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HOME COUNTRY INSTITUTIONAL EFFECTS ON INTERNATIONAL COMPETITIVENESS

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A thesis submitted in partial fulfillment of the requirements of Universidad Jorge Tadeo Lozano and Università Degli Studi di Palermo for the award of Doctor of Philosophy in

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I. Declaration

I hereby declare that the work presented in this thesis has not been submitted for any other degree or professional qualification, and that it is the result of my own independent work.

Ricardo Ernesto Buitrago Rubiano (Candidate)

OCTOBER, 2022.

II. Publications associated with this research

1. Buitrago R, R.E.; Barbosa Camargo, M.I. Institutions, institutional quality, and international competitiveness: Review and examination of future research directions. J. Bus. Res. 2021, 125, https://doi.org/10.1016/j.jbusres.2021.02.024

Journal ranks: Web of Science - InCites Journal Citation Reports – Q1

2. Buitrago R, R.E.; Barbosa Camargo, M.I. Home country institutions and outward FDI: An exploratory analysis in emerging economies. Sustainability. 2020, 12, 1–20, https://doi.org/10.3390/su122310010

Journal ranks: Web of Science - InCites Journal Citation Reports – Q2

3. Buitrago R, R.E.; Barbosa Camargo, M.I.; Cala Vitery, F. Emerging Economies' Institutional Quality and International Competitiveness: A PLS-SEM Approach. Mathematics 2021, 9, 928, https://doi.org/10.3390/math9090928

Journal ranks: Web of Science - InCites Journal Citation Reports – Q1

4. Buitrago R. R.E.; Torralba Barreto D.R.; Reyes G.E. Are competitiveness rankings and institutional measures helping emerging economies to improve? Competitiveness Review: An International Business Journal 2022. https://doi.org/10.1108/CR-04-2021-0064

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IV. Introduction

Countries rarely succeed in the absence of state institutions that can establish and enforce the rules, raise revenue and provide public goods and services. It is likely that those countries in which the institutions are strong, ensure the efficient allocation of factors, allow investment activities increased performance, reduce uncertainty and friction, promote convergence between private and social benefits and facilitate the coordination of economic agents. On the contrary, those countries where institutions are weak can have several economic problems such as lower investment, slower growth in productivity, lower per capita income and lower GDP growth (Acemoglu, Johnson, & Robinson, 2001; Hall & Jones, 1999; Knack & Keefer, 1995; Mauro, 1995; Rodrik, Subramanian, & Trebbi, 2004).

These institutional conditions become factors of international competitiveness, showed in the literature as export performance with technology, based on foreign direct investment and technological capacities (Amable & Verspagen, 1995; Amendola, Dosi, & Papagni, 1993; Krugman, 1979; Soete, 1981) then, the internationalization of economies, is not only driven by specific industry conditions (Porter, 1990) or business-specific differences (Barney, 1991) but also by the institutions that exist as background conditions that directly determine the strategies and interactions of firms with the institutional environment (Ingram & Silverman, 2002; Peng, Wang, & Jiang, 2008; Rodriguez, Uhlenbruck, & Eden, 2005; Wan & Hoskisson, 2003).

A good level of institutional development can foster synergies between foreign direct investment (FDI) and local businesses and promote productivity side effects. In addition, it can induce complementarities between foreign and domestic investment and, therefore, increase the accumulation of capital. By contrast, an underdeveloped institutional framework can disrupt productive activities and can prevent the exploitation of knowledge spillovers from domestic enterprises.

To give some context, there are three types of institutional functions. The first is the development of rules and laws. Institutions that fall into this category are legislative, ministries, municipal councils and related agencies. The second category of the institutional role is the application and award of rules and laws. The institutions involved here are tribunals, boards control and regulatory bodies. The third institutional role is the supply of public services. These are the

institutions that guarantee the provision of different types of public goods and services (Graham & Naim, 1998).

Institutions in the developing world vary widely, both in terms of compliance and in terms of their durability (Levitsky & Murillo, 2009). This change has important implications for institutions, how they work (and why), how (and why) they are created and how (and why) they change. Although formal institutions are not uniformly weak in developing countries (not consistently strong in developed countries), large differences in the application and stability of rules in Latin America suggest that institutional strength should be treated as a determinant for international competitiveness, not as something that is taken for granted.

Emerging and Developing Economies are particularly useful for studying the causes and consequences of institutional weakness, understood as the inability to maintain the rules and allow fair use of factorial conditions for all actors in the economy. Although institutional weakness is not limited to Emerging and Developing economies, it is more common and more pronounced in these regions than in advanced industrialized countries where much of the institutionalist literature is based.

A. Problem Statement.

The problem intended to analyze is the institutional framework and how it affects international competitiveness. International competitiveness is affected when a country's "rules of the game" generate present and future uncertainty and put into question the perceived potential productive capacity of the economy.

The aim is to analyze the period 2007 - 2017, in 48 emerging economies given the changes in the institutional conditions presented in these regions during that period. The selected countries are classified as emerging economies because they are moving from an informal institutional system to a more formal system with rules of the game that are transparent and apply equally to all participants in the market, in addition, they often experience faster economic growth as measured by GDP, improvement in infrastructure and market conditions. However, there is still higher risk due to political instability, domestic infrastructure problems, currency volatility, and limited equity opportunities.

To provide further clarity to the proposal, I briefly describe some essential concepts about the institutions, international competitiveness and the linkage between both.

B. Conceptual Framework.

Institutions

Institutions are defined by North (1990) as humanly devised constraints that structure political, economic, and social interaction. Another definition given by Scott (2001) is that institutions are regulative structures and activities, and cognitive regulations that provide stability and meaning to social behavior. In addition, Ostrom (1986) sees institutions as rules, that are the result of implicit or explicit efforts by a set of individuals to achieve order and unvariedness within defined situations.

Institutions can be both formal and informal, can be a problem in politics (corruption, instability, policies), law (economic liberalization, regulations) and society (norms, attitudes, culture) that may affect the internationalization of firms and their strategies (Peng et al., 2008).

Institutions can be inclusive (strong) or extractive (weak). Inclusive institutions create incentives and opportunities necessary to harness the energy, creativity, and entrepreneurship in society. Extractive institutions generate an opposite effect (Acemoglu & Robinson, 2013).

To help in the understanding of the problem is necessary to clarify the concept of institutional quality and why it is essential to foster international competitiveness. Home country institutional quality is negatively affected by the level of extractive institutions that assign political power in a limited way, and have a central state that is not strong in the sense that it cannot provide vital public goods and services.

There are many explanations for institutional failure, that in general, could be classified into three categories for analysis (Graham & Naim, 1998):

- Resource-driven failures: related to the quantity, quality, and allocation of available resources to provide public goods and services.
- Politically-driven failures: related to co-optation, corruption, and politicization in the allocation of resources.
- Systemic failures: related to inadequate clarity in setting long-term goals, the concentration of power in economic agents and external state intervention.

If institutions fall into one or more of these failures are considered weak for the purposes of this research.

International Competitiveness

On the other hand, most of the works defining and conceptualizing competitiveness came

from economics and management, these perspectives coming from different disciplines show that competitiveness is a multidimensional concept. While economists focused on the country-specific macroeconomic characteristics of competitiveness, the management and strategy fields focused on the firm-specific characteristics.

The most cited works in the evolution of research on international competitiveness are "*International competitiveness"* (Fagerberg, 1988) , which found that technology and production capacity are more important for economic growth than the cost competitiveness; and "*Competitiveness: A Dangerous Obsession*" (Krugman, 1994), where the discussion about international competitiveness is basically a discussion on international trade.

We consider the concept of International Competitiveness from three different approaches, one, proposed by Sachs, focuses on the macro indicators to measure "the set of institutions and economic policies supportive of high rates of economic growth in the medium term.", other proposed by Porter focused on microeconomic indicators to measure the "set of institutions, market structures, and economic policies supportive of high current levels of prosperity," (Porter, Sachs, & Schwab, 2002, p.16), and a third one, "the capability of firms engaged in value-added activities in a specific industry in a particular country to sustain this value added over long periods of time in spite of international competition" (Moon, Rugman, & Verbeke, 1998, p. 139).

From the definitions given, it can be inferred that international competitiveness is the ability of a nation to provide a favorable institutional environment to its firms, and consequently, industries, to prosper and compete in the international arena.

C. Research Question

This research intends to answer the question: how is home country institutional quality a determining factor in international competitiveness? The research covered three objectives:

- To identify the variables that affect the relationship between institutional quality and international competitiveness, based on a structured literature review.
- To determine the context of analysis that provides an alternative point of view to the mainstream.
- To designing an analytical model that allows the understanding of the factors that affect the institutional quality and its effect on international competitiveness.

These objectives will be addressed in the following chapters. Chapter V covers the

literature review and gives the structure to propose the context and variables of analysis discussed in the following chapters. This chapter shows the mainstream of the theories, contexts, characteristics, and methodologies regarding institutional quality and international competitiveness.

Chapter VI presents emerging economies as the context of study through factor analysis and panel data analysis that sheds some light on the relationship between home country institutions and outward foreign direct investment (OFDI) as a measure of international competitiveness.

Chapter VII offers an innovative approach to understand the interplay between institutions, institutional quality, and international competitiveness through a PLS-SEM model that analyzes alternative sources to explain how the mentioned constructs interact as a whole.

Chapter VIII takes this macroeconomic issue and gives an alternative approach from the Dynamic Performance Management (DPM) perspective, showing how macroeconomic dynamics can be analyzed from a systemic perspective and proposing ways to develop this kind of research.

V. Institutions, institutional quality, and international competitiveness: Review and examination of future research directions

A. Abstract

The importance of institutions has become more relevant analytically in recent years, emphasizing the significance of an appropriate institutional framework for international competition. This paper aims to identify the link between institutions, institutional quality, and international competitiveness. Following the TCCM (Theory, Context, Characteristics, and Methodology) framework analysis, proposed by Paul & Rosado-Serrano (2019), we conducted a systematic literature review of top tier journals during the period 2000–2020. This review unfolds the theoretical and empirical studies regarding institutions, institutional quality, and international competitiveness. Main findings reveal five widely studied, three emerging and two understudied theories, the most studied contexts are country and firm, and quantitative studies are the main method of analysis. This review incorporates the acumen of previous research and provides a future research agenda in understudied contexts like industrial and individual level by applying emerging theoretical approaches and integrative analytical methodologies.

Keywords: Institutions, institutional quality, international competitiveness, TCCM.

B. Introduction

In recent years the importance of institutions has regained analytical relevance, evidenced by the Global Competitiveness Report (World Economic Forum, 2018) posing the question: “Are institutions still important?” (p.12) and underscoring the importance of an adequate institutional framework to compete in the international arena. It is likely that the countries in which institutions are strong ensure the efficient allocation of factors, allow investment activities to increase performance, reduce uncertainty, promote even distribution of private and social benefits, and facilitate economic agents' interaction. On the contrary, those countries where institutions are weak are often gripped by several economic problems, including low investment flows, reduced GDP growth, and meager per capita income (Acemoglu et al., 2001; Hall & Jones, 1999; Knack & Keefer, 1995; Mauro, 1995; Rodrik et al., 2004). In the same report, it was noted that “Weak institutions continue to hinder competitiveness, development, and well-being in many countries” (p.12).

After the publication of "Institutions, Institutional Change and Economic Performance" by Douglas North in 1990, considered the most representative work in new institutionalism literature (North, 1990), institutionalist research grew exponentially, making way for the use and debate of the concept in many fields, including economics, politics, and management. Many development economists and academics from sociological, anthropological, and political science backgrounds recognized the consistency of North's arguments regarding the economic relevance of institutions rather than market dynamics (Acemoglu et al., 2001; Ostrom, 1990; Hall & Jones, 1999; Knack & Keefer, 1995; Knight, 1992; Mauro, 1995; Rodrik et al., 2004).

North's work has been the basis for developing further analysis that has influenced literature in growth, internationalization, and competitiveness. Also noteworthy among his contributions was the origin of the "institutional framework" construct that emerged in literature featured in the works of Acemoglu (Acemoglu et al., 2001, 2002, 2003, 2005; Acemoglu & Johnson, 2005; Jan-Erik Lane, 2014), which is understood to be the basis of economic transformation. The institutional framework is determined by the quality of the institutions, both inclusive and extractive. Inclusive economic institutions create inclusive markets, while "extractive economic institutions are designed to extract incomes and wealth from one subset of society to benefit a different subset" (Acemoglu & Robinson, 2012, pp. 101–102).

On the other hand, international competitiveness is a crucial topic of interest for academics, policymakers, and firm managers, particularly in cases of (de)globalization that impact the competitive landscape. The academic controversy about international competitiveness centers on a lack of generally accepted theory relating to the roots of international competitiveness (Anca, 2012). Even though comprehensive reviews of existing international competitiveness literature are scarce, the works of Bhawsar & Chattopadhyay (2015), Olczyk (2016), Ajitabh & Momaya (2004); and Momaya (2019) provide insights on delineations, dimensions, genesis, and measurements of various concepts in international competitiveness.

The most cited works regarding international competitiveness are "*International Competitiveness"* (J Fagerberg, 1988), which found that technology and production capacity are more important for economic growth than cost competitiveness; and "*Competitiveness: A Dangerous Obsession*" (Krugman, 1994), where the discussion about international competitiveness boils down to a debate on international trade. In the same vein, the works of (Balassa, 1965), (Ito & Pucik, 1993), (Hausmann et al., 2007), (Costantini & Mazzanti, 2012), (Chang Moon et al., 1998), (Freeman, 2004), (Amable & Verspagen, 1995), (Amendola et al.,

1993) consider international competitiveness as a matter of export performance with technological capacities.

Other approaches to the topic found in the works of (Chang Moon et al., 1998; Ervits & Zmuda, 2018; Guerrieri & Meliciani, 2004; Hollingsworth, 2000; Ingram & Silverman, 2002; A. Jaffe et al., 1993; Mike W. Peng et al., 2008; M. E. Porter, 1990; M E Porter & Linde, 1995; Rodriguez et al., 2005; L Soete, 1987; Tobey, 1990; Wan & Hoskisson, 2003) consider that international competitiveness is based on regulations and policy frameworks.

We found four widely-used approaches to the concept of International Competitiveness. The first approach, proposed by Sachs, focuses on macro indicators to measure "the set of institutions and economic policies supportive of high rates of economic growth in the medium term." The second approach, proposed by Porter, focuses on microeconomic indicators to measure the "set of institutions, market structures, and economic policies supportive of high current levels of prosperity" (Porter, Sachs, & Schwab, 2002, p.16). The third approach looks at "the capability of firms engaged in value-added activities in a specific industry in a particular country to sustain this value-added over long periods despite international competition" (Moon, Rugman, & Verbeke, 1998, p. 139). Finally, the fourth approach, proposed by the OECD, argues that "competitiveness is the degree to which a nation can, under free trade and fair market conditions, produce goods and services, which meet the test of international markets, while simultaneously maintaining and expanding the real income of its people over the long-term" (OECD, 1992. p. 237).

We also found two emerging and understudied approaches. The first is international competitiveness at the industry level; this approach recognizes the importance of industries in enhancing competitiveness, argues that public policy is designed at the industry level, preferential trade agreements are focused on specific industries, and is at the industry level where interactions between non-business infrastructure and firms define competitiveness (Momaya, 1998; M. K. Singh et al., 2018). The second is at the individual level; this approach relies on acquiring and deploying capabilities and talents to outperform competitors and achieve world-class competitiveness through learning, leadership, and culture (Baumann et al., 2019; Smith, 1995).

Summarizing the previous theoretical approaches, we can say that international competitiveness comprises qualitative and quantitative factors and conditions, has several dimensions (national, regional, local, industry, firm, and individual), and relies on composite factors for explanatory power. However, not many scholars have examined the interplay between

institutions and international competitiveness in a comprehensive analysis theoretically and empirically.

This study aims to review recent research on institutions, institutional quality, and international competitiveness. Specifically, the purposes of this study are three: (1) to identify data sources and methodological approaches deployed in recent studies; (2) to identify emerging/missing subjects in the literature that can promote research on institutional quality and its connection to international competitiveness; and (3) to propose alternative sources, topics, and literature to study the link between institutions, institutional quality, and international competitiveness.

We conducted a systematic review analysis; by using a TCCM framework. We examined 92 articles that have been published in top tier journals to propose future research directions. Therefore, the link between institutional quality and international competitiveness raises two relevant questions: what are the main approaches (theoretical and methodological) for explaining institutions' relevance in achieving international competitiveness? And are there alternatives to the mainstream to analyze the incidence of institutions on the international competitiveness?

Our review is structured as follows. In section 2, we present the methodology. Section 3 introduces the analysis using the TCCM framework to classify the available literature into theory, context, characteristics, and methodology. Followed this, we discuss the findings and future research. Last, we offer the conclusions.

C. Methodology

This paper attempts to identify, organize, and provide pertinent information on theoretical approaches, data sources, main proxies of interest, methods of analysis, and relevant journals of publication, in examining the relationship between institutions, institutional quality, and international competitiveness research. Our focus is on knowing what has been empirically investigated regarding the interplay between institutions, institutional quality, and international competitiveness and what areas future research should focus on. As such, we conducted a systematic review analysis.

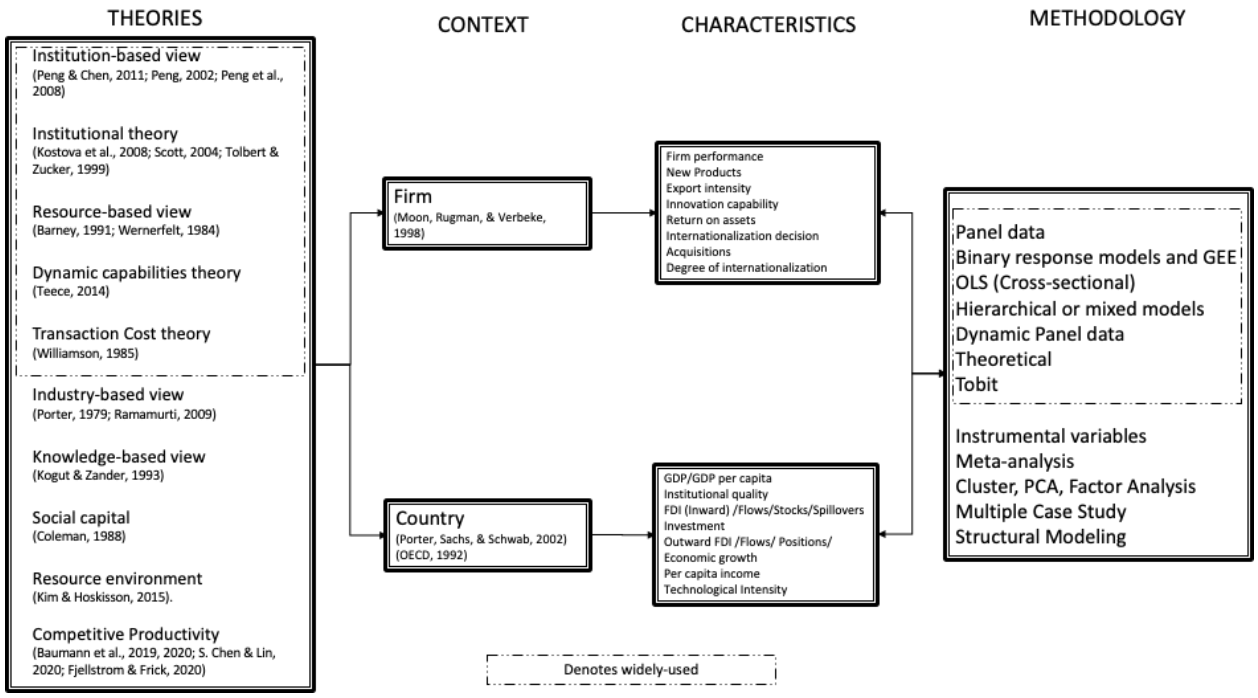
Systematic review papers take different forms. These include: (1) a structured review focusing on widely-used methods, theories, and constructs (Canabal & White, 2008; Dhaliwal et al., 2020; Kahiya, 2018; Rosado-Serrano et al., 2018; S. Singh & Dhir, 2019); (2) framework-based reviews (Mishra et al., 2020; Paul & Benito, 2018); (3) hybrid – structured reviews with a

framework for setting future research agendas (Kumar et al., 2020; Paul et al., 2017; Paul & Feliciano-Cestero, 2020); (4) theory-based reviews (Gilal et al., 2019); (5) meta-analyses (Bailey, 2018; Cao et al., 2018); (6) bibliometric reviews (Apriliyanti & Alon, 2017; S. Singh & Dhir, 2019); (7) reviews aiming at model/framework development (Paul, 2019; Paul & Mas, 2019).

