



Evaluating of the sustainability of complex rural ecosystems during the transition from agricultural villages to tourist destinations and modern agri-food systems

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ABSTRACT

Many agricultural villages have transformed from traditional agricultural communities into tourist destinations to eliminate the progressive degradation, abandonment, ecological and social crises that threaten sustainable development. Today rural villages are complex ecosystems that represent the result of the historical relationship between man and nature in the socio-economic dimension. A tool for assessing the sustainability of rural villages is the analysis of the interaction between man and the environment. Preserving healthy rural ecosystems, in dynamic balance with the interrelation between social development and the functioning of the natural ecosystem is an indispensable goal of sustainable development. All this leads to what the current traditional economic studies have ignored namely the study of the reasons of the economic reference indicators to suggest technical solutions, change strategies and sustainability for rural governance systems within of social development. This article proposes an economic study approach that integrates social and economic evaluation to research sustainable development models and socio-economic factors to achieve the well-being of the rural system. Considering Borgo Parrini, located in Sicily, the historical analysis has been combined with the social-economic one and linked to models of social development (traditional agriculture, industrialized agriculture and commercial tourism). Based on the methodology, economic indicators of the crops implemented in the countryside surrounding the rural village under examination were obtained and the corresponding socio-economic factors that have characterized the village from its birth to the present day were also reconstructed. The results show that the Borgo was born with the aim of being at the service of the agricultural activity of the neighboring countryside. The evolution of historical facts and the changes induced by the economic development models adopted in Italy have led to a transformation from a neighborhood agriculture to an industrialized agriculture. This model of agriculture adapted to the studied area had a negative impact and led to the impoverishment of the countryside and the removal of man from the territory. The potential impacts were explored with the evolution of the agricultural landscape and with the analysis of the economic activities in the area. The changes in the use of resources on the welfare of the system and their results indicate that technical solutions must be integrated with a governance system based on the relations of production, community and culture. To adopt a sustainable development model, it is recommended to use environmentally friendly agricultural techniques, methods of ecotourism and participatory governance between agriculture and tourism. The method proposed here for integrated governance provides a new perspective for the implementation of technical solutions in human society and the formation of sustainable development models that are positive for the rural, social and economic environment.

1. Introduction

In developed economies, the deep changes taking place in the socio-economic scenario make it necessary to rethink the role of the primary sector. Almost solved at least in Western countries, the main problem

that afflicts farmers and politicians for centuries is finding solutions to ensure sufficient food production at low prices, identifying other socially acceptable objectives. This situation arises from the fact that the demand for food is rigid relative to income. Today the main theme, in developed economies, is to recognize the right role to be given to agro-forestry

