centrali. Questo alla scala regionale. A livello nazionale il modello si ripete ma entrano in gioco forze territoriali ancora più potenti: la polarizzazione riemerge nel "dualismo economico" di Augusto Graziani (1963) e nello sviluppo ritardato (Fuà, 1980) di un passato rurale recente che richiede riequilibrio anche alla scala interregionale, tra il nord sviluppato e il sud ancora agricolo.

L'IRES nasce in questo contesto di crescita e sviluppo territoriale. La metropoli di Torino, (insieme a quella di Milano e Genova), fa parte del cosiddetto "triangolo industriale" e Torino definisce il maggiore polo di crescita regionale, che struttura/destruttura la dinamica demografica e le attrattività sociali e economiche. Compito dell'istituto è quello di analizzare questi processi e formulare proposte che affrontino i problemi che essi pongono, ponendosi al servizio del Comitato regionale per la programmazione economica (CRPE) (e anche dell'analogo Comitato Regionale per la Programmazione Ospedaliera-CRPO) e quindi dell'Unione delle Province e, infine, della Regione.

L'ottica istituzionale, la cultura regionalista, l'adozione della teoria della polarizzazione e il centralismo torinese dell'analisi impedirono di cogliere appieno molte altre "visioni" che stavano nel frattempo maturando. Innanzitutto la risposta agli squilibri territoriali formulata dal coevo "Movimento Comunità" di

Adriano Olivetti: un piemontese che enunciò negli stessi anni la necessità di passare dall'analisi funzionale per parti e per settori a quella territoriale. La sua *vision* tenta una sintesi olistica di scala locale basata sul rapporto fabbrica-territorio. Si parla di comunità in crescita, di autogoverno del territorio che orienta la produzione e la tecnologia. In questo progetto sociale e politico, che rispetta l'identità locale coniugandola con la moderna attività industriale, il surplus è un mezzo per l'innovazione tecnica e per il benessere del territorio e non il fine ultimo dell'agire economico: è il mezzo con cui si ricuce, si ricompone la Comunità.

Negli studi regionali prevalse la visione economicista del "riequilibrio" rispetto alla ricomposizione della Comunità olivettiana, che in quegli anni si sperimentava a Ivrea e nel suo territorio di prossimità, l'Eporediese. Quella visione non è morta e oggi trova un rinnovato motivo d'esistenza nelle ricomposizioni che si stanno costruendo intorno ad alcune imprese innovative, attente all'ambiente e al territorio. Sono imprese di diversa natura, piccole, medie e persino multinazionali, che mantengono con i loro territori radicamenti singolari: è il caso della Ferrero che, sebbene abbia trasferito gran parte della sua struttura amministrativa nel Lussemburgo, mantiene con Alba e con le Langhe un rapporto consolidato; oppure il caso, interessante di territorializzazione produttiva, espresso dalla sua concorrente minore, la Novi, di Novi Ligure appunto, che sta costruendo processi di territorializzazione nel Monferrato alessandrino-casalese promuovendo la produzione di nocciole trilobate. Molti altri casi sono stati studiati, alcuni persistono, altri si sono nel tempo disancorati dai loro territori di riferimento, o rischiano di farlo: si pensi ai Sella, oggi una banca di livello nazionale, che è stata un'impresa in un remoto passato, all'origine del distretto tessile del biellese; si pensi agli storici marchi Lagostina, Alessi, Bialetti, che da tempo hanno delocalizzato la loro produzione dal Verbano-Cusio-Ossola. La storia dei distretti industriali è appunto la storia delle relazioni di territorializzazione, di radicamento e ancoraggio, e di deterritorializzazione (Raffestin, 1984), di disancoraggio e delocalizzazione delle imprese con i territori.

L'altra grande assente dalle analisi di quegli anni è la "visione" ambientalista di Aurelio Peccei: di nuovo un piemontese, tardivamente riconosciuto – il comune di Torino, in cui è nato, solo nel 2015 gli ha dedicato uno spazio pubblico; un uomo della Fiat che per primo pose, a livello globale, la strategia della crescita come problema e non come soluzione. Una visione che parte da "I limiti dello sviluppo" di Donella Meadows *et al*. (1972) e solo oggi è in una fase ricca di elaborazioni e di metabolizzazione, nelle analisi degli istituti regionali e, più in generale, nelle scienze regionali.

3. La scoperta dell'industria leggera

L'IRPET nasce un decennio dopo l'IRES, nel 1969 e fu proprio Giacomo Becattini a prenderne la direzione. Lo squilibrio dello sviluppo è una visione che si è affermata anche a livello politico: il "riequilibrio" è la parola d'ordine che informa l'azione sindacale e istituzionale e che trova nel "Progetto '80" e nelle analisi del Ministero del Bilancio e della Programmazione (1970) una sintesi e una proposta progettuale da contrapporre all'ondata regionalista, che proprio nel riequilibrio territoriale individuava la necessità dell'istituzione delle Regioni. Gli obiettivi erano chiari: contrastare gli squilibri economici e sociali, riqualificare l'ambiente urbano, tutelare l'ambiente naturale. La proposta statale del Progetto '80 ancorava il riequilibrio agli otto grandi poli di crescita del Paese, cioè le cinque aree metropolitane "monocentriche" (Torino, Milano, Genova, Roma e Napoli) e le tre metropoli "policentriche" (Firenze, Bologna, Venezia), individuando per ognuna di esse un'area alternativa di riequilibrio. Invece, la proposta regionalista dei Comprensori disegnava la prima carta dei sistemi locali territoriali.

La ricomposizione tra produzione e territorio che suggerisce Becattini si basa però su fondamenti diversi: le sue indagini sulla piccola e media impresa toscana mettono infatti in discussione il modello polarizzativo della grande impresa. Becattini fornirà la chiave per un nuovo modello: quello delle relazioni di filiera, del distretto marshalliano e della sua "atmosfera produttiva". Lo studio di Prato è appunto la costruzione di questo modello di riferimento, che ricompone l'impresa e il territorio entro relazioni produttive che sono nel contempo relazioni di filiera e di prossimità territoriale, che strutturano cultura produttiva e conoscenza locale, economie esterne e organizzative particolari (Bellandi, 1995). È un modello che dà una risposta forte ai numerosi tentativi di ricomporre i territori (destrutturati dalla modernità) entro un quadro di congruità tra imprese e abitanti, tra industria e residenza, tra produzione e relazioni sociali. Il modello dei distretti ricompone in modo oggettivo e non volontaristico o politico, e in questo si distingue da altre proposte, in primis quella olivettiana. Tuttavia la coerenza, insita nel distretto marshalliano, appare spesso stretta e incapace di leggere i dati reali. Becattini è costretto a parlare di una più generica "industria leggera", quando parla della Toscana che verrà ritrovata ed estesa nella Terza Italia di Arnaldo Bagnasco (1977), cioè in quell'Italia di mezzo tra le regioni centrali del triangolo industriale e le regioni del sud marginale.

L'affermazione della visione becattiniana richiederà tempo e un'elaborazione lenta: sarà chiamata a resistere sia all'attacco degli economisti tradizionali sia all'attacco della sinistra istituzionale saldamente ancorata all'elaborazione marxista o, al più, alla moderna elaborazione delle teorie dello squilibrio, basate

fondamentalmente sulla grande industria. Il modello distrettuale, inteso quale fabbrica diffusa su un territorio definito, è d'altronde difficile da trovare se non in alcune ben determinate aree e zone del Paese. Occorreranno venti anni di riflessioni per giungere a una più chiara teoria dello sviluppo locale, capace di internalizzare, in una visione integrata, i distretti canonici ("alla Prato") e la loro "atmosfera creativa" con il *milieu innovateur* (Aidalot, 1986), con le aree di specializzazione produttiva (Garofoli, 1983), con i sistemi locali territoriali (Dematteis, 2001), con il capitale territoriale (Camagni, 2008). Una teoria critica che negli ultimi anni sembra smentire sé stessa e invoca una forma di prassi necessaria, d'azione costruttiva, di "progetto locale" da estrapolare dalla coscienza dei luoghi (Becattini, 2015). Nel contempo emerge il processo di affinamento analitico, quello che nacque dalla scoperta dell'industria leggera e dal ruolo che essa aveva nella crescita delle regioni periferiche del paese e divenne poi campo di riflessione teorica: dalla proposta distrettuale di Becattini a quella, sviluppata dai molti, che potremmo chiamare dello sviluppo dei sistemi locali, fino alla recente teorizzazione dell'esistenza di una coscienza dei luoghi, di una cultura, di un modo d'essere dei territori, da cui attingere per programmare "coralità" e armonia (Bellandi, Magnaghi, 2017).

4. L'industria leggera e le scienze regionali

Mentre a livello nazionale si formulava il "Progetto '80" in Piemonte l'IRES contribuiva a sviluppare la proposta comprensoriale: un progetto di territorio, sociale, economico e amministrativo, intorno cui avviare il decentramento regionale e su cui innescare il processo di riequilibrio territoriale, intorno ai centri urbani più significativi. Il "Progetto 80" e la proposta comprensoriale sono due occasioni mancate di programmazione nazionale: la prima fondata sulle città "polo", la seconda sui sistemi locali periferici. Dietro queste "occasioni" (seppur mancate) vi sono due logiche istituzionali e territoriali differenti: il Progetto '80 definiva un legame forte tra le aree metropolitane e lo Stato centrale, e poteva costituire, come era avvenuto in Francia con la legge del 31 dicembre 1966 (che istituiva le aree metropolitane di Lille, Bordeaux, Strasburgo e Lione), un freno al regionalismo imperante; la proposta comprensoriale si inseriva invece organicamente nella nuova articolazione regionalista destrutturando i sistemi provinciali, emanazione istituzionale delle Prefetture statali, attraverso l'emersione dei subterritori regionali, dei nuovi sistemi locali.

Sorsero una miriade di studi regionali orientati all'individuazione di aree vaste socioeconomiche che costituirono la base su cui si edificarono le Scienze Regionali e la loro associazione più rappresentativa, l'AISRe. L'obiettivo principale di questi studi fu quello di individuare le matrici socio-economiche e i

quadri funzionali entro cui inscrivere la vita sociale, in sintesi l'individuazione dei sistemi locali territoriali. L'IRES chiamò questi ambiti "aree ecologiche", nel senso dato, almeno in parte, dagli studi dell'ecologia sociale. Il riferimento è alle aree sub-regionali "omogenee" per appartenenza territoriale, per cultura, per interazione tra la residenza e il lavoro, per flussi di pendolarismo intorno a un centro minore. Si giunse così a delimitare nuove unità territoriali, differenti dalle province (con cui entrarono chiaramente in conflitto) che costituiranno la base per la riforma amministrativa del decentramento regionale comprensoriale: sistemi locali, territori di prossimità intorno alle città più importanti (Bertuglia *et al*., 1966).

Le ricerche e gli studi per giungere a questi obiettivi furono ispirati dai lavori inglesi e americani delle *Regional Sciences,* e miravano a determinare zone funzionali statisticamente significative e bacini socio-economici auto-contenuti. A partire dagli anni Sessanta, negli Stati Uniti erano infatti state elaborate le *Standard Metropolitan Statistical Areas* (SMSA), per la delimitazione delle zone urbane, mentre in Gran Bretagna si erano delimitate le *Labour Areas*, per la determinazione dei bacini di gravitazione tra la residenza e il luogo di lavoro, e i *Daily Urban Systems*, per la demarcazione degli ambiti di vita, di produzione, di riproduzione e consumo.

Quando nel 1980 nacque l'AISRe, gli studi dell'IRES sulla territorializzazione regionale si erano oramai consolidati attraverso l'uso di modelli gravitazionali, importati dalle scienze regionali anglosassoni. Modelli che vennero rivisti quando la polarizzazione terminò, a seguito della *Counter-Urbanization*, (Betty, 1976), attraverso formalizzazioni entropiche, "alla Wilson" (1970), e attraverso l'uso sempre più formalizzato di sistemi dinamici caotici o basati sulla teoria dei processi stocastici (Bertuglia, Leonardi, 1978). Di fatto l'uso della modellistica fisico-matematica mascherava la crisi di un paradigma che si era dimostrato incapace di cogliere appieno la complessità delle dinamiche territoriali e di mantenere le sue promesse relative alla previsione degli eventi economici alla scala regionale.

L'IRPET seguì un'altra strada. Tese a costruire intorno all'industria leggera, una elaborazione analitica che intendeva essere generale e rappresentativa della realtà complessa della piccola e media impresa, che sfuggiva alle concettualizzazioni dei classici e non si faceva facilmente racchiudere nel modello marshalliano-becattiniano. Lo fece assumendo un concetto fondamentale della teoria economica, cioè lo "spazio economico" inteso come spazio delle interrelazioni tra le imprese e espresso, nella sua forma più astratta, attraverso la matrice input-output regionalizzata.

Alla costruzione delle tavole intersettoriali dell'economia regionale lavorò Giuliano Bianchi, che all'IRPET successe alla direzione di Giacomo Becattini.

Un tentativo, ben riuscito e certamente innovativo per la realtà toscana e italiana. Un filone di studi che si inseriva organicamente nel recente sviluppo delle scienze regionali, aperte agli stimoli territoriali ma nel contempo orientate a mutuare metodologie e tecniche della scienza economica accademica, della letteratura più accreditata nella comunità scientifica. Come è stato ben argomentato (Bellandi, 2017) quel progetto rispose alle attese politiche di programmazione regionale e rese l'IRPET autorevole a livello nazionale e internazionale. Il confronto tra Giuliano Bianchi e Giacomo Becattini che ne seguì fu dettato dallo scontro tra due paradigmi differenti, che si ricompose quando caddero i motivi stessi che lo alimentavano e i distretti industriali, grazie al lavoro carsico di Fabio Sforzi (allora ricercatore dell'IRPET), divennero oggetto della programmazione nazionale e regionale.

5. L'industria leggera e la programmazione regionale

L'attenzione sullo sviluppo locale condusse, all'inizio degli anni novanta, a una normativa dedicata, che formalizzò i distretti industriali. L'art. 36 della legge 317/1991 permise alle Regioni di individuare le aree distrettuali e, più in generale, le aree di PMI manifatturiera (l'industria leggera appunto) e concesse loro la possibilità di legiferare e di effettuare politiche territoriali dedicate. La legge rimandava a un decreto la metodologia per l'individuazione di queste aree.

Fu Fabio Sforzi che raccolse gli istituti di ricerca regionali in periodiche riunioni nella sede romana della Regione Toscana (attore centrale dell'art. 36 della legge 317/91), per la determinazione e la calibrazione della metodologia attraverso cui delimitare le aree di PMI regionali. Per l'IRES fummo incaricati io e Renato Lanzetti: andammo così a implementare un filone di studi sullo sviluppo locale che l'istituto stava promuovendo, in stretto contatto con il gruppo interateneo di Giuseppe Dematteis. Fu in quella occasione che l'IRES prese a interessarsi fattivamente della PMI distrettuale, quella più periferica, e non solo dell'indotto metalmeccanico FIAT. Fu inoltre in quella occasione che si stabilì una forma di convergenza metodologica e teorica tra IRES e IRPET (gli altri istituti abbandonarono presto il tavolo per muoversi con maggiore autonomia), tesa alla definizione della metodologia che poi condusse alla Decreto Ministeriale 21 aprile 1993. Fu un periodo di lavoro comune, breve ma ricco di elaborazioni quantitative e qualitative, che diede luogo a una fase intensa di analisi e di attenzioni, anche legislative, sui sistemi locali produttivi. Un lavoro che si aggiunse all'interesse oramai consolidato di diversi gruppi accademici e alle riflessioni maturate negli Incontri sullo Sviluppo Locale di Artimino. Una disseminazione che interessò per un ventennio molti altri soggetti: il Sole 24 Ore, l'Istat, Unioncamere, diverse banche e fondazioni, il Cnel, il Censis, ecc. (vedi

tabella 1) e accompagnò una fase legislativa orientata a promuovere l'industria leggera e i distretti di PMI.

I tratti salienti del DM 21 aprile 1993 (il primo a definire i distretti industriali) possono riassumersi in pochi punti:

1. l'unità territoriale di analisi per l'individuazione dei distretti industriali è rappresentata dai Sistemi Locali del Lavoro (SLL) determinati dall'Istat (insieme all'IRPET originariamente) sulla base dei dati del Censimento generale della popolazione;
2. i SLL sono insiemi di comuni contigui che individuano mercati del lavoro auto-contenuti, dove si realizza la maggior parte degli spostamenti casa-lavoro dei residenti;
3. le aree di PMI sono individuate attraverso indicatori:
   - un l'indice d'industrializzazione del SLL espresso dalla percentuale di attività manifatturiera superiore di un terzo degli addetti, rispetto alla percentuale nazionale (per le regioni del nord) e a quella regionale (per il sud);
   - una densità imprenditoriale manifatturiera nel SLL, in termini di unità locali, superiore alla media italiana,
   - la presenza degli addetti nel settore industriale di specializzazione superiore di un terzo rispetto alla percentuale nazionale,
   - un peso delle unità locali nel medesimo settore di almeno un terzo delle imprese presenti nel sistema locale del lavoro;
   - un peso degli addetti della PMI, quella con meno di 200 addetti, superiore al peso della grande impresa (> di 200 addetti).
4. la compresenza del rispetto di queste soglie definisce il distretto industriale.

Scoprimmo alcune cose importanti (Ferlaino *et al*., 1994).

Innanzitutto la difficoltà di definire le aree specializzate di PMI attraverso una metodologia semplice e basata solo sugli indici di specializzazione dell'industria manifatturiera. Ciò condusse a rettificare alcune analisi: tipico il caso di Carmagnola che non poteva considerarsi distretto metalmeccanico quanto polo industriale della Teksid con il relativo indotto.

L'altra cosa interessante che scoprimmo e che non esisteva un'Italia funzionalmente centrale, caratterizzata solo dalla presenza della grande impresa, e contrapposta a una Italia terza e periferica, definita dalla presenza dell'industria leggera. Le analisi fino allora fatte, che connotavano Italie diverse, andavano riviste e ricalibrate alla luce dei risultati empirici emersi: nella realtà l'Italia centrale risultava piena di distretti industriali e di aree di PMI. Le loro caratterizzazioni erano le più diverse e nel pedemonte alpino si caratterizzavano per una *mixité* estremamente interessante tra l'industria (leggera) e il turismo lacuale: le

Tabella 1 – I distretti industriali italiani classificati per regione e per fonte

Regioni	*Istat (2001)*	*Mediobanca Unioncamere (2013)*	*Normativa regionale (IPI, 2008)*	*Intesa Sanpaolo (dicembre 2013)*	*ODI (2014)*	*Il Sole 24 Ore (2012-2013)*	*Normativa regionale (IPI, 2008)*	*Censis (2001)*	*Distretti "made in Italy" nel Mezzo-giorno (Viesti, 2000)*	*Club dei distretti (1999)*	*Cnel / Ceris-Cnr (1997)*	*Libro della piccola impresa (1996)*	*Il Sole 24 Ore (1992)*
Piemonte	12	7	27	11	7	11	27	9	-	9	9	8	7
Valle d'Aosta	-	-	-	-	-	-	-	-	-	-	-	-	-
Lombardia	27	11	16	23	12	22	16	4	-	24	22	33	15
Trentino Alto Adige	4	-	-	6	1	1	-	-	-	1	1	-	1
Veneto	22	8	44	22	22	14	44	6	-	9	9	18	9
Friuli Venezia Giulia	3	2	9	6	8	4	9	2	-	4	4	3	4
Liguria	-	-	10	2	-	3	10	-	-	1	1	-	3
Emilia Romagna	13	5	-	19	6	11	-	7	-	11	11	9	7
Toscana	15	9	12	18	11	11	12	7	-	11	10	10	4
Umbria	5	-	-	3	-	1	-	-	-	-	-	1	-
Marche	27	6	26	7	8	6	26	3	-	5	5	6	4
Lazio	2	1	3	1	4	1	3	5	-	2	2	1	1
Abruzzo	6	2	6	5	3	1	6	-	6	1	1	2	1
Molise	2	-	-	-	-	1	-	-	1	-	-	-	1
Campania	6	3	7	6	5	8	7	1	8	2	2	2	2
Puglia	8	3	9	9	5	3	9	2	7	3	3	4	2
Basilicata	1	1	4	-	3	1	4	1	2	1	1	-	1
Calabria	-	-	1	-	-	-	1	-	-	-	-	-	-
Sicilia	2	-	23	4	4	1	23	2	1	-	-	1	-
Sardegna	1	1	4	2	2	3	4	2	-	3	3	2	3
Italia	*156*	*59*	*201*	*144*	*101*	*103*	*201*	*51*	*25*	*87*	*84*	*100*	*65*

Fonte: Giordano *et al*., 2016

cosiddette "plac", le province dei laghi delle Alpi centrali (Fortis, 1999; Ferlaino, Levi-Sacerdotti, 2001).

In Piemonte scoprimmo che su 87 sistemi del mercato del lavoro individuati dall'Istat ben 25 risultavano essere distretti industriali di piccola e media impresa (dati 1991). Nel complesso, rientrava in questa classificazione il 19,5% della popolazione residente nell'intera regione per un valore equivalente di 839.262 unità che interessavano il 23,3% degli addetti regionali nell'intera industria manifatturiera, ovvero 140.718 occupati. Valori del tutto comparabili con quelli della Terza Italia.

Negli anni successivi seguì una legislazione tesa a facilitare e semplificare i criteri di individuazione dei distretti industriali. Si ritennero limitativi i Sistemi Locali del Lavoro e con la Legge 140/1999 si introdussero i "sistemi produttivi locali" caratterizzati da contesti produttivi omogenei con elevata presenza di PMI, non necessariamente industriale. L'attuazione della nuova normativa è avvenuta a seguito della delibera CIPE del 3 maggio 2001: "Criteri per la suddivisione del territorio nazionale in Sistemi Locali del Lavoro per l'individuazione di Distretti economico-produttivi". In essa si riprende il concetto di SLL come base dell'analisi, ma si rimanda la loro determinazione alle Regioni (che possono avvalersi dell'aiuto dell'ISTAT). L'attenzione legislativa proseguirà (legge 266/2005) anche oltre la crisi del 2008 (legge 99/2009, Disposizioni per l'operatività delle reti d'impresa): una crisi che interesserà pesantemente l'industria leggera italiana aprendo un periodo di ridefinizione, riconversione e riconfigurazione produttiva, ancora in corso.

6. Per concludere: la circolarità corale del territorio

In questi anni il legame tra industria leggera e territorio si sta ridefinendo. Lo schema lineare della filiera marshalliana e gli schemi più articolati di reticoli locali, spesso connessi a catene del valore e a *cluster* produttivi globali, sembrano destrutturarsi e perdere quel legame col territorio che li connotava. L'apertura delle frontiere economiche internazionali in molti casi ha rotto il legame col territorio locale e con il mercato di sbocco nazionale e ha creato percorsi produttivi, logistici e commerciali differenziati. All'erranza imprenditoriale e alle delocalizzazioni verso più bassi costi – prima verso i paesi dell'Est europeo e poi verso paesi esterni all'Europa – ha corrisposto una simile erranza del lavoro alla ricerca di redditi più elevati (l'immigrazione economica), che ha disancorato i tradizionali legami tra i residenti e le attività ridefinendo nuovi *milieux* e nuove "atmosfere industriali". Un esempio noto è il caso di Prato, per il tessile, ma anche di Bagnolo e Luserna San Giovanni, per l'estrazione e taglio di

pietre ornamentali, dove la presenza del lavoro cinese è di gran lunga prevalente rispetto a quella dei tradizionali residenti.

Diversi ancora sono i casi in cui i tradizionali ancoraggi sembrano mantenersi e svilupparsi in radicamenti profondi con il territorio, ma come nodi parziali, limitati, di una catena del valore globale spesso a alto impatto ambientale e sociale: è il caso ad esempio dei distretti orafi e della gioielleria i cui anelli della *value chain* si edificano, in moltissimi casi, su pratiche estrattive distruttive dei territori di provenienza (in genere ricchi di risorse ma poveri per il reddito degli abitanti) e su pratiche produttive a altissimo sfruttamento e a elevato degrado sociale.

In questo quadro di ridefinizione, destrutturazione, crisi delle forme tradizionali organizzative, emergono nuove pratiche di ancoraggio territoriale, soprattutto della media impresa innovativa. Oltre alle tradizionali reti di relazioni di filiera sembrano strutturarsi reti di relazioni differenziate (Negrelli, Pacetti, 2016) che si possono sintetizzare in diverse tipologie:

- relazioni orizzontali complementari, che interessano anche le fasi a monte, di ricerca/innovazione, e quelle a valle, di organizzazione della logistica e commercializzazione dei prodotti di filiere distrettuali;
- relazioni verticali gerarchiche, tipica della sub-fornitura e soprattutto degli *spill-over*, che mantengono con la casa madre rapporti definiti e mutevoli secondo le necessità produttive e di mercato;
- relazioni orizzontali tra uguali, tese a rafforzare la dimensione degli aderenti alla rete e competere sui mercati internazionali attraverso strumenti quali il catalogo unico dei prodotti o presentando la nuova dimensione d'impresa a rete, ecc.