In this study, a TCCM framework is used (Paul & Rosado-Serrano, 2019; Rosado-Serrano et al., 2018; S. Singh & Dhir, 2019). This method elucidates the origin, evolution, primary current research areas, and future interests in recent bodies of research on institutions, institutional quality, and international competitiveness.

We expect to make pertinent contributions to the extant literature by extending the analysis to journals in multiple fields (Economics, Political Science, Management, and International Business), to highlight the primary data sources, subjects, geographical contexts, and variables in relevant research, to ultimately propose alternative approaches for the study of institutional quality and international competitiveness. Figure 1 summarizes the TCCM framework of this study.

Figure 1. TCCM Framework



Source: Authors

1. Data and sample

This study reviews works that have an explicit focus on institutions and international competitiveness. Specifically, the research covers the literature published in English and appeared in the fields of Economics, Econometrics and Finance, Business, Management and Accounting, and Social Sciences. We established three criteria to identify relevant articles to analyze within the limits of the present study: (1) that they describe the connection of institutions, institutional quality, and international competitiveness; (2) that they are published in journals (Q1 and Q2) that can be accessed through Scopus; and (3) that they are published between the years 2000 and 2020.

2. Paper selection

In the research, we looked for works on institutions and international competitiveness, with a specific interest in articles that focused on institutional frameworks, institutional quality, or home country institutions. The results were 92 articles, which were used to conduct the in-depth analysis presented in section 4.

Following Paul & Criado (2020), we selected only articles published in top-tier journals according to the Journal Quality List (Harzing, 2019) and the Scimago Journal & Country Rank (SJR). The journals covered topics in the fields of Economics, Econometrics, Finance, Business, Management, Accounting, and Social Sciences from Q1 and Q2. Table 1 shows detailed information about the journal ranking, number of articles published per journal, and articles' distribution.

Table 1. Selected Journals

Journal Name	SJR	# Articles	%	Field
Academy of Management Journal	Q1	1	1.1	Business and International Management
American Journal of Political Science	Q1	2	2.2	Political Science and International Relations
Asia Pacific Business Review	Q2	1	1.1	Business and International Management
Asian Development Review	Q2	1	1.1	Social Sciences

British Journal of Management	Q1	1	1.1	Business, Management, and Accounting
Business and Society	Q2	1	1.1	Business, Management, and Accounting
Competitiveness Review	Q1	2	2.2	Business and International Management
Cross Cultural and Strategic Management	Q1	5	5.5	Business and International Management
Current Issues in Tourism	Q1	1	1.1	Business, Management, and Accounting
Emerging Markets Finance and Trade	Q1	1	1.1	Economics and Econometrics
Entrepreneurship and Sustainability Issues	Q1	1	1.1	Business, Management, and Accounting
Entrepreneurship Theory and Practice	Q1	2	2.2	Business, Management, and Accounting
European Economic Review	Q1	1	1.1	Economics and Econometrics
Global Journal of Flexible Systems Management	Q1	1	1.1	Business, Management and Accounting
Global Strategy Journal	Q1	2	2.2	Business and International Management
International Business Review	Q1	13	14.3	Business and International Management
International Journal of Emerging Markets	Q2	1	1.1	Business and International Management
Journal of Business Economics and Management	Q2	1	1.1	Business and International Management
Journal of Business Research	Q1	2	2.2	Business and International Management

Journal of Development Economics	Q1	1	1.1	Economics and Econometrics
Journal of Economic Growth	Q1	3	3.3	Economics and Econometrics
Journal of International Business Studies	Q1	14	15.4	Business and International Management
Journal of International Entrepreneurship	Q1	1	1.1	Business, Management, and Accounting
Journal of International Management	Q1	3	3.3	Business, Management, and Accounting
Journal of International Studies	Q2	1	1.1	Business, Management, and Accounting
Journal of Management	Q1	2	2.2	Business, Management, and Accounting
Journal of Management Studies	Q1	1	1.1	Business, Management, and Accounting
Journal of Policy Modeling	Q2	3	3.3	Economics and Econometrics
Journal of Political Economy	Q1	1	1.1	Economics and Econometrics
Journal of World Business	Q1	13	14.3	Business, Management and Accounting
Management International Review	Q1	1	1.1	Business and International Management
Multinational Business Review	Q1	1	1.1	Business and International Management
Organization and Environment	Q1	1	1.1	Organizational Behavior and Human Resource Management
Organization Science	Q1	1	1.1	Management of Technology and Innovation

Strategic Management Journal	Q1	1	1.1	Business and International Management
Structural Change and Economic Dynamics	Q2	1	1.1	Economics and Econometrics
Technological and Economic Development of Economy	Q2	1	1.1	Economics, Econometrics, and Finance
Thunderbird International Business Review	Q1	1	1.1	Business and International Management
World Economy	Q1	1	1.1	Economics, Econometrics, and Finance
TOTAL		92	100	

Source: Authors based on Harzing 2019 and SJR

The 39 selected journals are distributed in different subjects as follows: Business and International Management (36.8%); Business, Management and Accounting (28.9%); Economics, Econometrics and Finance (23.7%); Organizational Behavior and Human Resource Management (2.6%); Management of Technology and Innovation (2.6%); Political Science and International Relations (2.6%); Social Sciences and Development (2.6%).

D. Analysis

Following the structure of systematic reviews presented in section 2, we structured the analysis using the TCCM framework, first introduced by Paul & Rosado-Serrano (2019), in which T stands for theory, C for context, C for characteristics, and M for methodology.

1. Review of Theories

We found that the theoretical approaches to the study of institutions and international competitiveness have been: (1) The institution-based view, (2) Institutional Theory, (3) The resource-based view, (4) Dynamic capabilities theory, (5) Transaction Cost theory, (6) The industry-based view, (7) The knowledge-based view, (8) Social capital theory, (9) The resource environment, and (10) Competitive productivity.

We briefly describe the approaches and classify those with ten or more documents as "widely-used" while describing those with nine or fewer documents as "emerging."

a) Widely-used approaches

Institution-based view: In this approach, competitiveness is the outcome of a dynamic interaction between institutions and organizations. The institutional framework influences the firms' behavior and strategic choices (Peng & Chen, 2011; Peng, 2002; Peng et al., 2008).

Institutional theory: This theory looks after the processes by which rules, norms, and routines, become commanding guidelines for social interaction. It debriefs how these issues are shaped, disseminated, embraced, and suited over space and time. This could be the most complex and multidimensional theory, covering subjects from economics to political science and sociology. (Kostova et al., 2008; Scott, 2004; Tolbert & Zucker, 1999)

Resource-based view: This view argues that firm competitiveness is based on developing distinctive and unique capabilities, which may often be implicit or intangible. This approach has an intra-organizational focus and argues that performance results from firm-specific resources (Barney, 1991; Wernerfelt, 1984).

Dynamic capabilities theory: This theory emphasizes the relevance of business processes, both internal and external to the firm, and the importance of critical resources and strategy. "A capability is the capacity to utilize resources to perform a task or an activity, against the opposition of circumstance. Essentially, capabilities flow from the astute bundling or orchestration of resources. The organizational and managerial "technology" of the firm and its ability to transfer technology (embedded in routines and resources) across distances and borders are very much implicated in the firm's national and global capabilities" (Teece, 2014: 14).

Transaction Cost theory: In this approach, contractual issues and market failures are crucial for internalization. According to this theory, "transaction cost economics mainly involves a comparative institutional assessment of discrete institutional alternatives of which classical market contracting is located at one extreme; the centralized, hierarchical

organization is located at the other; and mixed modes of firm and market organization are located in between" (Williamson, 1985: 42).

b) Emerging approaches

Industry-based view: the industry-based view argues that the performance and competitiveness of the firm are determined by the relevant peculiarities and conditions within the sector/industry in which the firm is active (Porter, 1979; Ramamurti, 2009).

Knowledge-based view: This theory asserts that knowledge is the most important strategic resource for organizations; the main objective of the firm is to create and transform knowledge into a competitive advantage. "Firms grow on their ability to create new knowledge and to replicate this knowledge to expand their market. Their advantage lies in being able to understand and carry out this transfer more effectively than other firms" (Kogut & Zander, 1993: 639).

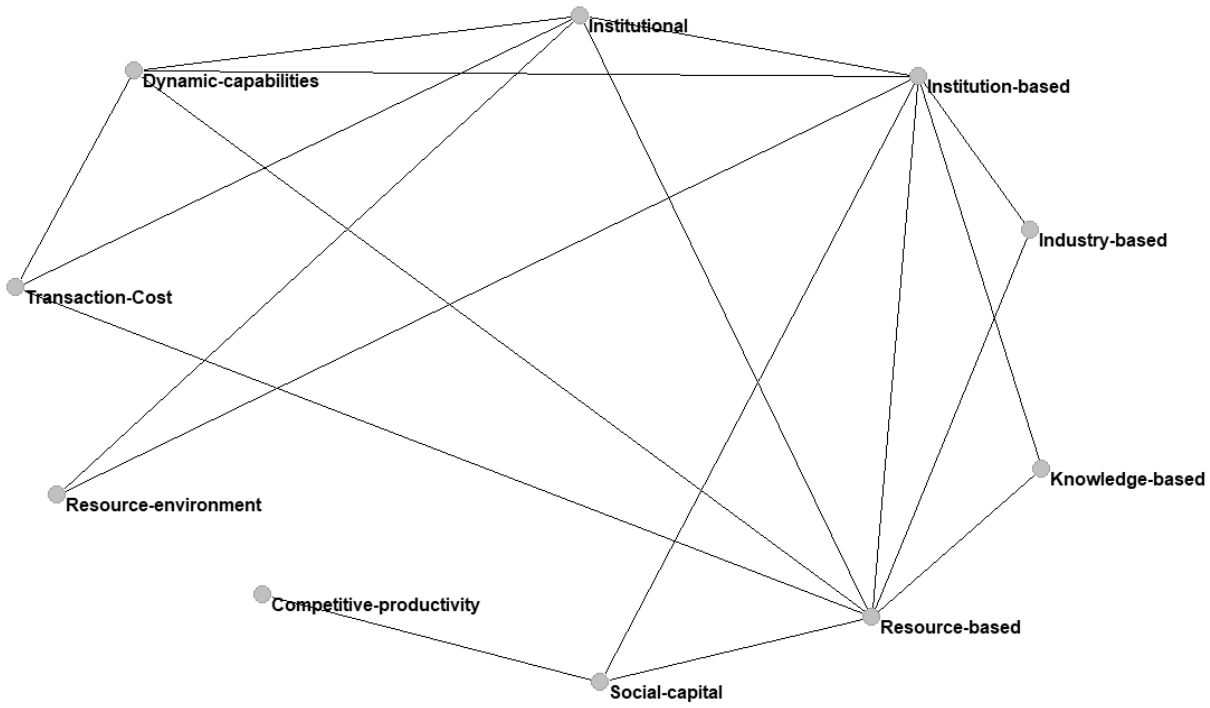
Social capital theory: Social capital creates relationships with diverse characteristics, rooted in norms and trust, and can be produced in an institutionalized and non-institutionalized environment. "Social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: They all consist of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure" (Coleman, 1988: S98).

Resource environment: This theory proposes "the paradox of environmental embeddedness," this lies in the fact that the same factor endowment and institutional environment that allows firms to create a competitive advantage can paradoxically become constrained in trying to sustain an advantage (Kim & Hoskisson, 2015).

Competitive productivity: This theory introduces the combined construct of competitiveness and productivity. It establishes a relationship between culture, competitiveness, and performance while also introducing a new structure for analysis, the trilogy, featuring: Macro (Country), Meso (Firm), and Micro (Individual) levels of competitive productivity (Baumann et al., 2019, 2020; S. Chen & Lin, 2020; Fjellstrom & Frick, 2020).

These theories are combined in different ways to explain the connection between institutions, institutional quality, and competitiveness; figure 2 shows that combination.

Figure 2. Linkage between theories



Source: Authors using Pajek's network visualization.

2. Review of Contexts

The in-depth analysis of the selected articles shows that the most recent studies are focused on firms in China and other emerging economies. The literature reveals various approaches in defining, understanding and measuring the relationship between institutions and international competitiveness. The definitions found in the literature provide both a micro (firm) and a macro (country) context for the interrelation of constructs. At the country-level, international competitiveness is a set of institutions whose ultimate goal is to improve its citizens' prosperity levels. On the other hand, institutions are seen as catalysts for creating firm-specific advantages to generate value despite international competition at the firm level. The scope of the research found in our sample of articles related to these constructs is shown in Table 2.

Table 2. Competitiveness level of analysis

Level	Definition	Papers
Country	"the set of institutions and economic policies supportive of high rates of economic growth in the medium term." "set of institutions, market structures, and economic policies supportive of high current levels of prosperity" (Porter, Sachs, & Schwab, 2002, p.16) (OECD, 1992. p. 237)	(Baumann et al., 2019), (Braja & Gemzik-Salwach, 2019), (Gölgeci et al., 2019), (Kubickova, 2019), (Peña-Vinces et al., 2019), (Salas-Velasco, 2019), (Duran et al., 2019), (Cárdenas et al., 2018), (Kiseľáková et al., 2018), (Wei & Nguyen, 2017), (Qu et al., 2017), (Smit et al., 2017), (Kant, 2016), (Aiginger & Vogel, 2015), (Sun et al., 2015), (J. Wu et al., 2015), (Lu et al., 2014), (Abdi & Aulakh, 2012), (Alguacil et al., 2011), (Fung et al., 2009), (Papaioannou, 2009), (Baliamoune-Lutz, 2009), (Wright, 2008), (Cuervo-Cazurra, 2008), (Yamakawa et al., 2008), (Bowen & De Clercq, 2008), (Hausmann et al., 2007), (Hyun, 2006), (Acemoglu & Johnson, 2005), (Bevan et al., 2004), (Rodrik et al., 2004), (Bockstette et al., 2002), (Luìs et al., 2020), (Hitt et al., 2004), (Song et al., 2019)*, (Marano et al., 2016)*, (Bobillo et al., 2010)*, (Peter J. Buckley et al., 2009)*
	"the degree to which a nation can, under free trade and fair market conditions, produce goods and services which meet the test of international markets, while simultaneously maintaining and expanding the real income of its people over the long-term."	
Firm	"the capability of firms engaged in value-added activities in a specific industry in a particular country to sustain this value-added over long periods of time in spite of international competition." (Moon, Rugman, & Verbeke, 1998, p. 139)	(Mihailova et al., 2020), (Adomako et al., 2019), (Jafari Sadeghi et al., 2019), (Leyva-de la Hiz et al., 2019), (Zhu et al., 2019), (Hu et al., 2019), (Fernández-Méndez et al., 2018), (Estrin et al., 2018), (Mingo et al., 2018), (Beazer & Blake, 2018), (Surdu et al., 2018), (Manolopoulos et al., 2018), (Brandl et al., 2018), (Cuervo-Cazurra et al., 2018), (Banalieva et al., 2018), (Pisani & Ricart, 2018), (Jie Chen et al., 2017), (Kotschy & Sunde, 2017), (Marano et al., 2017), (Bilgili et al., 2016), (Hoffman et al., 2016), (Tan & Chintakananda, 2016), (Estrin et al., 2016), (Liou et al., 2016), (Goedhuys & Sleuwaegen, 2016), (Hong et al., 2015), (Judge et al., 2015), (Gaur et al., 2014), (Benáček et al., 2014), (Cui & Jiang, 2012), (Chacar et al., 2010), (Gao et al., 2010), (Meyer & Sinani, 2009), (Meyer et al., 2008), (Wan & Hoskisson, 2003), (Meyer, 2001), (B. Wu & Deng, 2020) (Panicker et al., 2019), (Hoskisson et al., 2013), (Cheng & Yu, 2008), (Ervits & Zmuda, 2018)*, (Putzhammer et al., 2018)*, (Valentino et al., 2018)*, (Deng & Zhang, 2018)*, (Stoian & Mohr, 2016)*, (Wang et al., 2012)*, (He & Cui, 2012)*, (Luo, 2011)*, (Zhang et al., 2011)*.

Individual	"Competitive attitude and ability, the competitiveness of individuals." "Competitiveness is the ability and willingness to outperform others – or at least better one's own performance – at the individual micro-level."	(Baumann et al., 2019; Baumann & Hamin, 2011; Baumann & Harvey, 2018)

Source: Authors, *Denotes focus on China

3. Review of Characteristics

The scope of the articles is evenly distributed between firm and country-level analysis. The studies focused on country-level measures international competitiveness as flows of foreign direct investment (inward and outward) impact GDP, GDP per capita, export intensity, and economic growth. Studies at the firm level measure the "scope" of international competitiveness as the capacity to innovate or develop new products for international markets, and the "scale" of international competitiveness as the degree of internationalization or returns on assets.

Another issue present in the review is that efficient home country institutions can reduce uncertainty and minimize the cost of transacting internationally, thereby affecting firm competitiveness internationally. While the effect of strong institutions is positive, weak institutions tend to influence international competitiveness negatively. The main issues affecting the quality of institutions are corruption, government effectiveness, and bureaucracy. Simultaneously, other essential factors that shape the competitive landscape include trade openness, education, property rights, and the rule of law.

Finally, research points to the influence of cultural systems relevant to international competitiveness. In this sense, it adds a new level of analysis to individual competitiveness, which is an emerging concept in this field.

4. Review of Methodology

As our focus was mainly articles based on empirical analysis, we describe the main methodological approaches at both levels of analysis (country and firm), as shown in the definitions we adopted. Table 3 shows the articles published by the methodology applied.

Table 3. Institutions and international competitiveness: study methods

Method	**Papers**	**# Articles**
Panel data	(Gao et al., 2010)(Fernández-Méndez et al., 2018) (Benáček et al., 2014)(Hausmann et al., 2007)(Rodrik et al., 2004)(Smit et al.,	17

	2017)(Papaioannou, 2009) (Kubickova, 2019)(Cuervo-Cazurra, 2008) (Banalieva et al., 2018) (Bobillo et al., 2010)(Cuervo-Cazurra et al., 2018)(Stoian & Mohr, 2016)(Chacar et al., 2010) (Peter J. Buckley et al., 2009) (Hoffman et al., 2016) (Leyva-de la Hiz et al., 2019)	
Binary response models and GEE	(Lu et al., 2014) (Gaur et al., 2014) (Surdu et al., 2018) (Bowen & De Clercq, 2008) (Meyer, Estrin, Bhaumik, & Peng, 2008) (Zhang et al., 2011) (Pisani & Ricart, 2018) (Valentino et al., 2018) (Mingo, Junkunc, & Morales, 2018) (Goedhuys & Sleuwaegen, 2016) (J. Wu et al., 2015) (Cui & Jiang, 2012) (Marano, Tashman, & Kostova, 2017) (Jie Chen et al., 2017)	16
OLS (Cross-sectional)	(Fung et al., 2009) (Ervits & Zmuda, 2018) (Adomako et al., 2019) (Braja & Gemzik-Salwach, 2019) (Bevan et al., 2004) (Kiseľáková et al., 2018) (Wei & Nguyen, 2017) (Salas-Velasco, 2019) (Peña-Vinces et al., 2019) (Hong et al., 2015) (Bockstette et al., 2002) (B. Wu & Deng, 2020) (Wan & Hoskisson, 2003) (Aiginger & Vogel, 2015) (Cheng & Yu, 2008) (Kant, 2016)	16
Hierarchical or mixed models	(Wang et al., 2012) (He & Cui, 2012) (Putzhammer et al., 2018) (Sun et al., 2015) (Deng & Zhang, 2018) (Hitt et al., 2004) (Zhu et al., 2019) (Judge et al., 2015) (Luo, 2011) (Abdi & Aulakh, 2012) (Beazer & Blake, 2018).	11
Dynamic Panel data	(Hu et al., 2019) (Hyun, 2006) (Alguacil et al., 2011) (Song et al., 2019) (Baliamoune-Lutz, 2009) (Wright, 2008)	7
Theoretical	(Luìs et al., 2020) (Baumann et al., 2019) (Bilgili et al., 2016) (Yamakawa et al., 2008) (Baumann, 2020) (S. Chen & Lin, 2020) (Fjellstrom & Frick, 2020)	7
Tobit	(Manolopoulos et al., 2018) (Panicker et al., 2019) (Liou et al., 2016) (Estrin, Meyer, Nielsen, & Nielsen, 2016) (Qu et al., 2017)	6
Instrumental variables	(Tan & Chintakananda, 2016) (Acemoglu & Johnson, 2005) (Brandl et al., 2018)	3
Meta-analysis	(Marano et al., 2016) (Duran et al., 2019) (Meyer & Sinani, 2009)	3
Cluster, PCA, Factor Analysis	(Hoskisson et al., 2013) (Cárdenas et al., 2018) (Gölgeci et al., 2019)	3
Multiple Case Study	(Jafari Sadeghi et al., 2019) (Mihailova et al., 2020)	2
Structural Modeling	(M. K. Singh et al., 2018)	1

Source: Authors

Due to both topics' multidimensional character, various methods can be used to analyze the interplay between institutions and international competitiveness. Although the panel data is used most frequently, a significant amount of cross-section data is often used. Other models included endogenous regressors approaches, such as instrumental variables estimated through the generalized method of moments (GMM) and dynamic panel models. Also, hierarchical or mixed models are used when data is clustering at more than one level. Finally, binary response models, Tobit, and traditional OLS make up part of the sample.