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activity. In fact, it is important to ask this question as otherwise agri-food companies would start a regressive process that leads to their closure and therefore to the abandonment of lands with negative consequences on the territory and the landscape. In fact, agricultural activity favors the creation of agricultural landscapes and the permanence of man in the territory. Landscape and man live in harmony with nature on the condition that man can satisfy his own material and immaterial needs. Sooner or later a territory without man is intended to accidental events (fires, landslides, etc.) in addition to the fact that the landscape beauties are missing. In fact, the territory is an environment modeled by man who follow his own business purposes determining a scenic beauty (viticultural landscapes, olive groves, cereal landscapes, citrus landscapes, etc.). The theme is neither simple nor resolvable only from a scientific point of view because imply the questioning of certainties and “worldviews” that were believed to have been acquired once and for all. However, on one hand, there is the breakthrough of new technologies that seem capable of changing farming so profoundly that it is something completely different from what we know (think agriculture 4.0), on the other hand, the growing interest in forms of organic farming causes such evident contrasts even in contiguous territorially areas, as to force us to rethink the role of agricultural activity and the tools used to evaluate its results. It is no coincidence that this process of questioning the objectives of agriculture is particularly lively in inland areas, in the mountains and in rural villages [1–3]. In these areas, in fact, in recent times the agricultural sector is struggling more than elsewhere to play its role as an indispensable piece for a harmonious growth, from a social and economic point of view of the community [4–7]. In fact, unlike in the past where rural villages were born for a vision aimed at favoring the presence of man in the territory, today we are witnessing a depopulation and abandonment of the same. A virtuous circle of territorial growth was truly created in these environments [8–11]. Since the seventies of the last century, the decrease in incomes deriving from agricultural activities, on average lower than those of other sectors, despite the presence of the Community Agricultural Policy (CAP), has led to the progressive abandonment by man, at least as a permanent settlement of these territories and environments. Today, rural areas can be seen as an engine for the development of tourism in these areas. Rural areas represent the identity of the rural territory, they are rich in history and tradition and can represent an opportunity to foster endogenous development models based on tourism. Today agricultural activity is multifunctional and represents an engine of territorial growth. In this paper, after analyzing the literature on agricultural landscape and areas at “risk of abandonment”, we examined a rural village in the province of Palermo built in 1700 by the Jesuit Fathers who, owners of huge expanses of land, favored the settlement of man in the territory. The rural village which over time has become a permanent settlement, has undergone depopulation (almost an abandonment) since 1970. Almost abandoned for about 30 years, today it has been reborn as a tourist and gastronomic destination. Therefore, in this paper we scientifically analyze the causes of abandonment and its prospects. Visiting the countryside is a way of escaping. A place where biodiversity is combined with man. Once again the countryside can play a role in the development of the territory. In Western societies, the changing needs of the consumer can be solved by the rural territory which represents the indissoluble link between man and nature.

2. Economic literature

From a strictly economic point of view, a company needs favorable environmental and economic conditions to grow and develop itself. Any limit imposed by the environment or by man (even in legislative terms) represents either an increase in the cost of production or a lack of competitiveness. In rural areas, the limits to agricultural activity are very many. The first thing that should be highlighted is that agricultural activity is subject to climatic risks. If there are other risks linked to the structural nature (lack of infrastructures, roads, lack of internet, internet

connections, etc.) then the company’s competitiveness is seriously compromised [12]. However, from certain points of view, the idea of limit represents the essence of life in inland and mountain areas and in villages [13]. In other words, over time man has transformed limits into opportunities, almost an adaptation to immutable conditions and at the same time an opportunity to create income [14–16]. In the lowland areas, agricultural activity normally has fewer limits than that of the mountain areas and villages in the hinterland far from urban areas. However, in the lowland areas some plant species are not found while some historical artifacts are found in mountainous areas and in inland areas (far from urban areas) where over time man has built structures at the service of agriculture and man in general (countries of inland areas and mountains). Well, from an economic point of view it can be argued that when limits have been transformed into opportunities, there has been a real development of these areas, while when they have been transformed, either for cultural, political or technique reasons, in absolute constraints there is a state of stagnation of the economy and territorial development [17–19]. Thus, for example, being able to use limits caused by rigid and snowy winters, in relation to the practice of winter sports, has led to the tourist development of many mountain areas (ski slopes and the related industries, which are generated through this sport, such as hotels, restaurants, etc.). On the other hand, when the climatic, orographic and social limits - the latter connected with the existence of small even if cohesive communities - did not constitute the starting point for an innovative path, but turned into a felt constraint, rightly or wrongly, as unchangeable, it is the decline, both economic and demographic, promptly arrived [20–22]. This phenomenon is evident in inland areas (far from urban areas), where the phenomena of agricultural and rural exodus have led to the disappearance of man from the territory. In fact, many inland areas are depopulated due to the lack of attractive economic activities and the possibility of growth and development. In recent times, when it comes to rural villages, a note of regret frequently appears for a rural and agricultural world that was and is no longer. Thus, the desire to preserve prevails even if, many times, the strategies necessary for this purpose are not very clear. In this case, nostalgia for the old “rural life” would be nothing more than an empty regret of values that are now meaningless. This life was marked by some characteristic elements: the “family” as an indissoluble pivot of rural society, the relationship with the Catholic religion (in many countryside we find Sanctuaries and Chapels that were and remain at the basis of the patronal feasts and therefore of the popular traditions of the rural areas), the love for little things, the day marked by work in the fields. Once all these characteristics were at the basis of the growth of the territory, but today no longer represent a model of growth and development for the territory itself so as the socio-economic scenario of territorial competitiveness has changed. What to do in these cases? The recipe lies in trying to create synergies between the activities of the inland areas, of the rural villages with those of the plains. From a certain point of view, the translation into a modern language whose need is to face the limits is found in the term sustainability (social, environmental and economic). In this regard, it is known that according to the report, European Sustainable development (2021) needs a type of growth that satisfies the needs of the present without compromising the possibilities of future generations to satisfy their own. But this type of development must deal - within an ethics based on shared values - with limits in at least three completely different fields. In fact, we talk about economic, social and environmental aspects when it comes to sustainability. It goes without saying that these three aspects cannot be considered in isolation, but it is also necessary to consider all possible interactions. The point therefore becomes that of not considering environmental, social and economic limits as something absolute, defined once and for all. In fact, when speaking of sustainability, it would be a mistake to consider a particular aspect as decisive. It is in the combination of the various environmental, social and economic components that the “true” limit to continuous economic growth without insuperable obstacles must be sought. In this logic, the old “vision of the world” typical of the “rural village” becomes