Sono modalità di reti di relazioni nuove ma non sufficienti. I processi di territorializzazione non appaiono armonici se costruiti su reti lineari (orizzontali o verticali che siano), o complesse (reti plurime) che non contemplino la sostenibilità del capitale naturale. L'economia sostenibile richiede relazioni circolari, in cui gli *output* siano *input* di altre attività produttive e di servizio. L'economia circolare nega la produzione di scarti e poggia su input rigenerabili o riciclabili, in cui cioè l'energia è rinnovabile e la materia è riusabile o ricostituibile in tempi brevi. La forza del processo di territorializzazione sembra inoltre connesso alla dimensione della scala: scarsa se riferita a catene circolari globali del valore, alte se riferite a reticoli circolari regionali e locali.

La circolarità infine esprime una forma di coralità che va costruita, articolata, governata. Il capitale territoriale non è la somma del capitale sociale, tecnico, umano, istituzionale, culturale. Quello che l'ultimo Becattini (2015) sembra suggerire è che i vari capitali si esprimano coralmente, che il territorio sia un soggetto plurimo e armonico. È una visione che rimanda a una partitura,

all'esistenza di congruità, ritmo, ordine temporale, cioè alla programmazione del territorio e all'esistenza di una *governance* multilivello. Una grande suggestione, un progetto, per progredire lungo la strada dello sviluppo sostenibile dei sistemi territoriali complessi.

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Abstract

Becattini, "Light Industry", and Regional Planning

The paper deals with the influence of the thought of Giacomo Becattini in the work of the two regional research institutes that mostly contributed to the birth and growth of Italian regional sciences: IRES and IRPET. The role played by the two institutions in the legislative definition of industrial districts and in the planning of Italian small and medium-sized industries is reconstructed. Together with the originality of Becattini's thought emerge problematic traits as well as conflicts and "oversights" of the local development theory, especially concerning the environmental question. The work ends highlighting the crisis and the ongoing changes in small industry and advocating a circular and environmental frame of the "chorality" of the territories.

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I distretti di Becattini e il Mezzogiorno: un rapporto controverso

Adam Asmundo, Fabio Mazzola**

Sommario

In questo saggio si sintetizzano alcune riflessioni sul modo in cui la teorizzazione becattiniana sul distretto industriale abbia influenzato l'analisi dell'evoluzione dell'economia meridionale nel corso degli ultimi decenni, evidenziandone i presupposti concettuali, le evidenze empiriche, le riflessioni di policy e le difficoltà di applicazione. Ciò anche sulla base di diversi studi che hanno analizzato le caratteristiche dei sistemi manifatturieri locali in aree poco coinvolte dall'esperienza distrettuale. Le aggregazioni di imprese sul territorio hanno conosciuto nel Mezzogiorno evoluzioni con caratteri diversi rispetto ad altre aree del Paese. In tal senso, la nota vuole rappresentare una breve sintesi delle evoluzioni registrate nel tempo delle forme conosciute, tentando di ricostruirne e spiegarne le cause, per individuarne le possibili prospettive, fra tendenze spontanee e interventi di politica economica.

1. Introduzione: Becattini, i distretti e il Sud

In alcune analisi e riflessioni condotte negli anni '90, Giacomo Becattini (1998, 2000, 2001) esprimeva chiaramente la sua visione sulla possibilità che anche l'economia meridionale venisse interessata dal processo di diffusione delle economie distrettuali. Al fine di elaborare una strategia per i distretti al Sud sarebbe stato necessario: 1) individuare i territori possibilmente interessati da fenomeni di decollo industriale attraverso l'analisi dei fenomeni di specializzazione produttiva evidenziabili in senso anche relativo, ossia con riferimento al complesso dell'economia meridionale; 2) definire una strategia di concentrazione delle risorse sui sistemi locali che mostravano sufficiente vitalità; 3) attuare una legislazione speciale che potesse ridurre i vincoli burocratici allo sviluppo e, al contempo, risultare idonea a rompere gli intrecci politico-affaristici; 4) puntare sulla piccola borghesia come classe sociale in grado di

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disegnare un percorso di sviluppo non esclusivamente basato sulla dipendenza dall'impiego pubblico.

Becattini era sicuramente consapevole che non si potesse effettuare una trasposizione automatica dei processi di sviluppo alle diverse aree del Paese e che regioni industrialmente arretrate come quelle del Mezzogiorno dovessero comunque ricercare sentieri specifici di sviluppo. Egli però riteneva che non potesse essere comunque aggirata la fase dell'industrializzazione perché una diffusione del tessuto produttivo poteva essere realizzata soltanto a partire da quei contesti in cui era presente una adeguata specializzazione manifatturiera. La presenza di un ambiente non favorevole alla nascita dei distretti al Sud era da lui evidenziata, in primo luogo, dalla decisa contrapposizione tra aree metropolitane e campagna non urbanizzata presente nel Mezzogiorno nonché dal ruolo rilevante del commercio e delle attività amministrative nella struttura economica di molte regioni meridionali. Anche nel ristretto ambito del settore manifatturiero, sembrava in qualche modo difficile puntare esclusivamente sul *made in Italy* alla stregua di quanto avveniva in molte aree della Terza Italia. Ciò anche in un periodo in cui interessanti fenomeni di crescita trainata dalle esportazioni venivano evidenziati anche nel Sud da alcune indagini empiriche (Bodo, Viesti, 1998). Secondo Becattini, però, l'esigenza che il Mezzogiorno si dovesse comunque ritagliare un ruolo all'interno della competizione globale rendeva difficile non ripercorrere in qualche modo uno schema che, a partire dalla divisione per fasi del processo produttivo e attraverso la presenza di una domanda differenziata per le lavorazioni dell'area, avrebbe condotto all'aumento della produzione e della produttività e alla definizione di spazi di mercato, anche internazionali, per le produzioni del Sud. In questo Becattini osservava come una possibilità aggiuntiva potesse scaturire dai processi di delocalizzazione che si andavano diffondendo nel nostro Paese e che avrebbero determinato la necessità di allargare i mercati estendendo l'area della subfornitura al Sud e generando di fenomeni di traboccamento della crescita delle economie distrettuali alle regioni del Sud maggiormente limitrofe a quelle del Centro e del Nord-Est. In ogni caso, appariva difficile realizzare tutto ciò senza una adeguata azione di *policy*. Una politica dei distretti o per i distretti avrebbe dovuto, in primo luogo, intervenire sul differente contesto economico ed essere accompagnata da misure a più ampio spettro.

2. L'identificazione dei distretti al Sud

Tra la fine degli anni '90 e i primi anni 2000 numerosi studi (Viesti, 2000a, 2000b, 2001; Cersosimo, Donzelli, 2000; Signorini, 2000) mostravano come, in effetti, uno sviluppo di tipo endogeno andava comunque realizzandosi anche al Sud sia pur non sempre in linea con le connotazioni tipiche dell'economia

distrettuale. Eppure le imprese del Sud, ad un primo sguardo, sembravano avere molte delle caratteristiche delle imprese distrettuali del Centro-Nord e della Terza Italia. Le aggregazioni distrettuali del Sud erano comunque caratterizzate da processi produttivi ad alta intensità del lavoro umano e scarsa automazione (Becattini, 1998, 2000, 2001) e da un limitato fabbisogno di capitale fisso. L'attività di tali imprese era caratterizzata da un'innovazione di tipo incrementale ed essenzialmente legata a processi di *learning by doing* nonché da limitate economie di scala interne all'impresa. Da un punto di vista strettamente produttivo, negli anni '90 i fattori di sviluppo risiedevano anche nel Sud nel radicamento territoriale e nella specializzazione flessibile, quest'ultima necessaria ad assicurare produttività e redditività a un tessuto imprenditoriale strutturalmente più debole che nelle altre regioni, anche perché rivolto, in larga misura, al mercato locale (o tutt'al più nazionale), con modesta o scarsa propensione all'innovazione tecnologica e, soprattutto, all'internazionalizzazione (Viesti, 2002, 2007; STOÁ, 2006). In ultima analisi, il Mezzogiorno strutturalmente registrava, come registra ancora oggi, una decisa prevalenza di imprese di piccola dimensione nonostante la spinta all'industrializzazione esterna trainata dall'Intervento Straordinario. Quest'ultimo aveva comunque attivato nel tempo logiche e percorsi di filiera, con sviluppi di lavorazioni in subfornitura, affiancando nuove grandi imprese ai piccoli sistemi produttivi specializzati che caratterizzavano il territorio del Sud.

In un famoso lavoro apparso sulla rivista "Sviluppo Locale", Gianfranco Viesti (1999) dimostrava come nel Mezzogiorno fossero presenti, alla fine del secolo scorso, numerosi sistemi locali ma come solo alcuni, prevalentemente in Puglia e negli Abruzzi, potevano riferirsi in modo diretto al *made in Italy*. Dei 370 sistemi locali presenti solo 99 avevano connotazioni industriali. Questi, oltre al made in Italy, contemplavano una specializzazione agroalimentare e una a capitale non locale (elettromeccanica, chimica, mezzi di trasporto). Una rilevante percentuale di sistemi locali non possedeva, tuttavia, alcuna specializzazione prevalente. A parte i sistemi locali definibili come manifatturieri, altri sistemi locali erano riconducibili ai grandi sistemi urbani (34) o al turismo. Ma la stragrande maggioranza (ben 237 sistemi su 370 pari a circa il 60%) potevano essere etichettati come sistemi locali deboli, caratterizzati da una miriade di piccole e piccolissime imprese ma senza un chiaro fenomeno di addensamento produttivo riferibile ad alcuna tipologia settoriale.

Cersosimo e Donzelli (2000), pertanto, ammettevano che parlare di distretti industriali era una "forzatura analitica" ma riscontravano come le aggregazioni di imprese esistessero anche al Sud e fossero in fase di formazione. Occorreva dunque sviluppare maggiormente le interconnessioni all'interno del sistema delle imprese, da un lato e tra le imprese e le istituzioni, dall'altro. In questo, la *policy* avrebbe potuto incoraggiare proprio la costituzione di relazioni, la cooperazione

tra imprese, la definizione di una specializzazione funzionale e, in ultima analisi, la promozione dello sviluppo endogeno a partire dagli addensamenti già esistenti.

Per altri versi, alla fine degli anni '90, su un totale nazionale di 181 distretti industriali registrati dall'ISTAT nella sua rilevazione censuaria del 2001, solo 23 si trovavano nel Mezzogiorno, prevalentemente concentrati in Abruzzo (8), in Puglia (6) e in Campania (5). Alcune regioni (Calabria e Sicilia) non evidenziavano la presenza di alcun distretto. E questo nonostante nell'immediato dopoguerra i sistemi artigianali di piccola impresa fossero in qualche modo diffusi nel Sud. Da qui l'idea che la politica di industrializzazione esterna promossa a partire dalla fine degli anni '50, potesse avere sensibilmente danneggiato la creazione di un industria autoctona e che bisognava, in termini di *policy*, rompere con il recente passato e attuare una politica per i distretti che potesse, da un lato, cogliere le opportunità offerte dagli assetti post-fordisti e, dall'altro, beneficiare, oltre che dello sviluppo per tracimazione dalle regioni della Terza Italia, anche delle possibilità di cooperazione con gli affermati distretti del Centro-Nord (Cersosimo, Donzelli, 2000).

Gli studi sulla misurazione dell'effetto distretto (Signorini, 2000), nell'evidenziare il rafforzamento del modello dell'industrializzazione leggera nel nostro Paese sottolineavano le principali caratteristiche di tale modello: divisione del lavoro, connessioni di rete tra imprese e contesto ambientale caratterizzato da costi di transazione limitati anche grazie alla presenza di una elevata dotazione di capitale sociale. Pur non escludendo completamente la presenza di distretti al Sud in alcune zone, tali studi implicitamente ne constatavano una diffusa mancanza nell'economia meridionale, pur in presenza di un rilevante tessuto di piccole imprese nei settori tradizionali. Analizzando i dati relativi a singole imprese, alcuni saggi contenuti nello studio della Banca d'Italia (Omiccioli, 2000) dimostravano come, a differenza dei distretti maturi del Centro-Nord nei quali si riscontrano imprese con una pluralità di livelli di subfornitura e un numero medio per impresa relativamente elevato di fornitori e clienti, nei distretti del Sud la struttura delle imprese era molto più gerarchica con una polarizzazione tra le imprese subfornitrici e quelle finali e una dipendenza di più subfornitori da un unico cliente principale. Tali analisi evidenziavano anche la totale assenza di subfornitura nei confronti di imprese estere e il mancato riconoscimento da parte delle imprese della subfornitura come elemento di flessibilità. Non sorprende, pertanto, che uno studio del 2008 volto a indagare sulla eventuale presenza di un effetto distretto limitatamente alle imprese del Sud (Bruni, 2008) conducesse a risultati che andavano in direzione opposta in quanto le imprese appartenenti ai sistemi di grande impresa denotavano gli stessi livelli di fatturato e di crescita nel periodo 2000-2002 e livelli più alti nel 2003.

3. Le carenze di elementi distrettuali nei sistemi manifatturieri locali del Sud

Alcuni lavori scritti sul finire degli anni ’90 volti ad individuare le potenzialità distrettuali in regioni del Sud non toccate da processi di industrializzazione diffusa hanno puntualizzato maggiormente le ragioni della mancanza di elementi di distrettualità nei sistemi locali di piccola impresa meridionali. Con riferimento alla realtà siciliana, ad esempio, in quelle aree che presentavano livelli di specializzazione e di densità di piccole imprese superiore ai valori medi meridionali, alcune delle condizioni fondamentali per la costituzione di distretti industriali apparivano pressoché inesistenti. In primo luogo, l’esistenza di un ispessimento localizzato di relazioni economiche tra imprese presenti sul territorio. Come rilevato da Mazzola e Asmundo (1999), infatti, “più ancora che la modesta densità assoluta di rapporti di subfornitura, diffidenza reciproca e incertezza nei rapporti economici sembrano dominanti in assoluto contrasto con la estensione della consuetudine reciproca dalla sfera sociale ai rapporti economici che spinge le imprese dei distretti italiani a collaborare a monte o a valle del processo produttivo” (p. 46). Appariva sostanzialmente assente anche il fenomeno di scomposizione per fasi o di disintegrazione verticale del processo produttivo e le imprese non sembravano percepire i vantaggi economici dalla divisione del lavoro. Nei sistemi locali era poco presente la subfornitura di specializzazione e risultava assente l’industria di produzione di macchine per l’attività di specializzazione del distretto come avviene nel caso di trasformazione del distretto in aree-sistema (Garofoli, 1983). L’innovazione era limitata a pochi interventi migliorativi ed era trainata per lo più da una risposta alle spinte concorrenziali. Molto debole appariva inoltre il riconoscimento della esistenza del distretto da parte della comunità locale e delle sue istituzioni. Molti imprenditori definivano “problematiche” se non addirittura “conflittuali” le relazioni con i rappresentanti delle istituzioni, con particolare riferimento a quelle regionali e provinciali, e alle azioni di queste per il sostegno alle attività produttive. Pur ritenendo rilevante l’ambiente locale per lo scambio di idee e di informazioni e la trasmissione di conoscenza, gli imprenditori si definivano insoddisfatti della dotazione di infrastrutture economiche e sociali, sia di tipo materiale che immateriale. Questo condizionava pesantemente l’attività delle imprese dei sistemi locali manifatturieri al punto che i loro proprietari o manager ritenevano in ogni caso la tradizione locale importante ma non decisiva per il successo dell’impresa.

4. Le politiche per la creazione e lo sviluppo dei distretti

Anche a Becattini appariva evidente come la nascita di un distretto non potesse avvenire per mezzo di specifiche norme. Egli riteneva, tuttavia, che una politica

a favore dei sistemi locali a potenziale evoluzione distrettuale era comunque auspicabile per il Sud.

La legge nazionale 317/91 fu salutata come un passo decisivo per lo stimolo alla formazione di distretti anche nell'area meridionale del Paese. Fino a quel momento i distretti industriali non avevano avuto alcuna formale identità istituzionale, anche nei casi in cui fossero presenti interazioni con il governo locale riguardanti la formazione di consorzi con la partecipazione di associazioni locali di categoria. La legge 317 previde, inoltre, un ampio coinvolgimento delle regioni nell'individuazione dei distretti, nell'attività di sostegno e nel finanziamento degli stessi attraverso i consorzi di sviluppo industriale. Le regioni poi si attennero a quanto espressamente predisposto nel Decreto Ministeriale del 21 aprile 1993 che determinava indirizzi e parametri per l'individuazione dei distretti. I criteri imposti da tale decreto contemplavano la contestuale coesistenza di elevati indici di industrializzazione manifatturiera, di densità imprenditoriale, di specializzazione produttiva, di livelli di occupazione manifatturiera nei settori di specializzazione e di una quota di occupazione concentrata nelle imprese minori. Tali criteri risultarono troppo stringenti per la realtà del Mezzogiorno. A tutto il 1997 meno della metà delle regioni italiane aveva identificato con provvedimenti specifici i distretti industriali esistenti nel proprio territorio e tra queste solo tre (Lombardia, Piemonte e Toscana) avevano intrapreso concreti programmi operativi. Agli inizi del Duemila, nel Mezzogiorno molte regioni non avevano ancora avviato la prima fase di indagine del territorio. Questo ritardo rimase poi un elemento ricorrente in letteratura, rappresentando un primo sintomo della debole relazione *istituzionale* fra produttori e amministratori a livello locale (Trigilia, 1994; Carboni, 1996; Barca, 1999, 2003; Viesti, 2007; Moccia, De Leo, 2007).

Successivamente, la legislazione nazionale (L.140/99) ampliò l'intervento a supporto degli addensamenti produttivi di impresa estendendo il perimetro dai "distretti industriali" ai "sistemi produttivi locali". In misura ancora maggiore tale perimetro venne poi esteso dalla legge finanziaria del 2006 che definì i distretti *produttivi* come "libere aggregazioni di imprese articolate sul piano territoriale e sul piano funzionale, con l'obiettivo di accrescere lo sviluppo delle aree e dei settori di riferimento e di migliorare l'efficienza nella organizzazione e nella produzione, secondo principi di sussidiarietà". Il perimetro di intervento del *policy maker* appariva a questo punto piuttosto distante non soltanto dall'ortodossia del distretto becattiniano ma anche da un suo eventuale "aggiustamento" alle caratteristiche intrinseche del sistema produttivo meridionale (Carboni, 1996; Bodo, Viesti, 1998; Bruni, Mazzola, 1997; Barbieri *et al*., 1998; Becattini, 2001; Viesti, 2000a; Varaldo, 2001).

Su un diverso piano, le politiche di incentivazione per le imprese del Sud si rivolgevano anche alle imprese distrettuali presenti in quell'area. Sembrava

dunque opportuno analizzare se tali imprese beneficiassero in misura maggiore o minore delle altre di tale incentivazione. La sopra citata ricerca della Banca d'Italia (Signorini, 2000), evidenziava come, benché le imprese dei distretti meridionali avessero beneficiato degli incentivi generali rivolti alle imprese meridionali, lo stimolo pubblico non apparisse costituire un fattore decisivo per la nascita dei distretti stessi. In alcuni casi gli incentivi apparivano addirittura controproducenti, perché essenzialmente rivolti alla massimizzazione dei sussidi piuttosto che alla creazione di reali esternalità. Essi erano anche troppo diffusi sul territorio, in contrasto con quanto lo stesso Becattini aveva suggerito in merito alla necessità di disporre di aiuti *mirati* e ben *concentrati*. In questo quadro appariva cruciale e molto delicato, ancora una volta, il ruolo degli amministratori locali nella gestione delle politiche di incentivazione rivolte ai sistemi produttivi locali (Trigilia, 2012; Felice, 2013; Giannola, 2015). Evidenze empiriche sui sistemi produttivi di piccola impresa al Sud (Bruni, Mazzola, 1997; Mazzola, Bruni, 2000) mostravano una correlazione negativa tra le relazioni imprenditoriali, da un lato, e la domanda locale e i rapporti con le istituzioni locali, dall'altro, quasi a voler significare che nelle aree meno sviluppate le relazioni fra imprenditori potessero diventare una risposta a situazioni di necessità piuttosto che la conseguenza di scelte strategiche delle imprese fondate su un *network* creato con il concorso delle istituzioni.

Nel frattempo, l'intera politica di coesione abbracciava in modo sempre più deciso un approccio maggiormente rivolto allo sviluppo endogeno e alla crescita dei sistemi produttivi locali. Secondo gli Orientamenti per l'azione di governo redatti dal Ministero del tesoro del Bilancio e della Programmazione Economica (1998), gli strumenti di programmazione negoziata (patti territoriali, contratti di programma, contratti d'area) avrebbero dovuto promuovere la crescita al Sud di sistemi imprenditoriali locali attraverso accordi tra soggetti pubblici e privati per interventi integrati di sviluppo territoriale. L'obiettivo era di incentivare le fasi di progettazione dello sviluppo nonché di valorizzare e promuovere accordi tra operatori privati ed istituzioni in territori che avevano potenzialità per produrre capitale sociale. In altri termini, il governo italiano adottava in pieno quella politica di estensione dell'approccio distrettuale al Sud pur ammettendo che lo sviluppo per contiguità territoriale poteva non sempre essere il modo più opportuno per esportare l'esperienza dei distretti e che bisognava in qualche modo facilitare gli *spillover* di conoscenza organizzativa non solamente tra imprese ma anche tra interi sistemi produttivi.

L'adozione di politiche rivolte allo sviluppo locale e alle politiche di contesto volte a rafforzare le capacità delle istituzioni locali nell' offrire opportune economie esterne materiali ed immateriali era teorizzato in quegli anni da più parti (Trigilia, 2005) anche con riferimento al fatto che lo sviluppo locale poteva

rappresentare una direzione per stimolare l'innovazione perché questa, solitamente, si determina in un'area solo se adeguatamente "costruita" dal punto di vista sociale. Nonostante gli sforzi della *policy* a cavallo degli anni Duemila, alcuni studiosi meridionali rimanevano tuttavia convinti che i risultati delle politiche di sviluppo locale fossero stati sensibilmente inferiori alle attese (Rossi, 2005). Secondo tali autori le ricerche empiriche sul capitale sociale segnalavano anche un ruolo di questo e sulla produttività inferiore a quello del capitale fisico e di quello umano. Ciò rendeva sempre più necessario operare attraverso politiche di contesto di tipo più generale, volte non tanto a stimolare il capitale relazionale quanto a combattere le esternalità negative che limitavano l'efficacia delle politiche endogene al Sud (corruzione, mancanza di concorrenza, criminalità, legalità) nonché a superare i vincoli che impedivano la crescita dimensionale delle imprese meridionali.

L'evidenza empirica riguardante l'efficacia delle politiche di incentivazione allo sviluppo locale è rimasta comunque piuttosto contradditoria. Con riferimento al principale strumento di politica per lo sviluppo endogeno promossa in quegli anni, e cioè i patti territoriali, Accetturo e De Blasio (2008) conclusero che tale strumento non era molto efficace per favorire lo sviluppo del territorio oggetto del Patto. Al contrario, altre evidenze (Magnatti *et al*., 2005) osservarono che lo strumento avesse prodotto effetti considerevoli sul piano della creazione dei beni collettivi. Cannari, Magnani e Pellegrini (2010) si sono schierati a favore degli incentivi per la promozione di imprenditoria locale al Sud evidenziando la diffusione dei Patti sul territorio (essi hanno riguardato l'80% della popolazione del Sud) la loro efficacia, da un lato, per promuovere la cooperazione pubblico-privato e, dall'altro, per favorire la concentrazione territoriale di un dato volume di investimenti. Alternativamente, veniva osservato come, sia pur non sempre efficaci per stimolare l'economia di un territorio, tali strumenti avessero prodotto effetti significativi sul piano della *performance* delle imprese operanti all'interno dei Patti (Dallara, Rizzi, 2013).

All'inizio degli anni 2000 le politiche per lo sviluppo locale si inserirono in modo più strutturato all'interno della programmazione regionale per l'utilizzo dei fondi europei mediante lo strumento della progettazione integrata territoriale. In questo caso, tuttavia, la maggiore enfasi fu sugli interventi infrastrutturali piuttosto che su quelli direttamente rivolti alle imprese e pertanto rivolti alla promozione di interconnessioni tra le unità produttive dei sistemi manifatturieri locali. Inoltre, il maggiore coinvolgimento dell'Ente Regione nel disegnare politiche di sviluppo si è rivelato sovente un freno allo sviluppo della creatività dei territori stessi nel disegnare efficaci percorsi di crescita. Esso ha determinato talvolta una applicazione troppo estesa sul territorio, un progressivo allontanamento dalla specializzazione manifatturiera a favore di una specializzazione

turistica di tipo generico (Mazzola, 2003) e una difficoltà di gestire i percorsi di sviluppo all'interno degli schemi rigidi della programmazione europea. In tal senso, gli effetti territoriali di lungo periodo sono stati confinati all'ambito occupazionale e non sempre risultano facili da individuare nell'ambito di valutazioni ex-post a livello di impresa o territoriale (Cusimano, Mazzola, 2014; Cusimano *et al.*, 2015).