To address data endogeneity, several authors run estimations in which they include lags for the independent variables and the additional lags of the dependent variable as an instrument. It is

also interesting to see that structural modeling, theoretical and case study approaches have emerged recently to study these topics.

We found some recurrent data sources in the literature review to analyze the institutional framework and international competitiveness. It is important to highlight that some of the sources are used in more than one article. In Table 4, we summarize our findings.

Table 4. Data sources

Data Source	**Papers**
Economic Freedom of the World	(Kotschy & Sunde, 2017; Smit et al., 2017; Surdu et al., 2018; Zhu et al., 2019;)
Project GLOBE	(Estrin et al., 2016; Marano et al., 2016; Tan & Chintakananda, 2016; Zhang et al., 2011; Zhu et al., 2019)
International Monetary Fund's World Economic Outlook	(Chan et al., 2008; Estrin et al., 2018)
IMD World Competitiveness Dataset	(Chacar et al., 2010; Stoian & Mohr, 2016; Tan & Chintakananda, 2016)
Worldwide Governance Indicators	(Abdi & Aulakh, 2012; Cárdenas et al., 2018; J Chen et al., 2018; Estrin et al., 2016; Hu et al., 2019; Liou et al., 2016; Manolopoulos et al., 2018; Mingo et al., 2018; Valentino et al., 2018)
Global Competitiveness Report – WEF	(Cárdenas et al., 2018; Duran et al., 2019; Judge et al., 2015; Liou et al., 2016)
World Investment Report	(Bevan et al., 2004; Peter J. Buckley et al., 2009; Estrin et al., 2016, 2018; He & Cui, 2012; Hyun, 2006; Liou et al., 2016; Luo et al., 2010; Marano et al., 2017; Meyer et al., 2008; Valentino et al., 2018; Wang et al., 2012; Yamakawa et al., 2008; Zhang et al., 2011)
International Country Risk Guide	(Baliamoune-Lutz, 2009; Bockstette et al., 2002; Chan et al., 2008; Cuervo-Cazurra et al., 2018; Hyun, 2006; Kant, 2016; Kotschy & Sunde, 2017; Lu et al., 2014; Papaioannou, 2009; Stoian & Mohr, 2016; Valentino et al., 2018; Wan & Hoskisson, 2003; Zhang et al., 2011)
Corruption Perception Index	(Benáček, Lenihan, Andreosso-O'Callaghan, Michalíková, & Kan, 2014; Bowen & De Clercq, 2008; Chan et al., 2008; Cuervo-Cazurra, 2008; Cuervo-Cazurra et al., 2018; Ervits & Zmuda, 2018; Judge et al., 2015; Luo, 2011; Manolopoulos et al., 2018; Meyer & Sinani, 2009; Tan & Chintakananda, 2016)
Fortune Global 500	(Abdi & Aulakh, 2012; Cuervo-Cazurra, 2008; Ervits & Zmuda, 2018; Judge et al., 2015; Marano et al., 2017; Surdu et al., 2018; Wang et al., 2012)
Index of Economic Freedom (IEF)	(Kubickova, 2019)

Source: Authors

As shown in the table, the most widely-used sources are the Corruption Perception Index, published by Transparency International; the International Country Risk Guide, published by the PRS Group; and the World Investment Report, published by the United Nations Conference on Trade and Development – UNCTAD.

Finally, the variables found in the selected articles were organized in Table 5. These variables are consistent with mainstream international competitiveness analysis (P J Buckley et al., 1990; Peter J. Buckley et al., 1988; Cooper & Porter, 2002; Durand & Giorno, 1987; Jan Fagerberg, 1988; Schwab, 2014; Swagel, 2012; Waheeduzzaman & Ryans Jr., 1996).

Table 5. Institutions and International competitiveness: main variables of study

Dependent Variable	**# Articles**	**Independent Variable**	**# Articles**	**Control Variables**	**# Articles**	**Moderating Variables**	**# Articles**	**Instrumental Variables**	**# Articles**
Outward FDI (Flows, Positions, Acquisitions)	13	Corruption Control of Corruption	17	Industry effects	12	Regulatory institutional quality	2	Legal Origin	1
Inward FDI (Flows, Stocks, Spillovers)	12	Rule of Law Law & Order	11	Firm size Subsidiary Size	10	Political stability	1	Population	1
Firm performance	7	Trade Trade openness	11	GDP per capita	7	Regulatory effectiveness	1		
Innovation capability	7	Institutional quality	9	Distance (Geographic, Cultural, Economic)	6	FDI (inward) flows	1		
GDP GDP per capita	5	GDP per capita	9	GDP (Home, Host)	6	Size of the Public Sector	1		
Degree of internationalization	3	Government effectiveness	8	State ownership	5	Fiscal freedom	1		
New Products	3	FDI Inflows	7	Macroeconomic uncertainty	4	Trade freedom	1		
Institutional quality	2	Bureaucracy	6	Firm age	4	Home market size	1		
Investment	2	Distance	6	Trade openness	3				
Export intensity	2	Legal extensiveness	6	Population	3				
Economic growth	2	Education Quality of Education	6	Common language	3				
Per capita income	2	Labor	6	Exports	3				

		Labor market Labor intensity			
Internationalization decision	2	Political stability	5	Research and Development	3
Return on assets	2	Voice and Accountability	4	Inward FDI flows	3
Technological Intensity	1	Ethnic index	4	Risk (Economic, Financial)	2
		Property rights	4	Colony	2
		Quality of local infrastructures	3	Business Group	2
		Market size	2	Control of Corruption	2
		Green Innovation	1	Government Effectiveness	2

Source: Authors

E. Findings and future research

1. Theoretical implications and propositions

This section discusses potential research opportunities in the international business area to explore the relationship between the institutional framework and international competitiveness. Concerning these theories, the institution-based view and institutional theory were most populous with 39 and 36 articles, respectively, followed by the resource-based view (20), dynamic capabilities (14), transaction cost (13), competitive productivity (5), industry-based view (2), knowledge-based view (2), social capital (2), and resource environment (1). We found that the strongest link existed between the first three theories mentioned. Future research could develop frameworks combining the missing links evidenced in figure 2.

As shown in the literature review, most of the research efforts have dealt with analyzing institutions and their impact on growth and economic performance (Acemoglu et al., 2001; Hall & Jones, 1999; Knack & Keefer, 1995; Knight, 1992; Mauro, 1995; North, 1986, 1990; Rodrik et al., 2004; Williamson, 1985). In particular, institutions—political, legal, and societal—are used as sources for international competitiveness (Guerrieri & Meliciani, 2005; Hollingsworth, 2000; Ingram & Silverman, 2002a; Jaffe, 1994; Peng et al., 2008; Porter, 1990; Porter & Linde, 1995;

Rodriguez et al., 2005; Soete, 1987; Tobey, 1990; Wan & Hoskisson, 2003). Furthermore, with the changing dynamics of global competition, institutions become a way to compete in international markets, providing rules (Knight, 1992; North, 1986, 1990; Ostrom, 1986, 1990; Williamson, 1985), norms (Bollom & Simons, 1990; Keefer & Knack, 2008; Kolb, 1948; Ullmann-Margalit, 1977); and equilibria (Calvert, 1998; Greif & Kingston, 2011; Hayek, 1945, 1967; Hindriks & Guala, 2015; Riker, 1980; Schotter, 1981).

Several researchers have explored the quality of the institutional framework and the way it affects how firms compete in the international arena (Cherchye & Verriest, 2016; Cuervo-Cazurra & Dau, 2009; Cuervo-Cazurra & Ramamurti, 2017; Guerrieri & Meliciani, 2005; Hitt, 2016; Huang et al., 2017; Ingram & Silverman, 2002; Marano et al., 2016; Peng et al., 2008; Porter & Linde, 1995; Rugman et al., 2012; Voss et al., 2010; Witt & Lewin, 2007). Although there are studies that observe the impact of home and host country-specific formal and informal institutions in the context of international competitiveness, few studies combine all of them. This finding suggests that a firm's success in international markets depends on formal and informal institutional environments and the difference between home and host countries. Thus, we posit the following proposition:

Proposition 1: Home and host country-specific formal and informal institutions influence the success of a firm in international markets.

The in-depth analysis of the selected articles shows that the most recent studies are mainly focused on firms in China, other emerging economies have less attention. Also, the scope of the articles is evenly distributed between firm and country-level analysis. Still, very few studies have focused on exploring how institutional conditions vary between industries, regions and nations, or how they influence firms differently (Beckmann & Padmanabhan, 2009; Grabova et al., 2018; Ma et al., 2017; Momaya & Selby, 1998; Tesfatsion, 2007; Von Jacobi, 2018). As such, we posit the following proposition:

Proposition 2: International competitiveness is moderated by country-, region-, industry-, firm- and individual-based differences.

Most existing literature has examined institutions' quality through variables such as corruption management, the rule of law, and regulatory institutional quality. Among the variables that seem to be the most influential include dimensions of culture existing between nations, as

proposed by Hofstede (Chen & Lin, 2020). In this sense, both institutional frameworks and culture may be viewed as multilevel concepts directly linked to international competitiveness. However, by comparison, very few studies were focused on understanding the incidence of other formal institutional approaches or including additional measures of informal institutional distance, such as language, religion, and the law, among others. Hence, we posit the following proposition:

Proposition 3: The institutional framework and context (culture and legitimacy) are complemented by the interplay between culture, competitiveness, and performance.

2. Methodological considerations and empirical contributions

This study offers a comprehensive synthesis of empirical studies about the relationship between institutional framework and international competitiveness. Our findings indicate that export performance is the main way to measure and analyze international competitiveness (Amable & Verspagen, 1995; Amendola et al., 1993; Balassa, 1965; Moon et al., 1998; Costantini & Mazzanti, 2012; Hausmann et al., 2007; Ito & Pucik, 1993), followed by foreign direct investment.

Our review also shows that longitudinal analysis would further enhance the knowledge of how institutional conditions change over time and their effect on international competitiveness. This analysis could be used in different contexts (i.e., countries, regions). For example, in the context of methods, a multilevel analysis could help investigate institutions on a national, regional, industrial, or individual level, identifying any effects on international competitiveness. In the same way, another promising approach involves studying dynamic processes to capture the constructs' multidimensionality and the variability of different institutional conditions. Finally, comparative case study analysis presents another bright prospect. It holds the possibility of developing other theoretical frameworks while also opening the door to mixed methodologies (qualitative and quantitative).

We also suggest looking for alternative sources of data (sources shown in table 5 are widely-used). To mention some, the Fragile States Index[1] allows for the exploration of social, economic, and political variables that explain the interplay between institutions, institutional quality, and international competitiveness. Another interesting source is the Atlas of Economic Complexity,[2] which provides information about the structure of exports that helps explain how industrial sectors

[1] https://fragilestatesindex.org/indicators/
[2] https://atlas.cid.harvard.edu

change over time and how to improve the way they compete internationally or fail to do so. Finally, we find the PRS Group's International Country Risk Guide[3] to be a comprehensive and multidimensional source, as it provides political information and financial and economic data.

3. Policy implications

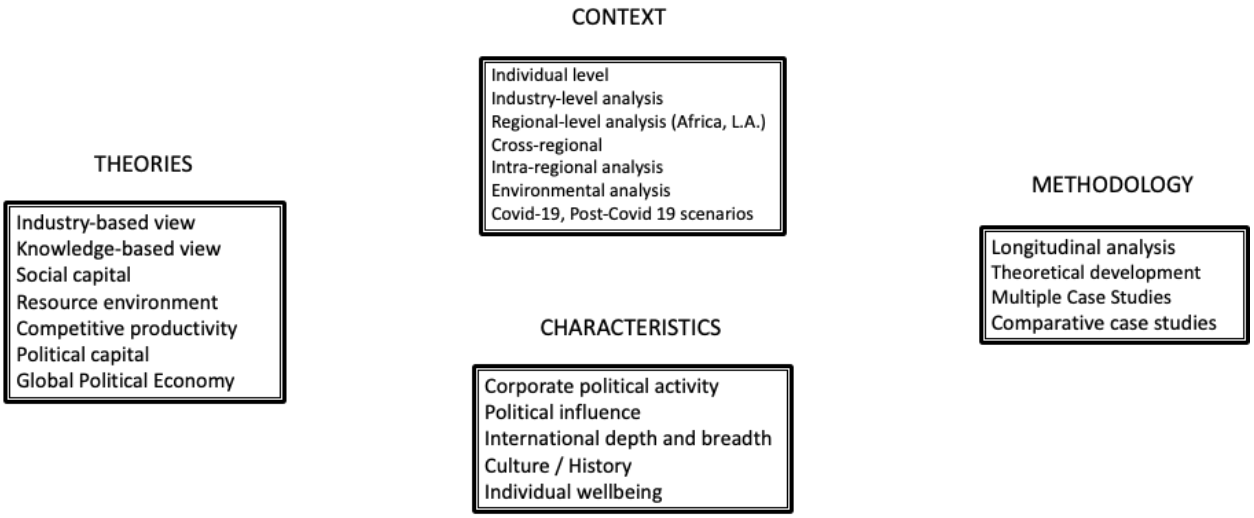
Our research has explored various studies to examine the impact of institutional frameworks on international competitiveness. Scholars have highlighted that the participation of firms (local and MNE) in the political system may affect the institutional environment and international competitiveness, primarily in emerging economies. These findings include the international integration of openness to trade (Rodrik et al., 2004), high levels of export concentration (Baliamoune-Lutz, 2009), the degree to which the participation of foreign companies weakens the power of local government (Stiglitz, 2000), foreign direct investment (Kant, 2016), context, and types of firms (for example, more specialized, smaller, and state-owned companies are representative of new Chinese MNCs, while private conglomerate groups characterize the multinational growth process in India (Andreff & Balcet, 2016). The research suggests that both local firms and multinational enterprises (MNEs) may affect fragile states' institutional quality through direct and indirect mechanisms. These results have important policy implications and require special attention. Therefore, we posit the following proposition:

Proposition 4: The participation of firms (local and MNE) in the political system affects the institutional environment and international competitiveness in fragile states.

Finally, future research could add more complexity to the discussion about institutions, institutional quality, and international competitiveness by introducing a different research context. For example, current worldwide events derived from COVID-19 increase institutional instability and affect how firms compete in the international arena. Some critical issues could be shocks related to prospects on investment in tangibles and intangibles, R&D activities, internationalization forms under social and mobility-related restrictions, and/or firm-level involvement in Global Value Chains. Figure 3 summarizes future search, with current research deserving more attention in emerging theories, contexts, characteristics, and methodologies.

[3] https://epub.prsgroup.com/products/icrg/icrg-historical-data

Figure 3. Future research



Source: Authors

F. Conclusions

This paper provides a broad and detailed review of the linkage between institutions, institutional quality, and international competitiveness. Though works spanning the previous two decades have enriched the discussion, there's no one single study that combines a joint reflection on institutional constructs, which is why we consider this work relevant and helpful.

Our study reveals alternative theoretical approaches to explain the interplay between institutions and international competitiveness: social capital theory, resource environment, and competitive productivity are emerging issues to explain this linkage. It also sheds some light on the need for alternative methodological approaches; there is no longitudinal study to explain how changes in institutional frameworks over time have had an impact on international competitiveness.

We want to highlight the need to use alternative data sources; the mainstream uses reiteratively few sources. We suggest others that can challenge or confirm previous results regarding the relationship between institutional quality and international competitiveness. In this sense, it is also essential to understand other analysis contexts described in proposition 2, particularly comparative studies in emerging economies, that could enrich the discussion.

Finally, the proposed future research topics should also encourage interaction between different fields of knowledge (i.e., political science, management, economics, sociology, and environmental science) through their various methods and approaches; in this way, it would be

possible to analyze and propose a course of action help governments meet the objectives of providing adequate institutions that enable firms can compete internationally.

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VI. Home Country Institutions and Outward FDI: An exploratory analysis in Emerging Economies

A. Abstract

Although the internationalization of economies is driven by specific industry conditions or business-specific differences, the institutions that exist as background conditions directly determine firms' strategies and interactions in the international environment. This paper contributes to the discussion on the relationship between institutional quality and outward FDI (OFDI). We used 30 indicators in 48 emerging economies in the period 2007 - 2017; we collected the indicators from alternative secondary sources. After we applied Factor Analysis, six factors were retained. We named the components as follows: "Transparency of government" (F1), "Research, development and innovation, R&D+I" (F2), "Inequality" (F3), "Rules on IFDI" (F4), "Education and training" (F5), and "Financial market" (F6). The panel data model outcomes suggest that Factor 2, Research, development and innovation, has a significant and positive effect on OFDI. Factor 6, the Financial market, has a significant and negative effect on OFDI. When we include lagged values of OFDI stocks the results also show that the government measures transparency positively and significantly affects OFDI stocks. These findings imply that the institutional environment creates two streams of OFDI, leverage and escapism.

Keywords: Institutional quality; outward FDI; factor analysis; panel data; emerging and developing economies

B. Introduction

Institutions are crucial for understanding the shape of human interaction. "In consequence, they structure incentives in human exchange, whether political, social, or economic" [1]. After the publication of North's work, the institutionalist literature raised exponentially, allowing the use and debate of the concept in many fields, from economics to politics and management. Many development economists and academics from sociology, anthropology, and political science recognized the consistency of North's arguments; they were sure of the value of their insights into the development process and, in particular, into the economic significance of institutions other than markets. The works of Ostrom [2] and Acemoglu, Johnson & Robinson [3] are under the influence of North's work, and they are the basis of the analysis that influenced the literature in development, internationalization, and competitiveness.

In this sense, it is widely acknowledged, both on empirical and theoretical discussions, that the institutional quality is closely related to growth and economic development. The set of institutions (inclusive and extractive) in a specific economy is called the institutional framework [3–7].

It is also widely accepted that the internationalization of economies is not only driven by specific industry conditions [8] or business-specific differences [9] but also by the institutions that exist as background conditions that directly determine the strategies and interactions of firms with the institutional environment [10–20].

Home country institutions' importance for economic actors' performance is well known in the literature [1,21,22]. Extant literature regarded the home market's structural environment as either supportive or constraining decisions for foreign expansion. The rationale is that strategic decisions, such as the OFDI undertaking, are guided by industrial and firm-specific resources and reflect the formal and informal supports-constraints faced by managers in a specific institutional context.

Literature shows two different structural forces that influence firms' OFDI decisions from emerging markets [23]. On the one hand, in emerging markets, institutional environments are troubled by a poor defense of property rights, insufficient laws and judicial regulation, an unpredictable political climate, and other ineffective institutions that serve the sector. In essence, these inefficiencies affect the availability and quality of factor inputs and thus limit companies' production pursuits. Therefore, internationalization is a reaction to the escape of domestic markets from the stifling bureaucratic climate. On the other hand, emerging markets governments promote local companies through a combination of formal and informal incentives to seek international expansion [23]. Despite their lack of clear ownership benefits, such institutional support helps emerging market firms resolve foreign liability and seek international expansion. Firms would have a distinct tendency to adapt to the stresses of the home country's institutional environment.

For this study, we reviewed works with an explicit focus on the institutional framework in emerging economies. We established three criteria to identify relevant articles to analyze within the limits of the present study: (1) that they describe the role of institutions in emerging economies; (2) that they are published in journals (Q1 and Q2) that can be accessed through Scopus; and (3) that they are published between the years 2000 and 2020. The findings of the literature review will be discussed in detail in section 3.