more relevant than ever [23]. In fact, once again, it is a question of considering these constraints as opportunities capable of facilitating the search for efficient solutions [24–26]. It is doubtful that precisely in areas where the economic, social and environmental limits of the various activities are more evident, solutions capable of guaranteeing sustainability which means a fair and lasting type of development, can be developed before than elsewhere. This is particularly true for activities such as agriculture where multifunctionality that is the ability to perform several functions at the same time, is particularly evident. Then in this perspective, it becomes interesting to rethink the role and functions of agriculture in inland and mountain areas. This rethinking can only start from the identification of the relevant variables in the current context. Variables that are partially different from those of the past, even recent ones, and which therefore require redefining both the objectives and tools used to achieve them. Specifically, in the first place, in its implications and consequences, it is necessary to deepen the affirmation that in mountain areas and rural villages, agricultural production on the one hand, and the natural and socio-cultural environment on the other, are necessarily products. Joins coming from the same production process. It is important to note, in this regard, that speaking of joint production implicitly means abandoning or at least limiting, the search for those economies of scale which, in some ways, are at the basis of all contemporary socio-economic development. The idea of joint production, on the other hand, recalls the economies of flexibility and, consequently, the adoption of economic policy strategies other than the standard ones normally recommended and/or used. In any case, the awareness of having to do with joint productions must be read within the perspective of sustainability mentioned above. The search for a specific role of inland areas and rural villages, or which previously were the heart of agricultural activities, in the society of the future also depends on the ability to influence the direction of technological change. However, it should be immediately noted that it is not so much the innovation itself that is relevant, but rather the availability of a set of complementary activities and capacities suitable for allowing its successful adoption. We can then ask what kind of technical progress should be pursued. Beyond the problems connected with the “values” to be privileged, there is no doubt that from an economic point of view, all the innovations capable of mobilizing local resources are useful for internal areas and for these areas the endogenous development strategy is winning. Local resources exploited that become a destination of attraction. In other words, technical progress worthy of dissemination is the one which can enhance local resources as much as possible, giving them a fundamental role in the production process. So according to this it means that in rural contexts far from urban areas, development must be endogenous through the transformation of limits into opportunities. Rural areas, rich in history and traditions, represent the basis for an endogenous development model based on tourism. Peasant, popular and religious traditions represent that synergy in multifunctional agricultural systems for the endogenous development of the territory [27]. All this represents multifunctional agriculture that is the vision of agriculture that creates an opportunity for the systemic development of the territory from agricultural products and work in the fields [28,29].