5. Gli effetti della crisi e le nuove relazioni imprenditoriali

A un decennio di distanza, nel pieno della crisi che ha investito l'economia italiana, la rilevazione censuaria 2011 dell'ISTAT testimoniava l'esistenza di 141 distretti (40 in meno), dei quali soltanto 21 nel Mezzogiorno, con qualche variazione nella loro geografia: in Abruzzo il loro numero era sceso da otto a quattro, in Puglia era salito a sette, in Campania a 6 e in Sardegna da uno a quattro. Le realtà produttive di Calabria e Sicilia continuavano a non segnalare sistemi identificabili come distrettuali.

Diversi studi si sono soffermati sulla perdita di competitività di alcuni distretti e sulla stessa tendenza alla diminuzione "dell'effetto distretto", sulla progressiva differenziazione delle *performance*, non uniformi fra le imprese distrettuali (ISTAT, 2016). Cambiamento, innovazione e posizionamento competitivo diventano condizioni determinanti per la sopravvivenza del distretto (Becattini *et al*., 2009, 2011). Nel Mezzogiorno la variabile istituzionale appare nel complesso più rilevante rispetto alla variabile relativa alla dotazione di capitale sociale di lungo periodo, evidenziando come l'aspetto relativo alle istituzioni locali giochi un ruolo significativo nel promuovere i processi di agglomerazione produttiva (Barca, 2003; Viesti, 2007).

Nelle aree meno industrializzate le relazioni imprenditoriali, che assumono una maggiore valenza all'interno dei sistemi locali di sviluppo, rivestono un ruolo chiave tra le determinanti della *performance*. Con riferimento all'esperienza meridionale, sino all'inizio del corrente decennio, come già accennato, vi è stata un'evidenza consolidata a favore di una positiva relazione tra capacità relazionale dell'impresa e *performance* – e ciò sia con riferimento all'intero sistema produttivo, sia con riferimento allo specifico dei distretti industriali. L'evidenza risulta maggiore per quei sistemi locali di sviluppo maggiormente assimilabili ai distretti mono-settoriali tradizionali, piuttosto che per quelli caratterizzati da maggiore inter-settorialità (Asmundo, Mazzola 2000, 2002).

Sia le relazioni orizzontali sia quelle verticali (di subfornitura in entrata o in uscita) sembrano avere influenza sul successo imprenditoriale, unitamente a fattori individuali, quali l'età dell'impresa e l'accentramento di funzioni in mano all'imprenditore (con effetti negativi) o la capacità innovativa (con effetti

positivi). Tra i fattori di mercato, l'apertura alle destinazioni extraregionali e la presenza di una rete commerciale autonoma esercitano un impatto positivo (Di Giacomo, Mazzola, 2006).

Introducendo nei modelli interpretativi variabili relazionali che guardano alla centralità dell'impresa all'interno del *network* distrettuale si evidenzia anche l'impatto positivo delle variabili che misurano la capacità di una singola impresa di intermediare informazioni e conoscenza all'interno della rete (Di Giacomo, Mazzola, 2008).

Le relazioni con imprese extra-distrettuali e le collaborazioni ad alta intensità di conoscenza hanno maggiore effetto sul successo imprenditoriale. Risultati di *network analysis* (Di Giacomo, Mazzola, 2008) mostrano che la densità delle relazioni appare generalmente poco estesa anche nei distretti che presentano i più alti valori rispetto alla dimensione di rete. Gli strumenti di policy aggregano imprese spesso caratterizzate da *relazioni molto selettive* che coinvolgono solo porzioni limitate della compagine distrettuale. A differenza di quanto avviene nel Centro-Nord, nel Mezzogiorno le relazioni si caratterizzano inoltre per *significativi livelli di gerarchizzazione*, con una o più imprese che catalizzano i flussi e che non di rado svolgono un ruolo centrale anche nell'intermediazione dei flussi informativi (fenomeno particolarmente evidente in alcuni comparti dell'agroalimentare ed in alcuni settori dell'elettronica, della meccanica e delle materie plastiche) (STOÁ, 2006; Guelpa *et al*., 2007; Intesa SanPaolo, 2016; Guelpa, 2017).

L'analisi delle evidenze relative al Mezzogiorno offre interessanti implicazioni di policy, in particolare appare sempre più prioritario definire interventi volti a sviluppare le *relazioni esterne* delle imprese distrettuali (Asso, Trigilia, 2010).

Negli anni della crisi, l'esigenza di una risposta sistemica alle grandi sfide della globalizzazione produce evoluzioni importanti nelle normative a sostegno dei sistemi e delle relazioni fra le imprese e all'inizio del 2010 prendono avvio i contratti di rete (DL 5 del 2009 e il DL n. 78 del 2010). Un anno dopo i contratti di rete stipulati sono soltanto 32, ma alla fine del III trimestre 2017 il loro numero sale a 3.992, con 20.154 imprese partecipanti, in netta e rapida progressione (dati Infocamere in ASSORETIPMI, 2017). Le imprese che hanno stipulato contratti di rete, al terzo trimestre del 2017, sono pari a 14.629 nel Centro-Nord e 5.525 nel Sud; la sproporzione può apparire elevata in termini assoluti, ma in rapporto al totale delle imprese attive sul territorio quelle aderenti a contratti di rete nel Sud sono il 3,27 per mille a fronte di una media nazionale del 3,91 (4,23 al Nord). Anche nelle regioni del Sud in cui la cooperazione tra imprese è tradizionalmente debole (ad es. Sicilia), i contratti di rete fanno registrare comunque un incremento di oltre il 30% nel corso dell'ultimo anno. Le relazioni contrattuali vengono sostituite da legami di fiducia e le evidenze riguardanti imprese in rete del Sud mostrano come queste siano più propense a costruire reti nell'ambito

della commercializzazione piuttosto che nell'attività innovativa e di ricerca e sviluppo (Negrelli, Pacetti, 2016). Altre analisi (Unioncamere, 2010) mostrano come, nel Mezzogiorno, le imprese in rete esportino di più, siano più solide finanziariamente e abbiano resistito meglio alla grande crisi post-2007.

6. Conclusioni

La prima parte della nostra analisi, incentrata sulle forme sistemiche di tipo distrettuale nel Mezzogiorno, ha evidenziato come queste possano positivamente costituire un punto di forza a fronte della diffusa debolezza del sistema produttivo nel suo complesso. Permangono tuttavia, e la recente crisi ne ha evidenziato ancor più la criticità, elementi problematici dovuti alla modesta numerosità delle imprese, alla loro capacità innovativa e competitiva, alla loro fin qui modesta propensione allo sviluppo di relazioni interne ed esterne al sistema che, di fatto, limitano le possibilità di sviluppo delle imprese e dello stesso sistema.

Nei casi in cui le gerarchie dei rapporti vedono prevalere un'impresa leader i sistemi sembrano strutturarsi in maniera più efficiente e più competitiva, evidenziando l'implicita sussistenza di consistenti rapporti di rete, sia in termini di filiera (verticali), sia di collaborazioni (orizzontali, per il mercato).

L'evoluzione della normativa di supporto ai sistemi di imprese, non più limitata ai *cluster* manifatturieri e ormai aperta a qualsiasi forma collaborativa fra imprese che possa configurare e alimentare una logica di rete sembra offrire, in questo senso, rilevanti opportunità al Mezzogiorno. Innovazione, internazionalizzazione e competitività sui mercati globali sono obiettivi perseguibili e il percorso di crescita avviato dalla parte virtuosa dell'economia del Mezzogiorno negli ultimi anni ne è una chiara evidenza. Come e forse più che nel resto del Paese, ogni elemento sistemico volto al rafforzamento strutturale (investimenti in avanzamento tecnologico, formazione del personale, organizzazione, sviluppo delle relazioni), può solo sostenere e alimentare la tendenza.

In conclusione, l'evoluzione dell'esperienza dei sistemi locali al Sud mostra come alcune delle riflessioni becattiniane sul processo di sviluppo endogeno possibile per il Sud si siano rivelate piuttosto in linea con quanto accaduto. Tra queste, l'effetto di traino determinato dalla domanda estera e dalla accresciuta capacità di esportare, la necessità di non adottare un unico percorso di sviluppo per le diverse aree, l'importanza del ruolo delle politiche di contesto. Non sembra invece che la specializzazione industriale si sia rilevata una necessità ineludibile. In una indagine sulle imprese siciliane sul finire dello scorso decennio (Asso, Trigilia, 2010), le imprese che creavano un ambiente più favorevole all'innovazione erano da collegare a specializzazione in settori che potevano contare su vantaggi competitivi naturali legati a caratteristiche fisico-ambientali o storico-artistiche

dei rispettivi territori. Stimoli più deboli si riscontravano dall'industria manifatturiera i cui vantaggi competitivi sono da ricondurre maggiormente alle economie esterne (nel campo della infrastrutturazione, dei servizi, della formazione). Nel processo di terziarizzazione degli anni '90 vi è stata al Sud una modesta diffusione di funzioni aziendali collocabili a monte e a valle di attività manifatturiere. Ciò ha comunque reso l'economia del Mezzogiorno parzialmente più aggredibile nel corso della Grande Recessione. Tuttavia, accanto alla scomparsa di molte imprese, vi è stata una forte eterogeneità di comportamento, in relazione a differenti processi di diversificazione dei mercati, trasformazione tecnologica (Cersosimo, Viesti, 2013) e irrobustimento finanziario.

Quanto "all'effetto distretto", è vero che in molti casi le imprese isolate hanno fatto registrare risultati economici migliori ma è pur vero che sostanziali limiti al loro sviluppo si sono rivelate la mancanza di un sistema di interconnessioni con altre imprese, la carenza di politiche di accompagnamento continue da parte delle istituzioni locali, l'assenza di un vantaggio competitivo rispetto ad imprese di altre aree soprattutto nell'ambito di un contesto competitivo divenuto sempre più globale. In questo, anche nei casi in cui le caratteristiche degli addensamenti produttivi si sono rivelate lontane dallo standard distrettuale, il ruolo del capitale "relazionale" risulta comunque cruciale per le *performance* di singole imprese e dei loro territori di riferimento. La diversità di *performance* di imprese e territori è maggiormente spiegata dai comportamenti reticolari anche, e forse soprattutto, al Sud. In questo, le riflessioni di Becattini rimangono quanto mai attuali a prescindere dalle diverse opinioni sull'efficacia di un percorso endogeno di sviluppo per il Mezzogiorno.

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Abstract

Becattini's Districts and Southern Italy: A Controversial Relation

This paper summarizes some thoughts on how the Becattinian theorization on industrial districts has influenced the analysis of Southern Italian economies in the last decades, highlighting its conceptual assumptions, empirical evidence, policy reflections and the related difficulties of application. Several studies have analyzed the characteristics of local manufacturing systems in areas not involved in the "industrial district" experience and the Italian Mezzogiorno has experienced different development paths compared to other areas of the country. In this sense, this essay aims at presenting a brief summary of the evolutions of the existing patterns over time, by trying to reconstruct and explain their causes and their possible perspectives, between spontaneous tendencies and economic policies.

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Becattini: il passato e il presente del modello dei distretti industriali italiani

*Anna Giunta**

Sommario

Il capitolo discute le relazioni tra Giacomo Becattini e l'economia industriale negli anni'80; il contributo di Becattini alla modellistica economica ed infine i cambiamenti intervenuti nei distretti industriali a seguito della globalizzazione della seconda metà degli anni '90.

Premessa[1]

Questo volume offre una gradita occasione di ritornare su alcuni scritti di Giacomo Becattini, che si inscrivono, a pieno titolo, tra le pagine belle degli scrittori italiani di Economia; pagine in cui, insieme all'oggetto di indagine, fa premio la godibilità, il respiro e la vivacità della narrazione. Sono tre i punti che vorrei discutere in questo contributo:

1. Le relazioni tra Becattini e l'economia industriale per come questa si configurava negli anni '80;
2. L'apporto di Becattini alla scienza economica, nei termini della capacità di ideare un modello scientifico di interpretazione della realtà;
3. La forza di quel modello alla prova della globalizzazione.

1. I rapporti con l'economia industriale degli anni '80

Negli anni '80, i rapporti tra l'impianto di Becattini e le categorie dell'economia industriale furono complessi, talvolta conflittuali.

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La cassetta degli attrezzi di Becattini è composta di categorie analitiche profondamente differenti da quelli dell'economia industriale di quel tempo. Ce ne sono almeno tre prove.

La prima prova di questa difficile relazione è data agli ostacoli incontrati dall'affermazione del "distretto industriale marshalliano" (DIM, da ora in poi) come categoria interpretativa e di policy. Uno dei migliori articoli di Becattini (1987) racconta, magistralmente e sapidamente, dell'incomprensione dell'accademia, del sindacato e dei *policy makers* regionali nei confronti di alcuni lavori del neonato IRPET. Questi ultimi (già nel 1969 e, successivamente, nel 1975) avanzavano ipotesi eterodosse sullo sviluppo economico toscano. Si fanno strada categorie come le economie esterne, i meccanismi autopropulsivi territorialmente radicati, il "clima speciale" di alcune aree come Empoli, Prato, Sesto, Pontedera, Cascina. Categorie che diventeranno poi patrimonio comune degli studiosi sullo sfondo fattuale degli anni '80: vale a dire, l'inversione di tendenza del modello di organizzazione delle imprese, "la via italiana allo sviluppo" (Becattini, 1987, p. 20) che passa per l'affermazione dei distretti industriali (DI, da ora in poi).

In secondo luogo, la categoria di settore industriale è fondativa per l'economia industriale del tempo, ma Becattini non ritiene debba essere considerata "l'unità ovvia della ricerca di economia industriale" (Becattini, 1987, p.32) essendo mero sezionamento tecnologico, e quindi sottoposto a cambiamento rapido: "la forza che unisce gli operatori privati dipende dalla loro appartenenza storico-geografica, allora ogni tentativo di adottare termini settoriali si risolverà in un fallimento, manifesto o celato" (Becattini, 1987, p. 32). Al contrario, il DIM si affermerà per la sua piena "congruità" (Becattini, 1987, p. 29) alla situazione italiana, sarà la categoria che maggiormente aiuta nella comprensione di quali siano i protagonisti del dinamismo industriale italiano negli anni '80.

In terzo luogo, l'economia industriale del tempo attribuisce una superiorità ai processi produttivi verticalmente integrati rispetto a quelli disintegrati, e la divisione del lavoro tra le imprese è ritenuta un fatto "tecnicamente ed economicamente regressivo" (Becattini, 1987, p. 23), liquidato freddamente come non efficiente.

Le incomprensioni e le diffidenze reciproche sfumano in parte con l'inizio degli anni '80, anche grazie all'*endorsement* dei distretti industriali che arriva da oltre oceano (i lavori di Charles Sabel, Michael Piore) e da oltre Alpi. Accade così, scrive Becattini, che "*le stesse tesi, che, quando venivano da Sassuolo, Montegranaro e da Fucecchio, erano state ignorate, adesso, dopo aver sciacquato i loro panni a Cambridge G.B. o a Cambridge Mass. divengono, quasi d'un tratto, di gran moda*" (Becattini, 1987, p.20).

2. I DIM: un modello scientifico di interpretazione della realtà economica

La storia è nota. Nel corso degli anni '70, un piccolo gruppo di economisti, in primis Sebastiano Brusco e Giorgio Fuà, e di sociologi come Arnaldo Bagnasco, avanzano una diversa interpretazione delle direttrici dello sviluppo economico italiano. La loro intuizione è che nelle regioni del Nord-Est-Centro si vada affermando un modello di organizzazione il cui punto di forza risiede nel gioco "tra pari" tra piccole imprese specializzate, singolare *blend* di competizione e di collaborazione, e nella interazione di queste imprese con il territorio. L'omogeneità delle imprese distrettuali è un carattere distintivo dell'analisi di Becattini, il gioco appunto tra "pari", mutuato dall'analisi di Marshall (1919). Torneremo su questo aspetto quando si discuterà la "forza" del modello ai tempi della globalizzazione.

Giacomo Becattini (1979) trova che l'apparato analitico più appropriato per spiegare questo peculiare assetto organizzativo sia proprio il DIM. Nasce così, e non senza difficoltà di affermazione nella letteratura economica italiana, come prima si argomentava, la stagione dei DI in Italia.

La fase successiva al *ritrovamento* dei DI è quella della identificazione statistica degli stessi, fondata sui lavori pioneristici di Sforzi (1987), dell'Irpet e dell'Istat. Si arriva così, sulla base dei dati del censimento del 1991, alla individuazione di circa 200 distretti industriali che spiegano oltre il 40% dell'industria manifatturiera italiana, concentrati prevalentemente nella Italia del Nord-Est-Centro.

Dopo la prova dell'esistenza del distretto, la ricerca punta alla *misurazione* dell'eventuale "effetto distretto". Occorre dunque verificare, con analisi su campioni rappresentativi, se le imprese localizzate in un distretto mostrino effettivamente una performance superiore rispetto a imprese di pari taglia (dimensione) che operano, invece, isolatamente e che dunque non traggono vantaggio "dall'atmosfera industriale" delle esternalità marshalliane.

La prima evidenza (quantitativa) dell'effetto distretto viene da una ricerca della Banca d'Italia (Signorini, 2000) in cui viene provato che l'appartenenza ad un DI aumenta significativamente la proiezione internazionale e, più in generale, la performance delle imprese distrettuali.

Infine, la *politica* per i distretti: con la legge 317/1991, il distretto industriale acquista rilievo giuridico e di politica economica. Dopo aver definito formalmente i distretti (aree territoriali caratterizzate da elevata concentrazione di piccole imprese, con particolare riferimento al rapporto fra la presenza delle imprese e la popolazione residente, nonché alla specializzazione produttiva dell'insieme delle imprese), la normativa predispone incentivi finalizzati al finanziamento di

progetti innovativi delle imprese distrettuali. Il distretto diventa così un termine di riferimento per la politica regionale, nazionale e comunitaria.

L'effetto distretto si traduce nel "miracolo del *made in Italy*" (Nardozzi, 2004), nel successo dei prodotti italiani nei settori dell'arredo-casa; sistema moda e meccanica strumentale. Il modello dei DI diventa il prioritario modello di riferimento per interpretare, misurare, intervenire nella realtà produttiva italiana, è rilevante per la contemporaneità economica. Si fa scienza economica.

La citazione che segue proviene da una lettera scritta da John Maynard Keynes a Roy Harrod nel 1938: "*Economics is a science of thinking in terms of models joined to the art of choosing models which are relevant to the contemporary world*." Il modello dei DI è pienamente aderente a questa visione, il modello dei DI fa dell'economia di Becattini una scienza, una scienza sociale che formula modelli in risposta ad una particolare regolarità che i modelli esistenti non spiegano. Nello stesso spirito, è illuminante il capitolo: *The science of economic modelling* del libro di Rodrick (2015).

3. La "forza" del modello dei distretti industriali alla prova della globalizzazione[2]

Che ne è di quel modello alla prova degli shock esogeni ed endogeni scatenatesi con la seconda metà degli anni '90? I limiti di questo modello emergono nitidamente e drammaticamente a seguito di shock, di natura esogena ed endogena, che provocano una profonda mutazione strutturale dell'ambiente competitivo in cui operano le imprese italiane. Gli shock derivano, in primo luogo, dalla nuova disciplina del cambio, imposta, a partire dal 1995, in vista dell'adesione all'Unione Monetaria che priva le imprese italiane, perlopiù esportatrici sui mercati europei, di una leva potente come la svalutazione; in secondo luogo, dalla maggiore integrazione commerciale dei mercati, con la conseguente crescente pressione concorrenziale dei Paesi asiatici (soprattutto della Cina), che colpisce severamente la prevalente specializzazione nel *made in Italy*; infine, l'avvento delle nuove tecnologie dell'informazione e della comunicazione (ICT), che richiedono sensibili mutamenti organizzativi delle imprese per potere sfruttare appieno gli incrementi di produttività che le ICT consentono.

Dunque, il modello di industrializzazione diffusa, fondato in alcune parti d'Italia sui DI, che ha saputo affermarsi con i prodotti del *made in Italy* sui mercati esteri fino a conquistare la ribalta della scena internazionale, sembra avere esaurito, con la seconda metà degli anni novanta, la propria forza propulsiva.

Le difficoltà dei DI italiani a fronteggiare un'arena divenuta via via meno favorevole alla piccola scala maturano nello stesso periodo in cui a livello internazionale

2. Questo paragrafo riprende in parte quanto argomentato in Giunta e Rossi (2017), capitolo II.

si manifestano segnali di mutamenti strutturali nell'organizzazione della produzione. Una letteratura in forte espansione da circa venticinque anni documenta, infatti, una riorganizzazione spaziale dei sistemi produttivi di tutto il mondo, come ulteriore conseguenza della rivoluzione tecnologica delle ICT, della progressiva riduzione delle barriere commerciali e dei costi di trasporto. Diverse denominazioni sono state coniate per coglierne gli aspetti essenziali: frammentazione, dispersione internazionale della produzione, catene globali del valore (CGV).

Si viene a determinare un nuovo assetto della divisione internazionale del lavoro, in cui molti beni divengono il risultato di lunghe "catene produttive globali" alle quali imprese di paesi diversi aggiungono via via frammenti di valore. Viene dunque affermandosi un nuovo paradigma per l'analisi dell'organizzazione internazionale della produzione, il cui fulcro risiede negli scambi fra nazioni di beni intermedi, e non più nei tradizionali scambi, di ricardiana memoria, di beni finiti.

Il fenomeno assume tutte le caratteristiche di un mutamento strutturale e destinato a perdurare perché produce un effetto di "ispessimento del mercato". La crescente integrazione tra le economie sembra favorire la nascita e la crescita di più produttori specializzati con il risultato di abbassare sensibilmente i costi di uso del mercato, in particolare quella categoria di costi sopportati dalle imprese che effettuano investimenti specifici. Secondo McLaren (2000), la presenza di più opzioni di scelta offerte dal mercato globale, riducendo i rischi di *hold-up*, rende le relazioni tra le imprese la soluzione più efficiente, con la conseguenza che i sistemi di approvvigionamento dei singoli paesi tenderebbero a convergere via via che aumenta l'integrazione commerciale.

Il fenomeno coinvolge sia le imprese dei paesi in via di sviluppo, dove la partecipazione alle CGV costituisce una chance di industrializzazione per fasi ad alto contenuto di lavoro; sia le imprese dei paesi sviluppati, che operano di frequente nei segmenti ritenuti più remunerativi delle CGV, ossia a monte (nelle funzioni di Ricerca e Sviluppo, Ingegnerizzazione, Design) e a valle (Logistica, Vendita, Marketing) del processo produttivo.

Quali prospettive hanno le imprese dei DI in questo nuovo contesto?

Dopo i punti di svolta degli anni '50 e della fine degli anni '70, le CGV ci costringono ad analizzare il nostro sistema produttivo e i DI con lenti nuove.

Dall'aver praticato il decentramento prima (con le grandi imprese, nella seconda metà degli anni '70) e consolidato i distretti industriali poi (negli anni '80), ne è derivato, in Italia, un diffuso ricorso a relazioni di scambio. Infatti, se guardiamo alle imprese fornitrici, cioè alle imprese che vendono ad altre imprese e non ai consumatori, troviamo che, in Italia, l'incidenza sul totale è significativamente elevata.

D'altro canto, nell'epoca delle CGV, ciò che caratterizza i nuovi assetti produttivi delle imprese è proprio la divisione del lavoro, vale a dire la stessa

organizzazione che è stata una delle fonti del vantaggio competitivo delle imprese distrettuali negli anni '80 e per parte degli anni '90. Le economie dinamiche di specializzazione che ne derivano, al tempo dei DI, si dispiegano, come abbiamo visto, all'interno di un'area geografica circoscritta, sono di natura domestica, per così dire, auto-contenute nel territorio di localizzazione.

Qual è dunque l'elemento di discontinuità che mette in difficoltà le piccole e medie imprese italiane dei DI? È che la corrente dispersione della produzione implica, invece, la dislocazione su scala potenzialmente globale di quella divisione del lavoro; richiede di operare sui mercati internazionali dei beni intermedi, pressati da una concorrenza sensibilmente più ampia fatta da imprese con costi del lavoro di gran lunga più bassi di quelle italiane. È che questa nuova internazionalizzazione presenta costi elevati, che possono essere fronteggiati solo dalle imprese più produttive, che superano la selezione ex ante, che si collocano al di sopra di una certa soglia della produttività.