Nonetheless, significant literature focuses on establishing the relation between institutional quality and OFDI [24–36]; this paper contributes to the existing literature in at least three ways. First, our paper differs from previous studies in the data sources used and the indicators selected to measure institutional quality; we used the Fragile States Index as an alternative source. Second, we propose a methodological approach that combines multivariate analysis and panel data techniques, which allows us to reduce the number of variables and avoid collinearity problems keeping the most representative variables to explain how institutional framework affects OFDI. Third, we selected Emerging and Developing economies because they are beneficial for studying the causes and consequences of institutional variations; for this purpose, we built a data panel with 30 variables for 48 countries in the range 2007-2017.

This paper is structured as follows; section 2 briefly reviews the theoretical approaches and develops the hypothesis; section 3 describes the literature review findings and the methodological approach; section 4 presents the results and discussion; Section 5 and section 6 present the conclusions, limitations, and future research directions.

C. Theoretical approaches and hypothesis development on Institutional quality and outward FDI

The stocks of OFDI grew dramatically in recent years, from nearly one percent of global stocks in 2000 up to 23.5% in 2017, see Figure 1. The rise of OFDI has different motivations, the need to develop new markets, the way to leverage capital, technology, and the way to gain knowledge in international markets [25,37,38]. Another point of view is the escape OFDI, in this case, firms look for international markets to avoid institutional misalignments or uneven conditions to compete in the home country [39–41].

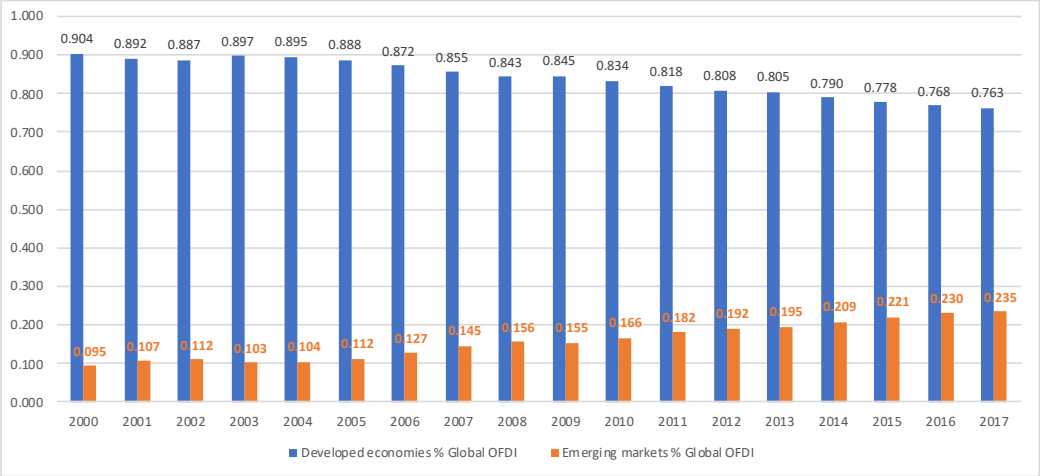

Figure 1. Evolution of OFDI Stocks. Source: Authors based on United Nations Conference on Trade and Development [42]. Authors elaboration.

In the first case, it is necessary to consider the institutional framework that contributes to developing firms' ownership advantages as proposed by Dunning. These advantages include unique assets relating to technological know-how, marketing expertise, and managerial skills that help the firm compete in local and foreign markets [12,19,20,43].

According to Dunning [19] and Narula & Kodiyat [32], firms require a good knowledge infrastructure to foster innovation and absorptive capacity, known as one of the ownership advantages needed for a firm to pursue OFDI. An adequate home country knowledge environment ensures the creation and dissemination of knowledge, the protection of knowledge, and creating a skilled workforce [32].

One crucial component of the home country knowledge environment is the protection of intellectual property; the stronger the protection, the better the research and development (R & D) of the firms [44]. A rule of law that protects intellectual property promotes the R&D endeavor of the firms at home, and fosters them to engage in OFDI to gain ground-breaking capabilities [38,45,46]; hence, strong intellectual property protection influences OFDI positively.

Another pillar of the home country knowledge environment is skilled human capital; having a well-trained labor force is essential for a firm to deal with the complexities of managing and operating in international contexts. The availability of a skilled workforce helps in the process of assimilation, adoption, and application of new knowledge and reduces the firms' in-house training cost [32,33]. Therefore, home country policies oriented to the development of skilled human resources are likely to influence OFDI positively.

The country's OFDI is related to the "stage of its economic development, the structure of its factor endowments and markets; its political and economic systems; and the nature and extent of market failure in the transaction of intermediate products across national boundaries." [19, p15] Therefore, countries in which the institutions are strong to ensure the efficient allocation of factors and improve economic performance as a prerequisite for OFDI. On the contrary, those countries where institutions are weak can have several economic problems such as lack of productivity, reduced investment rates, and lower GDP growth, which deters OFDI [3,47–50].

Hence, we want to explore which dimensions of home country institutions motivate OFDI and which dimensions deter it? We hypothesize:

- H1: Perceived political and legal hazards positively moderate OFDI
- H2: Perceived financial constraints positively moderate OFDI
- H3: Uneven access to factor endowments negatively moderates OFDI
- H4: Human capital positively moderates the OFDI
- H5: High levels of research and development positively moderates OFDI
- H6: Protection to inward FDI positively moderate OFDI

D. Methodology

This section is divided into two; the first part shows the literature review findings, and the second shows the methodological approach of this study.

1. Literature review findings

In the literature review, we centered our attention on methodological approaches focused on the institutional framework in emerging economies; the results are shown in Table 1.

Table 6 Main Methodologies

Binary resp models and	**OLS (Cross-sectiona)**	**Hierarchical or mixed models**	**Cluster, PCA, Factor Analysis**	**Tobit**	**Theoretical**	**Panel data**	**Dynamic Panel data**	**Meta-analysis**	**Multiple Case Study**
(Lu et al., 2014) [51]	(Adomako et al., 2019) [52]	(Wang et al., 2012) [53]	(Hoskisson et al., 2013) [54]	(Estrin, et al., 2016) [55]	(Yamakawa et al., 2008) [56]	(Stoian & M [57]	(Song et al., 2019) [58]	(Duran et al., 2019) [59]	(Mihailova et al., 2020) [60]
(Gaur et al., 2014) [61]	(Wei & Nguyen, 2017) [62]	(Deng & Zhang, 2018) [63]	(Cárdenas et al., 2018) [64]	(Panicker et al., 2019) [65]	Paul, J., & Benito, G. R. G. (2018) [66]				

(Meyer, et al., 2008) [67]	(Hong et al., 2015) [68]	(Zhu et al., 2019) [69]	(Gölgeci et al., 2019) [70]	(Liou et al., 2016) [71]	(Peng et al., 2008) [11]
(Zhang et al., 2011) [72]	(Wu & Deng, 2020) [73]	(Luo, 2011) [74]			
(Pisani & Ricart, 2018) [75]	(Wan & Hoskisson, 2003) [14]				
(Marano, et al., 2017) [76]					

Authors elaboration.

In the literature review, we found some recurrent data sources used to analyze the institutional framework. It is important to highlight that some of the sources are used in more than one article. In Table 2, we summarize our findings.

Table 7 Recurrent Data Sources

Data Source	**Papers**
Economic Freedom of the World	(Zhu et al., 2019) [69]
Project GLOBE	(Estrin et al., 2016; Zhang et al., 2011; Zhu et al., 2019) [55,69,72]
International Monetary Fund's World Economic Outlook	(Estrin et al., 2018) [77]
IMD World Competitiveness Dataset	(Stoian & Mohr, 2016) [57]
Worldwide Governance Indicators	(Cárdenas et al., 2018; Estrin et al., 2016; Liou et al., 2016) [55,64,71]
Global Competitiveness Report – WEF	(Cárdenas et al., 2018; Duran et al., 2019; Liou et al., 2016) [59,64,71]
World Investment Report	(Estrin et al., 2016; Liou et al., 2016; Luo et al., 2010; Marano et al., 2017; Meyer et al., 2008; Wang et al., 2012; Yamakawa et al., 2008; Zhang et al., 2011) [23,55,56,64,67,72,76,78]
International Country Risk Guide	(Lu et al., 2014; Stoian & Mohr, 2016; Wan & Hoskisson, 2003; Zhang et al., 2011) [14,51,57,72]
Corruption Perception Index	(Luo, 2011) [74]
Fortune Global 500	(Marano et al., 2017; Wang et al., 2012) [53,76]

Authors elaboration.

Finally, in this review, we found a diversity of studied variables related to each paper's scope and methodology. In table 3, we organized these variables into types.

Table 8 Types of variables

Dependent Variable	**Independent Variable**	**Control Variables**	**Moderating Variables**	**Instrumental Variables**
Degree of internationalization	Corruption/Control of Corruption	Distance/Geographic/ Cultural/Economic	Political stability	Legal Origin
Firm performance	FDI Inflows	GDP Home/Host	Regulatory effectiveness	Population
GDP/GDP per capita	Rule of Law /Law & Order	Risk Economic/Financial	FDI (inward) flows	
Institutional quality	Bureaucracy	State ownership	Size of the Public Sector	
FDI (Inward)/Flows/Stocks/Spillovers	Institutional quality	Macroeconomic uncertainty	Fiscal freedom	
Investment	Distance	Trade openness	Trade freedom	
Outward FDI/Flows/Positions/Acquisitions	Voice and Accountability	Population	Home market size	
New Products	Political stability	Common language	Regulatory institutional quality	
Export intensity	Government effectiveness	GDP per capita		
Economic growth	GDP per capita	Colony		
Innovation capability	Legal extensiveness	Firm age		
Per capita income	Quality of local infrastructures	Industry effects		
Internationalization decision	Market size	Exports		
Return on assets	Education /Quality of Education	Firm size/Subsidiary Size		
Technological Intensity	Ethnic index	Research and Development		
	Labor/Labor market/Labor intensity	Business Group		
	Property rights	FDI (inward) flows		
	Trade/Trade openness	Control of Corruption		
	Green Innovation	Government Effectiveness		

Authors elaboration.

2. Research context and data

According to the IMF Fiscal Monitor classification, we constructed a strongly balanced panel of 48 emerging economies over the period 2007-2017. The emerging economies are eight countries in Latin America and the Caribbean (LAC), 13 countries in Europe, 12 countries in Asia, eight countries in MENA, and six countries in Africa (Table 4).

Table 9 Countries included in the study

Region	Countries
Latin America and the Caribbean	Argentina, Brazil, Chile, Colombia, Jamaica, Mexico, Peru, and Venezuela
Europe	Bulgaria, Croatia, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia, Serbia, and Ukraine
Asia	Bangladesh, China, India, Indonesia, Kazakhstan, Malaysia, Pakistan, the Philippines, Russia, Sri Lanka, Thailand, and Vietnam
Africa	Kenya, Nigeria, Namibia, South Africa, Uganda, and Zambia
MENA	Egypt, Jordan, Kuwait, Morocco, Qatar, Tunisia, Turkey, and the United Arab Emirates

Authors elaboration.

OFDI, measured as the log of outward FDI stocks, is our dependent variable from the UNCTAD Stat [42]. We selected 30 indicators to explain variance within institutional conditions recollected by secondary sources. Missing data were completed using linear interpolation. These collected data have been checked and normalized before conducting a multivariate statistical analysis. Table A1 in the Appendix provides the matrix of correlations of the indicators used in the empirical analysis.

We collected some indicators from the Fragile States Index (FSI) published by the Fund for Peace. This index combines cohesion, economic, political, social, and cross-cutting indicators [79] that we consider relevant for the aim of this research. We extracted six of them: factionalized elites, group grievance, uneven economic development, human flight, brain drain, state legitimacy, and public services.

From the global competitiveness index (GCI) published by the World Economic Forum [80], we took 24 indicators from 7 pillars: institutions, infrastructure, higher education and training, goods market efficiency, financial market development, technological readiness, and innovation. Table A2 in the Appendix presents the description, dimension, unit, and data source of indicators selected.

3. Methods

To explore the linkage between institutional quality and OFDI, we applied two techniques of data analysis. First, we used factor analysis to reduce the data set's dimensionality while preserving as much statistical information as possible. Second, we used a panel data estimation to determine how institutional quality, measured through the dimensions identified through factor analysis, affects OFDI.

a) Factor analysis

We conducted a factor analysis to determine if we can capture most of the variation between countries using a smaller number of new variables (principal-component factors), where each of these new variables is a linear combination of all or some of the 30 variables included in the original data set. To be sure that the data was suited for factor analysis, we used the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy; the result was close to 1 (see Table A3 in the appendix), indicating that the data is adequate for factor analysis [81]. Also, we specified the factor analysis method, where the commonalities are assumed to be one, and the factors are uncorrelated.

To determine the number of principal factors that should be retained, there are many methods; we considered the three most used. The first criterion is PVA, which considers setting a percentage of variance to account for, usually at least 90% [82]. The second is Kaiser's criteria, which only consider retained factors where the eigenvalues are greater than one [83]; and the third criteria is a scree plot to observe a significant drop in the singular values right after the correct dimension or "elbow" point of the plot [84,85]. We retained the principal factors using Catell criteria.

b) Data panel

We used 48 emerging and developing economies and 11 years that correspond to 528 observations. The dependent variable used is the logarithm of OFDI stocks in each country. We used as a proxy of institutional quality the six principal factors retained from previous analysis as independent variables, considering that factor analysis transformation is conducted in such a way that the first factor accounts for as much of the variability in the data as possible, and each succeeding component accounts for as much of the remaining variability as possible.

We estimated several panel data models. We began with an OLS robust model (1), followed by random (2), and fixed (3) models to compare coefficients and significances. Standard errors adjusted for clustered heteroscedasticity are used too.

Moreover, we conducted a series of robustness tests to reduce concerns about unobserved heterogeneity and provide additional confidence in our results. First, we used the Lagrangian multiplier test (LM) to identify whether ordinary least square (OLS) or random effects (RE) provides a better model. Additionally, given our data's longitudinal nature, to determine whether to use fixed or random-effects specifications, we ran a Hausman [86] test standard and the test type Wald proposed by Wooldridge [87] for robust standard errors. In this test, to reject Ho leads that the random-effects model is not adequate because it will generate inconsistent estimators.

E. Results and discussion

Followed the criteria explained in section methods, we found that 11 factors explain at least 90% of the variance. Simultaneously, only 6 of them have the eigenvalues greater than the unit (View appendix, Table A4). Moreover, the scree plot shows that the most significant change in the slope occurs at factor six; therefore, the first six factors should be retained. Around 80% of the total variation can be captured by the first six factors, each representing a different institutional quality aspect in a country.

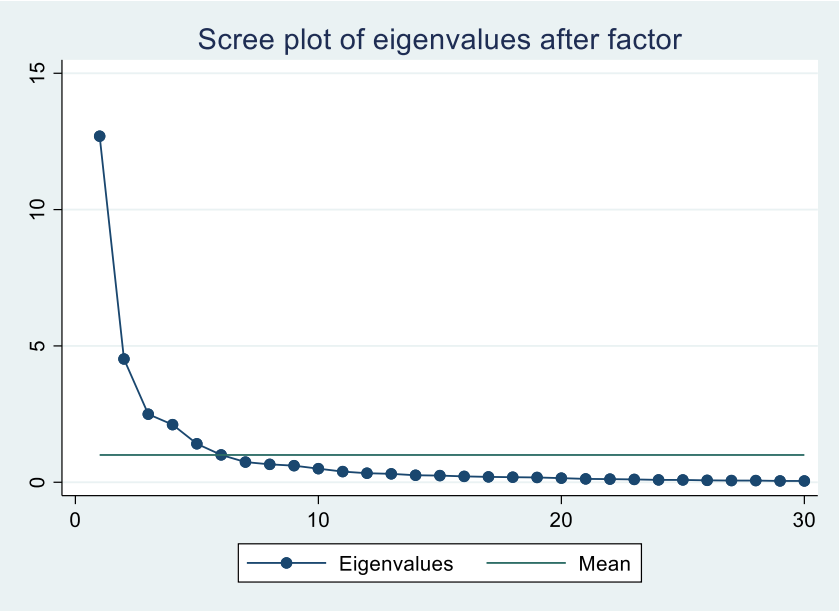

Figure 2. Scree plot. Source: Authors elaboration.

We named the factors after the factor's major loadings, as shown in Table 2; complete results are shown in Table A5 in the appendix. The extracted factors were subsequently used as new variables to represent institutional conditions. These are transparency of the government, research, development, and innovation, inequality, rules for inward FDI, education and training, and financial market.

Table 10. Major Loadings of the Factors

Factor	Variable	Description	Loading
1. Transparency of the Government	gci_dpf	Diversion of public funds	0.8180
	gci_ptp	Public trust in politicians	0.8780
	gci_fdg	Favoritism in decisions of government officials	0.8165
2. Research, development, and innovation	gci_ci	Capacity for innovation	0.8155
	gci_csr	Company spending on R&D	0.8075
	gci_uic	University-industry collaboration in R&D	0.8390
3. Inequality	fsi_fe	Factionalized Elites	0.8866
	fsi_gg	Group Grievance	0.8763
	fsi_sl	State Legitimacy	0.8544
4. Rules for Inward FDI	gci_ftf	FDI and technology transfer	0.8029
	gci_pfo	Prevalence of foreign ownership	0.9018
	gci_bir	The business impact of rules on FDI	0.8310
5. Education and training	gci_qms	Quality of math and science education	0.8318
	gci_ase	Availability of scientists and engineers	0.6944
	gci_qes	Quality of the education system	0.6592
6. Financial Market	gci_flm	Financing through the local equity market	0.6287
	gci_vca	Venture capital availability	0.4894

Authors elaboration.

The first factor includes heavy loadings of diversion of public funds, public trust in politicians, and favoritism in decisions of government officials, which capture perceptions of the extent to which agents have confidence in and abide by society's rules and have credibility in the government and public-sector development. We thus call this factor "transparency of the government."

The second factor is focused on indicators as university-industry collaboration in R&D, capacity for innovation, company spending on R&D, and availability of research and training

services, all of them promote innovation and competitiveness through to adapt rapidly to changing environment, making intuitively sensible to interpret this factor as "R&D+I."

The third factor consists of the Fragile States Index components on group grievance, factionalized elites, state legitimacy, economic inequality, human flight, and public services. Therefore, this final index can readily be interpreted as a measure of structural inequality, mainly focused on divisions based on social or political characteristics and their role in access to services or resources.

The fourth factor captures the indicators related to the rules for inward FDI as the prevalence of foreign ownership, the business impact of rules on FDI and FDI and technology transfer. Thus, it considers the government's openness and explains its regulatory quality to formulate and implement policies and regulations that permit private sector development.

The fifth factor includes the quality of math and science education, scientists and engineers' availability, and the education system's quality. Hence, the "education and training" is an indicator of the possibility of generating more value and transfer and adaptive knowledge to promote competitiveness.

Finally, the sixth factor measures financing through the local equity market and venture capital availability. It is expected that an underdeveloped financial market fosters OFDI due to the need for a competitive source of capital.

The unbundling of institutions allows us to examine which of these different dimensions matter for outward FDI stocks in emerging markets. Table 6 presents the results of estimated models for OFDI stocks from 48 emerging economies in the 2007–2017 period.