3. Tourism destinations and possibilities of rural development

In the era of globalization, the so-called new needs are emerging in the tourist who seeks cities and areas located outside the traditional tourist routes and incorporated into lesser-known itineraries, which represent that minor heritage to discover, able to offer environmental and cultural resources that can enrich both the tourist and the local communities in which the tourist activity takes place [30]. This aspect is known as sustainable rural tourism or that phenomenon tourism affecting minor localities and mountain or rural areas where it is possible to rediscover the authenticity of places, nature and the unspoiled landscape, living experiences in close contact with the communities and the identity value of the places themselves. The phenomenon of

sustainable rural tourism emerges as a response to the needs of new generation of tourists, increasingly attentive to the search for personalized offers and innovative, which include authentic and representative products of local cultures and food and wine products. Novelty is sought through the discovery of nearby places, rich in tradition, where the rhythms proceed closely with those of nature, where you can find the value of the old life. This request for typicality and identity comes from the fact that the concept of ancient is something good, positive and increases the need for identification in an increasingly globalized context [31]. This requires constant commitment to the recovery and enhancement of the set of local resources and attractions [32]. There are several segments in which this sector driven by sustainability develops, one of which is tourism in the villages, no longer considered as mere proposals for integration with respect to a cultural city or a neighboring seaside destination but seen instead as resources of attraction and strong tourist attraction, able to restore value to the territorial areas in which they are located [31]. The tourism of the villages currently expands on a network that involves numerous small Italian villages, but also shows significant developments abroad, offering an important tool for support the economic growth of depopulated rural areas and areas, restoring vitality through the offer of quality tourism. As an expression of the central role that the territory and its resources assume in production of wealth and competitive advantages, new types of businesses emerge in rural areas, trattorias, pizzerias that represent innovations for an area that was previously only suited to agriculture. But new business formulas are still being born in the field of accommodation to enhance the historical villages or rural and peasant communities, to witness the growth of the sector and the large possibility of improving the hospitality sector from a sustainable perspective. In these cases, we are in the presence of the Diffuse hotel, horizontal formula of hospitality that is characterized by guaranteeing authenticity to the offer of hospitality and support to the economy of small rural areas.

4. Materials and methods

4.1. Study area

For the purposes of this research, we have examined the rural village Parrini. The Parrini village is in the north-western part of the province of Palermo, in Sicily, in the city of Partinico in the center of the Gulf of Castellammare on the Tyrrhenian Sea. In the past, the Parrini village was known as a settlement of peasants, who had moved from the neighboring villages (Partinico, Monteplepre, Carini) to find permanent settlement and who dedicated themselves to cultivating the lands of the village [33] (Figs. 1 and 2). In the Sicilian dialect, “Parrini” means priests. In fact, this village takes its name from the priests and it was connected to the novitiate of the Chiesa del Gesù in Palermo (located in the heart of the city near the historic market of Ballarò), where still



Fig. 1. Borgo Parrini, agriculture.



Fig. 2. Borgo Parrini, village.

today there is the Society of Jesus founded by St. Ignatius of Loyola (Jesuit Fathers). The Jesuits had plots of land in this place and took care of their management in order to obtain a livelihood for their institutes in Palermo and those present in the Gulf of Castellammare (in fact in the territory, the Jesuits were also present in Alcamo and Marsala).