Il superamento di questa soglia mette fuori gioco l'assunzione di impresa omogenea (lo ricordiamo? Il gioco tra pari…), cardine del modello dei DI, per fare strada, anche nei DI ad una nuova categoria: l'eterogeneità delle imprese (Helpman *et al*., 2004). Quest'ultima appare gravida di conseguenze per il futuro dei DI, perché, insieme alla disintegrazione dei confini territoriali, ne mette a repentaglio la sua rappresentatività. In altre parole, se l'eterogeneità delle imprese causa l'eterogeneità dei DI, non abbiamo più un unico modello dei DI, quello stesso modello non è più rappresentativo.

Si ritrovano indizi della eterogeneità dei DI in alcuni lavori recenti, tra cui: Bellandi (*infra*), Becattini *et al*. (2009) e Dei Ottati (2017). Giuliani e Rabellotti (2017), per esempio, individuano almeno tre tipologie distrettuali, discriminate a seconda delle potenzialità di sviluppo e di vantaggioso inserimento nelle GVC. Ed è così che il distretto di Vicenza si differenzia da quello di Riviera del Brenta per la capacità delle imprese e del sistema locale di aderire alle richieste di grandi imprese del sistema della moda, entrambi si differenziano significativamente da quello di Montebelluna in cui la mano visibile delle multinazionali, entrate nel distretto, garantisce che le attività ad alto valore aggiunto siano svolte in quel perimetro.

L'eterogeneità dei distretti ci lascia, a mio avviso, sguarniti di un modello interpretativo robusto per la fase difficile che l'economia attraversa. L'economia italiana è in ripresa, si colgono segnali significativi di un mutamento del modello di specializzazione e quindi della collocazione del nostro paese nella divisione internazionale dello sviluppo. La proiezione sui mercati internazionali sembra essere sulle spalle di un numero ristretto di imprese, diverse delle quali, elemento non trascurabile, operanti nei DI; tuttavia, la vasta maggioranza delle nostre imprese si è collocata nelle CGV nella posizione scomoda dei fornitori (Agostino *et al*., 2016). Non è chiara la direttrice dello sviluppo, c'è un problema

di non poco momento dell'inquadramento concettuale della recente fenomenologia industriale, di cui il mutamento dell'ideal-tipo dei distretti costituisce la sezione di maggiore importanza.

L'eterogeneità dei distretti dovrebbe entrare nella agenda di ricerca di noi studiosi, nuovi dati dovrebbero essere prodotti che colgano i processi di partecipazione e posizionamento delle imprese italiane lungo le CGV. Entrambe queste direttrici porterebbero ad una tassonomia dei DI e consentirebbero il disegno informato di politiche industriali.

È uno dei compiti da assolvere per mantenere vivo il lascito scientifico di Giacomo Becattini.

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Abstract

Becattini and the Italian Industrial Districts: The Way They Were, the Way They Are

This article discusses the relations between Giacomo Becattini and the Industrial Economists during the ‘80s; the contributions of Giacomo Becattini to economic models; finally, it addresses the main changes in the Italian Districts in the wake of globalization.

Originalità, limiti e attualità del pensiero di Becattini fra economia e politica industriale

*Francesco Silva**

Sommario

Questo paper discute la ricerca di Giacomo Becattini sul distretto industriale, sottolineando le implicazioni multi-disciplinari di tale ricerca, anche alla luce di alcuni contributi di economisti istituzionalisti, industriali ed eterodossi contemporanei. Il paper ricorda inoltre come il pensiero di Becattini sui distretti si traduce in una concezione della politica industriale di sviluppo, da lui delineata peraltro in termini solo generali. Le conclusioni suggeriscono la possibilità e la necessità di estendere un lettura di tipo distrettuale allo studio delle dinamiche socio-produttive delle grandi città.

1. Giacomo Becattini e Ronald Coase

Giacomo Becattini ha caratteristiche uniche tra gli economisti italiani, per il modo in cui combina empirismo e cultura economica, per l'attenzione che presta alla dimensione sociale e culturale intesa come contenitore essenziale di quella economica. Curioso e acuto osservatore dell'economia del proprio territorio, la Toscana, vi scopre l'esistenza un soggetto fino ad allora sconosciuto agli economisti e ai decisori politici: il distretto industriale. Becattini non si limita a descriverlo: raffinato ricercatore e storico del pensiero economico, generalizza le osservazioni fatte sul campo ricorrendo a un modello già esposto a fine '800 da A. Marshall con riferimento al Regno Unito. Becattini lo arricchisce e completa, e ne indica la forza interpretativa generale. Inoltre, e questo è un passo successivo, mostra come il distretto non sia solo un particolare tipo di organizzazione produttiva, ma è l'espressione economica di un particolare tipo di organizzazione sociale. In altri termini, accanto a una teoria che potremmo chiamare "microeconomica", ne sviluppa una di più ampio spettro che viene a considerare anche i meccanismi di funzionamento della società.

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Questo percorso intellettuale ha forti analogie con quello seguito da un altro e più affermato economista, R. Coase. Anche quest'ultimo, stimolato intellettualmente più dall'osservazione del funzionamento concreto delle fabbriche statunitensi che dall'astratta teoria neoclassica, elabora nel 1937 una nuova teoria dell'impresa. È così eterodossa che ci vorranno quasi trent'anni prima che venga digerita dall'accademia e se ne scoprano la potenzialità. È una teoria che ha evidenti analogie con quella di Becattini: se Coase parla di transazione economica, Becattini parla di relazioni interpersonali come elemento caratterizzante di un'organizzazione produttiva. Ambedue accantonano l'idea *mainstream* dell'impresa intesa come funzione di produzione che vive in un vuoto organizzativo: a loro avviso i confini dell'impresa sono dettati dal modello organizzativo, e quindi dalle relazioni tra persone, oltre che dalla tecnologia produttiva. Quella di Coase è teoria più astratta che ha caratteristiche generali, quella di Becattini è più legata a realtà specifiche e pertanto ha una potenza interpretativa più ristretta. Ambedue però, dopo avere esaminato l'impresa e i suoi confini, si affacciano su un sistema di relazioni più ampio. Coase più di venti anni dopo il contributo sull'impresa affronta il problema del costo dell'organizzazione sociale e sviluppa una teoria generale dell'allocazione dei diritti in una società; analogamente Becattini ci dice che il distretto industriale è un "… un ambiente sociale in cui le relazioni fra gli uomini dentro e fuori dai luoghi della produzione, nel momento dell'accumulazione come in quello della socializzazione, e le propensioni degli uomini verso il lavoro, il risparmio… presentano un loro peculiare timbro e carattere" (Becattini, 1987, p.8). Ambedue le micro-organizzazioni – impresa, distretto – vivono in un habitat economico e istituzionale più vasto, e di questo bisogna pure parlare per capirle.

2. Nascita ed emancipazione del distretto di Becattini

Entriamo ora più nel vivo della scoperta – perché di questo trattasi – di Becattini.

Fin da giovane osserva sul campo e interpreta il funzionamento di una particolare industria, quella del mobile in Toscana, di cui riconosce presto alcuni tratti caratteristici: la convivenza e la collaborazione, ma anche gli scambi e la concorrenza, tra imprese che operano in una comune area producendo prodotti simili o loro componenti, con vantaggio per ciascuna di esse e per tutte. Incontra poi, sempre in Toscana, lo stesso schema organizzativo anche in altri settori, e in particolare in quello tessile: l'industria tessile di Prato è il *case study* che meglio rappresenta il distretto. Essendo uno studioso attento alle relazioni culturali e scientifiche, crea nel tempo una scuola economica fiorentina di cui influenza il percorso di ricerca – M. Bellandi, G.Bianchi, M. Dardi, G. Dei, F. Sforzi – e ha

modo di verificare come anche in altre regioni italiane sia presente un modello organizzativo simile a quello del distretto toscano: ne discute con A. Bagnasco e C.Trigilia, con S. Brusco, con G. Fuà, con E. Rullani, con G. Garofoli. Giunge, e giungono, alla conclusione che il distretto è una forma spontanea di organizzazione legata a storie e modelli sociali presenti in varie parti d'Italia, ma che ha caratteristiche comuni a fianco delle specificità. Comprenderanno poi che il modello distrettuale è presente un po' in tutte le economie di mercato, non solo in Italia: si pensi ai distretti industriali statunitensi, che pure hanno caratteristiche un poco diverse da quelli italiani. Verificheranno, con riferimento al caso italiano, che il "modello distrettuale" si fonda su comportamenti e relazioni che esprimono equilibri e dinamiche sociali e culturali.

Forse non casualmente la scoperta del distretto giunge proprio negli anni in cui si assiste all'evoluzione profonda del sistema produttivo industriale italiano, ossia nel passaggio piuttosto traumatico dal dominio della grande impresa all'emersione della piccola impresa. Questa non è per Becattini la piccola impresa isolata o quella che nasce con il decentramento produttivo degli anni '70 che tutto sommato è l'espressione di una nuova organizzazione della grande impresa, ma è l'integrazione sinergica di un sistema di imprese su base locale: "L'atmosfera industriale che genera il distretto, nelle sue componenti sociali, culturali, storiche e produttive, viene interiorizzata dall'impresa distrettuale in maniera pressoché determinante. Ciò rende l'impresa distrettuale diversa nei suoi caratteri e nei suoi comportamenti dall'impresa figlia di altri modelli di sviluppo" (Becattini, 1993, p.100).

Il lavoro condotto da Becattini e da tutti gli studiosi che ne condividono le idee può essere inteso come un grande progetto di ricerca, che avrà riconoscimenti internazionali e produrrà risultati importanti, non solo sul piano conoscitivo. Mi permetto qui un ulteriore confronto interno al mondo accademico. Mi riferisco a un altro progetto di ricerca che solleva a cominciare dagli anni '60 un grande interesse intellettuale: quello ricardiano-cambridgiano che ha in P.Sraffa l'indiscusso punto di riferimento. Questo progetto, che coinvolge un consistente manipolo di ottimi economisti accademici soprattutto italiani, si spegnerà poi negli anni lasciando poche tracce di sé. In occasione delle sue frequentazioni cambridgiane Becattini ne conosce e frequenta gli ispiratori, ma ad essi si sente poco affine. Ci aiuta a capire il perché di questo mancato coinvolgimento quanto egli stesso scrive a proposito dell'altro noto contributo di P. Sraffa del 1925 sull'impresa neoclassica, precedente allo "Scambio di merci a mezzo merci" che ispira il progetto italo-cambridgiano, ma che ne condivide il metodo astratto. Scrive dunque Becattini che "… il senso più profondo dell'operazione "Sraffa 1925" è di espungere dal nucleo interno della teoria economica ogni categoria concettuale attraverso cui possa transitare una rappresentazione del processo

sociale in cui i capitalisti-imprenditori in carne e ossa prendono decisioni che influenzano il valore in base a grandezze soggettivamente percepite" (Becattini, 1985, p.21). Becattini proprio non condivide questa "espunzione": l'economia deve sentire il fiato della fattualità.

Diversamente da quello italo-cambridgiano, il progetto di ricerca economica di Becattini riesce a influenzare non solo la riflessione economica successiva, ma anche l'interpretazione dei fatti economici o anche le scelte concrete degli operatori. Infatti la legge 317/1991 riconosce formalmente il distretto, ritenendolo un soggetto economico e giuridico capace di interagire con altre istituzioni e di essere oggetto privilegiato di specifiche politiche pubbliche.

3. Becattini economista poliforme

Un'idea così articolata e complessa come quella di distretto non poteva essere elaborata se non da un economista articolato e complesso come Becattini, il cui pensiero non è collocabile solo in una delle caselle in cui si suddivide il pensiero economico e sociale accademico.

Becattini è un arguto e profondo studioso del pensiero economico: non solo fa costantemente i conti con la propria originaria formazione economica e politica di tipo marxiano, ma è anche convinto che le idee che sta elaborando possano risultare più solide se ancorate ai contributi di grandi economisti che lo hanno preceduto o che sono a lui contemporanei. Il fatto interessante è che degli economisti a cui si sente più affine egli valorizza l'aspetto più eterodosso, come è nel caso di Marshall, di cui apprezza in particolare "*The Economics of Industry*" e "*Industry and Trade*", oppure essi stessi sono eterodossi, come è il caso di Nicholas Georgescu-Roegen. Becattini studia attentamente i contributi di questi autori e sollecita anche i suoi allievi a farlo.

Indubbiamente Becattini è anche economista industriale. Il suo primo saggio titola "Concetto d'industria e teoria del valore", ma tutta la sua opera si concentra sul tema della produzione e sui modelli organizzativi che la caratterizzano. Anche in questo campo è eterodosso: nei suoi lavori ci sono poche tracce dell'*Industrial Organization*, rispetto alla quale ha sostanziali riserve, anche perché non ne condivide il convincimento che l'organizzazione delle imprese e dei mercati sia riconducibile alla sola azione di variabili economiche. La sua radicale contrapposizione all'economia industriale standard si ritrova espressa assai chiaramente in un articolo della rivista Economia e politica industriale quando scrive "…per farla in breve, l'ingresso dei distretti nel discorso della politica industriale non può essere ridotto all'introduzione di un paragrafetto, o anche di un capitolo, in un qualunque manuale di economia industriale, ma deve essere veduto come la proposta di un diverso modo di leggere la fenomenologia dell'industria

contemporanea" (Becattini, 1993, p.100). Coerente con il proprio pensiero eterodosso partecipa al progetto organizzato dall'International Institute for Labour Studies di Ginevra su *New Industrial Organisation Program* (1986), dove entra in contatto diretto con molti altri studiosi internazionali eterodossi che hanno idee a lui affini, come M. Piore, F. Pyke, C. Sabel, W. Sengenberger.

Becattini, nel momento in cui attribuisce alla variabile "spazio" un peso molto importante all'interno della sua analisi, deve essere considerato anche un economista "regionale". Forse, a ben vedere, è soprattutto uno studioso del territorio, inteso come luogo in cui s'intrecciano relazioni economiche e sociali che ivi acquisiscono elementi di specificità. Come chiaramente scrive: "La produzione è un processo intrinsecamente *situato*. Ciascun luogo mobilita nella produzione la propria conformazione naturale, la propria storia, la propria cultura, la propria organizzazione sociale: tutte risorse e circostanze che, prese nella loro combinazione, sono diverse da quelle che possono venire mobilitate da ogni altro luogo… In questo senso, si può dire che ogni "capitalismo nazionale" trae la sua specificità, il suo "carattere", dalla varietà dei (e dal sistema delle relazioni fra i) contesti locali che comprende al suo interno e a cui dà veste unitaria sotto il profilo dell'ordinamento giuridico e delle funzioni facenti capo alla pubblica amministrazione" (Becattini, Rullani, 1993).

4. Il difficile passaggio dall'economia industriale alla politica industriale

Il distretto nasce come espressione di forze spontanee locali, di tipo economico e sociale. Non vi è nulla di programmato o imposto o incentivato. È l'espressione di una diffusa e vitale imprenditorialità che per ragioni varie e diverse si addensa in certi luoghi con certi contenuti produttivi. Becattini fotografa magistralmente questo processo e questo risultato. Un economista generico o industriale in particolare, abituato a vedere l'analisi positiva dei fatti economici come la premessa per quella normativa, abituato cioè a vedere nelle *policy implication* l'esito naturale di uno studio, può allora porsi delle domande: è opportuna o necessaria una politica industriale per i distretti? In caso affermativo, quale potrebbe essere?

Alla politica industriale convenzionale, che ha come riferimento i settori o variabili orizzontali come la tecnologia o il lavoro, Becattini ne contrappone una diversa: "Al posto di una lettura focalizzata sul sistema produttivo nazionale che reifica nei settori tecnologicamente differenziati le sue ipotetiche componenti funzionali, si propone di sostituire una lettura focalizzata su microcosmi industrial-territoriali di cui il sistema nazionale sarebbe la totalità organica e l'ambiente prossimo" (Becattini, 1993, p. 101-102). È una posizione coerente che vede nei distretti il soggetto a cui riferire la politica industriale. Ma quale? Certamente non è configurabile, all'interno dello stesso schema becattiniano,

una politica volta a promuovere la nascita di distretti che, quando nascono, lo fanno spontaneamente. L'unica proposta possibile è quella di politiche per i distretti esistenti, mirata a rafforzarli senza peraltro farne perdere le caratteristiche. Un'idea del contenuto di queste proposte è suggerita da S. Brusco che, riferendosi ai distretti emiliani, individua due tipi di interventi molto focalizzati, che definiremmo "orizzontali": il potenziamento della formazione professionale specifica e l'attivazione di centri di distretto che offrono servizi soprattutto di carattere informativo che le singole piccole imprese non sarebbero in grado di promuovere al loro interno (Brusco, 1989). Questo è in estrema sintesi l'ambito in cui potrebbe muoversi la politica industriale per i distretti, che anche grazie alla legge 317/1991 di cui si è detto più sopra, trova un canale istituzionale. Leggendo l'opera di Becattini ci si rende però conto che la politica industriale lo intriga assai meno della sua analisi positiva dei distretti. La politica industriale non è certo un obbligo politico, ma non si può neppure pensare che lo sviluppo spontaneo dei distretti, un poco rafforzati da interventi ad hoc e molto locali, generi uno sviluppo nazionale sufficientemente robusto. Al grande gioco della produttività e dei fattori che la determinano è pur sempre necessario che la politica industriale partecipi.

5. Dai distretti industriali a quelli metropolitani

Il messaggio di Becattini è importante e non merita certo di diventare un tema frequentato dai soli storici del pensiero economico. A tal fine è necessario capirne le implicazioni più profonde. Il distretto becattiniano è legato a esperienze manifatturiere territoriali decentrate, ossia riferite ad aree urbanizzate minori nelle quali il tessuto storico e culturale è rimasto solidamente legato a tradizioni produttive manifatturiere più o meno antiche. L'idea di distretto è però più ricca e capace di comprendere realtà diverse e nuove, alle quali sarebbe appropriato che i distrettualisti dedicassero oggi più attenzione.

Il motore dello sviluppo contemporaneo sta nelle metropoli di media e grande dimensione, nel capitale umano che esse accolgono e alimentano, nelle reti di relazioni economiche e sociali che in esse s'instaurano. Le città sono il luogo in cui meglio nascono e maturano idee nuove, in cui si emancipano vecchi servizi e ne nascono di nuovi, in cui maturano le innovazioni ad essi collegate, in cui l'addensamento demografico crea grandi mercati che sono anche sbocco di questi stessi servizi. Da decenni in Europa, ma ovviamente non solo qui, le economie nazionali sono trainate da quelle delle loro principali città. L'Italia è una parziale eccezione a questa tendenza, soprattutto per due motivi: pochissime sono le grandi città capaci di far maturare al proprio interno i semi di quella modernità che si alimenta di servizi innovativi; motore dello sviluppo italiano è

ancora la manifattura, che da molto tempo non è più legata al tessuto urbano. Vi è però anche un terzo motivo, pure importante: le politiche pubbliche hanno totalmente trascurato la qualità del tessuto urbano, ancora troppo legato a categorie superate, come quello dei grandi investimenti immobiliari. Il degrado delle città italiane è un'immagine della problematicità dello sviluppo del paese.

A fronte di questa assenza della politica c'è, a livello di ricerca, una seria riflessione economica e sociale sulle grandi città, e non si vede perché chi studia i distretti tradizionali non possa o non debba contribuirvi. Non si vede ad esempio perché non si evidenzi come le città siano già da tempo aggregati di distretti che tutto sommato rispondono a logiche non troppo dissimili da quelle dei distretti tradizionali. Milano ad esempio raccoglie almeno tre grandi distretti: quello della finanza, quello della moda e quello dei media. Ciascuno di essi vive di regole che gli operatori stessi si sono dati, ma anche di regole fissate dallo stato. Spesso queste ultime sono inadeguate, e la politica industriale dovrebbe appunto concentrarsi su questo aspetto regolatorio, attribuendole un ruolo più importante di quello che ha nei distretti tradizionali. Le ricerche di economia industriale e regionale possono convergere nell'analisi dell'economia urbana, così come lo hanno fatto in Becattini. Indubbiamente oggi il livello di approfondimento concettuale e di elaborazione analitica è diverso e più evoluto di quello originario dei distrettualisti, ma l'analisi di Becattini ha il merito di portare in superficie anche fattori sociali e culturali inadeguatamente considerati da questi approfondimenti intellettuali. In sintesi, è tempo che chi ha con tanta cura contribuito a sviluppare l'idea di distretto oggi sposti la propria attenzione su realtà di maggiore spessore economico.

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Abstract

Novelty, Limits, and Present of Becattini's Thought between Economics and Industrial Policy

This paper discusses the research of Giacomo Becattini on the industrial district focussing on the multi-disciplinary implications of such research, and compares it to some contributions of contemporary institutional, industrial, and heterodox economists. The paper also recalls the conceptions of an industrial development policy that Becattini extracted from his thought on the industrial district, even if he left them at a quite general level of definition. The conclusions suggest the possibility and the necessity to expand a district-like approach to the study of the socio-productive dynamics of large cities.

Agricoltura, cibo e territorio. Viaggio con Becattini andata e ritorno

*Anna Carbone**

Sommario

In queste pagine racconto della reciproca curiosità ed influenza, sviluppata nel corso di alcuni decenni, fra Giacomo Becattini ed alcuni studiosi di economia agraria, essenzialmente italiani. La prima parte si basa su di una periodizzazione incentrata sulla partecipazione agli incontri di Artimino. La seconda parte si spinge oltre ed offre qualche spunto di conoscenza sul ruolo nuovo, ma sempre centrale, che il territorio assume nei sistemi produttivi primari del mondo contemporaneo. Elementi di tensione dialettica fra globale e locale si moltiplicano nel disegnare i sistemi di produzione e consumo del settore agroalimentare.

1. Becattini e gli economisti agrari

Dal momento che l'invito ricevuto mi impegna a ragionare dell'interesse di Beccattini per l'agricoltura ed i suoi molteplici e forti radicamenti territoriali, vorrei innanzitutto affermare che l'interesse di Giacomo Becattini, la sua "simpatia metodologica" (per usare le sue parole: Becattini 2001, p. 121) per il modo di guardare al territorio proprio degli economisti agrari sono stati più che ricambiati dall'interesse degli economisti agrari, per lo sguardo di Becattini sul territorio e sulle vicende economiche e umane che vi si svolgono. E questa reciproca curiosità e frequentazione sono rimaste vive per alcuni decenni, benché, va detto, con entusiasmi ed intensità incostanti.

Per raccontare, seppure per rapide pennellate, le vicende di questo rapporto mi aiuterà riferirmi ad una semplice periodizzazione di larga massima incentrata sullo spartiacque "artiminese".

Innanzitutto, va ricordato che, ovviamente, Giacomo Becattini conosceva il pensiero di studiosi che a vario titolo hanno riflettuto sull'agricoltura, sui suoi processi produttivi e sulle sue strutture economiche; cito a modo di esempio Lenin,

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Georgescu-Roegen, Cattaneo e Sereni (citati in vari suoi scritti). Fra gli economisti agrari italiani più illustri, conosceva il pensiero di Medici, Tofani, Serpieri, Bandini e Rossi-Doria, anche loro citati qua e là in vari scritti. Di questi apprezzava la conoscenza estremamente puntuale e la frequentazione instancabile del territorio. Concetti come quello di *zona agraria omogenea*, *azienda agricola di riferimento,* gli erano congeniali ed espressioni come "sporcarsi le scarpe con la realtà", che Manlio Rossi-Doria usava ripetere sovente, sono state motivo di fascinazione per un *tipo* come Becattini: le conosceva e ci rifletteva su, come ha raccontato in varie occasioni.

Ma Becattini ha conosciuto anche altri economisti agrari in questa "prima fase", ad esempio Liano Angeli e Reginaldo Cianferoni, colleghi di ateneo che ha frequentato e con i quali ha scambiato riflessioni ed esperienze in maniera piuttosto continuativa negli anni (Becattini, 2003).

Ad ogni modo, Becattini e la sua "banda di distrettualisti" avevano anche una certa conoscenza di prima mano dell'agricoltura, quel tanto che bastò per ipotizzare, nelle prime formulazioni del modello distrettuale dell'area NEC (Nord-Est-Centro), che la diffusione della piccola proprietà contadina, della mezzadria e di simili forme proprietarie-gestionali in agricoltura vi avessero giocato un ruolo non secondario quale archetipo e primo seme dell'imprenditoria diffusa (Bagnasco, 1983).