Table 6. Results of estimated models

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variables	**OLS_rob**	**RE_rob**	**FE_rob**	**RE_rob_ar(1)**	**FE_rob_ar(1)**	**RE_rob_C**	**FE_rob_C**
L.l_ofdi_s				0.931***	0.681***		
				(0.027)	(0.077)		
Transparency of the Government	0.281***	0.131**	0.098	0.042***	0.150**	0.034	0.038
	(0.092)	(0.057)	(0.064)	(0.016)	(0.070)	(0.055)	(0.057)

Research, development, and innovation	0.507***	0.163***	0.110*	0.015	0.024	0.091	0.056
	(0.117)	(0.061)	(0.065)	(0.017)	(0.049)	(0.058)	(0.063)
Inequality	-0.673***	-0.501***	-0.225	-0.042*	-0.225	-0.105	-0.111
	(0.131)	(0.115)	(0.209)	(0.023)	(0.149)	(0.126)	(0.187)
Rules for Inward FDI	-0.186*	-0.060	-0.072	0.006	0.001	-0.030	-0.037
	(0.110)	(0.059)	(0.065)	(0.015)	(0.029)	(0.057)	(0.062)
Education and training	-0.177*	-0.146	-0.156	-0.017	-0.041	-0.185*	-0.152
	(0.104)	(0.104)	(0.114)	(0.013)	(0.068)	(0.103)	(0.114)
Financial Market	-0.104	-0.194***	-0.194***	0.030**	-0.008	-0.152***	-0.154***
	(0.070)	(0.045)	(0.044)	(0.015)	(0.015)	(0.042)	(0.042)
Constant	1.492***	1.492***	1.492***	0.192***	0.550***	-7.899***	-9.685***
	(0.133)	(0.153)	(0.000)	(0.048)	(0.111)	(1.822)	(3.203)
l_gdppck						0.996***	1.184***
						(0.192)	(0.338)
inflation						-0.010**	-0.011***
						(0.004)	(0.004)
Observations	528	528	528	480	480	528	528
R-squared	0.438	0.374	0.215	0.941	0.596	0.489	0.262
Groups		48	48	48	48	48	48
Breush-Pagan test	$\chi^2(1)=1346$ P-val=0.000						
Hausman test		F(6,515)=3.77 P-val=0.0011				F(6,515)=3.98 P-val=0.0007	
AIC			682.99		207.76		

BIC	708.61	236.98

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. R-squared is the within R-squared for the fixed effects and the overall for the random effects. Authors elaboration.

We applied the Breusch-Pagan test (LM test), and we concluded that the RE estimator is preferable to OLS because the p-value is lower than 0.05. Then, the rejection of the OLS model is consistent. In this case, our results may suggest that transparency of the government and research and development plus innovation promote the outward FDI while inequality and financial market reduce it (model 2).

As displayed in model 2, the positive coefficients for both factor 1 and factor 2 (p-value<0.05, p-value<0.01, respectively) indicate that the measure of the transparency of government is positively correlated with outward FDI, as well as R&D+I. In this way, the estimates in model 2 provide partial support for H1 and H5, suggesting that, in this case, a strong institutional framework encourages OFDI. Our findings support the notion of fair and clear governmental actions within emerging markets introduce competition and market transparency that promote new forms of corporate governance encouraging international ventures [88]. It is also supported that the production capacity of innovative features (R&D+I) depends on the market structure, government policies, and the resources available, which is positively linked to the tendency of the OFDI [89,90].

In contrast, the negative and significant at the 0.01 level coefficients for the third and sixth factors show both structural inequality and financial market are negatively related to outward FDI, indicating that a weak institutional framework discourages OFDI. These results provide partial support for H2 and H3, and are in line with the notion that institutions can be a problem in politics (corruption, instability, policies), law (economic liberalization, regulations) and society (norms, attitudes, culture) that may affect the internationalization of firms and their strategies [11,91]. The remaining two factors do not significantly affect OFDI stocks.

However, by performing a Hausman test, we can reject the hypothesis that the coefficients are the same in both random and fixed effects models, so random effects are dismissed in favor of fixed effects (p-value<0.05). In general, the results indicate that R&D+I and financial market factors affect OFDI. Thus, we confirm our previous results about H5 y H2.

Here, we found that the more capacity for innovation and spending on research and development, the higher the involvement in OFDI, because the relevant coefficient is positive and significant at the 0.10 level (model 3). This suggests that emerging markets firms tend to seek strategic assets to acquire and integrate particular knowledge to improve the research and development capabilities [92].

We also find support for H2 because the financial market's coefficient is negative and significant at the 0.01 level (model 3). We find that more financing through the local equity market and venture capital availability exists in the home country's economy, discourage the OFDI. This suggests that the availability of resources to minimize the cost of capital in the home country is more attractive for emerging market firms [93,94]. In this case, transparency of the government, inequality, rules for inward FDI, and education are not statistically significant.

On the other hand, the statistically significant positive coefficient of lagged values of OFDI stocks shows that OFDI stocks are influenced by the previous year's OFDI (model 5) as expected. These results also show that government transparency positively and significantly affects OFDI stocks, indicating that high transparency increases OFDI. Models 2 and 5 show a positive relationship between the transparency of the government factor and the outward FDI. These results support H1, which states that perceived political and legal hazards positively moderate OFDI.

This finding makes sense because the literature indicates that the institutional environment creates two streams of OFDI, leverage and escapism [95,96]. Firms are willing to invest abroad because they have institutional support or are trying to escape from institutional hazards. Mainly emerging-markets companies may invest abroad to escape from the home countries' poor institutional climate [56,97,98].

Also, the signs of our control variables are typical as expected: GDP per capita is positively associated with outward FDI, and inflation displays a negative association (model 7). The findings for the institutional quality point towards the importance of the financial market because the coefficient remains statistically significant with the same (negative) sign as in random and fixed effects models. Thus, the estimates in models 2, 3, and 7 provide support for H2. In hypothesis 2, we suggested that perceived financial constraints positively moderate ODFI; here, we found support for a negative relationship between financial markets and outward FDI. Specifically, we argued that increasing open access to capital resources promotes local firms' finance [35,99]. Our findings confirm that firms often have difficulty expanding overseas because of the constraints from underdeveloped financial markets in their home country [59].

Our results indicated that the fourth factor never gained significance. We fail to find support for H4 y H6. The results reveal that the coefficients for rules for inward FDI and education and training are insignificant. This means that rules for inward FDI and education and training have no significant effect on OFDI. Although this result surprised us, prior studies that support the positive effects of inward FDI on OFDI, are focused at the firm level in China [100–102], not at the country level and in multiple countries.

In sum, empirical results demonstrate that institutional framework had a strong influence on the outward foreign direct investment (OFDI). Our results provide evidence that outward FDI depends on home country institutions.

F. Conclusions

Which dimension of home country institutions motivates outward FDI (OFDI) and which dimension deter it was the research question. Consequently, this paper has explored the association between different institutional factors and outward FDI stocks for a panel of 48 emerging markets over the period of 2007–2017. We employ 30 indicators to form six factors to represent institutional conditions using factor analysis. These are transparency of the government, research, development, and innovation, inequality, rules for inward FDI, education and training, and financial market.

Our findings reveal that not all institutional quality indicators have a significant effect on outward FDI in emerging markets. Specifically, our study provides new insights to extend our understanding of the relationship between institutional framework and outward FDI, considering some unexplored moderating effects. We find that research and development plus innovations and transparency of the government have significant positive effects on OFDI stocks, while the financial market has a significant negative impact.

Another finding is the negative relationship between financial markets and external FDI. Specifically, we supported that increasing open access to capital resources facilitates funding in local firms. Our findings reinforce the view that firms frequently find it challenging to grow overseas due to the constraints of underdeveloped financial markets in their home country.

These results show that we have a limited understanding of the real effect of the home country institutional environment; our panel involves a very diverse number of emerging economies; while some of the findings could support the institutional leverage, others could be related to institutional escapism.

These findings promote an interest in probing the role played by home country institutions behind outward internationalization. In addition, improving institutional quality in the home country is essential to outward FDI in emerging economies.

G. Limitations and future directions

Our research uses macroeconomic information and analyses 48 different emerging economies; one limitation is the availability of firm's information in each economy, for the same period, to perform a detailed analysis to identify the real effect (leverage or escape) of the home country institutional framework. Future research should include control for geographic location, type of government, legal origin, religion, and other informal institutions.

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VII. Emerging economies' institutional quality and international competitiveness: a PLS-SEM approach.

A. Abstract

The home country's institutional framework determines the capacity to compete in the global arena. This paper discusses the linkage between institutional quality (IQ) and international competitiveness (IC). We measured institutions' quality in emerging economies through the use of selected indicators between 2007–2017. To evaluate the proposed IQ constructs and their relationship with IC, we applied partial least squares – structural equation modeling (PLS-SEM) analysis. The model outcomes suggest that political and lack of systemic conditions have a significant and negative effect on international competitiveness, while science, technology, engineering and mathematics (STEM) resource conditions have a significant and positive effect.

B. Introduction

This study is aimed to empirically explore the role of home country institutional quality on international competitiveness [1–6]. Past studies have used traditional econometric models and variables to measure institutions' effect on international competitiveness [2]. To fill in gaps and expand previous studies, this paper analyzes the influence of different institutional conditions on emerging economies' competitiveness. This paper selects several quantitative proxies to determine the institutional quality and its relationships in the process of international competition. We follow the partial least squares-structural equation modeling (PLS-SEM) method to conduct this analysis.

There are various measures of the concept of International Competitiveness. One is proposed by Sachs, focused on macro indicators defined as "the set of institutions and economic policies supportive of high rates of economic growth in the medium term." Another, proposed by Porter, focused on microeconomic indicators to measure the "set of institutions, market structures, and economic policies supportive of high current levels of prosperity" [7]. A third approach looks at "the capability of firms engaged in value-added activities in a specific industry in a particular country to sustain this value-added over long periods in spite of international competition" [8] (p. 139). The last approach, proposed by the OECD (Organization for Economic Cooperation and Development), argues that "competitiveness is the degree to which a nation can, under free trade and fair market conditions, produce goods and services, which meet the test of international markets, while simultaneously maintaining and expanding the real income of its people over the long-term" [9].

Over the last decade, authors, reviewers, and editors have universally accepted PLS-SEM as a multivariate analysis method. A search in specialized data bases for the term "partial least squares path modeling" reveals that it has assisted researchers in empirically validating their theoretical project developments in various disciplines, such as accounting, family business, management information systems, operations management, supply chain, and many others [10–14].

According to the literature review, our paper is the first approach to study the interplay between institutional quality and international competitiveness in emerging economies using PLS-SEM. It also extends the use of PLS-SEM to the field of international business and international political economy by the use and combination of alternative data sources to explain the proposed constructs [2,15,16].

This paper is structured as follows. Section 2 briefly describes the literature review and hypothesis development. Section 3 details the methodological structure. Section 4 presents the

results and discussion. Sections 5 and 6 present the conclusions, contributions, limitations, and future research directions.

C. Literature review and hypothesis development on Institutional Quality and International Competitiveness.

The modern economy institutions must be taken into account when thinking about economic growth and prosperity. North [15] argues that consistent, dependable institutions are necessary for the modern economic system's overall functioning. Institutions provide a defined legal system, a structured judicial system to enforce property rights and settle disputes, and a contracting and trading system that reduces firms' transaction costs [15,16].

While some institutions are more mature than others, the majority of them are underdeveloped in emerging economies. Lack of institutional development in the country has been examined in the literature to be a cause of macroeconomic volatility and can be accounted for by the adverse effects on economic growth and prosperity [17–21].

North's work [22] has been the basis for further studies that has influenced literature in growth, internationalization, and competitiveness. Another noteworthy contribution was the origin of the "institutional framework" construct that emerged in literature featured in the works of Acemoglu [17–19,23–25], which is understood to be the basis of economic transformation.

The institutional framework is determined by the quality of the institutions, both inclusive and extractive. Inclusive economic institutions create inclusive markets, while "extractive economic institutions are designed to extract incomes and wealth from one subset of society to benefit a different subset" [19].

On the other hand, the academic debate on international competitiveness focuses on the lack of a generally accepted theory on the roots of international competitiveness [26]. Summarizing the academic approaches to competitiveness:

- Technology and production capacity are more important for economic growth than cost competitiveness [27].
- International competitiveness boils down to the discussion on international trade [28].
- International competitiveness is a matter of export performance with technological capacities [8,29–35].
- International competitiveness is based on regulations and policy frameworks [36–43].

Graham and Naim [44] identified three types of institutional functions. The first is the development of rules and laws. Institutions that fall into this category are legislative, ministries, municipal councils, and related agencies. The second category of the institutional role is the application and award of rules and laws. The institutions involved here are tribunals, boards, control, and regulatory bodies. The third institutional role is the supply of public services. These are the institutions that guarantee the provision of different types of public goods and services.

There are many explanations for institutional quality that could be classified into three categories for analysis [44]:

- Resource conditions: related to the quantity, quality, and allocation of available resources.
- Political conditions: related to co-optation, corruption, and politicization in the allocation of resources.
- Systemic conditions: related to the clarity in setting long-term goals, the concentration of power in economic agents, and external state intervention.

Thus, we wanted to understand what the various institutional quality dimensions encourage international competitiveness and deter it. Due to the firm's interaction with a wide range of stakeholders, including political and social actors, they are dependent on the institutional environment in which they operate. Regulatory and normative pressures exist in a business environment, which causes firms' particular behavior [45,46]. Factors like government stability, political parties, predictability of the legal system, and contractual enforcement determine economic outcomes and internationalization [47–51]. The above arguments lead to our first hypothesis.

H1. *A lower degree of political conditions has a negative effect on international competitiveness*.

Porter [41] identifies the nation's competitive advantage due to the quality of endogenous variables like demand conditions, complementary industries, strategy, structure, and rivalry. The country's competitiveness is determined by resource allocation, including human capital, that helps create economic development.

The pace of economic growth is highly dependent on innovation [52]. Economic progress is made possible through technological innovation and development. New or improved technology can be developed through invention and innovation and foreign technology absorption. Allowing for such technological advances requires adequate institutions and policies to support them. It means that an economy's competitiveness relies on how well government policy can support it [53]. The nature and pace of economic growth depend on the degree of institutions and systemic factors that support technological advancements [54,55].

Technology and human capital are interdependent, inseparable, and essential. A large part of technological progress is a result of investing in human capital. In the absence of skilled workers, machines, tools, scientific instruments, the legal system, financial system, and most modern society would not function. To develop more technology, it is necessary to create and maintain skilled employees. To better utilize technology and human capital, society needs technical and business skills [56,57]. Hence, we propose the next hypothesis.

H2. *Science, technology, engineering, and mathematics (STEM) resources enhance international competitiveness.*

Individual property rights and property-based capitalism are vital elements to entrepreneurship. As private property becomes less prevalent or concentrated in a small elite's hands, it becomes more extractive and undermines broader economic growth [17,58]. Political restraint leads to a pattern of captured democracy in which the game's rules favor the elite [59].

A country's legal infrastructure's capacity to resolve disputes and enforce contracts motivates firms to rely on it [60]. For Kramer [61], rules are based on the ability to predict institutional action. "At the country-level, trust in country's laws is reflected in confidence in their country's legal system" [62,63]. Based on the specific application, rule-based trust is expected to reduce transaction costs and guide organizational strategic choices [64,65]. We, thus, hypothesize that:

H3. *Lack of structural systemic conditions have a negative effect on international competitiveness.*

D. Methodology

The problem intended to analyze is the institutional framework and how it affects international competitiveness. International competitiveness is affected when a country's "rules of

the game" generate present and future uncertainty and question the economy's perceived potential productive capacity.

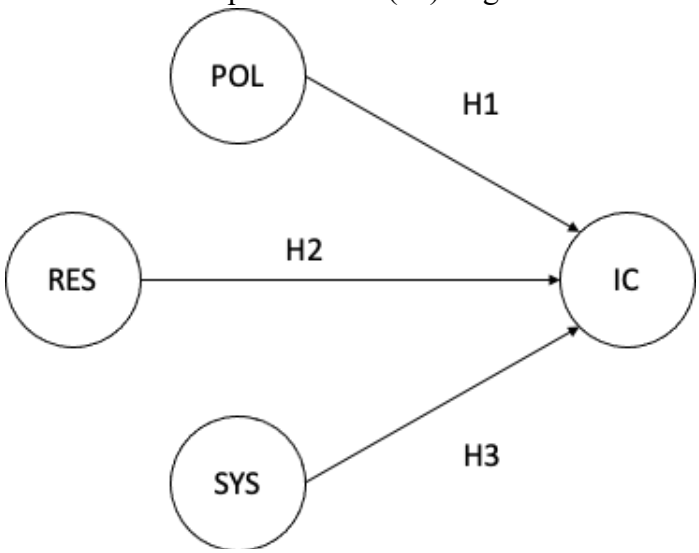
The aim is to analyze the period of 2007–2017 in 48 emerging economies given the changes in these regions' institutional conditions during that period (see Table 1). The selected countries are classified as emerging economies because they are moving from an informal institutional system to a more formal structure with rules of the game that are transparent and apply equally to all participants in the market. Besides, they often experience faster economic growth as measured by gross domestic product (GDP) and improvement in infrastructure and market conditions. However, there is still a higher risk due to political instability, domestic infrastructure problems, currency volatility, and limited equity opportunities.

Table 1. Countries included in the study.

Region	Countries
Latin America and the Caribbean	Argentina, Brazil, Chile, Colombia, Jamaica, Mexico, Peru, and Venezuela
Europe	Bulgaria, Croatia, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia, Serbia, and Ukraine
Asia	Bangladesh, China, India, Indonesia, Kazakhstan, Malaysia, Pakistan, the Philippines, Russia, Sri Lanka, Thailand, and Vietnam
Africa	Kenya, Nigeria, Namibia, South Africa, Uganda, and Zambia
MENA	Egypt, Jordan, Kuwait, Morocco, Qatar, Tunisia, Turkey, and the United Arab Emirates

Source: Author's elaboration.

We propose three latent variables: political (POL), resources (RES), and systemic conditions (SYS), to measure institutional quality and its impact in a fourth latent variable named international competitiveness (IC). Figure 1 shows the basic model.



Source: Author's elaboration.

Figure 1. Institutional Quality and International Competitiveness-Basic Model.

1. Sources and Measures

To test the proposed hypotheses, alternative reliable secondary data sources were utilized [2]. We collected indicators from the Fragile States Index (FSI) [66], from the Global Competitiveness Index (GCI) [67], from the International Country Risk Guide (ICRG) [68], and from the Index of Economic Freedom (IEF) [69]. Table 2 summarizes the structure and scales of each source.

Table 2. Data sources and scales.

Index	Categories/Pillars	Indicators	Scale	
			High	Low
GCI	Basic requirements	Institutions, infrastructure, macroeconomic environment, and health and primary education.	7	1
	Efficiency enhancers	Goods, labor, and financial markets, higher education and training, and technological readiness.	7	1
	Innovation and sophistication	Business sophistication and innovation.	7	1
FSI	Cohesion	Security apparatus, factionalized elites, and group grievance.	1	10
	Economic	Economic decline, uneven economic development, and human flight and brain drain.	1	10
	Political	State legitimacy, public services, and human rights and rule of law	1	10
	Social and cross-cutting indicators	Demographic pressures, refugees and IDPs (Internal Displaced People), and external intervention	1	10
EFI	Rule of law	Property rights, government integrity, judicial effectiveness	100	0
	Government Size	Government spending, tax burden, fiscal health	100	0
	Regulatory efficiency	Business freedom, labor freedom, monetary freedom	100	0
	Open markets	Trade freedom, investment freedom, financial freedom	100	0
ICRG	Government stability	Government unity, legislative strength, popular support	12	0
	Socioeconomic conditions	Unemployment, consumer confidence, poverty	12	0
	Investment profile	Contract viability/expropriation, profits repatriation, payment delays	12	0
	Internal conflict	Civil war/coup threat, terrorism/political violence, civil disorder	12	0
	External conflict	War, cross-border conflict, foreign pressures	12	0
	Corruption	Special payments and bribes	6	0
	Military in politics	Domination of society and/or governance by military forces	6	0
	Religious tensions	Domination of society and/or governance by a single religious group	6	0
	Law and order	Strength and impartiality of the legal system, observance of the law	6	0
	Ethnic tensions	Tension within a country attributable to racial, nationality, or language divisions	6	0

Democratic accountability	Government's responsiveness to its people	6	0
Bureaucracy quality	Institutional strength to govern without drastic changes in policy or interruptions in government services	6	0

Source: Author's elaboration based on the respective source.

A country's productive structure results from its level of social capital and the quality of its institutions. Research has shown that the complexity and the diversity of products a nation exports are a reliable indicator of the resources available in the economy. Complex products require a great deal of tacit knowledge and entail more distributed knowledge than those produced with a product based on resource richness or low labor costs [31,70–72]. In a world where economic power is indicative of political power, economies characterized by narrow resource endowment are more susceptible to capture due to economic and political corruption. Hence, we selected the economic complexity index (ECI) (http://atlas.cid.harvard.edu, accessed on 12 January 2021), developed by Hausmann and Hidalgo [73] as the proxy to measure international competitiveness (IC).

2. *Constructs and Indicators*

From the mentioned sources, we selected specific indicators related to the meaning of the proposed constructs. In Table 3, we describe each construct's composition. Table A1 shows the descriptions of the indicators.

Table 3. Indicators and constructs.