We are talking about the sixteenth century, and until the eighteenth century these Jesuit priests increased the economic wealth of this territory by making land improvements. In the early 1700s, the Jesuits built a small church dedicated to Maria Santissima del Rosario in order to carry out the agricultural activity of settlers and peasants more closely. A real village developed around this, the village we are talking about. They built a mill, small towers and clearly their houses where they lived and where they stored the agricultural products that came from the fields. In the eighteenth century, this village and its countryside were quite important in the territory. In 1767 the Jesuit order was suppressed and the village experienced a first depopulation and abandonment. However, the importance of the lands pushes an important historical figure, Duke D'Aumale, or the Duke Philippe Henrie, known for his Moscatello Dello Zucco - which is a vast territory - a fiefdom - close to the Parrini village, to buy all these lands and to plant hectares and hectares of vines [34]. The Zucco wine, in that historical period, was very famous in the world, so much so that it was exported to France and Germany where it was highly appreciated. "The Zucco was the flagship of Sicily, both in terms of modernization of agricultural and oenological techniques, but also in economic terms as it employed the farmers of Montelepre and the entire district" [34]. The Zucco wine comes from the history of the territory between Carini, Terrasini and Partinico. There are documents on the Zucco wine in France. In particular, Duke D'Aumale was the owner of Chantilly, one of the most important museums in France, and there are documents that testify to the Zucco wine and photos of the farmers of Montelepre, Partinico and Carini in this area. Today the Zucco wine no longer exists, however the Moscato is produced which the Sicilian Region and the Regional Department. In the past few years, Agriculture has begun to experiment with Moscato dello Zucco. In reality, we must say that the Zucco Muscat is the latest product that was made in this area by the local nobles while the Duke's wine was a Sicilian "soterno". Since Duke D'Aumale began to manage the land, the countryside - after the abandonment of the Jesuit Fathers - is once again repopulated with peasants who settled in the village in order to work in the Duke's fields. The lack of generational change of the Duke of Aumale, at the end of the 1800s, led to the sale of these lands. The new owners continue to cultivate the vineyards, but with a different vision from that of the Duke. While the Duke adopted a system of closure of the wine production chain, now the production specialization begins and therefore the separation of the production phase in the field from that of grape transformation. So on the one hand the agricultural activity and on the other the wine industry. Even with this new production model,

the presence of mankind continued in the area, in particular until the sixties and seventies of the last century. From this moment on, as is the case with Sicilian agriculture in general, Borgo Parrini is depopulated as the countryside becomes less and less profitable than the secondary and tertiary sectors and the village becomes a village of abandoned houses. As we have seen, Borgo Parrini has an ancient history that is substantially unitary, ranging from Isola Delle Femmine to Castellammare del Golfo, but it also has profound differences. From the historical point of view, in the territory, we have settlements not only useful from an architectural point of view for tourism but are architectural emergencies of economic activities that took place in the past (Palazzo D'Aumale in Terrasini, the Zucco estates, the Bourbon winery in Partinico) and which are the identity of a people. The abandonment of the village continued until the year 2000. Today the small agglomeration has decided to restart by focusing on tourism and gastronomy. Today the village is listed on Tripadvisor and is known for its pizza. In reality we must say that the village is reborn today with a different vision than in the past. We have seen that the Jesuits built it to promote the well-being of the man who worked on their lands; subsequently, even with the advent of the Duke of Aumale, the village continues that ecosystem function with the earth. Today, however, the village always inserted in the countryside, no longer has to do with the land, that is, there is no longer that link between the village and the countryside that served as the settlement of the man who worked in the neighboring countryside. Its rebirth is due to gastronomy and tourism. Regarding long-term holistic strategies for sustainable development in rural Sicily, especially for heritage conservation against the backdrop of commercial tourism, we need to look for successful prototypes in the socio-ecological context with the integration of man and nature so that it is beneficial for both man and nature [35,36]. The environment is very particular, the geological structure and above all the limestone mountains and clayey rocks that buffer them and therefore bring a lot of water. So the lands of the village are very rich in water from springs, and wells and the evolution that this area has had in the last tens of thousands of years has meant that the conditions were created for the soil to be very fertile. In particular, it is a clayey but also sandy soil with the presence of aeolian sands that are due to the geological vicissitudes of the last glaciations and therefore a unicum has been created also linked to the climate because it should not be underestimated that in these areas it rains enough due to the masses of air that occur due to the mistral winds. So all this has meant that a particular substrate developed for the vegetation and above all for the cultivation of the vineyards so much so that the Zucco area has become an area chosen for the production of wines starting from Orleans but probably even earlier, precisely for the production of the Zucco wines which were renowned. For the purpose of the research, we performed a Borgo Parrini case study using a literature review and a field survey. Today the prevalent cultivation in the territory of the village are citrus groves, overlooking the olive groves and vineyards. The farms in the area have a mixed production address (citrus-olive-trees-vineyards). Citrus fruits are represented by lemon. For the olive trees, the cultivar is the Cerasuola while as regards the vineyard the cultivar is the white Catarratto. The average surface is small and is around 3 ha divided over several land bodies even at a considerable distance from each other. The lemons are mostly sold in long rows, the oil produced is sold in bulk and the grapes produced are sold to local wineries. From the examination of the commercial destination of the productions, it is clear that there is no enhancement of the agri-food productions of the territory. In almost all cases, there are entrepreneurs over the age of 70 where agricultural activity is not a full-time but part-time activity. In recent times, a buffalo breeding has also been born and the relative transformation into mozzarella sold in a short and long supply chain.