Dal canto loro, dall'interno della letteratura economico agraria, alcuni autori ravvisarono nell'industrializzazione diffusa una importante occasione per integrare i magri proventi di molte famiglie agricole (Angeli *et al*., 1987; Cavazzani, 1980). L'idea, in essenza, era la seguente: nella fase di profonda ristrutturazione dell'economia italiana a partire dagli anni '70 del secolo scorso, tante piccole aziende agricole poterono sopravvivere – e non essere spazzate via dall'industrializzazione, dall'esodo e dalla sempre più intensa integrazione in mercati di dimensione nazionale ed internazionale – proprio grazie alla pluriattività. Le famiglie agricole part-time sono meno schiacciate dal feroce vincolo dimensionale che opera spesso in agricoltura (sicuramente in quella italiana) ne limita la produttività e ne comprime le possibilità di reddito; le aziende-famiglie pluriattive sono meglio inserite nelle reti relazionali – rurali e non – ed hanno migliore accesso ai mercati di approvvigionamento e di sbocco. Naturalmente, ciò richiede e comporta profondi mutamenti degli assetti produttivi (che in molti casi devono essere semplificati per adattarsi alle esigenze delle occupazioni fuori azienda della manodopera), dell'organizzazione stessa del lavoro e della dotazione di capitale fisico ed umano (Carbone, 1992). Pochi anni dopo nascono modelli di interpretazione dello sviluppo agricolo il cui elemento fondante ed originale è il territorio: con le sue caratteristiche ma anche con le relazioni settoriali ed intersettoriali che vi si possono, o non vi si possono, sviluppare (Cavallo, Marino, 2014). Ne ricordo uno tra tutti: il modello ICI (integrazione, complementarità, isolamento) proposto da Guido Fabiani e dal suo gruppo (Fabiani *et*

al., 1991), ma anche quello messo a punto dal gruppo di Giovanni Cannata, più incentrato sugli aspetti ambientali (Cannata, 1989).

Arrivano gli anni novanta e con essi prende avvio la stagione degli incontri di Artimino. Alcuni economisti agrari, più e meno giovani, hanno frequentato i seminari fin dalla prima edizione divenendo ben presto più numerosi. Fara Favia e Liano Angeli ne hanno ricordato la partecipazione appassionata e a tratti esuberante in due brevi testi, entrambi acuti e divertenti (Angeli, 2000; Favia, 1992). L'entusiasmo suscitato da questa esperienza stimolò ben presto una sorta di caccia al distretto agricolo nella quale schiere di economisti agrari si cimentarono in applicazioni varie dei canoni distrettuali al settore primario (ne cito qui solo un piccolo numero a titolo di esempio: Carbone 1992; Casati *et al*, 1999; Cecchi, 1992; Iacoponi, 1990; Mora, Mori, 1995; Saraceno, 1992). Un cimento che ha portato a risultati non sempre esenti da qualche ingenuità, come ebbe a rilevare Becattini stesso anni più tardi (Becattini, 2000a). L'occasione di esprimere questa valutazione ma anche di riallacciare il filo di uno scambio di idee che Becattini sicuramente trovava stimolante e che quindi cercava, fu l'invio, a fine anni '90, di un breve articoletto dal titolo "Lo sviluppo locale nel mercato globale: riflessioni controcorrente" (Becattini, 2000b) a QA-Rivista dell'Associazione Manlio Rossi-Doria, allora diretta da Michele De Benedictis, anche lui Accademico del Lincei. QA pubblicò il testo nel primo numero del 2000 e questo animò una sorta di piccolo ma vivace forum che si sviluppò poi nel corso di alcuni numeri ed al quale parteciparono, tra gli altri, Liano Angeli (2000), Claudio Cecchi (2000), Michele De Benedictis (2000), Fabrizio De Filippis (2000), Guido Fabiani (2000), Fara Favia (2000), Gianni Scarano (2000) ed io stessa (Carbone, 2000). I contenuti di questa serie di scambi testimoniano come, in quegli anni, il discorso sul ruolo del territorio nel forgiare processi produttivi, rapporti sociali, imprese e mercati, in relazione al settore primario, andava via via assumendo nuovi caratteri ed assieme rifletteva sempre più dimensioni (e tensioni) legate al procedere della globalizzazione, all'affermarsi di reti transnazionali, di catene globali del valore, al ruolo (ed al potere) crescente delle insegne della distribuzione commerciale (anche) nella *governance* dei sistemi di produzione, ai mutamenti del paradigma sottostante le politiche di regolazione, all'aggravarsi delle emergenze ambientali, ed altro ancora.

2. Agricoltura, impresa cibo: il territorio oltre Becattini

Credo che, a questo punto, valga la pena accompagnare coloro che hanno meno dimestichezza con l'agricoltura, e con tutto ciò che vi ruota attorno[1], in una veloce

1. Dall'industria di trasformazione delle sue materie prime, alla domanda di cibo nelle sue mille declinazioni e contraddizioni, alle brucianti questioni ambientali, fino a quell'affasciante quanto sfuggente "contenitore" che chiamiamo *mondo rurale.*

esplorazione del ruolo che la dimensione territoriale vi gioca quale fattore essenziale di organizzazione, competitività, identità e sviluppo. Certamente il territorio, alla sua piccola scala – che definiamo locale – ha rappresentato storicamente una forza modellante dello sviluppo agricolo; e questa è una affermazione abbastanza scontata, e forse banale, agli occhi dei più (ma siamo sicuri di conoscerne le ragioni aldilà dell'ovvio?). Più interessante è l'affermazione secondo cui questo ruolo mantiene la sua centralità ancor oggi, forse non meno che nel passato; anche se, ovviamente in modo differente (Carbone 2018; Cavallo, Marino, 2014).

In questo percorso mi soffermo su tre aspetti:

a. alcuni tratti essenziali dei processi produttivi;
b. la natura dell'impresa agricola;
c. le tendenze della domanda di alimenti (ma non solo).

2.1. I processi produttivi

Parto dall'ovvio: l'agricoltura si fonda su processi biologici che utilizzano materiale vivente e, più in generale, risorse naturali quali il terreno, il clima, la luce del sole, l'acqua, ecc. Esseri viventi e/o materiale biologico sono anche alla base delle tecnologie di trasformazione dei beni agricoli in alimenti.

Altri settori condividono questa fondamentale caratteristica, ma per nessun altro processo questa matrice è altrettanto ampia, forte e irrinunciabile. Ciò è sostanzialmente vero tutt'oggi, nonostante la tecnologia sia vicina ad offrirci un menù a base di cibi ottenuti in laboratorio e/o in condizioni controllate quali bistecche ed hamburger ottenuti dalla proliferazione in provetta di cellule meristematiche; ortaggi prodotti senza terra, senza luce naturale, in capannoni, in tutto e per tutto (o quasi), di tipo industriale.

Questo aspetto va ricordato nell'affrontare il tema del rapporto fra agricoltura e territorio in quanto esseri viventi e risorse naturali presentano tratti fortemente idiosincratici, mutevoli e specifici dei luoghi. Inoltre, di conseguenza, anche le tecnologie produttive, in senso molto lato, rispondono a continue esigenze di adattamento a contesti ambientali diversificati e mutevoli (in un processo di vera e propria co-evoluzione). Coltivare riso sulle pendici terrazzate di alte montagne sotto il tropico asiatico è, ovviamente, altra cosa che gestire risaie nel vercellese; ma, forse meno ovviamente, anche coltivare grano sulla riva destra o sinistra di uno stesso corso d'acqua può richiedere modifiche non trascurabili al processo e implicare livelli di produttività sostanzialmente differenti. La stessa fonte di variabilità ed idiosincrasia legate ai luoghi è alla base dell'impossibilità di standardizzare i processi produttivi nel tempo. Da un ciclo all'altro, cambiano le precipitazioni, le temperature, i venti, alcuni parassiti vanno ed altri vengono: in agricoltura un ciclo produttivo non è mai identico al precedente né al successivo.

La dimensione territoriale legata alle risorse naturali entra anche per un'altra via nell'organizzazione della produzione primaria. Sappiamo, infatti, da Elinor Ostrom (1990) che alcune risorse naturali si configurano come *Common Pooled Resources* (CPR) e, dunque, la loro gestione efficiente richiede necessariamente azioni collettive alla scala locale. È il caso, ad esempio, della pesca, di alcune risorse idriche, di pascoli e foreste. Utilizzare in modo efficiente e sostenibile nel tempo questi input essenziali nel settore primario chiama in causa la dimensione territoriale in quanto richiede istituzioni collettive locali e modalità di organizzazione riferite alle specificità del territorio.

In collegamento con quanto appena detto, vale la pena rilevare come la circostanza secondo la quale la reputazione delle imprese (nel nostro caso) non dipende mai esclusivamente dai comportamenti individuali ma include sempre anche una dimensione collettiva (Tirole, 1996), in agricoltura rafforza ulteriormente il ruolo della dimensione territoriale. La reputazione delle imprese, infatti, si intreccia, necessariamente, con la reputazione del territorio in un rapporto a doppio senso. Va notato come, peraltro, questo implichi un allargamento dei soggetti e delle circostanze che contribuiscono alla costruzione della reputazione collettiva anche oltre gli steccati settoriali per abbracciare l'insieme delle attività che insistono sul territorio e contribuendo a definirne anche natura e livello di competitività.

2.2. L'impresa agricola

Innanzitutto vi è la "questione" dimensionale. Le imprese agricole, ovunque nel mondo, sono sistematicamente più piccole delle unità di produzione nella maggior parte degli altri settori. La ragione sta nell'insorgenza, per così dire precoce, di diseconomie al crescere della scala produttiva. Queste diseconomie sono *in primis* legate, per l'appunto, alla dimensione spaziale dei processi produttivi, ovvero all'uso del terreno quale input fondamentale. Occupare terreno, e quindi spazio, implica che si rende necessaria una presenza diffusa di personale e macchinari ma anche loro frequenti spostamenti all'interno delle aziende; ciò richiede tempo (i cosiddetti tempi morti nel processo produttivo), maggiori controlli e rende sempre più complessa l'organizzazione delle attività al crescere delle dimensioni aziendali (anche se, naturalmente, anche in agricoltura, come negli altri settori, le NTI facilitano, in parte, le cose).

A questo si aggiunga la diffusa esistenza di barriere all'entrata come, in primo luogo, il difficile e ridotto accesso alla terra in paesi dove questa è scarsa e/o dove le istituzioni contribuiscono ad irrigidire il mercato fondiario. Queste barriere contribuiscono, non di rado, a portare le dimensioni delle aziende agricole anche al di sotto della, pur piccola, scala ottimale.

Un sistema produttivo intessuto di piccole imprese interagisce intensamente con il suo territorio, come ci spiega magistralmente la letteratura distrettuale

(Bellandi, 2012; Becattini, 1991; Becattini, Sforzi, 2001; Camagni 2002; Fuà, Zacchia, 1983). Nel settore primario, alla luce del ruolo giocato dal territorio nei processi produttivi, ci aspettiamo che questa interazione sia ancora più intensa. Così, ad esempio, queste piccole imprese agricole che comprano input da, e vendono prodotti a, imprese molto più grandi e talvolta a colossi multinazionali, costruiscono il proprio countervalining power, nel senso introdotto da Galbraith (1952), aggregandosi necessariamente sul territorio (Corsi, 2009). Infatti, come si è già discusso più sopra nel testo, la localizzazione influenza, molto più in questo che in altri settori, la specializzazione produttiva, le tecniche adottate, la reputazione, ecc., determinando la formazione di istituzioni ibride collettive che aggregano imprese vicine (Carbone, 2017; Markelova *et al*., 2009; Sexton, 2013).

Inoltre, in connessione alla "questione" dimensionale, ma anche ai caratteri idiosincratici e mai standardizzabili nel tempo dei processi produttivi, vi è la diffusa e persistente natura familiare delle imprese agricole. Infatti, la gestione familiare risulta particolarmente adatta alla trasmissione informale di conoscenza fortemente contestualizzata e poco o affatto codificabile. Le competenze, fortemente specifiche e radicate nei territori, si custodiscono e si trasmettono da una generazione all'altra all'interno della famiglia-azienda. Peraltro, anche la messa a punto di innovazioni tecnologiche, piccole e grandi, partecipa di questa forte specificità territoriale (Carbone, 1992; Mora, Mori, 1995), aggiungendo una ulteriore dimensione a questo rapporto con il territorio.

2.3. La domanda di cibo

La domanda di alimenti espressa dai consumatori include sempre più e sempre più esplicitamente elementi che portano a dare importanza al territorio, al luogo, o ai luoghi, di produzione e, in alcuni casi, alla dimensione locale – di *prossimità* – dei processi. Ciò avviene per effetto di più fattori, ma qui mi limito a tratteggiare brevemente quelli che mi appaiono più importanti ed interessanti.

Con lo sviluppo del cosiddetto Agribusiness (Davis, Goldberg, 1958), con l'industrializzazione dell'agricoltura (Fonte, 2002) e con la crescita del volume degli scambi internazionali (di derrate agricole, di animali destinati all'allevamento e di alimenti finiti), cresce la complessità dei processi (Esposti, 2005). Questi sono, quindi, percepiti come sostanzialmente opachi, come scatole nere nelle quali tanti, troppi soggetti, mettono le mani, aggiungendo ingredienti, modificando, trasformando, ri-trasformando, e così via (Fonte, 2002). Ne derivano diffidenza e preoccupazione, a tratti paura. La natura, la salubrità ed il potere nutritivo degli alimenti sono costantemente messi in dubbio. Emergenze ricorrenti, scandali, frodi, spaventano i consumatori e cresce il bisogno di saperne di più, di (ri)avvicinarsi alla produzione (Carbone, 2015; Fonte, 2002).

Viene diffusamente assunto che i prodotti di prossimità siano migliori e che abbiano un minore impatto sull'ambiente e sulle risorse. In realtà, come sappiamo, ciò non è sempre vero: ridurre il trasporto, accorciare i tempi che intercorrono dalla produzione al consumo, può essere positivo per la qualità degli alimenti e dell'ambiente. Purtuttavia, sappiamo che la relazione è tutt'altro che semplice. Le condizioni produttive non sono ovunque ottimali per tutte le produzioni. Forzare le vocazioni dei territori richiede uso di quantità crescenti di input che possono compromettere la qualità dei prodotti stessi e quella dell'ambiente che ospita la coltivazione o l'allevamento. La specializzazione produttiva basata sulla dotazione di risorse richiede che le merci si possano spostare dai luoghi di produzione (relativamente più diffusi) a quelli di consumo (ben più concentrati). Si tratta, dunque, di un equilibrio complesso e delicato, nel quale il mix ottimale di locale e globale è specifico per le diverse produzioni e cambia di continuo nel tempo e con la tecnologia.

L'interesse per i prodotti di prossimità deriva anche dalla continua tensione tra locale e globale che accresce il bisogno di identità. Un bisogno che si osserva in tanti campi della società contemporanea e che si riflette variamente anche nei fenomeni economici. Credo si possa affermare che la potenza del cibo nel generare identità sia particolarmente forte a causa del ruolo evidentemente primario dell'atto del consumo (ma anche di quello del produrre). D'altra parte, non si dice: siamo ciò che mangiamo? Proprio in questo senso, ritengo, vada intesa la voglia dilagante di prodotti del territorio, di prodotti con una storia che si vuole conoscere e, in un certo senso, fare propria.

Va anche considerato che la smaterializzazione progressiva della domanda di alimenti (perlomeno per quella fetta di umanità con la pancia piena e con la ragionevole aspettativa di poter continuare a vivere nell'abbondanza senza conoscere la fame), trasforma il semplice consumo di cibo in una serie di atti, intenzioni, attenzioni, ben più complesse: si vuole conoscere il cibo, si vuole sperimentarlo, parlarne, acquisire tecniche, disquisire su ricette, abboffarsi di cibo, privarsi di cibo... e molto altro ancora (senza addentrarsi nella sfera delle patologie legate all'alimentazione). Quello che rileva ai fini del nostro discorso sul territorio è il consumo di cibo legato al bisogno di varietà e, soprattutto, di novità. Esperienze di viaggio, di luoghi "altri" e lontani, che sempre più fanno parte della vita di tanti, portano con sè desiderio di scoperta, gusto per i cibi etnici ed esotici: il turismo diventa turismo enogastronomico (Fisher, 2004; Mak *et al.,* 2012). È così che il territorio diventa *terroir*: culla di cibi speciali, unici, di raffinate specialità per quel gourmet che, ci piace pensare, alberga in ciascuno di noi.

Chiudo giusto con una battuta che ci riporta alla *liaison pas dangereuse* tra Becattini e "noi economisti agrari" – l'espressione è presa in prestito da Angeli, 2000. "Quali conclusioni trarne? Io ne trassi, e persisto nel trarne, la conclusione

che la prassi degli studiosi economico-agrari italiani (degli altri non so niente), di andirivieni sistematico fra le stelle e le stalle, consente loro una maggiore capacità di cogliere "la totalità ed il cambiamento"…" (Becattini, 2001, p. 125).

Dove: ovviamente, "le stelle" sono le astrazioni formalmente perfette della Teoria economica con la maiuscola, mentre "le stalle" sono le attività (molto) concrete che si svolgono sul territorio, includendo anche ciò che accade nei ricoveri utilizzati per l'allevamento degli animali!

Ringraziamenti

Desidero ringraziare Liano Angeli per la sua attenta lettura della prima versione del testo e per i suoi consigli preziosi.

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Abstract

Agriculture, Food, and Territory. A Round Trip with Giacomo Becattini

These pages revolve around the reciprocal interest and influence between Giacomo Becattini and a group of Italian agricultural economist. Their relationship was lasted for a few decades though with inconstant intensity. The first part is based on a periodization centered on the launch of the Artimino Summer School. The second part of the text goes forward this relationship in order to providing a few hints on recent developments in the role of territory in shaping agri-food systems in the contemporary world. In this perspective, emerging elements of the local-global dialectic tension are explored with respect to agri-food production and consumption systems.

L'importanza di Becattini nelle scienze regionali in Spagna

*Rafael Boix Domènech**

Sommario

Pochi studiosi hanno avuto un'influenza così rilevante nelle scienze regionali spagnole come Giacomo Becattini. Tra il 1986 e il 2015 ha pubblicato diciotto lavori in Spagna. Questi lavori, insieme alla presenza di Becattini in Spagna attraverso lezioni e conferenze, hanno influenzato in modo significativo il pensiero scientifico spagnolo e, in particolare, le scienze regionali. Inoltre, hanno influenzato la politica industriale e le iniziative di sviluppo locale di alcune regioni e città spagnole, e la politica industriale del governo spagnolo.

1. Introduzione: scambi accademici e rapporti personali[1]

Come racconta lo stesso Giacomo Becattini in *Vicisitudes y potencialidades de un concepto: el distrito industrial* (2006), egli ebbe i suoi primi contatti con gli economisti catalani attraverso Giorgio Fuà, in occasione di un incontro promosso dall'Associazione degli economisti di lingua neolatina che si svolse nel 1984 in Catalogna. In quell'incontro, le idee di Becattini ebbero un grande impatto su economisti come Joan Trullén, María Teresa Costa e Josep Maria Bricall, con i quali Becattini stabilì nel tempo un rapporto di amicizia, che successivamente si estese ad altri accademici dell'UAB (Università Autonoma di Barcellona) e dell'Università di Barcellona, come Ernest Lluch. Queste relazioni si concretizzeranno in frequenti scambi accademici che Becattini avrà con la Spagna, compreso un soggiorno come *visiting professor* alla UAB, durante il quale conoscererà i distretti industriali vicini a Barcellona e le dinamiche della sua area metropolitana.

Il rapporto di Becattini con la Spagna si consoliderà anche attraverso i numerosi corsi e seminari che egli terrà durante il suo soggiorno presso la UAB e in occasioni

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successive. Tra queste ultime, meritano di essere ricordate le lezioni tenute alla UIMP (Universidad Internacional Menéndez Pelayo) di Barcellona e di Valencia.

Alla UIMP di Barcellona, nel 1997 Giacomo Becattini e Joan Trullén dirigeranno il corso *Sviluppo locale. Teorie e strategie*. In quel corso, le idee di Becattini si confronteranno con i temi dello sviluppo locale e delle scienze regionali, in particolare con i temi di economia urbana trattati da un altro docente del corso: Roberto Camagni. Lo scambio di idee tra i docenti spagnoli e italiani che parteciparono al corso favorirà la successiva collaborazione tra Vicent Soler e Fabio Sforzi che, negli anni 1999 e 2001, dirigeranno due corsi alla UIMP di Valencia. Il primo avrà come argomento *Economia e territorio*, il secondo *Nuova economia e globalizzazione economica negli ambienti territoriali delle PMI*. In entrambi i corsi, le lezioni accademiche si intrecciarono con le testimonianze degli imprenditori (italiani e spagnoli) e degli amministratori locali.

Nel 2004, la UIMP di Barcellona organizzerà un nuovo corso dedicato a *25 anni di studi sul distretto industriale marshalliano*, coordinato da Giacomo Becattini e Fabio Sforzi, che vedrà la presenza di specialisti di diversi paesi europei e di rappresentati di istituzioni internazionali come l'OCSE e l'UNIDO. Nel 2006, la UIMP di Barcellona terrà un nuovo corso su *I distretti industriali in Europa: esperienze a confronto*, coordinato da Giacomo Becattini e Vicent Soler.

Nell'anno intermedio tra i due corsi, il 2005, Becattini aveva partecipato come relatore alle giornate di studio promosse dalla Giunta della Galizia con una comunicazione dal titolo "Strategie per la competitività regionale nel mercato globale", dove incontrerà Kenichi Ohmae. Dopo il 2006, Becattini non tornerà più in Spagna. Ma gli scambi con accademici e amici spagnoli rimarranno costanti, per telefono, per posta o via e-mail, o attraverso incontri nella sua casa di Scandicci, dove Becattini continuava la sua attività di ricerca.

2. L'influenza di Giacomo Becattini nel pensiero scientifico in Spagna

2.1. Informazioni generali

2.1.1. I diciotto lavori pubblicati in Spagna

Tra il 1986 e il 2015 Giacomo Becattini ha pubblicato in Spagna diciotto lavori. Di questi, uno è in catalano, uno è in inglese, due sono in italiano e quattordici in castigliano (tabella 1). È molto complicato quantificarne l'impatto assoluto, perché l'indicizzazione degli atti delle conferenze e dei documenti politici e amministrativi è parziale. Fino alla metà di marzo di quest'anno (2018), le citazioni dirette in castigliano (o di altre lingue co-ufficiali in Spagna: il catalano,

il basco, il galiziano) dei diciotto lavori di Becattini, rilevate attraverso i motori di ricerca accademici online (Google Scholar, Microsoft Academic), erano circa 1.300, che a loro volta erano stati citati 12.000 volte.

2.1.2. I lavori riguardano soprattutto il distretto industriale

I lavori in castigliano che citano direttamente Becattini sono quasi 500, prodotti da 390 autori, e hanno come tema principale il distretto industriale. Di questi, quasi un centinaio sono stati realizzati in America Latina, in particolare in Messico e in Argentina, anche se ci sono autori di altri paesi: della Colombia, della Bolivia, della Costa Rica, dell'Ecuador, del Venezuela e del Guatemala. Si può affermare che i lavori in castigliano pubblicati in Spagna hanno favorito la penetrazione del pensiero di Becattini anche in America Latina.

La figura 1 mostra le relazioni di coautoraggio o di coedizione derivate da questi 500 lavori in castigliano (o in lingue co-ufficiali della Spagna) centrati sul distretto industriale. Nella figura compaiono due reti di grandi dimensioni. La prima rete gravita intorno a Becattini e al gruppo di influenza presente nelle due Università di Barcellona e nell'Università di Valencia (Joan Trullén, Rafael Boix, Vittorio Galletto, Fabio Sforzi, Maria Teresa Costa, Vicent Soler, ecc.) e alle relazioni internazionali dell'autore (Frank Pyke, Werner Sengenberger, Michael Piore, Michael Storper, ecc.). La seconda rete è focalizzata sull'Universitat Jaume I di Castellón e sull'Università Politecnica di Valencia (Xavier Molina, Maria Teresa Martínez, César Camisón, Josep Capó, Teresa Vallet, Francisco Mas, ecc.). Tra questi due gruppi principali si inseriscono altri gruppi più piccoli afferenti all'Università di Alicante (Josep-Antoni Ybarra, Maria Jesús Santa María, José Miguel Giner, ecc.), un gruppo specializzato nella storia economica che fa riferimento a varie Università (José Antonio Miranda, Jordi Catalán, Ramón Ramón), e altri gruppi minori presenti nelle Università di Castellón e di Valencia. La maggior parte degli autori che formano le reti più grandi sono membri dell'AECR (Associazione spagnola di scienze regionali), una circostanza che spiega la numerosità di contributi sui distretti industriali presentati nei congressi dell'Associazione nel corso degli ultimi anni. Altre piccole reti sono formate da autori che svolgono la loro attività di ricerca in America Latina (soprattutto, in Messico e in Argentina).

Se si includessero le citazioni dei lavori in inglese pubblicati da autori spagnoli (più frequenti negli ultimi anni per via della pressione accademica a pubblicare in questa lingua), alcune di queste reti sarebbero più dense e collegate tra loro.

I dati sulle citazioni dei lavori di Becattini in Spagna – sia quelle generali che quelle riferite esclusivamente al distretto industriale – non riflettono l'effettivo grado di penetrazione delle idee di Becattini in Spagna. Tuttavia, forniscono una prima indicazione dell'importanza del suo contributo. Non si è a conoscenza di

Tabella 1 – Le pubblicazioni di Giacomo Becattini in Spagna, 1986-2015

Becattini G. (1986), Buying offices e diffusione sul territorio. Due aspetti dello sviluppo delle piccole e medie imprese in Toscana. *Papers de Seminari*, 25-26: 89-99.