Indicator		Description	Construct		Source
efi_pr	X_1	Property rights	POL	Y_1	Index of Economic Freedom
gci_dpf	X_2	Diversion of public funds			Global Competitiveness Index
gci_ipp	X_3	Intellectual property protection			Global Competitiveness Index
icrg_corr	X_4	Corruption			International Country Risk Guide
icrg_lwo	X_5	Law and order			International Country Risk Guide
gci_art	X_6	Availability of research and training services	RES	Y_2	Global Competitiveness Index
gci_ftf	X_7	FDI (Foreign Direct Investment) and technology transfer			Global Competitiveness Index
gci_qes	X_8	Quality of the education system			Global Competitiveness Index
gci_qms	X_9	Quality of math and science education			Global Competitiveness Index
gci_qri	X_{10}	Quality of scientific research institutions			Global Competitiveness Index
gci_uic	X_{11}	University-industry collaboration in R&D			Global Competitiveness Index
fsi_bd	X_{12}	Human flight and brain drain	SYS	Y_3	Fragile States Index
fsi_fe	X_{13}	Factionalized elites			Fragile States Index
fsi_gg	X_{14}	Group grievance			Fragile States Index
fsi_sl	X_{15}	State legitimacy			Fragile States Index
eci	X_{16}	Economic complexity	IC	Y_4	Economic Complexity Index

Source: Author's elaboration.

3. Method

The study opted for structural equation modeling (SEM) because of its ability to model all paths at once. We choose Partial Least Square (PLS-SEM) instead of covariance-based (CB-SEM) for the following reasons: (1) PLS has minimal restrictions on measurement scales, sample size, and residual distributions, (2) PLS analysis does not assume that the variables are truly independent, leading to more reliable results, and (3) PLS is robust against data skewness and omitting an independent variable [11,74–81].

The literature regarding international business research shows the increasing complexity in the research problems and models observed due to the contemporary interaction between established theories and data availability [82–84]. PLS-SEM is regarded as one of the most innovative approaches in international fields that are very difficult to understand. The method proves particularly valuable for exploratory purposes and is considered proper to explain intricate relationships, like those arising from institutions and global competition [85,86].

Data were assessed using SmartPLS [87] to help determine the relationship between the latent variables POL, RES, and SYS as indicators of institutional quality and their impact on international competitiveness (IC).

Variables have been modeled as reflective constructs since the indicators are expected to covary with each other. The indicators share the same theme in the reflective model. Therefore, indicators must have the same antecedents and consequences [88,89].

Model Specification

Our model consists of 16 indicators ($X_1, X_2, X_3, \ldots, X_{16}$) and four latent variables (Y_1, Y_2, Y_3, Y_4). Latent variables Y_1, Y_2, Y_3 influence Y_4, and the measurement model is specified as follows:

$$X_1 = Y_1 C_1 + \varepsilon_1$$
$$X_2 = Y_1 C_2 + \varepsilon_2$$
$$X_3 = Y_1 C_3 + \varepsilon_3$$
$$X_4 = Y_1 C_4 + \varepsilon_4$$
$$X_5 = Y_1 C_5 + \varepsilon_5$$
$$X_6 = Y_2 C_6 + \varepsilon_6$$
$$X_7 = Y_2 C_7 + \varepsilon_7$$
$$X_8 = Y_2 C_8 + \varepsilon_8$$
$$X_9 = Y_2 C_9 + \varepsilon_9$$
$$X_{10} = Y_2 C_{10} + \varepsilon_{10}$$
$$X_{11} = Y_2 C_{11} + \varepsilon_{11}$$
$$X_{12} = Y_3 C_{12} + \varepsilon_{12}$$
$$X_{13} = Y_3 C_{13} + \varepsilon_{13}$$
$$X_{14} = Y_3 C_{13} + \varepsilon_{13}$$
$$X_{15} = Y_3 C_{15} + \varepsilon_{15}$$
$$X_{16} = Y_4 C_{16} + \varepsilon_{16}$$

In our model, X's are the indicators, *Y*'s are the latent variables, *C*'s are the loadings that relate latent variables to indicators, and ε′s are the residuals of indicators that are unexplained. All indicators are considered reflective in our measurement model because each is assumed to be affected by the corresponding latent variable. As a result, all endogenous variables are observed.

The measurement model can be generally written as follows:

$$X = C'Y + \varepsilon \quad (1)$$

In the measurement (outer) model, X is a J by 1 vector of all indicators, Y is a P by 1 vector of all latent variables, C is a P by the J matrix of loadings relating P latent variables to J indicators, and ε is a J by 1 vector of the residuals of all indicators. In our model, J and P are equal to 16 (indicators) and 4 (latent variables), respectively.

The proposed structural (inner) model expresses the relationships among latent variables and can be expressed as follows:

$$Y_4 = Y_1\beta_1 + Y_2\beta_2 + Y_3B_3 + \zeta_4$$

where β's are path coefficients relating a latent variable to other latent variables and ζ's are the residuals of the latent variable left unexplained by the corresponding exogenous latent variables. In the model, Y_1, Y_2, and Y_3 are exogenous, whereas Y_4 is endogenous.

The above model can be expressed as:

$$Y = B'Y + \zeta \quad (2)$$

In the structural model, B is a P-by-P matrix of path coefficients relating P latent variables among themselves, and ζ is a P by 1 vector of the residuals of all latent variables.

The weighted relation for the proposed model is as follows:

$$Y_1 = X_1w_1 + X_2w_2 + X_3w_3 + X_4w_4 + X_5w_5$$
$$Y_2 = X_6w_6 + X_7w_7 + X_8w_8 + X_9w_9 + X_{10}w_{10} + X_{11}w_{11}$$
$$Y_3 = X_{12}w_{12} + X_{13}w_{13} + X_{14}w_{14} + X_{15}w_{15}$$
$$Y_4 = X_{16}w_{16}$$

In the weighted relation model, *W* is a J by the P matrix of weights assigned to J indicators, which, in turn, lead to P latent variables. This can be rewritten compactly as:

$$Y = W'X \quad (3)$$

In sum, generalized, structured component analysis involves three sub-models taking the general forms as follows:

Measurement model $X = C'Y + \varepsilon$

Structural model $Y = B'Y + \zeta$

Weighted model $Y = W'X$

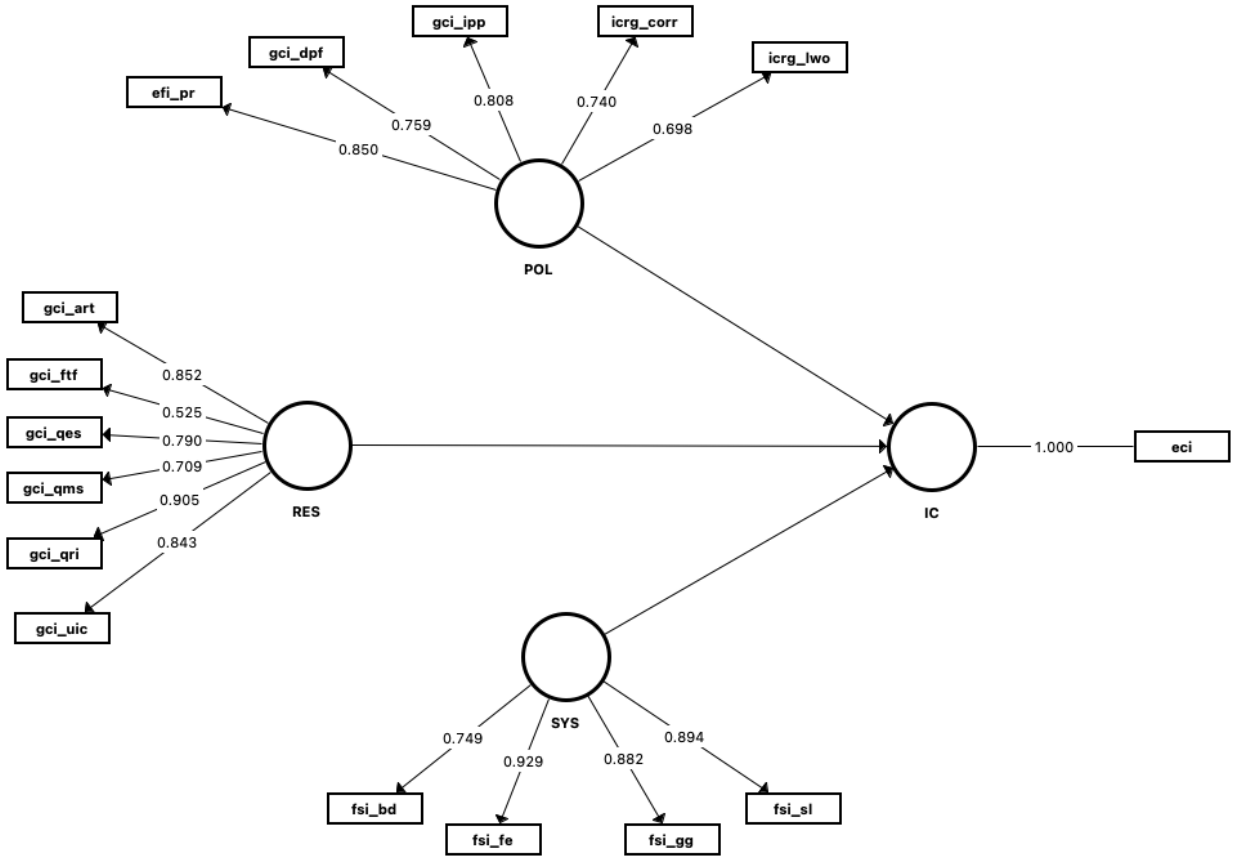
Where:

X is a J by 1 vector of indicators
Y is a P by 1 vector of latent variables
C is a P by J matrix of loadings
B is a P by P matrix of path coefficients
W is a J by P matrix of component weights
ε is a J by 1 vector of the residuals of indicators
ζ is a P by 1 vector of the residuals of latent variables

4. Assessment of the Measurement Model

PLS bootstrapping with 10000 samples [11,12,85] was used to assess the statistical significance of the model. The results of the PLS-SEM analysis are shown in Figure 2. The model tested their reliability and validity and measured the level of consistency of their scores. The indicators are all highly correlated with their intended constructs. The construct indicators were

nearly all above the cutoff score of 0.708, proving that all of them represented the construct [77,79–81,89].



Source: Results from SmartPLS software 3.3.3

Figure 2. Indicator loadings.

To assess internal consistency, Cronbach's alpha and Heterotrait-Monotrait Ratio (HTMT) composite reliability were used [90]. Cronbach's Alpha coefficients ranged from 0.838 to 1.000. All scores were greater than the minimum score of 0.7. The Rho A also exceeded that value. The composite reliability was over 0.7 and passed a minimum level of adequacy. This has shown that there is consistency within the data. Results of average variance extracted (AVEs) were greater than the suggested minimum of 0.5 (see Table 4) [11,74–77,79–81].

Table 4. Construct validity and reliability.

	Cronbach's Alpharho_A		Composite Reliability	Average Variance Extracted (AVE)
POL	0.838	0.885	0.881	0.597
RES	0.881	0.928	0.904	0.581
SYS	0.887	0.888	0.923	0.751

Source: Results from SmartPLS software 3.3.3.

We also examined the discriminatory validity of the constructs using the Heterotrait-Monotrait Ratio (HTMT). The values were below 0.85, which shows adequate discriminatory validity [90,91] (see Table 5).

Table 5. Discriminant validity-HTMT.

	IC	POL	RES
POL	0.386		
RES	0.467	0.739	
SYS	0.601	0.691	0.398

Source: Results from SmartPLS software 3.3.3.

Complementary information about the measurement model is shown in Tables A1: Indicators descriptive statistics, Table A2**.** Mean, STDEV (Standard Deviation), T-Values, *p*-Values, confidence intervals, Table A3: Outer Loadings-Mean, STDEV, T-Values, *p* -Values, Confidence Intervals, and Table A4: Outer VIF Values.

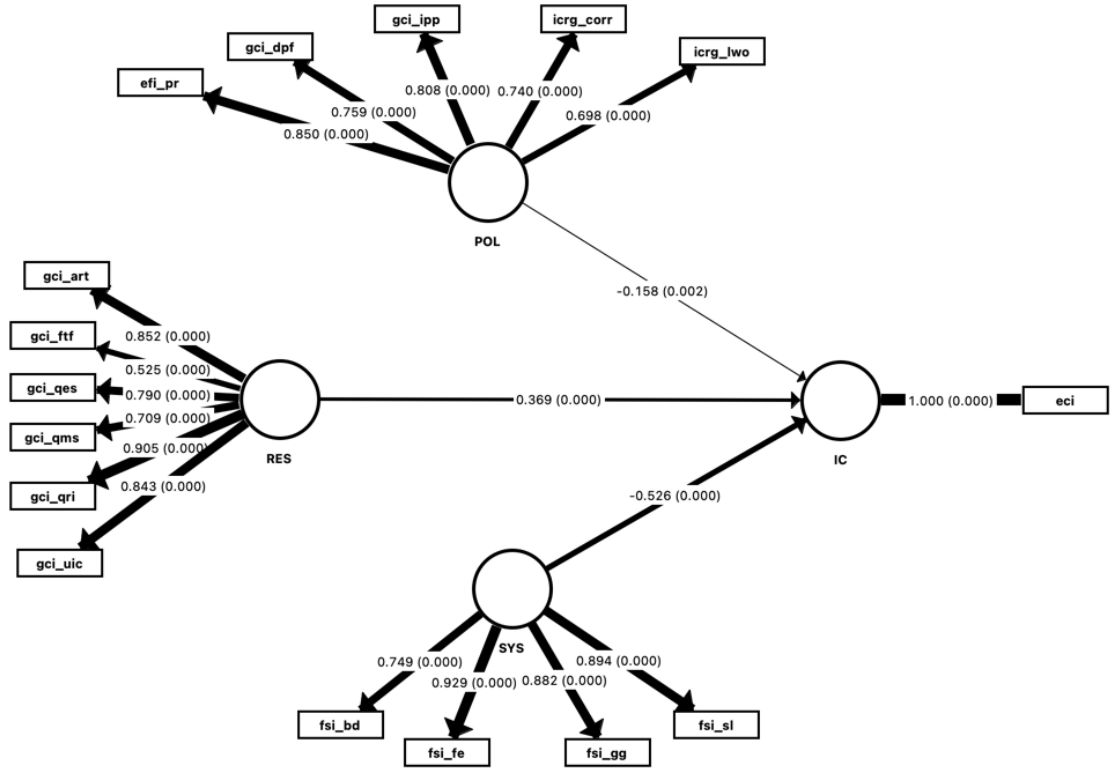
5. Assessment of the Structural Model

For the structural model, inner VIF (Variance Inflation Factor) values are examined. The results are below the recommended threshold of 3.3 [92,93]. Additionally, path coefficients are statistically significant at 95%.

Regarding the predictive accuracy, coefficient of determination (R2), the exogenous constructs (POL, RES, SYS) explain 41% of the endogenous construct (IC), which is considered a moderated effect [94,95]. Q2 statistics are used to measure the PLS path model's quality. This criterion recommends that the conceptual model predicts the endogenous latent constructs. In our model, the value for IC is 0.404. The values greater than zero for a particular endogenous latent construct are considered relevant [75]. Assessing the effect sizes (f2) shows that the effect size of POL (0.019) is small, RES (0.144) is moderate, and SYS (0.284), as shown in Table 5, is substantial [75,96].

E. Discussion of findings

To evaluate the paths' importance, the validity of the measures was assessed based on the path coefficients and the significance of the path coefficients, and the significance level. The resulting *p*-values were obtained using SmartPLS by using a bootstrapping process and calculating the *p*-value of different paths. Path coefficients and significance levels have been determined by randomly sampling 10.000 instances into the model. The results are shown in Table 6 and are supported by Figure 3.



Source: Results from SmartPLS software 3.3.3

Figure 3. Model results.

Figure 3 shows the results of the outer model in factor loadings and *p*-values, and the inner model in path coefficients and *p*-values. The size of the arrows represents the absolute value of each path. As mentioned before, indicators are significant for each construct. In Table 5, we summarize the results for each proposed hypothesis.

Table 6. Hypothesis results.

Hypothesis		Coefficient	Standard Deviation	T Statistics	P Values	VIF	f Square	CI 2.5%	CI 97.5%
								Lower	Upper
H1	POL- > IC	−0.158	0.052	3.061	0.002	2.260	0.019	−0.257	−0.054
H2	RES- > IC	0.369	0.044	8.316	0.000	1.611	0.144	0.275	0.459
H3	SYS- > IC	−0.526	0.040	13.052	0.000	1.655	0.284	−0.600	−0.448

Source: Results from SmartPLS software 3.3.3.

Our findings are in line with the evidence from the literature that suggests that political conditions (POL) may harm the way countries compete in the international arena [19,97–103]. In the case of the analyzed emerging economies, property rights, diversion of public funds, intellectual property protection, corruption, and law and order negatively affect international competitiveness. All the indicators measured are relevant, but the higher loads are in those related to property rights and corruption. Our analysis also shows that an adequate scientific and technological framework (RES) enhances the emerging economies' international competitiveness [104–107]. The endowment of research and training services, FDI, and technology transfer, quality

of the education system, quality of STEM education, quality of research and scientific institutions, and university-industry collaboration are essential factors to compete internationally. In this case, the more relevant indicators are the quality of research and scientific institutions, availability of research and training services, and university-industry collaboration.

Systemic conditions deter international competitiveness. Structural extractive frameworks impede the development of conditions required for an adequate global competition insertion [108–111]. Emerging economies are constrained by brain drain, groups of grievance, factionalized elites, and state legitimacy, as shown in this study's results. The loadings in this construct show the relevance of factionalized elites and state legitimacy in the structural systemic conditions to compete.

F. Conclusions

Research in this field is challenging because the frequent changes in the research context and the significant shifts in formal and informal institutional environments in emerging economies require alternative analysis methods. PLS-SEM exploratory modeling can handle complex models and relaxes the demands on data and relationships' specification, making it very useful for this study.

The proposed model using SEM-PLS to estimate and evaluate the correlation between selected indicators and the proposed constructs to measure institutional quality shows that the independent latent variables explain a significant proportion of the dependent construct's variability.

The analysis shows that political conditions could harm emerging economies' ability to compete with complex products in the international market. As shown in Table A1, the median value of the proposed indicators is slightly inclined to low performance, which allows us to infer that a lower quality of political conditions harms the ability to compete internationally with complex products. The indicator that has the most negative effect is property rights, which is coherent. If the firms' knowledge is not protected, innovation and productive transformation are not encouraged. In the same path, the indicator with a less adverse effect is the diversion of public funds because it affects the competitive environment.

It is also evident that the STEM resources have slightly good performance, which confirms that an adequate infrastructure for science, technology, engineering, and mathematics fosters the countries' ability to develop more complex products. In this construct, the quality of the education system somewhat contributes to the economic complexity. The quality of research institutions is the most critical indicator of the economic complexity to compete internationally.

Finally, extractive systemic conditions, which means the state's capture by elites and delegitimization of the state, are critical impediments to compete for global markets. In this construct, state legitimacy has the worst impact. If the market cannot believe in the state, it will not be possible to transform the productive structure. Although the group of grievance indicator has a lesser negative effect, it is also a condition that harms the effective transformation required for more economic complexity.

The model results, analyzed employing the PLS-SEM method, confirm the literature findings regarding the institutional framework's role, measured by political, resources, and systemic conditions. This paper demonstrates the importance of institutions in fostering the competitive economic strength of emerging economies.

A way of action could be the strengthening of regulations to increase the property rights protection and control of the investment of public funds. This could lead to a better perception of

the state's legitimacy, which would promote the research and development through the participation of different stakeholders, including academia, civil society, and research institutions.

G. Contributions and limitations of this study

This study contributes in various ways to the existing literature. First, it sheds light on the importance of analyzing the political conditions in emerging economies to compete in the global markets. Second, it highlights the negative effect of extractive systemic conditions on international competitiveness. Third, it confirms the importance of STEM resources to generate complex products to compete internationally. Finally, it shows the deployment of an alternative method to evaluate the intricate relationships between institutional quality and international competitiveness. PLS-SEM allowed us to explore emerging economies' conditions even under the limitations described below.

A limitation of the current study is the small number of observations (528) divided into five distinct regions. Another limitation of the research is that it only focused on a few selected indicators according to the literature reviewed. This research's limitations could be overlooked in the future by adding more constructs, variables, and observations. The paper can be enriched by adding intra-regional and inter-regional approaches to control by the occurrence of particular circumstances (i.e., informal institutions or economic development).