4.2. Search procedures

Corresponding to an understanding of the social development model adopted in recent years by the village, which is the gastronomic tourism

one, we have determined economic indicators for some plant species that are grown in the area and that are. Currently, lemons, olive trees (for oil) and wine grapes are grown in the area. The economic indicators were calculated by examining three companies representative of the area by type of management, location of the land, and entrepreneurial strategy adopted. On the basis of the data, an economic analysis was carried out in order to determine the cost of production and the profitability of the agricultural crops practised in the area under study. These economic indicators allow us to explore the roots of sustainability changes in the dynamic context of social development and to propose the corresponding existing technical governance solutions suitable for the sustainable development of the territory. Suggestions for long-term strategies for the welfare of the system have been proposed. In the context of environmental history, the analytical and interpretative models mainly highlight the integration of social and ecological factors [37]. The crisis of sustainable development faced by many villages, as described above, also affected Borgo Parrini, which was the result of the historical accumulation of interactions between man and nature [38]. Therefore, in this socio-economic context, the analysis of the economic indicators of the typical crops of the area can favour the introduction of a model of social development, which represents a man-nature interaction focused on the production and lifestyles of the inhabitants. of the village and how they have changed their agricultural production styles and shaped the landscape and the environment not only from a physical point of view but also from an economic point of view. In general, the primary actors in a village, which are its inhabitants, participate in the functioning of the natural ecosystem through their cultural existence and influence, they shape the territory and characterize their lifestyle. As we have seen previously, the village no longer inhabits peasants who dedicate themselves to these lands. The village is now a holiday area or tourist destination. Only in the past did the village have the function of being at the service of agricultural businesses. As we have said, the reference year for the abandonment of the village is the seventies, the end of the eighties and the nineties of the last century. In this study, we also investigated the reasons for abandonment also from the point of view of a stable life. We have developed this aspect through interviews with old peasants (they are peasants over the age of ninety and living in neighboring countries). This aspect helps us to understand the dynamic context of social development and which together with economic indicators allows us to explain the socio-economic evolution of the village from agricultural to tourist and gastronomic destination, including production relations and consumption structures, agricultural environments, cultural concepts and population development related to the economic, natural and social aspects, respectively, of the sustainability of the system. In these circumstances, the system of economic indicators in the developed analysis assumes considerable importance. The economic indicators of the current agricultural system of the territory, and the information of the socio-cultural subsystem are represented by the intensity of economic development and respectively the efficiency of production, the use of natural resources and the pressure on the natural environment, the living standards of the population and global sustainability of the system. In this research, sustainability is defined by the results of the socio-economic assessment and the well-being factors of a system including physical health, environmental quality, social relationships and life satisfaction. This article proposes this socio-economic approach that applies to a complex rural ecosystem that transforms from a traditional agricultural village to a tourist destination. The integration of a social and economic evaluation method in the framework of environmental history research contributes to the introduction of social development models and socio-economic factors that can help us explain the evolution of the territory. Technical solutions based on reference indicators and governance systems in socio-economic contexts can then be explored to achieve the welfare of the system. This method is conducive to providing sustainable development strategies for the well-being of a system as a new perspective and operational means for the effective implementation of technical