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Becattini G. (2002), Del distrito industrial marshalliano a la "teoría del distrito" contemporánea. Una breve reconstrucción crítica. *Investigaciones regionales*, 1: 9-32.

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Becattini G. (2006), Vicisitudes y potencialidades de un concepto: el distrito industrial. *Economía industrial*, 359: 21-27.

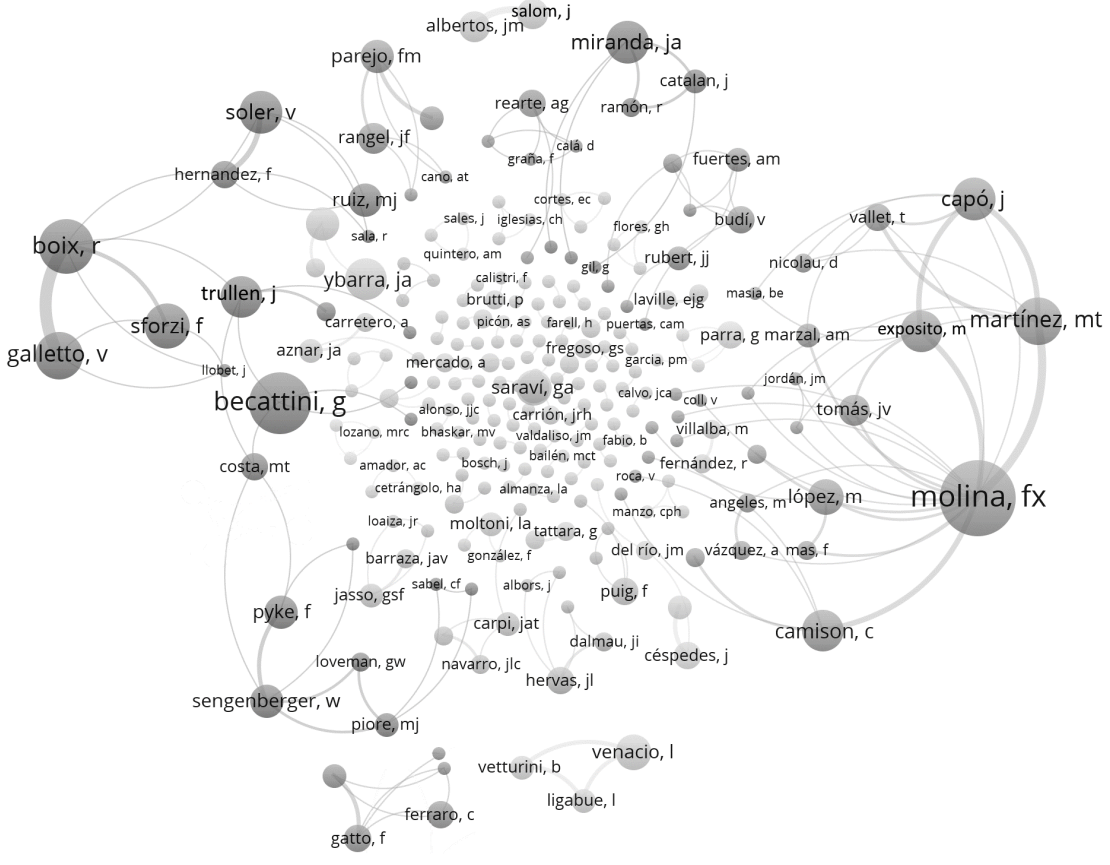
Becattini G. (2015), Beyond geo-sectoriality: the productive chorality of places. *Investigaciones Regionales*, 32: 31-41.

Becattini G., Costa M.T., Trullén J. (eds.) (2002), *Desarrollo local: teorías y estrategias*. Madrid: Civitas.

Becattini G., Musotti F. (2008), Los problemas de medición del "efecto distrito". *Mediterráneo Económico*, 13: 55-82.

Becattini G., Rullani E. (1996), Sistemas productivos locales y mercado global. *Información Comercial Española, ICE: Revista de economía*, 754: 11-24.

Figura 1 – Autori di articoli sul distretto industriale in lingua castigliana (o lingue co-ufficiali della Spagna) che citano Becattini, 1980-2018



studi analoghi che permettano un confronto con l'Italia, anche se è ovvio che la diffusione delle idee di Becattini in Italia è superiore alla loro penetrazione in Spagna.

Una ricerca non filtrata basata su Google Scholar elenca oltre 200 lavori di Becattini che raccolgono circa 10.000 citazioni dirette.

2.1.3. Il contributo alle diverse aree scientifiche

È molto complicato distinguere il contributo dei diciotto lavori di Becattini con riguardo alle diverse aree scientifiche, sebbene siano stati tutti molto influenti, in modo particolare nel campo dell'economia e delle scienze regionali, soprattutto nei loro incroci con l'economia regionale, l'economia aziendale, la geografia economica e con i temi dello sviluppo locale. Inoltre, l'influenza nelle diverse aree è cambiata nel corso del tempo in risposta all'evoluzione del pensiero di Becattini. Inizialmente più alta in discipline come l'economia industriale o l'economia del lavoro, dalla metà degli anni Novanta a oggi l'influenza dei lavori di Becattini è cresciuta nelle diverse sezioni delle scienze regionali e dell'economia aziendale, come si può stabilire dalla cronologia dei lavori pubblicati in Spagna dai ricercatori afferenti a queste discipline.

2.2. Cronologia delle pubblicazioni ed evoluzione della loro influenza nei diversi campi scientifici

I primi tre lavori di Becattini apparsi in Spagna saranno pubblicati a Barcellona nel 1986 (tabella 1). Non si tratta di una casualità, perché l'economia e la società catalane erano molto industrializzate, e le città con caratteristiche produttive simili a quelle della Toscana erano numerose. Tuttavia, le idee economiche dominanti dell'epoca (economie di scala e grande impresa) non offrivano un'interpretazione soddisfacente del funzionamento dell'economia catalana o delle sue città industriali.

La prima traduzione dell'articolo *Dal "settore" industriale al "distretto" industriale* avvenuta al di fuori dell'Italia sarà in catalano e aprirà il primo numero della *Revista Econòmica de Catalunya*, pubblicata dal Col·legi d'Economistes de Catalunya, ancora oggi uno dei principali forum del dibattito accademico e politico in Catalogna. In quello stesso anno altri due articoli di Becattini, entrambi in italiano, saranno pubblicati sulla rivista *Papers de Seminari* del CEP (Centre d'Estudis de Planificació) e nell'*Anuari de la Societat Catalana d'Economia*.

La diffusione in castigliano dei lavori di Becattini e la loro penetrazione in altri ambiti disciplinari sarà rapida, in parte mediata dalle reti interpersonali che si crearono dopo i primi contatti. Nel 1988, un articolo sui distretti industriali nello sviluppo italiano apparirà nella rivista *Sociología del Trabajo*. Nel 1990 e nel 1991 altri due articoli saranno pubblicati sulla *Revista de Economía* del

Consejo General de Colegios de Economistas de España, e nel primo volume dei *Debates sobre el empleo*, pubblicato dal Ministero del Lavoro.

Decisiva, per la diffusione delle idee di Becattini in Spagna, sarà la pubblicazione, nel 1992, da parte del Ministero del Lavoro del volume *Los distritos industriales y las pequeñas empresas. Distritos industriales y cooperación interempresariales en Italia*, curato da F. Pyke, G. Becattini e W. Sengenberger, che seguiva ad altre pubblicazioni curate dagli stessi autori per l'ILO (International Labour Organization). È in questo volume che appare l'articolo di Becattini *El distrito industrial marshalliano como concepto socio-económico*.

Fino alla prima metà degli anni Novanta, le idee di Becattini si diffonderanno nel campo degli studi di economia industriale e di economia e sociologia del lavoro. La diffusione nel campo delle scienze regionali inizierà intorno alla metà degli anni Novanta. In precedenza, nel 1983, l'Institució Alfons el Magnànim, appartenente al governo della Provincia di Valencia, aveva tradotto e pubblicato il libro di Giorgio Fuà *Problemi dello sviluppo tardivo in Europa*. Nel 1994, la stessa istituzione tradurrà e pubblicherà il libro, curato da Georges Benko e Alain Lipietz, *Les r*égions *qui gagnent. Districts et réseaux: les nouveaux paradigmes de la g*éographie économique, che contiene un articolo di grande importanza nel pensiero di Becattini: "El distrito marshalliano: una noción socioeconómica". In questa pubblicazione, le idee di Becattini sono inserite nell'ambito delle scienze regionali, sia nel contesto europeo che in quello spagnolo e latino-americano.

Negli anni successivi, le idee di Becattini in Spagna diventeranno popolari sia nel campo dell'economia industriale che in quello delle scienze regionali. L'anno 2002 sarà particolarmente significativo per quest'ultimo campo di studi. L'AECR inizierà a pubblicare la propria rivista *Investigaciones Regionales*, che aprirà il suo primo numero con un articolo di Becattini dal titolo *Del distrito industrial marshalliano a la «teoría del distrito*» *contemporánea. Una breve reconstrucción crítica*. Nello stesso anno apparirà un libro curato da Becattini, con J. Trullén e M. T. Costa, dal titolo *Desarrollo local: teorías y estrategias*, che includerà anche il suo articolo *Anomalías marshallianas*.

Il 2005 segnerà un altro passaggio importante per la diffusione del pensiero di Becattini in Spagna. Un giovane professore dell'Università di Valladolid, Juan Juste, che aveva conosciuto Becattini durante un soggiorno accademico a Firenze, tradurrà in castigliano il suo saggio sulla storia di Prato *La oruga y la mariposa. Un caso ejemplar de desarrollo en la Italia de los distritos industriales: Prato (1954-1993)*, che sarà pubblicato dall'Università di Valladolid.

Nel 2006, la rivista *Economía Industrial*, del Ministero dell'Industria, pubblicherà gli articoli del corso della UIMP 2004 in un numero monografico dal titolo *El distrito industrial marshalliano: un balance crítico de 25 años*, coordinato da Becattini, Sforzi e Boix, e con un'introduzione di J. Trullén, a quel tempo

vice-ministro dell'Industria del governo spagnolo. Il monografico contiene due articoli di Becattini: il primo è *Vicisitudes y potencialidades de un concepto: el distrito industrial*, il secondo è un commento sulla traduzione in spagnolo del suo libro su Prato (*Introducción del autor a la edición española de "La oruga y la mariposa"*).

Negli anni successivi, solo altri due lavori di Becattini saranno pubblicati in Spagna. Il primo, l'articolo scritto con Francesco Musotti su *Los problemas de medición del "efecto distrito"*, sarà pubblicato nel 2008 in un numero monografico della rivista *Mediterráneo Económico* dedicato ai distretti industriali, coordinato da Vicent Soler. L'ultimo articolo, *Beyond geo-sectoriality: the productive chorality of places*, sarà pubblicato nel 2015 su *Investigaciones Regionales*, in un numero monografico in inglese dedicato a una riflessione critica sul distretto industriale, curato da Boix, Sforzi e Hernández.

3. L'influenza sulle politiche spagnole

3.1. Il contesto politico ed economico

L'influenza del pensiero di Becattini sulla politica economica spagnola è più difficile da stabilire rispetto all'influenza sul pensiero scientifico. La scienza ha l'abitudine di documentare le fonti bibliografiche e le reciproche influenze fra gruppi di ricercatori o scuole di pensiero attraverso le citazioni, ma questo non avviene con i progetti, le decisioni e le realizzazioni che riguardano la politica.

L'irruzione in Spagna del pensiero di Becattini, e specialmente del suo concetto di distretto industriale, avviene in un passaggio storico importante per l'economia spagnola. Dopo vent'anni di autosufficienza e isolamento, l'economia spagnola si era aperta all'esterno nel 1959. L'apertura aveva permesso l'importazione di materie prime, beni strumentali e tecnologia dall'estero e fornito la possibilità di esportare in un ambiente – essenzialmente europeo – caratterizzato da alti livelli di reddito. I distretti industriali storici trarranno vantaggio da questa opportunità e, inoltre, la congiuntura faciliterà la fioritura o la nascita di nuovi distretti. I tempi e le traiettorie erano stati differenti da quelli italiani, ma nel 1975 la presenza dei distretti industriali nell'economia spagnola doveva essere importante quanto in Italia.

A partire dal 1975 in Spagna vi saranno cambiamenti molto rapidi. Gli effetti degli shock petroliferi e della crisi internazionale saranno fortemente avvertiti, e avranno pesanti ripercussioni sull'industria spagnola. Nel 1978 avrà luogo la transizione dalla dittatura alla democrazia, con profondi cambiamenti nel sistema politico ed economico. Uno dei cambiamenti più significativi sarà il

decentramento di una parte delle strutture dello Stato alle Regioni e agli enti locali, che nei primi anni Ottanta riceveranno competenze di natura politica e finanziaria.

Quando Becattini arriva in Spagna nel 1984, l'economia spagnola aveva iniziato a riprendersi dalla crisi economica: la sua industria pesante si trovava in piena riconversione industriale; l'industria leggera, che era stata ugualmente colpita dalla crisi, aveva dimostrato maggiori capacità di adattamento grazie alla sua flessibilità organizzativa; lo Stato stava attuando un processo di decentramento amministrativo, e il paese stava per entrare nella Comunità Economica Europea (1986). Per l'industria spagnola quest'ultimo fatto avrebbe significato la possibilità di competere in un mercato più grande, anche se meno protetto.

Ybarra (2009) sottolinea che, sebbene gli economisti spagnoli fossero consapevoli dell'importanza del territorio e delle piccole e medie imprese, questa consapevolezza non era riuscita a tradursi in iniziative politiche. Alcuni testi di politica economica – per esempio, Lluch (1976) – avevano tentato di spiegare il ruolo del territorio e il fenomeno delle piccole imprese delle regioni distrettuali con gli strumenti della macroeconomia e della economia industriale, ma si trattava di strumenti analitici inadeguati, perché era difficile comporre il *puzzle*. Mancava un modello interpretativo capace di dare coerenza all'insieme, e sarà la teoria di Becattini a fornirlo.

3.2. Regioni, città e stato

Alcuni autori (Castillo, 1994; Ybarra, 2009) concordano sul fatto che le Regioni saranno le prime a cercare di attuare politiche basate sul distretto industriale. In effetti, alcune Regioni si erano ispirate alle politiche italiane, come Valencia, che nel 1984 aveva creato l'IMPIVA (Istituto valenciano per le piccole e medie imprese) e lanciato una politica di centri tecnologici specializzati nei *servizi reali* per le piccole imprese, molte delle quali localizzate nei distretti industriali. Con la pubblicazione in Spagna dei primi lavori di Becattini, la teoria del distretto industriale rafforzerà l'uso di questi strumenti di politica economica.

Nella regione di Valencia e in Catalogna, le teorie di Becattini ebbero un impatto anche sulle politiche locali e urbane. L'esempio più significativo è quello del 22@bcn di Barcellona. Il 22@bcn è un progetto di ristrutturazione di un'area industriale dismessa, che occupa cento ettari nel centro di Barcellona, con l'obiettivo di trasformarla in un un intorno simile a un distretto industriale ma basato su attività tecnologiche ad alta intensità di conoscenza, integrando attività produttive con funzioni residenziali, commerciali e dotazioni di servizi. Il 22@ bcn si ispira all'idea del distretto industriale, facendo leva sulle economie esterne marshalliane e sulle economie di urbanizzazione.

A livello del governo centrale, la quasi assenza di politiche economiche territorialmente orientate fece sì che il percorso di penetrazione delle teorie di Becattini avvenisse, sostanzialmente, attraverso la politica industriale. Castillo (1994) ricorda che nel 1992 vi fu un cambio di direzione nella politica del Ministero dell'Industria, con il rafforzamento e il decentramento regionale delle politiche industriali e la promozione della cooperazione tra imprese (*Ley de Industria, proyecto mayo, 1992, Título II, "Promoción y modernización industriales", artículo 5, 2-6*), che si realizzò anche attraverso l'organizzazione delle *giornate EXCEL* da parte della Segretaria di Stato dell'Industria per discutere di questo nuovo orientamento. Ciò nonostante, tra il 1997 e il 2004 la politica industriale spagnola si conformerà a un approccio neoliberista.

Tra il 2004 e il 2008 il governo spagnolo decise di riprendere la politica industriale, e con la nomina di Joan Trullén a vice-ministro dell'Industria il distretto industriale assumerà un ruolo diretto nella nuova politica del Ministero dell'Industria (Trullén, 2009). La Segretaria Generale dell'Industria e la Direzione Generale delle Piccole e Medie Imprese elaboreranno la prima mappa dei distretti industriali della Spagna, comparabile con quella dell'ISTAT per l'Italia (Boix, Galletto, 2006), e il Ministero adotterà politiche attive ispirate al distretto industriale (*ORDEN ITC/2691/2006, de 2 de agosto, ORDEN ITC/692/2007, de 20 de marzo).*

4. In conclusione: ricapitolazione e che cosa resta da fare

Pochi studiosi hanno avuto un'influenza così rilevante nelle scienze regionali spagnole come Giacomo Becattini.

Tra il 1986 e il 2015 diciotto lavori di Becattini furono pubblicati in castigliano (o in lingue co-ufficiali della Spagna), italiano o inglese. Questi lavori e la presenza di Becattini in Spagna hanno avuto un'influenza significativa nel pensiero scientifico spagnolo e in particolare nelle scienze regionali.

Il pensiero di Becattini arrivò in Spagna in un periodo in cui l'economia e la società spagnole stavano affrontando grandi cambiamenti dopo una difficile transizione democratica e una crisi economica.

La teoria del distretto industriale fornì strumenti analitici per comprendere l'economia di alcune aree altamente industrializzate della Spagna, come Valencia, la Catalogna o il Paese Basco, con riguardo alle quali i tradizionali strumenti teorici dell'economia non permettevano di formulare interpretazioni soddisfacenti.

I lavori di Becattini influenzarono il pensiero scientifico spagnolo attraverso varie fasi. Inizialmente influenzarono l'economia industriale e l'economia del lavoro; successivamente le scienze regionali e l'economia aziendale.

Il pensiero di Becattini influenzò soprattutto le comunità scientifiche che operavano in università e centri di ricerca situati nelle vicinanze di realtà industrializzate simili a quelle che si trovano nelle regioni della Terza Italia. I ricercatori di queste comunità scientifiche che hanno studiato e utilizzato più di altri la teoria del distretto industriale formano la rete che gravita intorno a Becattini e lavorano nelle università di Barcellona e di Valencia, oltre che nelle università di Castellón e di Alicante. E sono tutti legati fra loro attraverso la comune appartenenza all'AECR.

Il pensiero di Becattini ha influenzato anche la politica economica della Spagna, a livello regionale e locale, oltre che nazionale. In particolare, ha influenzato la politica industriale di regioni come Valencia, la Catalogna e il Paese Basco; i grandi progetti di rinnovamento urbano come il progetto 22@bcn di Barcellona; la politica del Ministero dell'Industria nella prima metà degli anni Novanta, e tra il 2004 e il 2008 ha orientato la realizzazione di nuove politiche e favorito cambiamenti legislativi.

In queste note abbiamo offerto una panoramica introduttiva, per quanto limitata, dell'influenza di Giacomo Becattini nel pensiero scientifico e nella politica economica in Spagna. Restano ancora da ricostruire numerosi passaggi e relazioni per comprenderne gli effetti sull'avanzamento delle conoscenze teoriche e sulla comprensione dei fenomeni economici, oltre che sull'efficacia delle politiche economiche. E restano anche da analizzare le relazioni tra quei gruppi di ricercatori dei due paesi, Spagna e Italia, che hanno contribuito alla diffusione del pensiero di Becattini in Spagna.

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Abstract

The Importance of Giacomo Becattini in the Regional Sciences in Spain

Few scholars have had an important influence in the Spanish regional science such as Giacomo Becattini. Between 1986 and 2015 he published eighteen works in Spain. These works, together with Becattini's presence in Spain through lectures and conferences, have significantly influenced Spanish scientific thought and, in particular, the regional science. In addition, they have influenced industrial policy and local development initiatives in some Spanish regions and cities, and the industrial policy of the Spanish government.

Le ricerche francesi sulle dimensioni territoriali e produttive: Becattini ci ha salvati!

*André Torre**

Sommario

Quale è il ruolo giocato dal pensiero e dai lavori di Giacomo Becattini nello sviluppo in Francia di un approccio all'analisi delle dimensioni spaziali e territoriali dei processi economici (e sociali)? Gli anni '80 furono caratterizzati dalla presa di coscienza dell'importanza del legame fra la questione produttiva e la dimensione spaziale; rimaneva tuttavia difficile identificare e applicare strumenti analitici adeguati. Per i ricercatori francesi, i lavori condotti da Becattini e i suoi collaboratori resero possibile la considerazione congiunta dei problemi spaziali e produttivi, e in particolare l'apertura della scatola nera delle relazioni locali, che fino ad allora era rimasta chiusa ermeticamente, impenetrabile. In questo breve testo, dunque, considero in successione lo stato delle ricerche francesi sulle dimensioni spaziali e produttive prima di Becattini, l'accoglienza dei suoi lavori, in particolare quelli sui distretti industriali, e infine le sue diramazioni francesi, cioè le analisi dei sistemi di produzione localizzati e delle relazioni di prossimità.

1. Introduzione

Vorrei, in questo breve testo, ritornare sul ruolo giocato dal pensiero e dai lavori di Giacomo Becattini nello sviluppo in Francia di un approccio all'analisi delle dimensioni spaziali e territoriali dei processi economici (e sociali).

Come molti ricercatori interessati alle relazioni fra produzione e spazio, mi trovavo in uno stato di disillusione alla fine degli anni '80. Disilluso perché le condizioni sociali ed economiche che percepivo nel mio ambiente si ritrovavano molto poco nelle ricerche che conducevamo, e ancora meno negli strumenti analitici a nostra disposizione. Noi avvertivamo cambiamenti importanti, grandi evoluzioni nelle società contemporanee. In particolare, come specialisti dell'analisi spaziale, convenivamo sul ruolo crescente delle relazioni industriali e dell'innovazione, così come sul ruolo acquisito dalle imprese nelle dinamiche

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economiche territoriali. Come economisti industriali, prendevamo coscienza dell'importanza della componente locale, o spaziale, non soltanto in termini di gestione del territorio o delle politiche di pianificazione, ma nella vita e nelle pratiche delle imprese, in particolare a livello delle loro interazioni.

L'impatto delle dimensioni spaziali sulle evoluzioni economiche e sociali delle nostre società ed economie, e l'apparente inestricabilità dei processi territoriali, di produzione e di innovazione, ci interessavano e ci intrigavano straordinariamente. Cosa influenzava cosa? In quale senso? I nostri maestri ci mettevano in guardia, ritenendo impossibile la mescolanza delle due dimensioni. Noi tentavamo di rispondervi a modo nostro, ancora in maniera troppo convenzionale per rendere conto della ricchezza del reale. Alcuni realizzavano monografie molto dettagliate in cui questi nessi, pur non analizzati, erano almeno segnalati. Altri, come me, producevano modelli economici industriali nei quali era instillata una goccia di spazio.

La lettura delle ricerche dirette da Becattini e dai suoi collaboratori fu una boccata d'aria fresca. Ha reso possibile la considerazione congiunta delle problematiche spaziali e produttive, e particolarmente l'apertura della scatola nera delle relazioni locali, che ci era rimasta fino ad allora ermeticamente chiusa, impenetrabile. Nelle righe che seguono affronterò innanzitutto lo stato delle ricerche francesi sulle dimensioni spaziali e produttive prima di Becattini, poi l'accoglienza ricevuta dai suoi lavori, in particolare quelli sui distretti industriali, infine l'eredità che ha lasciato, in termini di analisi dei sistemi locali di produzione e di relazioni di prossimità.

2. Lo stato delle ricerche francesi sulle dimensioni spaziali e produttive prima di Becattini

Gli anni '80 sono stati caratterizzati dalla presa di coscienza dell'importanza del fatto produttivo e del suo nesso con le dimensioni spaziali (Raveyre, Saglio, 1984). Ma sono stati anche segnati dalla difficoltà di identificare gli strumenti analitici in grado di fondare e sostenere la riflessione sulla questione spaziale. Le politiche dei poli di crescita, inspirate dai lavori di Perroux (1964), guardavano alla capacità della grande azienda motrice di trascinare la crescita dell'ambiente economico della regione, attraverso la torsione della struttura produttiva locale. Esse mostravano sia possibili effetti benefici su tessuti industriali costituiti, es. Lione e i suoi dintorni, sia forti limiti di volontarismo industriale, es. il fallimento di Fos sur Mer vicino a Marsiglia, o dei numerosi tentativi di industrializzazione fondati su grandi imprese di industrie pesanti tradizionali nei paesi in via di industrializzazione. L'insoddisfazione riguardava in particolare due dimensioni principali.