H. Appendix A

Table A1. Indicators descriptive statistics.

	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness	Number of Observations
eci	0.113	0.124	−2.764	1.695	0.750	0.312	−0.298	528
efi_pr	44.068	40.000	5.000	90.000	17.468	0.135	0.388	528
fsi_bd	5.378	5.200	2.100	8.500	1.541	−0.942	0.126	528
fsi_fe	6.108	6.500	1.100	10.000	2.169	−0.846	−0.286	528
fsi_gg	6.361	6.300	3.000	10.000	1.785	−0.959	0.111	528
fsi_sl	6.302	6.500	1.600	9.500	1.742	−0.737	−0.399	528
gci_art	4.151	4.149	2.340	6.084	0.583	0.705	−0.150	528
gci_dpf	3.299	3.157	1.219	6.603	0.938	1.239	1.000	528
gci_ftf	4.698	4.754	2.477	6.092	0.587	0.203	−0.393	528
gci_ipp	3.631	3.600	1.629	6.160	0.833	0.256	0.503	528
gci_qes	3.609	3.554	2.092	5.881	0.725	0.267	0.509	528
gci_qms	3.986	4.125	1.876	6.082	0.891	−0.798	−0.252	528
gci_qri	3.901	3.877	2.178	5.934	0.647	−0.007	0.310	528
gci_uic	3.560	3.479	2.072	5.472	0.614	0.261	0.462	528
icrg_corr	2.437	2.500	0.500	4.500	0.668	1.052	0.469	528
icrg_lwo	3.535	4.000	1.000	5.000	1.039	−0.857	−0.382	528

Source: Results from SmartPLS software 3.3.3.

Table A2. Mean, STDEV, T-Values, *p*-Values, confidence intervals.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	*p* Values	CI 2.5%	CI 97.5%
						Lower	Upper
POL− > IC	−0.158	−0.154	0.052	3.035	0.002	−0.257	−0.054
RES− > IC	0.369	0.368	0.047	7.858	0.000	0.275	0.459
SYS− > IC	−0.526	−0.524	0.039	13.622	0.000	−0.600	−0.448

Source: Results from SmartPLS software 3.3.3.

Table A3. Outer Loadings: Mean, STDEV, T-Values, *p*-Values, confidence intervals.

	Original Sample (O)	Sample Mean (M)	Standard Deviation	T Statistics	*p* Values	CI 2.5% Lower	CI 97.5% Upper
eci < -IC	1	1	0			1	1
efi_pr < -POL	0.85	0.85	0.014	60.122	0	0.821	0.877
fsi_bd < -SYS	0.749	0.749	0.019	38.825	0	0.71	0.784
fsi_fe < -SYS	0.929	0.929	0.008	121.245	0	0.912	0.942
fsi_gg < -SYS	0.882	0.882	0.011	76.927	0	0.857	0.902
fsi_sl < -SYS	0.894	0.894	0.008	105.738	0	0.876	0.909
gci_art < -RES	0.852	0.851	0.013	63.767	0	0.823	0.875
gci_dpf < -POL	0.759	0.755	0.036	21.29	0	0.677	0.816
gci_ftf < -RES	0.525	0.524	0.042	12.523	0	0.435	0.6
gci_ipp < -POL	0.808	0.806	0.026	30.721	0	0.747	0.849
gci_qes < -RES	0.79	0.787	0.025	32.217	0	0.735	0.831
gci_qms < -RES	0.709	0.708	0.028	24.924	0	0.649	0.761
gci_qri < -RES	0.905	0.905	0.008	119.89	0	0.889	0.918
gci_uic < -RES	0.843	0.843	0.015	56.113	0	0.811	0.87
icrg_corr < -POL	0.74	0.738	0.032	23.271	0	0.67	0.794
icrg_lwo < -POL	0.698	0.697	0.029	23.855	0	0.636	0.75

Source: Results from SmartPLS software 3.3.3.

Table A4. Outer VIF values.

	VIF
eci	1.000
efi_pr	1.995
fsi_bd	1.464
fsi_fe	7.036
fsi_gg	4.096
fsi_sl	3.700
gci_art	2.674
gci_dpf	2.690
gci_ftf	1.317
gci_ipp	2.857
gci_qes	3.226
gci_qms	2.751

gci_qri	3.460
gci_uic	3.419
icrg_corr	1.715
icrg_lwo	1.475

Source: Results from SmartPLS software 3.3.3.

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VIII. A macro perspective of the innovation process: A Dynamic Performance Management Approach.

A. Introduction

Researchers, specialists, and policymakers acknowledge the significance of innovation for economic growth and societal well-being as a whole. Previous research has employed conventional econometric models and variables to assess the effect of institutions on innovation (Buitrago R. et al., 2021). To close gaps and expand on past research, this article examines the impact of various institutional conditions (exogenous) on the innovation (patents) as generator of economic growth. This article examines the nonlinear interactions in the ability of economies to produce innovation. We follow the Dynamic Performance Management (DPM) approach (Bianchi, 2016; Cosenz and Noto, 2014) to conduct this analysis.

Due to the similarities between institutional economics and systems dynamics, we choose to perform this study using both approaches. According to Kapp (1976), the most fundamental principle of institutional economics is Gunnar Myrdal's (1957) concept of cyclical and cumulative causation, which is believed to explain economic systems' nonequilibrium dynamics.

System dynamics employs a method of analysis that is strikingly similar to the approach employed by institutional economics in the sense that both approaches use pattern modeling (Radzicki, 1988, 2004; Radzicki and Tauheed, 2009). The system dynamics approach does not seek to represent systems; rather, it aims to model problems from a systems perspective. As with institutional economics, system dynamics uses a wide variety of accessible data to develop a pattern or explanation (i.e., a simulation model) for a given scenario. System dynamics modeling is an iterative process in which the process steps (including identifying relevant information) are routinely revisited and the model altered, as the modeling process itself creates new insights into the problem. (Bianchi, 2016, 2022; Fratesi, 2010; Radzicki, 2021).

Based on the literature review, we can state that this work is the first approach to study the nonlinear relationships in innovation using DPM, extending its scope to the field of international political economy by the use and combination of alternative approaches to explain the proposed causal relationships (Bianchi, 2016, 2022; Buitrago R. et al., 2021; Cosenz and Noto, 2014, 2016). An important outcome of innovation research is the identification of the feedback loop between innovation rates and the national economy, in which innovation's impact on economic growth is in turn influenced by national prosperity. Nonetheless, this relationship between innovation and external (institutional) factors is understudied and cannot be fully explained by conventional cognitive analysis. This study addresses this research gap.

This article is organized as follows: Section 2 summarizes the literature review and construction of causal links; Section 3 covers the methodological structure in detail, and Section 4 summarizes the findings and comments, limits, and suggest future study directions.

B. Literature review

Economic diversification (complexity) is defined as the evolution of an economy's composition and quality of the economic sectors. It is both a cause and effect of increased production and revenue (Hidalgo et al., 2007; Hidalgo and Hausmann, 2009; Saviotti, 1996). Economic diversification alters the available choices in an economy, from jobs and vocational options to consumption patterns. Together with institutional and technological improvements, it enables the economy to diversify into other areas. As stated by Kuznets (1971, p.1):

A country's economic growth may be defined as a long-term rise in capacity to supply increasingly diverse economic goods to its population, this growing capacity based on advancing technology and the institutional and ideological adjustments that it demands. All three components of the definition are important.

The central tenet of this "complexity" approach is that each country is defined by unique fundamental endowments, dubbed capabilities, which encompass all economic resources and the attributes of a country's societal structure that enable the same country to produce and export a basket of tradeable commodities. These capabilities are non-tradeable and, in some cases, difficult to quantify and compare (Cristelli et al., 2013).

The conventional approach to economic performance analysis is based on a country's endowments of physical and human capital, labor, and natural resources, as well as the general quality of its institutions, which serve as the foundation for determining relative costs and associated patterns of specialization (Hausmann et al., 2007).

Economic growth is greatly reliant on innovation (Gordon, 2004). Technological innovation and development enable economic progress. Through invention and creativity, as well as foreign technology absorption, new or improved technology can be developed. Allowing for such technological advancements necessitates the establishment of supportive institutions and regulations. This suggests that an economy's competitiveness is contingent upon the effectiveness of government policy (Lim and Moon, 2004). Economic growth is determined by the degree to which institutions and systemic variables encourage technical advancements. (OECD, 2001, 2003). If firms are to be incentivized to innovate, they must have the capacity to appropriate at least a portion of the value created by their innovations. New knowledge production can be viewed as an evolutionary process; evolutionary theory describes how new concepts emerge through the variation and mutation of existing and established solutions (Milling, 2002). In contrast, the benefits of an innovation to the economy as a whole are highly dependent on the extent to which the new knowledge associated with it is made available for others to use and build upon (Cohen et al., 2002).

Technology and human capital are inextricably linked, indispensable, and interdependent. A significant portion of technological advancement is the outcome of investment in human capital. Without competent employees, machines, equipment, scientific instruments, and the legal and financial systems, most of the contemporary civilization would not function. To advance technology, it is vital to recruit and retain qualified workers. In addition, society needs technical and managerial abilities to make the most use of technology and human capital. (Warhuus and Basaiawmoit, 2014; Winkler et al., 2015).

In this line, it's essential to address the causes of "brain drain" as an obstacle to producing innovation. The asymmetry between a nation's capacity to produce numbers of highly trained personnel and its capacity to absorb them is a significant component of internal push forces, more so than poverty or underdevelopment. The emigration of skilled professionals (researchers) results from international imbalances that allow advanced industrial nations to offer more attractive remunerations, work facilities, social standing, and general living conditions to those whose skills and talents they require. The internal structural imbalances between the supply of researchers produced by a society's educational system and the demand for their services within that society is another source of brain drain. Finally, brain drain is the result of individual differences relating to, among other things, past training and accomplishments, current situation, and the individual's surrounding social network (Brock and Blake, 2015; Lister, 2017; Pescaru, 2014; Portes, 1976)

Institutions of the modern economy must be taken into account while considering economic progress and welfare. North (1986) maintains that robust, dependable institutions are necessary for the current economic system to function properly. While certain institutions are more established than others, most institutions in developing countries are still in their development. The country's lack of institutional development has been cited as a source of macroeconomic volatility, which may be explained by the adverse effects on economic growth and prosperity. (Acemoglu, 2003; Acemoglu et al., 2001; Acemoglu and Robinson, 2012; Hnatkovska and Loayza, 2005; Ramey and Ramey, 1995).

Thus, we sought to understand how various institutional characteristics promote and prevent economic complexity. Due to the firm's contact with a diverse spectrum of stakeholders, the institutional framework in which it operates is critical. In a business setting, regulatory and normative factors influence how firms behave (North, 1990; Peng and Heath, 1996). Economic outcomes and internationalization are determined by factors such as government stability, political parties, the predictability of the legal system, quantity, allocation of available resources, and contractual enforcement. (Besley et al., 2010; Blume et al., 2009; Buitrago R. et al., 2021; Cuervo-Cazurra, 2016; Cuervo-Cazurra and Alfonso Dau, 2009; Rodrik, 1999).

The legal infrastructure of a country's capacity to resolve disputes and enforce contracts encourages businesses to rely on it (Li, 2009). According to Kramer (1999), rules are predicated on the capability of institutions to forecast their own behavior. At the country level, trust in a country's laws is reflected in confidence in the country's legal system (Lin and Wang, 2008; Muethel and Bond, 2013).

The productive structure of a country is determined not only by its factor endowment but also by its social capital and the quality of its institutions. According to previous research, the complexity and diversity of items exported by a country are a solid predictor of the economy's resources. Complex products (innovative) demand a more significant amount of tacit knowledge and involve a greater amount of distributed information than products based on resource abundance or low labor costs. (Hausmann et al., 2007; Hidalgo and Hausmann, 2009; Sheng and Yang, 2016; Zhu and Fu, 2013).

Prior research on the significance of productive structures generated a range of measures of technical sophistication (Dosi, 1991). Other quantitative attempts rely on iterative or dimensionality reduction approaches (Fleming and Sorenson, 2001), and others on variables that were averaged over other indicators, such as patent, human capital, or income data (Archibugi and Coco, 2004; Desai et al., 2010; Hausmann et al., 2007; Lall, 2003).

C. Methodology

This research aims to create a DPM model to illustrate the dynamic behavior of economic performance bounded by factor endowments, Foreign Direct Investment (FDI), and institutional conditions, to assist researchers and policymakers in gaining a deeper understanding of the economic complexity system.

Principles of system dynamics modeling

System dynamics modeling is based on a number of fundamental systems principles at the most general level. Among the most critical principles are the following:

- Accumulation principle—this theory states that all dynamic behavior in the world arises as a result of flows accumulating in stocks.
- The notion of ubiquitous feedback says that stocks and flows do not exist in isolation but are virtually always a component of feedback loops.

- Structure determines behavior, which says that to alter the behavior of a system, the system's structure must be changed.

Dynamic Performance Management

Dynamic performance management (DPM) combines performance management and system dynamics (Bianchi and Rivenbark, 2012; Bianchi and Tomaselli, 2015; Cosenz and Noto, 2014; Noto, 2017). This approach enables the identification and comprehension of desired end results to develop a small but meaningful set of performance indicators (drivers). These drivers serve as strategic levers to close the gap between existent and envisaged results. Managers must accumulate, protect, and use a sufficient endowment of strategic resources to influence such drivers. The feedback loops that underpin the dynamics of various strategic resources entail that the flows affecting them are time-dependent and monitored across a time lag. The results are modeled as flows (in- or out) that alter the stocks of strategic resources over a certain time due to decision makers' activities.

As indicated previously, we chose the system dynamics technique since it can establish the system's operational status through a causal loop diagram design, to identify the causal relationship between the model's variables. If the result of the effect is positive (+), it is called a reinforcing loop; if the result is negative (-), it is a balancing loop. Also, constructing a DPM chart helps identify the system's critical resources, performance drivers, and end-results.

According to Radzicki (2021), complex socioeconomic systems are challenging to comprehend and regulate due to a variety of structural characteristics. These features include the following:

• Components embedded in complex networks of interconnected feedback loops, where time and space divide and blur cause and effect interactions, making it difficult to explain the relationship between system structure and behavior.

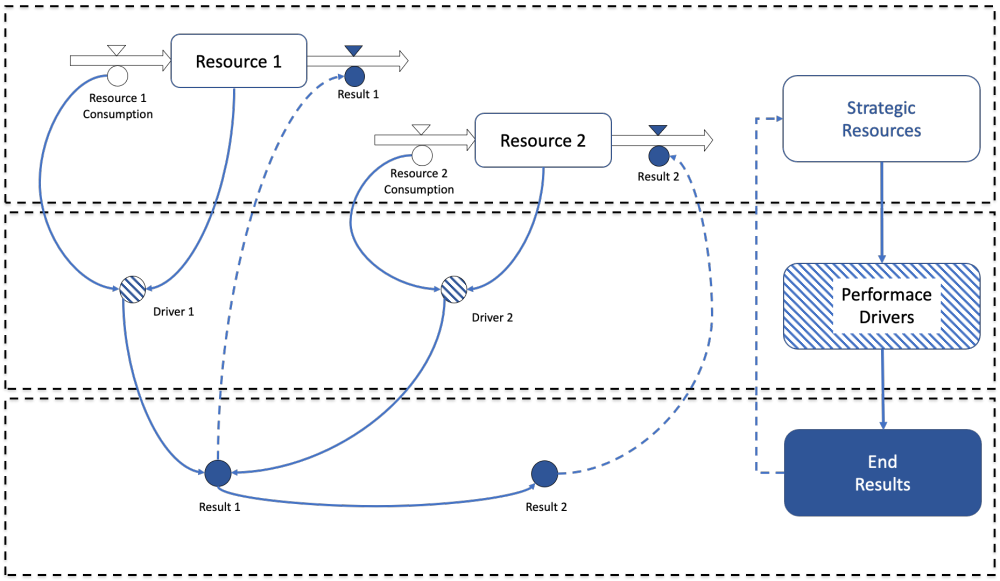
• Structures that typically emerge through evolutionary forces rather than deliberate design, which means they frequently lack robust architectures that can mitigate their vulnerability to major external shocks that can significantly disrupt their normal behavior.

• Feedback structures that frequently result in robust and persistent undesirable behavior.

To depict this complexity, this study uses the following structure to explain innovation process in emerging economies:

Conceptualization using the DPM chart: Bianchi (2010, 2012) indicates that social systems can be articulated in terms of strategic resources (resources owned by the entire system), end-results (what is desired or required to accomplish), and performance indicators (intermediate results that explain how to employ the strategic resources in order to achieve the end-results). Strategic resources can be thought of as variables that are subject to accumulation/depletion processes (stock variables). End-results are frequently expressed as 'flows'; the process by which stock variables change over time. See Figure 1.

Figure 3 Dynamic Performance Management Perspective - DPM



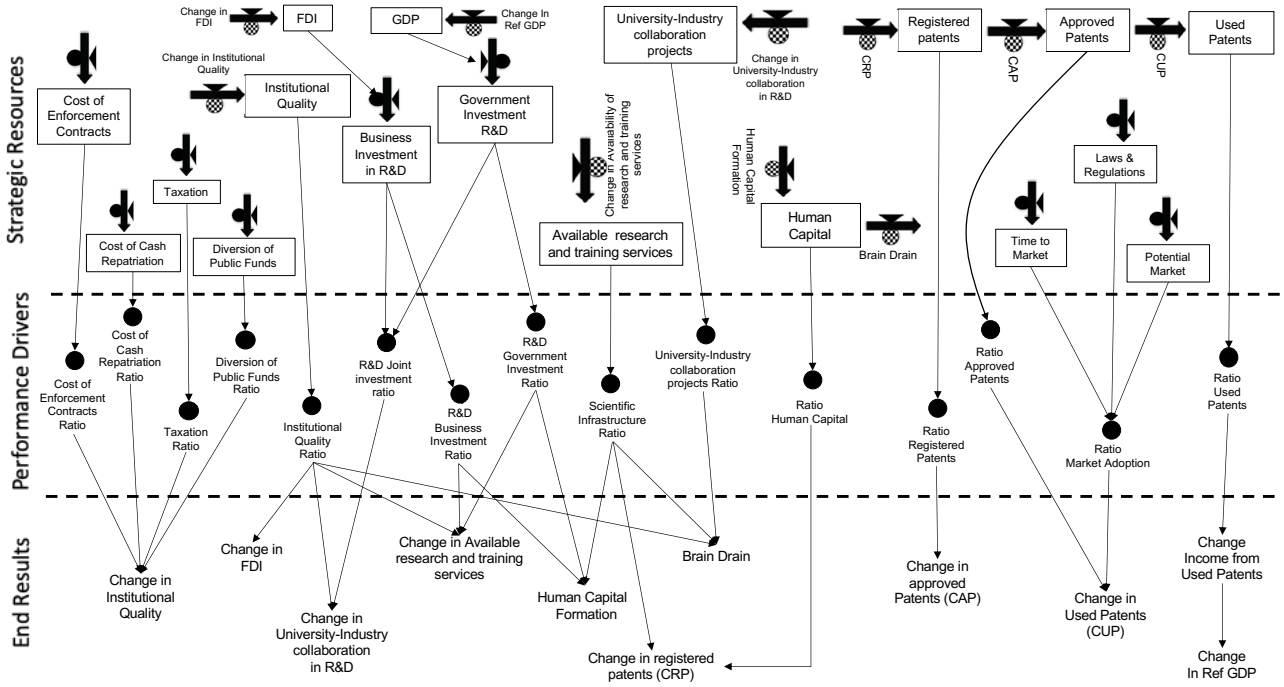
Dynamic Performance Management perspective (Bianchi, 2012)

Figure 2 depicts the end-results through the sequential levels of (1) change in institutional quality, (2) change in FDI, (3) change in university-industry collaboration, (4) change in available research and training services, (5) human capital formation, (6) brain drain, (7) change in registered patents (CRP), (8) change in approved patents (CAP), (9) change in used patents (CUP), and (10) change in Real GDP.

These final outcomes are influenced by performance drivers. Figure 2 depicts the following performance drivers: Cost Of Enforcement Contracts Ratio, Cost Of Cash Repatriation Ratio, Diversion Of Public Funds Ratio, Taxation Ratio, Institutional Quality Ratio, R&D Joint Investment Ratio, R&D Business Investment Ratio, R&D Government Investment Ratio, Scientific Infrastructure Ratio, University-Industry Collaboration Projects Ratio, Human Capital Ratio, Registered Patents Ratio, Approved These ratios are computed by comparing the current state to the desired state through policy design or benchmark.