solutions in a real social environment. Regarding the type of business, there are family-run businesses and these are representative of the cultivation area according to the company pulverization present in the territory as we do not have large companies (apart from a few); all three entrepreneurs are over the age of 50; business activity is the main source of income. In addition, there are mixed production addresses (viticulture-olive-citrus), ie we are in the presence of non-specialized farms. Company surveys have been carried out in the year 2021 and therefore also the economic value of costs and revenues refers to this year 2021. Considering the availability of the data, a review of the existing literature was carried out (historical sources on the birth of the village) and to compensate lack of data we have conducted field research using oral history collections. Systematic quantitative surveys (20) and various supplementary qualitative (20) surveys were carried out from April 10, 2021 to July 15, 2021. The mean duration of each survey was 1 day. Additionally, this study follows oral history collections, semi-structured interviews and participant observations with villagers, village workers and especially older people with extensive local knowledge (to look for these people, who no longer live in the village, we proceeded through the indications provided by the owners of productive activities in the village). Respondents were chosen on the basis of their trajectory and the experience of having lived in the "Parrini" for at least 4 decades and having witnessed potential changes in land use. Therefore it is a reasoned sample where the parameter taken into consideration for the choice of the survey units is that of having lived for at least 40 years in the village and having witnessed its changes in socio-economic terms. The events that triggered changes in the village, the years in which these changes occurred and the biophysical and/or socio-economic reasons for any changes were identified. Respondents were asked to reconstruct their history in terms of lifestyles and agricultural practices, to describe their current situation in terms of well-being (e.g. social relationships and life satisfaction) and to provide additional data (destinations of productions in the past, farm management methods, division of labour, use of fertilizers, the role of the family in business activity, etc.). The analysis of the data collected concerns the socio-economic evolution of the territory and the determination of the economic indicators of the culture (olive trees, vines and lemons). The goal was to understand why agricultural activity has been marginalized today.

5. Results and discussions

In Borgo Parrini the land structure has undergone changes. These changes are the result of man's adaptation to the territory according to the changed social and economic conditions. The agriculture of the past, which was also the result of international exchanges, as it happened first with the Jesuit Fathers and then with the Duke of Aumale, no longer exists. Today the country's agricultural ecosystem has radically changed, resulting in increasingly weakened links between the villagers and the land. What are the causes? According to the interviews carried out, the causes are attributable to the new models of economic development adopted and in particular to the development process that has affected Italian agriculture from the 1950s onwards. The productive specialization, the company mechanization, the deconstruction of the farm and the disappearance of the family as the pivot of the peasant society, led to the progressive decrease in the profitability of the countryside and in particular of the crops that were located in the territory. In fact, we must point out that some have pointed out that in the sixties and seventies of the last century the citrus plant affected the area as a function of excellent profitability. These were farms specialized in the production of lemons that were marketed through entrepreneurs from nearby Bagheria (a city specialized in those years in the production of citrus fruits that were marketed in the markets of northern Italy and also abroad). Since the end of the eighties, the commercial policies adopted by the European Union have led to the impoverishment of the territory as the lemons produced have entered into strong competition with other products (lemons) from other European Union countries (Spain) and

Not. Even the viticultural activity practised in the area in those years no longer has the economic importance it had with the Duke of Aumale. In the seventies of the last century for viticulture in the area there is a model of division between grape production in the fields and processing companies. From an economic point of view, this production model that has affected all the viticulture of the western area of Sicily can be explained through the Economic Theory. In particular, wine grape production companies seem to approach the competitive model. In this case, there are production structures or micro-enterprises that suffer the price; companies that operate with a marginal cost equal to the price or even lower than the price. The companies that transform grapes into wine (cellars) can be traced back to the oligopoly market with all the consequences that economic theory includes for these types of markets. This production-transformation model has led to a strengthening of the power of processing companies to the detriment of grape production companies and consequently to a decrease in the profitability of the land. Even animal husbandry that had always developed in those years is in crisis due to international competition, European legislation (companies that were not able to adapt to the rules due to structural limits and lack of system vision) and the affirmation of the market for commercial distribution companies that required large quantities of product that the small livestock companies in the area were unable to guarantee. The lack of associations, and the absence of a long-term vision in enhancing local productions have led to a decrease in the profitability of the land and consequently the abandonment of the border. So we can say that the intensity of the economic development, which since the sixties of the last century, has affected the Italian and Sicilian economic system in particular, has produced on the one hand a progressive growth of agricultural activities and also of the socio-economic context of the a village that however begins to stop due to the lack of entrepreneurial renewal and the economic policies adopted over time. The local agricultural ecosystem appears as stressed by economic development but in reality it is a process that owes the lack of development to itself. The process of abandonment of the village occurs as the inhabitants begin to emigrate to the cities of Northern Italy and abroad to seek more satisfactory living conditions given the low profitability of the land. Another aspect that should not be underestimated is the fact that the few remaining inhabitants were increasingly dependent on external resources, especially for the purchase of basic necessities. Tables 1–3 show some economic indicators relating to the cultivation of lemon, olive oil and vine (for wine) in the area. Extra-family work was attributed on the basis of the cost paid. The item quotas and other attributions include the implicit costs of reintegrating the plant (multi-year cost) and of the polycyclic capital (machines used).