Innanzitutto, un'assenza di spiegazioni valide riguardo al nesso imprese-territori e specificamente alla razionalità della concentrazione spaziale delle imprese,

osservata in modo ricorrente. Queste rilevazioni avevano una forte pregnanza riguardando, nell'ambito degli agglomerati di imprese e di produzioni industriali, non solo zone industriali e periferie urbane, ma anche due fenomeni meno spiegabili in termini di economie di agglomerazione e di massa critica. Innanzitutto la polarizzazione spaziale delle imprese innovative e dei laboratori, spesso di piccola taglia, nell'ambito di uno stesso territorio, con l'esperienza all'epoca innovatrice in Francia di Sophia Antipolis. Questa proponeva una concentrazione spaziale di laboratori high tech in uno spazio ridotto e situato lontano dai grandi centri industriali francesi. Interessanti erano pure i sistemi tecnologici locali come i tecnopoli di Tolosa e di Grenoble, o appunto i fallimenti del polo di Fos sur Mer. Per quali ragioni le attività high tech avevano bisogno di raggrupparsi? Ma ugualmente, e in una maniera ancora più interessante, s'imponeva all'attenzione la persistenza di agglomerati locali, che rimanevano competitivi anche se fondati su una folla di piccole imprese e un'evoluzione tecnologica moderata, anzi debole. Questi erano i casi d'Oyonnax, di Choletais e della sua produzione di fazzoletti, e della valle dell'Arve e delle attività di tornitura. Si trattava di sopravvivenze del passato, o di forme particolari di organizzazione economica e sociale?

La seconda dimensione, emersa un po' più tardi, era legata ai risultati frustranti delle ricerche scaturite dai lavori di Paul Krugman (1991). La rivoluzione della Nuova Economia Geografica costituiva un grande progresso, anche solo per il fatto che le dimensioni industriali e spaziali potevano essere discusse in uno stesso quadro, nell'ambito degli stessi articoli, e con gli stessi strumenti d'analisi. Ma per la maggior parte di noi questa rivoluzione non portava a spiegazioni sufficienti delle questioni poste dalle nostre osservazioni. Certamente, ci permetteva d'integrare una parte delle problematiche spaziali entro l'approccio economico, ma i meccanismi descritti erano circoscritti a una visione produttiva e soprattutto economicista delle relazioni locali. Alla base vi erano determinanti tradizionali quali la mobilità o l'immobilità dei fattori di produzione e le particolarità delle relazioni capitale-lavoro. Ma erano omessi una serie di elementi o di fatti che spiccavano nelle nostre ricerche sul campo e nelle nostre inchieste, in primo luogo l'importanza dell'innovazione tecnologica e il suo ruolo motore, oltre che le sue dimensioni pervasive, la sua concentrazione spaziale e il suo ancoraggio territoriale. Pure trascurati erano l'importanza delle relazioni informali quotidiane e delle dimensioni sociali, e il ruolo giocato dai processi imprenditoriali. Insomma, veniva imposto un quadro formale particolarmente restrittivo basato su ipotesi che non avevano un'accettabilità generale (equilibrio parziale, ottimalità, concorrenza monopolistica, immobilità della mano d'opera entro certe situazioni…).

3. L'accoglienza dei lavori sui distretti industriali

Grande è la ricchezza delle ricerche condotte da Becattini, e vasta la sua gamma, tra economia e sociologia, ai confini della geografia. Ma per noi francesi è prima di tutto l'approccio dei distretti industriali ad avere avuto un effetto duraturo. Questo ha permesso di portare una risposta argomentata e articolata alle differenti questioni che noi ci ponevamo e che all'epoca restavano sostanzialmente degli enigmi. La sua grande forza risiedeva nella capacità di rompere le frontiere tra discipline, e di portare elementi di spiegazione estremamente potenti ma anche efficaci, ai quali ciascuno poteva agganciarsi, partendo dal proprio campo d'analisi. Erano i primi pezzi della scatola degli strumenti dello specialista dei rapporti territoriali, che da allora non ha smesso di riempirsi.

Bisogna confessare che la maggior parte di noi economisti francesi non aveva mai sentito parlare prima di distretti marshalliani, perché Marshall era innanzitutto conosciuto per il suo contributo alla microeconomia o alla storia dei fatti e del pensiero economico. E, allo stesso modo, molti non avevano che una conoscenza piuttosto debole dell'analisi spaziale, riservata a pochi specialisti, raggruppati sostanzialmente intorno a Claude Ponsard e Jean-Marie Huriot e al loro approccio matematico delle dimensioni spaziali, a Dijon, oppure concernenti la gestione del territorio, con Claude Lacour e i suoi allievi di Bordeaux. Le ricerche di Becattini ci hanno permesso di rompere con questi approcci specializzati, portando numerose soluzioni o tracce di risposte riguardo a punti estremamente importanti dell'analisi economica (e, più tardi, di certe dimensioni sociali).

Ricordiamo alcune tracce.

- Così come specificato sopra, l'approccio dei distretti industriali ha fornito una spiegazione e procurato una razionalizzazione ai fenomeni di concentrazione spaziale della produzione, più volte costatati senza una risposta coerente, salvo il rinvio ad economie di agglomerazione piuttosto vaghe. Qui, la dimensione sistemica, messa in primo piano, permetteva di comprendere come un comportamento collettivo poteva dimostrarsi proficuo, facendo leva sulla potenza dei processi di cooperazione attorno ad obiettivi condivisi. La fecondità di questo tipo di ricerche si sarebbe rivelata estremamente ricca.
- Oltre alla componente sistemica così rilevata, l'analisi portava una risposta a una questione rimasta insoluta. Mentre all'epoca si glorificava l'*high tech* e il *Big is beautiful*, come spiegare che imprese piccole (e piccolissime), specializzate in ciò che vi è di più tradizionale (il tessile, la ceramica…), potevano sopravvivere, o ancora meglio, dimostrarsi competitive a livello nazionale, o anche internazionale? Questa riuscita alquanto incongrua, esemplificata dal caso del distretto di Prato, trovava una spiegazione illuminante nell'approccio di Becattini. Al centro dell'analisi, insieme al ruolo dell'azione collettiva

e dei legami sociali, vi erano anche dimensioni facilmente assimilabili da economisti interessati a questioni di organizzazione. La prima riguardava la flessibilità e il *just-in-time*, in altri termini la capacità delle imprese del distretto di rispondere rapidamente alla domanda esterna e di trovare soluzioni rapide, anche al prezzo di carichi estenuanti di lavoro e di un rispetto relativo delle normative sul lavoro. La seconda riposava "sull'impannatore", figura capace di trovare i clienti, di raccogliere o di favorire le domande esterne, e poi di raggrupparle tra loro, dando una traduzione in termini di ordini interni. Insomma si trattava di un'interfaccia tra il cuore del distretto e il suo ambiente esterno, su ambiti talvolta geograficamente molto lontani, a livello nazionale, e anche internazionale.

- Accanto alle dimensioni molto economiche od organizzative, l'approccio non eludeva la componente sociale e dava grande importanza ai nessi tra gli individui e ai fenomeni di gruppo. Le interazioni tra persone e gli scambi locali occupavano un posto fondamentale, così come la possibilità di interagire su base quotidiana, i nessi cooperativi tra gruppi di lavoratori, perfino la possibilità per certi addetti di passare da un'impresa all'altra a seconda degli ordinativi e dei periodi, beneficiando dell'effetto della reputazione e dei contatti personali, possibili in uno spazio geograficamente ristretto, dove tutta la gente o quasi si conosceva. Neppure la dimensione più propriamente culturale, o comunitaria, era trascurata. Le relazioni di fiducia erano collegate ad una cultura comune, o ancora a dei gruppi particolari di persone, che si trattasse della famiglia, o dell'appartenenza a dei corpi sociali come la chiesa cattolica col suo ruolo integratore. La componente sociale era così messa in evidenza, integrando dimensioni culturali spesso locali e originali, che superavano ampiamente l'ambito coperto dalle interazioni ripetute dei giochi sequenziali.
- Le caratteristiche geografiche degli spazi considerati erano raramente messe al centro dell'analisi, ma in compenso i legami economici e sociali così spiegati disegnavano una geografia locale e permettevano di inferire, se non di comprendere, la dimensione territoriale. Si coglieva bene che queste interazioni, queste appartenenze locali, questi gruppi di attori, queste culture e origini comuni favorivano un principio territoriale, propizio alla produzione e alle prestazioni economiche, che non avrebbe potuto svilupparsi armoniosamente a distanza o in altri luoghi. L'importanza della dimensione spaziale si vedeva così portata in primo piano nell'analisi, sebbene numerosi interrogativi sussistessero sul suo ruolo e le sue funzioni esatte.
- L'insieme di questi elementi – economici, sociali, geografici, culturali…– gettava le fondamenta di un corpo di principi esplicativi forti riguardo ad esistenza, persistenza e resilienza dei sistemi produttivi locali. Si poteva comprendere perché certi distretti avevano attraversato il tempo e le avversità,

spesso rinnovando le loro attività produttive, sfruttando legami molto solidi che avevano permesso loro di resistere alle crisi esterne, mantenendo una struttura interna al contempo resistente e flessibile. E diveniva possibile applicare questa idea ad altri distretti, in altri luoghi perfino in altri paesi, e forse anche ad altri sistemi locali, aventi delle somiglianze più o meno dimostrate con la forma canonica del distretto. L'essenziale non si trovava nelle scelte produttive del momento, evidentemente importanti ma contingenti. Di fatto, la nozione di *path dependence* trovava qui una dimostrazione molto forte, con l'idea semplice che i sistemi locali erano capaci di perpetuarsi e di rinnovarsi a partire dai legami più intensi che contribuivano alla loro esistenza, e che il loro cammino era protetto dall'armatura sociale e dall'architettura organizzativa che presiedevano al loro destino.

Si può dire che la diffusione e la traduzione in francese dei lavori di Becattini e dei suoi collaboratori (vedi per esempio Becattini 1992; Becattini, Rullani, 1995) ha avuto un effetto immediato sul piccolo mondo dei ricercatori, essenzialmente economisti e sociologi, che lavorano al confine tra le dimensioni industriali e spaziali. Riassumendo, l'approccio ha portato una ricomposizione degli approcci sui fatti regionali, e l'avvicinamento tra ricercatori che non avevano lavorato insieme fino ad allora (Rallet, Torre, 1995). L'impatto dei distretti industriali ha spezzato le alleanze passate e condotto alla comparsa di un nuovo polo di ricerca e di analisi.

Retrospettivamente, si può dire che l'eredità di Becattini si è manifestata a due livelli principali ma in definitiva complementari, portando alla fine sviluppi molto differenti. Si tratta degli approcci in termini di cluster e di sistemi localizzati della produzione, e delle analisi della prossimità.

4. Il retaggio francese di Becattini: i sistemi localizzati di produzione

La prima e più immediata conseguenza della lettura dei lavori e delle esperienze sui distretti industriali è stata il sorgere di numerose ricerche e la messa in opera di politiche in favore di sistemi localizzati di produzione e di clusters. Se l'approccio dei clusters come noi lo conosciamo oggi in Francia è molto vicino a quello che si può trovare in altri paesi (Vicente, 2016) è dato dal fatto che questo risente probabilmente più dell'influenza dei lavori di Porter che della derivazione da Becattini. Ma ben diversamente è andata con l'approccio dei sistemi localizzati di produzione, dove si è manifestata una vera e propria originalità francese, sia a livello di analisi propriamente dette sia di politiche industriali e di gestione di questi sistemi.

In effetti, in seguito e al di là del caso particolare della Terza Italia, si è messo un po' ovunque nel mondo in evidenza l'esistenza di sistemi di produzione localizzati, che designano un insieme di attività interdipendenti, organizzate tecnicamente

ed economicamente, e territorialmente concentrate. La Francia non fa eccezione con l'approccio dei SPL (o Sistemi Produttivi Localizzati), che ha conosciuto un successo importante nel corso degli anni '80 e '90, anche al prezzo di certi adattamenti rispetto al modello iniziale dei distretti. Effettivamente se il radicamento in un territorio particolare resta presente, il riferimento necessario a imprese di piccola dimensione è abbandonato, e vengono considerati anche i casi con imprese o filiali di grande dimensione presenti sul territorio (Courlet, Pecqueur, 2013). Stando così le cose, la dimensione famigliare e l'importanza di una comunità locale passano solitamente in secondo piano, mentre le relazioni produttive informali non sono sempre così importanti, prevalendo spesso legami di tipo commerciale o contrattuale.

Si vede che si allarga il caso iniziale a sistemi locali della natura più varia, pur restando fedeli all'idea di partenza. Un SPL si fonda così su una grande diversità di attori locali: famiglie, anche consumatori, così come attori della produzione o personale amministrativo; imprese di tutte le dimensioni e natura; ma anche poteri pubblici e istituzioni locali come le Camere di Commercio o organismi di gestione locale. La sua struttura si basa su interazioni tra questi attori, che si incrociano e si sovrappongono. Secondo Courlet (2002), che ha lavorato molto sul tema, questi sistemi condividono un insieme di caratteristiche:

- Un territorio omogeneo che ospita un sistema di produzione specializzato, se non su un singolo prodotto, in un campo di attività specifiche;
- Prodotti e tecniche che poggiano su fattori di produzione immateriali specifici (saper fare, culture tecniche, imprenditorialità), storicamente costituite e accumulate;
- Campi, tecniche e prodotti spesso compatibili con la piccola dimensione delle unità di produzione;
- Nessi e interdipendenze tra le imprese locali che sfociano nella costituzione di reti di cooperazione, di scambio e formazione comuni in materia di produzione e di innovazione;
- Mercati del lavoro specifici e flessibili che assicurano la formazione delle qualifiche e la mobilità di competenze e dei saper-fare tra imprese;
- E infine l'intreccio stretto tra "relazioni economiche e rapporti sociali e simbolici".

Questi sistemi, di cui si troverà numerosi esempi in Francia (Courlet, 2008) e la cui definizione ricorda quella degli sticky places di Markusen (1996), presentano così una varietà maggiore rispetto al caso dei distretti industriali canonici (Benko, Pecqueur, 2009). Sono comunque accomunati dalla capacità di attirare e trattenere le attività economiche, dall'attitudine ad adattarsi ai cambiamenti del loro ambiente e a superare eventuali periodi di declino o di incertezza. Le proprietà di attrazione e mantenimento delle attività produttive dipendono da

caratteristiche organizzative interne, che contribuiscono alla crescita e si trovano alla base della persistenza e della resilienza di questi sistemi.

Ma il successo dei SPL non si ferma qui. Si è incarnato, e si incarna ancora oggi in Francia, nelle politiche dei SPL e dei grappoli di imprese, che manifestano così una permanenza di interventi in favore delle strutture di piccola dimensione. La linea d'intervento dei sistemi produttivi locali (*Systèmes productifs localisés*) è stato lanciato nel 1998 dalla DATAR sull'insieme dei territori francesi. Fortemente inspirata dagli approcci dei distretti industriali e dei SPL, questa politica era particolarmente orientata al sostegno di PMI e imprese di dimensione intermedia. Si traduce in dispositivi di sostegno logistico e finanziario a reti selezionate di imprese, per accrescerne le performance produttive, migliorare la gestione delle risorse umane, e favorire lo sviluppo dell'innovazione.

Nel 2009 la DATAR ha lanciato la politica dei grappoli di imprese (*grappes d'entreprises*), che riguarda reti con progetti di investimento in un territorio. Questo dispositivo, diretto a PMI e micro imprese che si connettono e cooperano con attori pubblici e privati del loro territorio, si sviluppa come un complemento alla strategia dei Poli di competitività (*Pôles de compétitivité*) che riguarda innanzitutto le grandi imprese e il loro ecosistema industriale. Ha come obiettivo il supporto a iniziative esemplari, che possono giocare un ruolo di traino sul tessuto produttivo locale. Un'attenzione particolare è riposta su settori caratterizzati da una debole attività di R&D o che non dispongono della massa critica per costituire un polo di competitività. Tutte le imprese e le attività sono prese in considerazione (commerciali, industriali, artigianali, turistiche, artistiche, agricolo, di servizio…), sull'insieme dei territori (urbani, periurbani, rurali) francesi. Così, 126 grappoli di aziende sono stati certificati nell'ambito di due successive selezioni.

5. Il retaggio francese di Becattini: le analisi della prossimità

La seconda grande eredità dei lavori di Becattini è quella delle ricerche condotte sulle relazioni di prossimità, che hanno conosciuto senza dubbio una diffusione più ampia e internazionale rispetto ai SPL (Torre, Wallet, 2014). Becattini incarnava in effetti il padre perfetto per dei giovani ricercatori provenienti dall'economia regionale e dall'economia industriale, alla ricerca di riferimenti per la comprensione dei fenomeni che li circondano. È chiaramente la lettura delle ricerche sui distretti industriali che ci ha riuniti, anche se provenivamo da scuole di pensiero, se non discipline, diverse. In effetti, i contributi così realizzati rompevano coi quadri concettuali precedenti, e partivano da nuovi strumenti e nuovi schemi analitici.

Dapprima, e innanzitutto, Becattini ha costituito una fonte essenziale di ispirazione. I suoi lavori rendevano possibile la discussione delle questioni richiamate

sopra (concentrazione spaziale delle imprese, importanza delle relazioni locali, dimensione sistemica…), a partire da punti di vista originali e innovativi. Era allora possibile, sulla base di queste elaborazioni teoriche e di questi progressi metodologici, di pensare i fenomeni e i processi di sviluppo territoriale, ma ugualmente di andare al di là, ispirandosi a dimensioni messe in evidenza nelle ricerche italiane. Le idee e le intuizioni erano là, e non domandavano che di essere sistematizzate… o sorpassate… Allo stesso tempo, queste costituivano un punto d'ancoraggio forte, un punto di riferimento al quale era possibile aderire, ma anche un approccio che si poteva discutere, perfino contestare. Si ritrova una derivazione critica dello stesso approccio in quello dei milieux innovatori, in particolare coi contributi di autori come Camagni o Aydalot. I movimenti di adesione e di allontanamento degli approcci della prossimità rispetto all'eredità di Becattini riguardano rispettivamente le dimensioni territoriali e il superamento dei distretti entro un'analisi più generalista del rapporto con lo spazio.

La prima fase, di adesione, è consistita in una sistematizzazione delle relazioni presenti nelle ricerche di Becattini, insieme, certamente, a quelle di altri ricercatori e altre correnti di pensiero che non ricorderemo qui, come gli approcci evoluzionisti e istituzionalisti, la teoria dei giochi o l'analisi sociologica delle interazioni per esempio. Nel numero del 1993 della Rivista di Economia Regionale e Urbana sulle economie di prossimità (Bellet *et al*., 1993) erano identificate due forme maggiori di prossimità: geografica e organizzativa, la cui presenza e alleanza dovevano far nascere una prossimità territoriale. Il riferimento ai lavori di Becattini, abbondantemente citati, era evidente, e nel mio articolo (Torre, 1993) affermavo, a titolo del programma di ricerca, che era possibile e necessario aprire la scatola nera dei distretti utilizzando l'approccio delle prossimità, allora totalmente esitante.

Immediatamente, così, appariva l'ambizione o la possibilità di comprendere le dinamiche territoriali a partire da due dimensioni incrociate ma chiaramente identificate. Da un lato, le interazioni fra imprese o fra organizzazioni, così come l'influenza delle istituzioni di qualsiasi natura, dall'altra la rilevanza della dimensione spaziale o geografica. Si trattava di una sistematizzazione e di una semplificazione delle tesi di Becattini, per la parte che si chiama oggi prossimità organizzativa (a-spaziale). D'altro lato, la messa a punto della prossimità geografica si traduceva in una prima estensione, con l'idea di dare individualità alla componente spaziale, totalmente incastrata e dipendente dalle relazioni economiche e sociali nel pensiero distrettuale. Il ruolo maggiore così reso allo spazio, in quanto componente parzialmente autonoma, permetteva di servirsi delle prossimità come di una forbice a due lame, che favorisce l'analisi di forze o debolezze dei territori secondo il tipo di combinazioni risultanti dall'interazione tra le due forme di prossimità (o dalla sua assenza).

La seconda fase è stata quella del superamento e tutto sommato del rifiuto dell'approccio iniziale. In effetti, mentre la dimensione territoriale si trovava al cuore degli approcci di Becattini e dei suoi discepoli, le analisi della prossimità hanno rapidamente preso le distanze con questa posizione, per rivolgersi prima di tutto verso quello che fa la sostanza delle relazioni tra individui, imprese, organizzazioni, istituzioni… Le analisi in termini di prossimità territoriale non sono riapparse che nel corso degli anni 2010. Per un certo periodo invece la preoccupazione per il territorio è scomparsa, a favore di analisi contemporaneamente più specializzate in termini settoriali e più ampie da un punto di vista spaziale. Ha prevalso prima un interesse particolarissimo per le interazioni in termini di innovazione, con l'analisi dei modi di diffusione, adozione, assorbimento, o co-sviluppo delle innovazioni e delle conoscenze. Sono stati messo in rilievo i processi interattivi, la ripetizione delle cooperazioni, le relazioni di fiducia ma ugualmente la componente sociale e il peso delle istituzioni in questi processi, così come nelle relazioni inter-impresa in generale.

Infine, il distacco dell'approccio di Becattini si è realizzato con un allontanamento dal territorio. Nel giro di pochi anni, gli autori francesi della prossimità hanno cominciato a porsi la questione delle relazioni a distanza e della loro importanza. Come è possibile intrattenere delle relazioni a distanza, che si trovano un po' dappertutto? Queste relazioni possono totalmente affrancarsi dalla componente spaziale? La lontananza è possibile per tutti i tipi di relazioni di produzione e innovazione e scambio di conoscenze, e nel caso quali? …

La risposta data, in termini di prossimità geografica temporanea, presenta il merito di rimettere insieme lo spazio e la geografia al cuore del gioco e di espellere provvisoriamente la dimensione territoriale. Sì, è possibile scambiare, lavorare, comunicare e cooperare a distanza, e dunque la co-localizzazione delle attività non è necessaria, ma 1) questo dipende dai tipi di conoscenze condivise o create in comune, e 2) non ci si può svincolare dalla geografia, perché queste collaborazioni a distanza necessitano di momenti di copresenza, in particolare all'inizio della collaborazione e in caso di conflitti. Il circolo è chiuso e il confronto iniziale coi distretti si è allontanato.

6. Conclusione: Becattini ci manca

Becattini ci manca. Il suo spirito, la sua curiosità, la sua capacità di trascendere i divari disciplinari ci faceva un gran bene. Lui ci manca tanto più oggi che dobbiamo consacrare una parte delle nostre ricerche a un ritorno verso il territorio e particolarmente verso le questioni dello sviluppo territoriale. Dobbiamo analizzare le logiche e i meccanismi dei processi di sviluppo territoriale che sono cambiate, e si estendono ora al di là della sola analisi delle relazioni tra

imprese o dei processi di innovazione. Dobbiamo capire come le differenti parti che insistono sui territori si accordano su progetti di sviluppo, come questi attori si scontrano, si fanno concorrenza e si oppongono, e in generale come si trovano ad affrontare le sfide in materia di transizione energetica ed ecologica, e ancora sull'uso e la scarsità degli spazi di insediamento. Questo sforzo necessario di comprensione della dimensione territoriale, in tutti i suoi aspetti, richiama una rilettura dei lavori dei nostri maestri, al primo posto dei quali il contributo illuminante e umanista di Giacomo Becattini.

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Abstract

The French Researches on Territorial and Productive Dimensions: Becattini Saved Us!

In this short text I return on the role played by Giacomo Becattini's works and thought in the development of economic analysis in France and on the importance of its reflections in the constitution of a French analytical approach to spatial and territorial dimensions of economic (and social) processes. If the 80s were characterized by the awareness of the importance of the productive question and its link with the spatial dimensions, they were also marked by the difficulty of identifying valuable analytical tools dealing with the spatial question. For spatial analysts, the works led by Becattini and his collaborators made possible the joint consideration of spatial and productive problems, and quite particularly the opening of the black box of local relations, which remained hermetically closed and impenetrable yet. In the text I approach successively the state of the French researches on spatial and productive dimensions before Becattini, the reception received by his works, in particular on industrial districts, and then its French offspring, in terms of localized production systems and proximity relations analysis.

Il laboratorio locale per modelli differenti di capitalismo

*Marco Bellandi**

Sommario

Becattini è conosciuto nelle scienze regionali per avere proposto il distretto industriale, recuperato da Alfred Marshall, come laboratorio territorialmente concentrato utile ad allargare la comprensione di vie alternative di organizzazione industriale nei sistemi economici capitalistici. Questo capitolo parte da un insieme di questioni centrali per tracciare la distrettualistica becattiniana nel corso di cinque decenni, e propone alcune considerazioni su due snodi interni a tale percorso. Il primo riguarda il passaggio dal distretto industriale a una più ampia categoria di modelli di sviluppo locale. Il secondo tocca l'intreccio, evidente nell'ultima fase di Becattini, fra il cosiddetto capitalismo "dal volto umano" e il futuro dei distretti. Il capitolo conclude sulle prospettive della distrettualistica dopo Becattini.