Figure 2 also depicts how "qualitative system dynamics based on stocks and flows" (Wolstenholme 1999, p. 423) can contribute to performance management and governance. This perspective on modeling borrows from qualitative modeling to enrich this field of research and practice. This paper does not claim to depict complex cause-and-effect relationships that can be transformed into a simulation model for policy design in the absence of additional data. In the context of this work, the primary function of DPM is to map output outcome measures and the performance drivers affecting them. Therefore, the analysis conducted in this paper aims to connect three traditionally separate fields of research and practice (namely, performance management and governance, system dynamics, and political economy). These disciplines typically employ distinct methods and instruments for analysis. The use of systems approaches in outcome-based performance management, leading to the identification of causal relationships between variables affecting results over time, can enhance the quality of performance reports, governance, accountability, and policy design. This is a preliminary stage for implementing simulation modeling as a potential next stage of analysis to enhance decision-making. The gradual introduction of mapping approaches in outcome-based performance management, to illustrate causal relationships between variables affecting results over time, may improve the quality of performance reports and, consequently, policy design. In turn, this would increase awareness in the field of simulation's potential to further enhance dynamic performance management.

Figure 4 DPM Innovation

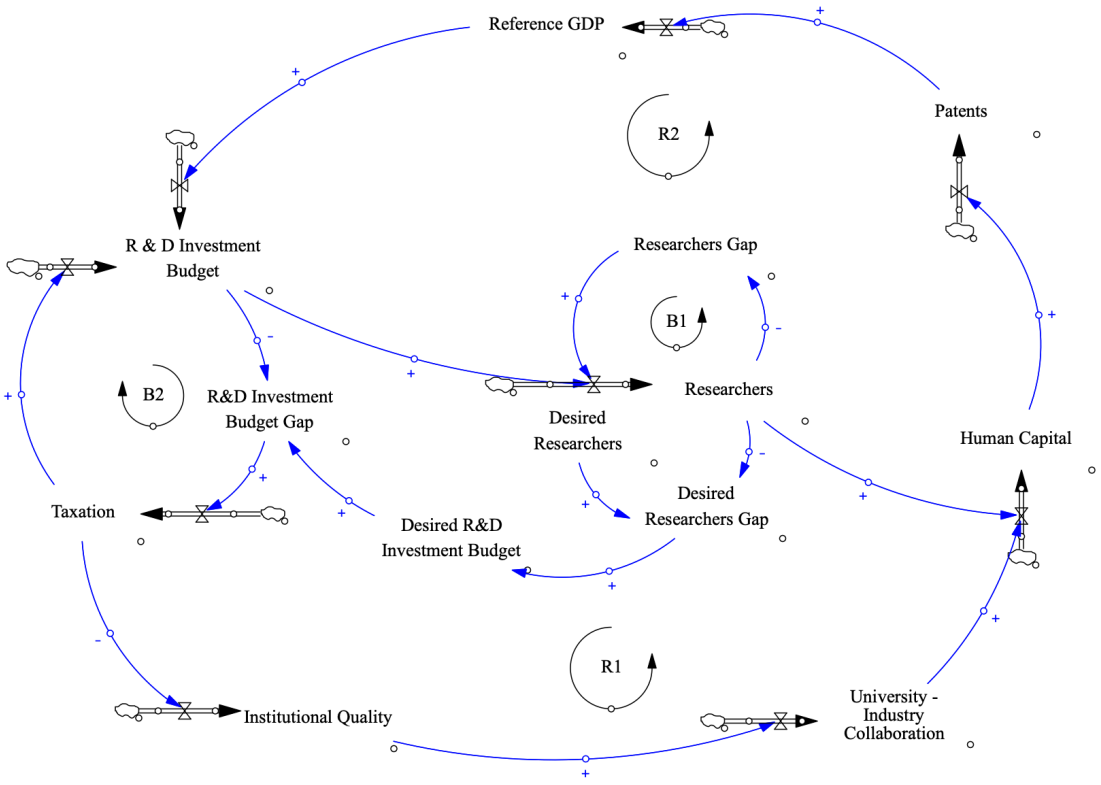


Source: Author's elaboration

Finally, due to the complexity of the DPM, it is necessary to split it in subsystems that allow to propose an initial model in the form of a causal loop diagram (CLD), as shown in Figure 3. This CLD shows two balancing loops and two reinforcing loops, depicting the interaction between the strategic resources, performance drivers and final outcomes. This first approach is focused on the effects of *Taxation* on *Institutional Quality* and how this affects the other indicators in the system.

The first balancing loop is related with the need of researchers to increase the human capital, there's a gap between the number of available researchers and the desired number of researchers. The first reinforcing loop is show how institutional quality which increases university-industry collaboration, which increases human capital, which increases the patents, which increases reference GDP, which increases the R&D budget, which decreases the R&D budget gap, which decreases taxation, which decreases institutional quality. The second balancing loop is R&D budget, which decreases the R&D budget gap, which decreases taxation, which increases R&D Budget. Finally, the second reinforcing loop is R&D budget which increases desired researchers, which increases human capital, which increases the patents, which increases reference GDP, which increases the R&D budget.

Figure 5 Causal Loop Diagram



D. Conclusions

As mentioned before this is a first approach to model a macroeconomic environment regarding institutional quality and innovation, measured by the patents that can be created and used in the system. This approach aims to show the complexity of the innovation process is it's seen from a macroeconomic point of view. National innovation systems are driven by public policy, this DPM proposal could help in the understanding of the resources, drivers and end results required to design policies that positively impact the innovation on a determined economy.

This work has examined how DPM can be utilized to analyze macroeconomic issues, such as institutional quality in this instance. Such an approach contributes to bridging the gap between conventional economic analysis methods and the dynamic complexity that characterizes policymaking. A number of insights have emerged for reframing the policymaking process. A DPM approach can be useful for altering how policymakers view macroeconomic issues and overcoming collaboration barriers. In fact, it can enable each institution in a region to identify their strategic resources, performance drivers, and innovation-related outcomes (in this case).

In addition, this methodology assists public agencies in understanding that long-term performance can be evaluated in relation to the outcomes that public policy will produce. Although this proposal focuses on a single variable of institutional quality, it can be expanded to include other variables deemed pertinent to the analysis. Despite the fact that I believe the case analysis has demonstrated the usefulness of the proposed method for enhancing policymaking, I am aware that additional field research will be required to combine qualitative modeling with simulation in order to improve a DPM approach to macroeconomic policymaking.

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IX. Conclusions

The importance of institutions for competition has been emphasized among researchers in recent years, highlighting the significance of an appropriate institutional framework for competition. This thesis discusses the relationship between institutions, institutional quality, and international competitiveness. The TCCM (Theory, Context, Characteristics, and Methodology) framework analysis helped conduct a systematic literature review on top-tier journals during the period 2000–2020. Although studies spanning the previous two decades have enriched the understanding, there has not been a single study that combined reflection on the mentioned constructs; hence the research is relevant and helpful.

Key findings show three emerging theoretical explanations for the relationship between institutions and competitiveness; these approaches are individual competitiveness, social capital, and resource environment. It also highlights the need for alternative methodological approaches; the focus of the previous studies is on econometric models and some theoretical enquiry suggests the PLS-SEM method as an improved approach to explain how changes in institutional frameworks have impacted international competitiveness. Additionally, it is shown that mainstream literature uses a small number of sources; therefore using alternative sources of data is recommended. The need to understand other analytic contexts is emphasized, particularly comparative studies in emerging economies, to deepen the discussion.

Following the initial findings, this Research explored alternative sources of data to expand the understanding of institutional quality and international competitiveness and to confirm or refuse the conclusions derived from traditional sources. As a result of this task, a database with information from 48 emerging economies and 30 proxies was built to conduct a factor analysis and a data panel analysis.

The results of this first approach showed that the dimensions of institutional quality could be grouped into six factors:

- Transparency of government
- Research, development and innovation, R&D+I
- Inequality
- Rules on inward FDI (IFDI)
- Education and training
- Financial market

It also used outward foreign direct investment (OFDI) as an alternative measure of international competitiveness. The model outcomes suggested that Research, development, and innovation, have a significant and positive effect on OFDI; the Financial market has a significant and negative impact on OFDI. The government's transparency positively and significantly affects OFDI stocks, which implies that the institutional environment creates two streams of OFDI: leverage and escapism.

A different modeling approach was deployed to extend the relevance and contribution of this thesis. The partial least square - structural equation (PLS-SEM) model helped identify how institutional quality and international competitiveness are intertwined. This modeling added novel indicators to measure institutional quality and international competitiveness and simultaneously measured the correlation of all the proposed variables (endogenous and exogenous).

The results of this modeling show that political conditions could harm emerging economies' ability to compete with complex products in the international market. It is also evident that the scientific and technological framework's quality fosters the development of more complex products that increase emerging economies' international competitiveness. Finally, extractive systemic conditions, which means the state's capture by elites and delegitimization of the state, are

critical requirements to compete for global markets. The model also confirms the literature findings regarding the institutional framework's role, measured by political, resources, and systemic conditions.

This doctoral work provides a broad and detailed review of the linkage between institutions, institutional quality, and international competitiveness. This study combines a joint reflection on institutional constructs, which is why we consider this work relevant and helpful.

This work's scope reveals various theoretical approaches to explain the interplay between institutions and international competitiveness and evidence the room to explore emerging ones. It also sheds some light on diverse methodological approaches, from literature review to PLS-SEM modeling, evidencing the comprehension of the knowledge and tools required at this research level.

It is essential to highlight some relevant contributions derived from this work:

- The need to use alternative data sources to analyze the interplay between institutional frameworks and international competitiveness; the mainstream uses reiteratively few sources.
- It is also essential to understand other analysis contexts, particularly comparative studies in emerging economies, that could enrich the discussion.
- The need for interaction between different fields of knowledge (i.e., political science, management, economics, sociology, and environmental science) through their various methods and approaches.
- The study evidence that political conditions could harm emerging economies' ability to compete with complex products in the international market.
- It is also evident that the scientific and technological framework's quality fosters the development of more complex products that increase emerging economies' international competitiveness.
- Extractive systemic conditions, which means the state's capture by elites and delegitimization of the state, are critical impediments to compete in global markets.
- Considering these findings, it would be possible to analyze and propose a course of action to help governments meet the objectives of providing adequate institutions that enable firms to compete internationally.

Finally, Latin America and particularly Colombia deserves more detailed analysis; the endogenous and exogenous variables have similar behavior, which means that structural indicators explain the region's (and the country's) ability to compete in the international arena.

Public policy oriented to encourage STEM education, clear and stable legislation, and conditions to regain the state legitimacy are required to foster the country’s competitiveness and a structural transformation to generate prosperity for firms and individuals. In this context is where DPM approach become relevant, this thesis has shown different ways to analyze the phenomena of institutional quality and competitiveness. DPM helps to model the complexity of the context to evaluate how the policymaking regarding factors that affect competitiveness can influence each other fostering or not the goal to be more competitive.

X. Contributions

The contributions of this thesis to the academy community are following:

Conferences

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Papers

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Buitrago R, R.E.; Barbosa Camargo, M.I.; Cala Vitery, F. Emerging Economies' Institutional Quality and International Competitiveness: A PLS-SEM Approach. Mathematics 2021, 9, 928, https://doi.org/10.3390/math9090928

Buitrago R. RE, Torralba Barreto DR and Reyes GE (2022) Are competitiveness rankings and institutional measures helping emerging economies to improve? Competitiveness Review: An International Business Journal. https://doi.org/10.1108/CR-04-2021-0064

XI. Appendix

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Institutions, institutional quality, and international competitiveness: Review and examination of future research directions

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ABSTRACT

The importance of institutions has become more relevant analytically in recent years, emphasizing the significance of an appropriate institutional framework for international competition. This paper aims to identify the link between institutions, institutional quality, and international competitiveness. Following the TCCM (Theory, Context, Characteristics, and Methodology) framework analysis, proposed by Paul & Rosado-Serrano (2019), we conducted a systematic literature review of top tier journals during the period 2000–2020. This review unfolds the theoretical and empirical studies regarding institutions, institutional quality, and international competitiveness. Main findings reveal five widely studied, three emerging and two understudied theories, the most studied contexts are country and firm, and quantitative studies are the main method of analysis. This review incorporates the acumen of previous research and provides a future research agenda in understudied contexts like industrial and individual level by applying emerging theoretical approaches and integrative analytical methodologies.

1. Introduction

In recent years the importance of institutions has regained analytical relevance, evidenced by the Global Competitiveness Report (World Economic Forum, 2018) posing the question: "Are institutions still important?" (p.12) and underscoring the importance of an adequate institutional framework to compete in the international arena. It is likely that the countries in which institutions are strong ensure the efficient allocation of factors, allow investment activities to increase performance, reduce uncertainty, promote even distribution of private and social benefits, and facilitate economic agents' interaction. On the contrary, those countries where institutions are weak are often gripped by several economic problems, including low investment flows, reduced GDP growth, and meager per capita income (Acemoglu et al., 2001; Hall & Jones, 1999; Knack & Keefer, 1995; Mauro, 1995; Rodrik et al., 2004). In the same report, it was noted that "Weak institutions continue to hinder competitiveness, development, and well-being in many countries" (p.12).

After the publication of "Institutions, Institutional Change and Economic Performance" by Douglas North in 1990, considered the most representative work in new institutionalism literature (North, 1990), institutionalist research grew exponentially, making way for the use and debate of the concept in many fields, including economics, politics, and management. Many development economists and academics from sociological, anthropological, and political science backgrounds recognized the consistency of North's arguments regarding the economic relevance of institutions rather than market dynamics (Acemoglu et al., 2001; Ostrom, 1990; Hall & Jones, 1999; Knack & Keefer, 1995; Knight, 1992; Mauro, 1995; Rodrik et al., 2004).

North's work has been the basis for developing further analysis that has influenced literature in growth, internationalization, and competitiveness. Also noteworthy among his contributions was the origin of the "institutional framework" construct that emerged in literature featured in the works of Acemoglu (Acemoglu et al., 2001; 2002; 2003; 2005;; Acemoglu & Johnson, 2005; Acemoglu & Robinson, 2012), which is understood to be the basis of economic transformation. The institutional framework is determined by the quality of the institutions, both inclusive and extractive. Inclusive economic institutions create inclusive markets, while "extractive economic institutions are designed to extract incomes and wealth from one subset of society to benefit a different subset" (Acemoglu & Robinson, 2012, pp. 101–102).

On the other hand, international competitiveness is a crucial topic of

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Article

Home Country Institutions and Outward FDI: An Exploratory Analysis in Emerging Economies

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Abstract: Although the internationalization of economies is driven by specific industry conditions or business-specific differences, the institutions that exist as background conditions directly determine firms' strategies and interactions in the international environment. This paper contributes to the discussion on the relationship between institutional quality and outward FDI (OFDI). We used 30 indicators in 48 emerging economies in the period 2007–2017; we collected the indicators from alternative secondary sources. After we applied Factor Analysis, six factors were retained. We named the components as follows: "Transparency of government" (F1), "Research, development and innovation, R&D+I" (F2), "Inequality" (F3), "Rules on inward FDI (IFDI)" (F4), "Education and training" (F5), and "Financial market" (F6). The panel data model outcomes suggest that Factor 2, Research, development and innovation, has a significant and positive effect on OFDI. Factor 6, the Financial market, has a significant and negative effect on OFDI. When we include lagged values of OFDI stocks the results also show that the government measures transparency positively and significantly affects OFDI stocks. These findings imply that the institutional environment creates two streams of OFDI: leverage and escapism.

Keywords: institutional quality; outward FDI; factor analysis; panel data; emerging and developing economies

1. Introduction

Institutions are crucial for understanding the shape of human interaction. "In consequence, they structure incentives in human exchange, whether political, social, or economic" [1]. After the publication of North's work, the institutionalist literature increased exponentially, allowing the use and debate of the concept in many fields, from economics to politics and management. Many development economists and academics from sociology, anthropology and political science recognized the consistency of North's arguments; they were sure of the value of their insights into the development process and, in particular, into the economic significance of institutions other than markets. The works of Ostrom [2] and Acemoglu, Johnson and Robinson [3] are under the influence of North's work, and they are the basis of the analysis that influenced the literature in development, internationalization and competitiveness.

In this sense, it is widely acknowledged, both on empirical and theoretical discussions, that the institutional quality is closely related to growth and economic development. The set of institutions (inclusive and extractive) in a specific economy is called the institutional framework [3–7].

It is also widely accepted that the internationalization of economies is not only driven by specific industry conditions [8] or business-specific differences [9] but also by the institutions that exist

mathematics

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Article

Emerging Economies' Institutional Quality and International Competitiveness: A PLS-SEM Approach

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Abstract: The home country's institutional framework determines the capacity to compete in the global arena. This paper discusses the linkage between institutional quality (IQ) and international competitiveness (IC). We measured institutions' quality in emerging economies through the use of selected indicators between 2007–2017. To evaluate the proposed IQ constructs and their relationship with IC, we applied partial least squares – structural equation modeling (PLS-SEM) analysis. The model outcomes suggest that political and lack of systemic conditions have a significant and negative effect on international competitiveness, while science, technology, engineering and mathematics (STEM) resource conditions have a significant and positive effect.

Keywords: institutional quality; international competitiveness; emerging economies; PLS-SEM

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1. Introduction

This study is aimed to empirically explore the role of home country institutional quality on international competitiveness [1–6]. Past studies have used traditional econometric models and variables to measure institutions' effect on international competitiveness [2]. To fill in gaps and expand previous studies, this paper analyzes the influence of different institutional conditions on emerging economies' competitiveness. This paper selects several quantitative proxies to determine the institutional quality and its relationships in the process of international competition. We follow the partial least squares-structural equation modeling (PLS-SEM) method to conduct this analysis.

There are various measures of the concept of International Competitiveness. One is proposed by Sachs, focused on macro indicators defined as "the set of institutions and economic policies supportive of high rates of economic growth in the medium term." Another, proposed by Porter, focused on microeconomic indicators to measure the "set of institutions, market structures, and economic policies supportive of high current levels of prosperity" [7]. A third approach looks at "the capability of firms engaged in value-added activities in a specific industry in a particular country to sustain this value-added over long periods in spite of international competition" [8] (p. 139). The last approach, proposed by the OECD (Organization for Economic Cooperation and Development), argues that "competitiveness is the degree to which a nation can, under free trade and fair market conditions, produce goods and services, which meet the test of international markets, while simultaneously maintaining and expanding the real income of its people over the long-term" [9].

Over the last decade, authors, reviewers, and editors have universally accepted PLS-SEM as a multivariate analysis method. A search in specialized data bases for the term "partial least squares path modeling" reveals that it has assisted researchers in empirically validating their theoretical project developments in various disciplines, such as accounting,

Are competitiveness rankings and institutional measures helping emerging economies to improve?

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Abstract

Purpose – Based on the rankings of the global competitiveness index and the fragile states index, this paper aims to suggest alternative approaches to shed some light on the effectiveness of rankings in helping emerging economies improve their competitiveness from an institutional standpoint.

Design/methodology/approach – The statistical analysis consisted of a two-stage analysis; the first stage consisted of constructing an updated Alternative Institutional Quality Index (AIQI), intending to design a comparative measure between dimensions over time. The second stage consisted of evidencing the structure of each of the observed dimensions' variance to evidence the existing changes or gaps of the AIQI and its components. The authors incorporated the Kruskas–Wallis (KW) model to test the results.

Findings – This paper demonstrates that the analyzed countries generally maintain their competitive position, even though changes in their scores are reflected. This makes invisible the development and progress factors generated by the countries that are mainly found with low scores and only reflect stable structures that allow them to maintain their position.

Research limitations/implications – The current study has a limitation because it concentrated on a few selected indicators based on the literature review. The limitations of this research may be overlooked in the future by adding additional variables and observations. The paper could be improved by including intra- and inter-regional approaches to control based on the occurrence of specific circumstances (i.e. informal institutions, economic development or factor endowments).

Practical implications – The paper contributes to the applicable measurement of competitiveness and its structural change over time.

Originality/value – This paper proposed an alternative and simple methodology to assess the evolution of the competitiveness indicators; this methodology could be used to measure structural changes at different levels, which may be an input for the design and implementation of policies to foster competitiveness.

Keywords Competitiveness, Institutions, Institutional quality, Emerging economies

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