1. Introduzione[1]

Giacomo Becattini (1927-2017) è stato un economista politico, nel senso ampio del termine. La sua riflessione ha avuto corrispondenti ideali negli economisti classici e vittoriani, ma anche in grandi pensatori sociali italiani. È noto che egli è stato uno dei massimi studiosi contemporanei di Alfred Marshall: economista eccelso in cui trova, insieme alla capacità di analisi e di inquadramento dei sistemi economici a cavallo fra Ottocento e Novecento, un'attenzione profonda al valore degli esseri umani visti nei luoghi e nei tempi della loro vita economica e sociale. La cifra più intima del pensiero di Becattini è in effetti un umanesimo civico, avvertito delle contraddizioni delle economie capitalistiche.

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1. L'introduzione di questo capitolo riprende alcuni passi di commemorazioni che ho scritto dopo la scomparsa del prof. Becattini il 21 gennaio 2017 (es. Bellandi, 2017). I due paragrafi centrali e le conclusioni elaborano parti della mia relazione al convegno in onore di Becattini, il 14 e 15 dicembre 2017, presso l'Università di Firenze. Le due sessioni su "Becattini e lo sviluppo locale" alla conferenza Aisre di Cagliari, il 22 settembre 2017, di cui sono stato co-curatore, mi hanno permesso di mettere a punto i passaggi essenziali fra le commemorazioni e la relazione di dicembre.

Becattini è conosciuto ancora di più, in circoli nazionali e internazionali non solo accademici, per avere proposto il distretto industriale, recuperato dal "suo Marshall", come modello generale utile ad allargare la comprensione di vie alternative di organizzazione industriale nei sistemi economici contemporanei, in quanto fondato su economie esterne di piccole e medie imprese specializzate, ed interne a un sistema locale che ricomprende le stesse imprese, invece che su economie interne di grande impresa. Ma l'incontro col tema del distretto avviene anche nell'ambito di rovelli interpretativi e metodologici più generali, interni al suo essere economista politico e storico del pensiero economico, quali il rapporto fra teoria economica e ricerca empirica, il circolo fra motivazioni soggettive e strutture economiche, i ponti fra scienza economica e scienze sociali, la decifrazione delle dinamiche e delle varietà dei capitalismi e delle società di mercato (Bellanca, Dardi, 2018). Risolvendo in qualche modo tali rovelli, il distretto diventa, nel corso degli anni, il perno principale della sua tensione umanistica.

In tale ambito interpretativo e metodologico più generale, quattro questioni emergono come centrali per tracciare lo sviluppo della distrettualistica becattiniana nel corso di cinque decenni, e per comprendere i messaggi di fondo che essa lascia:

- primo, perché per Becattini il distretto industriale, come unità di indagine empirica e come modello di organizzazione industriale, permette negli anni '70 un approdo robusto alle esigenze di regionalizzazione delle interpretazioni (Bellandi, 2017) e avanzamento rispetto agli approcci economici *mainstream* sull'industrializzazione toscana e italiana;
- secondo, come Becattini, consolidata e articolata la sua visione dei processi distrettuali attraverso una ricerca empirica in profondità sul caso pratese (Dei Ottati, 2017), intercetta negli anni '80 l'emergere a livello internazionale del dibattito su modi di produzione alternativi a quelli centrati su grande impresa, grande capitale, grande città;
- terzo, come il distretto industriale fra gli anni '80 e '90 diventa chiave e ponte per interpretazioni e confronti su vari fronti, su cui Becattini si impegna insieme a una comunità scientifica crescente, quali lo sviluppo locale, il rapporto con approcci similari che si diffondono a livello internazionale, il modello di specializzazione italiano, le politiche industriali e di sviluppo;
- quarto, nel nuovo secolo, a fronte delle sfide della globalizzazione e della finanziarizzazione, perché il distretto industriale continua a rivestire per Becattini un'importanza significativa sia come unità di indagine e modello di organizzazione e sviluppo locale, sia come laboratorio di piccolo mondo col quale esplorare tendenze più generali nelle trasformazioni socio-economiche contemporanee.

Tutti i capitoli della terza sezione di questo volume percorrono le quattro questioni con punti di vista specifici, disciplinari o storico-geografici. In questo capitolo, intendo toccare brevemente elementi della terza e quarta questione, assumendo un punto di vista "neo-marshalliano" (Loasby, 1998) centrato sul contributo becattiniano. Il distretto industriale è inteso come una specie di entità socio-economico-territoriale in cui si incrociano in modo particolarmente evidente processi e tendenze che hanno una portata più generale. È un laboratorio territorialmente concentrato che esemplifica opportunità e minacce per un modello di capitalismo più "umano" rispetto a globalizzazione asimmetrica e finanziarizzazione sregolata che Becattini vede ideologicamente dominanti anche nella corporazione degli economisti, seppure sotto vari paludamenti. Non richiamerò, salvo pochi cenni, il confronto coi contributi di altri protagonisti della distrettualistica e di approcci vicini, in Italia e all'estero. Rimando ad altra occasione la definizione di un quadro critico sufficientemente ampio, anche sfruttando i lavori che nel frattempo si stanno accumulando su questi aspetti "storico-geografici[2].

Dunque, nel secondo paragrafo riprendo un tema con cui chiude il capitolo di Garofoli (*infra*) in questa sezione, cioè il passaggio dal distretto industriale a una più ampia categoria di modelli di sviluppo locale. Da qui, nel terzo paragrafo considero l'intreccio, evidente nell'ultima fase di Becattini, fra il cosiddetto capitalismo "dal volto umano" e il futuro dei distretti. Arrivo infine a qualche conclusione non conclusiva sulla distrettualistica "di" e "dopo" Becattini. Non discuterò le prospettive della distrettualistica proposte in altri capitoli di questa sezione; spero tuttavia che i punti di contatto siano evidenti al lettore.

2. Dal distretto allo sviluppo locale e oltre

Becattini incontra il distretto industriale combinando ricerca sul campo sull'industrializzazione leggera, in Toscana e poi in altre regioni del centro nord Italia, con interpretazioni e concetti di ordine generale. Nel distretto industriale trova un'entità significativa per l'interpretazione dei tratti caratterizzanti quei processi che sono più autonomi da logiche esterne. Nelle aree italiane dell'industrializzazione leggera, negli anni '80 l'ISTAT, con la metodologia messa a punto insieme a Fabio Sforzi, ha cominciato a identificare i sistemi locali che appaiono approssimazioni empiriche del modello "canonico" di distretto proposto da Becattini (1979) sotto il mantello di Alfred Marshall (Sforzi, *infra*). Sono i "distretti industriali marshalliani" (DIM). I distretti ISTAT hanno un peso non trascurabile entro la manifattura italiana in termini di numero di imprese,

2. Si vedano per esempio Bellanca e Dardi (2018), Bellandi e Trullen (2017), Bianchi (2017), Magnaghi (2017), Rullani (2017), Varaldo e Ferrucci (2017).

di lavoro, esportazioni. È chiaro tuttavia che questi casi spiegano, anche in quelle aree, solo parte delle condizioni e delle trasformazioni socio-economiche. Per non parlare di altre aree italiane, per esempio il Mezzogiorno, e all'estero. Invece, le esigenze metodologiche e interpretative che hanno portato al distretto sono più ampie. Questo spinge ad allargare il discorso, cioè al passaggio dal distretto industriale allo "sviluppo locale".

Già alla fine degli anni '80 (Becattini, 1989) si arriva al punto. Il titolo della raccolta, che ospita i contributi di un gruppo di economisti e scienziati sociali radunato da Becattini a partire da una sessione della Società Italiana degli Economisti nel 1984, è "Modelli locali di sviluppo". Questi comprendono, come illustra Garofoli in uno dei capitoli, sia casi di cambiamento e sviluppo nei luoghi, ma guidati da forze essenzialmente esterne (tipo grandi imprese, pianificazione pubblica nazionale), sia casi in cui le forze locali sono il fattore di auto-organizzazione dello sviluppo nel luogo, anche se sempre intrecciate a flussi e risorse esterne. Giuseppe Dematteis, in un altro capitolo, qualifica il secondo tipo come propriamente rispondente allo sviluppo locale. I distretti industriali sono modelli e casi particolarmente chiari del secondo tipo, ma non c'è ragione, marshallianamente, di creare delle divisioni artificialmente invalicabili. Per esempio, come lo stesso Garofoli ricorda, spesso lo sviluppo locale nasce da trasformazione dell'organizzazione delle forze entro luoghi il cui sviluppo è stato guidato fino a un certo punto da forze esterne, ad evidenza che nel tempo anche in questi luoghi hanno agito, accumulando precondizioni favorevoli, forze di natura locale.

C'è di più ovviamente: si pensi a sistemi locali centrati su attività non manifatturiere, per esempio a base rurale o turistica; o in cui la medio grande impresa manifatturiera, pur dominante, si radica in processi di valorizzazione proprio delle forze locali, come fu il caso dell'Olivetti a Ivrea che Becattini ogni tanto richiama; oppure i casi delle città dove lo sviluppo, pur più generico che nei DIM, si basa certamente su forze locali in grado di riprodursi. Questo spinge a generare tipologie di modelli di sviluppo locale, intorno alle dimensioni interpretative fornite dal DIM. Non è dunque un caso che Becattini si venisse a trovare coinvolto nel 1990 in un progetto di evento annuale, che poi promosse insieme a vari colleghi per molti anni successivi[3], sotto il nome di "Incontri di Artimino sullo Sviluppo locale". È una sede di confronto fra accademici, ricercatori in formazione e operativi, che faceva seguito agli studi pratesi sul distretto industriale e che voleva ampliare le frontiere di applicazione di quegli studi (Becattini, Sforzi, 2002). E l'uso di modelli di sviluppo locale per un'interpretazione delle trasformazioni economico-sociali dell'Italia contemporanea fu anche oggetto negli anni '90 di una campagna di ricerche (Becattini *et al.*, 2001) che continuava

3. Fra i co-promotori insieme a Fabio Sforzi, ricordiamo Arnaldo Bagnasco, Sebastiano Brusco, Paolo Giovannini, Maria Tinacci Mossello, Sergio Vaccà.

il lavoro del gruppo "Trasformazione dell'Economia e della Società in Italia" (TESI) promosso da Giorgio Fuà (Garofoli, *infra*).

Becattini non è contrario a tipologie ed identificazioni statistiche, ma lascia che altri le sviluppino e le applichino. Dal 1999 comincerà a proporre esplicitamente un passaggio concettuale per lui più interessante, coerente comunque ai dibattiti sopra richiamati sullo sviluppo locale: cioè dal distretto industriale ai "processi di distrettualizzazione". Sono quelli propri del DIM, ma possono risiedere in strutture parzialmente differenti, e innervare in modo vario la vita di un sistema locale: "*Questo passaggio da un concetto strutturale di distretto a un concetto evoluzionistico di plesso di processi, suggerisce agli studi di storia dell'industria una visione dell'industrializzazione centrata sulla storia delle comunità concrete, sulle loro tendenze a concentrare il loro potenziale produttivo su di un prodotto tipico, o a diffonderlo su di una gamma di prodotti, sulla loro capacità di formarsi propri mercati di fase, un proprio subsistema di relazioni industriali, ecc.*" (Becattini 2000a, p. 202-203).

3. Il capitalismo dal volto umano e il futuro dei distretti

Un "tormentone" ricorrente intorno alla distrettualistica è la fine dei distretti, che sarebbe periodicamente "constatata" da medici più o meno obiettivi e pietosi. Sebastiano Brusco già all'inizio degli anni '80 soleva scherzare su coloro che "sino al 31 dicembre 1981 sostenevano che i distretti erano troppo deboli per sopravvivere; e dal primo gennaio 1982 sostengono che sì, prima, erano efficienti, ma oggi non possono proprio reggere" (Brusco 1989, p. 464).

Naturalmente, come tutti i tormentoni, anche questo attraversa pur in modo distorto una questione vera, e quella interessava Brusco, Becattini, e interessa ancora la distrettualistica. Cerchiamo di metterla in termini generali, con tre punti collegati:

a. Intanto occorre definire cosa vuol dire che i distretti sono "finiti". In un certo periodo, un distretto può "finire" nel senso che il sentiero di cambiamento del luogo porta fuori da strutture e processi auto-riproduttivi distrettuali, senza che necessariamente il luogo declini fino a scomparire in quanto luogo con una propria identità. Anche se si tratta solo di trasformazione in uscita da forme distrettuali, che Becattini già ammetteva nel suo articolo del 1979, fa differenza che si tratti di un fatto isolato; oppure che si accompagni a trasformazioni nello stesso senso di altri distretti in una regione vasta (es. il centro nord Italia) e in un periodo relativamente breve, magari preceduto da difficoltà e crisi.
b. Anche quando si sia in presenza dell'affollarsi di casi di uscita, questo non è di per sé il segnale che il distretto, come modello e come realtà empiricamente

rilevante, sia "finito". Può essere che nello stesso periodo e nella stessa regione vasta dove si osservano quei casi, nuovi distretti emergano. Oppure, i casi di emersione possono verificarsi nello stesso periodo, ma in una regione differente Come anche i casi di emersione possono verificarsi in un periodo futuro. Quindi, si dovrebbe specificare se il distretto, o più precisamente una stagione distrettuale, giunge al termine per un luogo, per una regione, o per un'epoca.

c. Le modalità di studio, interpretazione, approfondimento non sono però indifferenti su quanto poi si verifica. I modelli interpretativi e le teorie che dominano o diventano dominanti influenzano le aspettative, e quindi le strategie degli attori privati e pubblici che si muovono entro e intorno ai distretti. In una fase delicata e di incertezza circa i ventagli di sentieri di cambiamento e trasformazione che sono aperti, in un luogo, in una regione, in un'epoca, il prevalere di interpretazioni e teorie che non danno possibilità o valore a una demografica distrettuale rigenerativa, spingono a strategie private e politiche pubbliche che rendono più probabili gli esiti per così dire "negativi".

Vediamo emergere queste considerazioni e preoccupazioni in Becattini, per esempio in un lavoro del 2000 ripubblicato nel 2010, su "Anomalie marshalliane", un saggio che segna un momento alto della sua riflessione su Marshall, come scrive Peter Groenewegen. Una delle anomalie sarebbe il distretto industriale: Marshall vedrebbe l'importanza dei distretti, come motori della prima rivoluzione industriale, in Gran Bretagna e in altre paesi leader dell'industrializzazione dell'ottocento, ma non riuscirebbe a svilupparne fino in fondo le implicazioni. Becattini argomenta, in via ipotetica, quale avrebbero potuto essere le conseguenze, se questa anomalia marshalliana si fosse trasformata in normalità. Mi piace richiamare un passo un po' lungo del saggio, perché è una dimostrazione di come, per Becattini, il discorso sul distretto si allarghi a una visione di alternative entro le società capitalistiche:

Ora, la scoperta precoce di "più vie all'industrializzazione", che, intrecciandosi variamente, coesistono nel tempo, avrebbe potuto avere diverse conseguenze: a) contemplando la persistenza e lo sviluppo di forme di lavoro autonomo e di piccola impresa in certi settori produttivi, avrebbe contrastato la previsione di una polarizzazione sociale del capitalismo industriale nelle due classi dei proprietari e dei proletari; b) contrastando la previsione di una capitalismo che corre verso poche megalopoli, avrebbe indirizzato il pensiero verso una pluralità e un'alternanza di modelli d'insediamento civile e produttivo sul territorio; c) postulando una pluralità di corrispondenze fra l'attività produttiva e la vita ordinaria della gente, avrebbe contrastato l'immagine di una produzione che si rinchiude progressivamente dentro la fabbrica, desertificando i contesti sociali e naturalistici; d) spiazzando l'idea facile coltivata dai critici socialisti del capitalismo, che la tendenza alla concentrazione tecnica, economica e finanziaria

dell'industria preparava la strada al trapasso dalla proprietà privata a quella pubblica, avrebbe risparmiato all'umanità cocenti delusioni" (Becattini 2010, p.171-172).

L'idea marshalliana non passò anche perché, a fine ottocento – inizio novecento, erano all'opera tendenze materiali e culturali di vasta portata, che oscuravano le possibilità e le potenzialità del sentiero alternativo di industrializzazione. Su queste tendenze Becattini ha scritto in molte occasioni. Per esempio, in un saggio-intervista del 1997, in parte ripubblicato come "Dal distretto alla distrettualizzazione", Becattini ricorda che i distretti sono già "finiti", almeno una volta nel passato, e in senso esteso, fra la fine dell'Ottocento e la prima metà del Novecento con la centralità che acquista la produzione di massa, la grande industria, il fordismo; e come questo processo sia stato confermato dalla lettura data da gran parte degli economisti delle forze economiche vincenti nel capitalismo contemporaneo (Becattini 2000a, p. 204-205).

È stata per un certo periodo la "fine" dei distretti, come modello interpretativo e laboratorio empirico importante di sentieri di sviluppo capitalistico alternativo. Ma i distretti, come si sa, sono "riemersi" nella seconda metà del novecento. Una sequenza di passi ripresa dall'introduzione a un'altra raccolta del 2000, permette di sintetizzare il pensiero di Becattini sul significato generale e prospettivo di questa riemersione, non solo per l'ondata nella seconda metà del novecento, ma anche nell'età contemporanea della "globalizzazione selvaggia". Dunque:

"... il capitalismo vive una contraddizione: da un lato la sua natura finanziaria lo spinge alla speculazione e alla concentrazione; dall'altro esso ha bisogno di reimmergersi nella società civile, per estrarre dalla varietà delle culture gli stimoli produttivi e di consumo che gli servono per allargare continuamente il mercato. Strumento insieme, dunque, di semplificazione e di complessificazione culturale, di accentramento e di decentramento del potere economico. E ciò specialmente ora che, debellate le tendenze redistributive, l'allargamento quantitativo di prodotti standardizzati incontra limiti molto stretti." (Becattini 2000b, p. 21).

Dal che la base reale dei distretti o di entità simili:

"*C'è un sapere non codificato, tecnico e morale insieme, che si apprende solo nel luogo giusto, "osservando come si fa", con la volontà d'imparare. La produzione di luoghi sociali (ad esempio grande fabbrica o distretto industriale), dove, secondo una famosa espressione, "lo si respira nell'aria" quel sapere non codificato, è quindi un passaggio ineludibile. Anche le fruste diatribe sul futuro dei distretti debbono essere collocate su questo sfondo. I distretti industriali così come li conosciamo potranno anche scomparire, ma qualcuno o qualcosa dovrà svolgere il loro ruolo di trasformazione di conoscenze produttive, ambizioni di*

emancipazione sociale, volontà di misurarsi di milioni di uomini semplici." (*ibidem, 21*)

Si noti che tale base è individuata nel radicamento territoriale dei processi di scambio di conoscenze produttive, di formazione e di creatività (Lazzeretti, 2009). Infine, in senso più esteso, dalla base reale di sostenibilità economica complessiva all'alternativa umanistica:

"... il distretto industriale – autentica "piccola economia sociale di mercato"–, lungi dall'essere un residuo del passato precapitalistico o una "mostruosità" del capitalismo, come alcuni pensano, è l'espressione paradigmatica, embrionale, simbolica, del capitalismo "dal volto umano", un capitalismo più reale che finanziario, in cui lo sviluppo delle forze economiche e quello delle relazioni socio-culturali procedono sincronicamente." (*ibidem*, 21-22; rif. anche Becattini, 2004).

4. Concludere non concludendo

Allo sbocco di questo percorso, il distretto industriale rimane per Becattini, nei suoi ultimi anni di attività e vita, un riferimento cruciale per delineare, in mezzo alle tendenze distruttive del capitalismo contemporaneo, l'esistenza di spazi non marginali per forze contro-bilancianti. Con ciò egli intende dinamiche sociali, istituzionali ed economiche di sviluppo locale: ovvero, di luoghi impregnati della vita e della storia di comunità di persone che mantengono, in mezzo ai cambiamenti degli individui e ai flussi esterni a cui pure gli stessi partecipano, un'identità robusta che evolve nel tempo. L'identità è fatta di condivisione di valori e patrimoni culturali, sensi di appartenenza comunitari, coralità produttive che sfruttano la logica delle economie esterne distrettuali, e si sottrae a logiche cosmopolite e gerarchizzanti, pur potenti e spesso egemoni (Becattini, 2015).

La distrettualistica è ancora un cantiere aperto e, dopo che Becattini ci ha lasciato, il compito di lavorarci è diventato non meno, ma più pressante. Così, per esempio, può essere che le trasformazioni correnti portino anche su forme relativamente allogene di distretti e sistemi locali, rispetto a quelle tradizionalmente riconosciute, ma in fondo rispondenti ai processi e alle funzionalità dei processi distrettuali. Se la distrettualistica non riesce a riconoscerle, i nuovi o rinnovati distretti sono per così dire lasciati soli al vento del cambiamento e dell'incomprensione. Inoltre, la distrettualistica deve stare al passo e rapportarsi all'evoluzione di approcci e unità di indagine similari, e proporre i distretti, i processi di distrettualizzazione e di sviluppo locale come laboratori per la comprensione di dimensioni generali del cambiamento socio-economico di regioni vaste nell'epoca corrente.

Tutto ciò va compreso, come pure altri capitoli di questa sezione hanno argomentato, entro le sfide "esterne" che vengono dalla nuova divisione internazionale

del lavoro, con la riemersione della Cina e altre tensioni regionali più o meno conseguenti, dalle forme della crescente urbanizzazione entro reti globali, dalle disuguaglianze sociali e dalla distruzione dell'ambiente che pure rafforzano vecchi e nuovi dualismi territoriali, dalla forza della scienza e dalla digitalizzazione della vita produttiva e sociale col ruolo crescente dell'intelligenza artificiale, dai social network e dalla concentrazione delle principali piattaforme sotto grandi oligopoli globali. Ugualmente, va compreso quali tessuti locali incontrano tali sfide in condizioni di vitalità, con capacità di innovazione anche istituzionale e multi-livello, e quali siano invece indeboliti da cristallizzazioni corporative, da chiusure cognitive, da difficoltà di coordinamento con sistemi regionali e nazionali di innovazione.

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Abstract

The Local Laboratory of Different Marks of Capitalism

Becattini is renowned in regional sciences for his proposal of the industrial district, a concept that he recovered from Alfred Marshall. In his view, it is a territorial laboratory for enlarging the understanding of alternative models of industrial organization in capitalistic economic systems. This chapter introduces a set of crucial questions that should help drawing the line of the Becattini's district approach along five decades. A couple of nodes included in this path receives here a specific attention. The first one concerns the generation, starting from the industrial district, of a broader set of models of local development. The second node touches upon the intertwining, in Becattini's late thinking, between the so-called capitalism "with a human face" and the future of the industrial district. The chapter concludes on the prospects of the district approaches.

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The XXXVIII AISRe Conference, held in Cagliari in September 2017, was aimed at stimulating the scientific debate on the Regional Science issues related to the analysis of both the local and global factors that have influenced the regional development process after the recent Great Recession. Regions, territories and urban areas have experienced quite unevenly the negative effects of the economic crisis. Moreover, also the still feeble signs of the economic recovery seem to be very diversified across territories.

A number of conference contributions have investigated regions' structural features in terms of innovation potential, human capital and openness to distant markets. Such features are deemed to be the sources of their resilience, adaptation and regeneration capabilities, which could play a key role in identifying the new trajectories for a more effective, sustainable and inclusive regional development process. These issues were also addressed in two roundtables dedicated to the memory fo Giacomo Becattini, who passed away in January 2017. The relevance of Becattini's thought could still inspire novel research avenues in regional science and serve as a basis for sound policy proposals.

La XXXVIII conferenza AISRe, tenutasi a Cagliari nel settembre 2017, ha stimolato il dibattito scientifico sui temi delle scienze regionali relativi all'analisi dei fattori locali e globali che hanno influenzato il processo di sviluppo locale dopo la recente Grande Recessione. Le regioni hanno subito in modo piuttosto disuguale gli effetti negativi della crisi economica. Inoltre, anche i segnali ancora deboli della ripresa economica sembrano molto diversificati tra i vari territori.

Numerosi contributi alla conferenza hanno analizzato le caratteristiche strutturali delle regioni in termini di innovazione, capitale umano e apertura verso i mercati internazionali. Tali caratteristiche sono considerate le fonti della loro capacità di resilienza, adattamento e rigenerazione, che potrebbero svolgere un ruolo chiave nell'individuare le nuove traiettorie per un processo di sviluppo regionale più efficace, sostenibile e inclusivo. Questi temi sono stati affrontati anche in due tavole rotonde dedicate alla memoria di Giacomo Becattini, scomparso nel gennaio 2017. L'attualità e rilevanza del pensiero di Becattini può ancora ispirare nuovi percorsi di ricerca nelle scienze regionali insieme a valide proposte politiche.

FrancoAngeli
La passione per le conoscenze