As we can see, there are high production costs and the economic results of the management activity which lead to losses (lemon and wine grapes) or a modest profit in the case of oil olives. These are data referring to the company management in place in the territory. These results bring out what we said earlier that the management of companies according to the entrepreneurial orientation in place proves to be bankrupt and hence the abandonment of the village as an agricultural settlement. Therefore, research that considers the sustainability crisis with changes in economic indicators allows us to show the impact of changes in resource use on well-being, which is conducive to the

Table 1
Economic evaluation of lemon cultivation (€/ha).

Cost items	€
Materials and services	1256.04
Job	6087.32
<i>familiar</i>	4557.57
<i>extra-family</i>	1529.75
Quotas and other attributions	3027.82
Total cost of production	10,371.18
Production value	6000.00
Profit or loss	-4371.18

Table 2
Economic evaluation of the cultivation of the “cerasuola” olive tree (€/ha).

Cost items	€
Materials and services	1270.00
Job	2600.00
<i>familiar</i>	500.00
<i>extra-family</i>	2100.00
Quotas and other attributions	1900.00
Total cost of production	5770.00
Production value	6400.00
Profit or loss	630.00

Table 3
Economic evaluation of the cultivation of the “catarratto” cultivar wine vine (€/ha).

Cost items	€
Materials and services	950.00
Job	2600.00
<i>familiar</i>	500.00
<i>extra-family</i>	2100.00
Quotas and other attributions	850.00
Total cost of production	4400.00
Production value	3000.00
Profit or loss	-1400.00

formation of long-term sustainable strategies for the well-being of the system. In reality, some olive oil companies in the area are trying to enhance their production through the bottling of the product and also in the Zucco lands the strategy that the foresight of the Duke D’Aumale had had, namely that of making a good product recognizable by the market, is being retracted. and bottled. For lemons, there seems to be a rise in market prices, we are witnessing the planting of new lemon plantations in the area. For animal husbandry, we have a company that raises cattle and buffaloes and transforms the milk into its own dairy. Apart from what has been said today, the village has a tourist orientation favored by its proximity to the city of Palermo and the fact that it is easily accessible by car via the Palermo-Mazara del Vallo motorway. Pizza, bread (made with a wood oven) and some biscuits are today the competitive advantage of the village. From what has been said, we observe that the village born to be a support and at the service of agriculture, now completely changes its function. The model we have today is the food and gastronomic product (durum wheat bread and biscuits - pizza) which becomes the strategic variable of the territory and which in fact attracts miles and miles of tourists throughout the year. As indicated by a previous study, high tourism dependence and the loss of traditional livelihoods can increase long-term risks [39]. Today the Parrini village has lost its agricultural identity in favour of gastronomic tourism. However, it is also thanks to agriculture that the village is now being enhanced. The village is surrounded by the cultivation of citrus fruits (lemons), olive trees and vines. Therefore the beauty of the agricultural landscape combined with gastronomy and food products in general contributes to creating a source of competitive advantage. In summary, the productive system in place in the territory is a “marginal” agricultural-countryside system where marginal refers to the modest economic management values recorded by agricultural activities [40–45]. From an economic point of view, most of the structures that produce lemons, wine grapes and olive trees for oil operate in a market that is very close to the competitive one where companies suffer the price and operate in conditions also of marginal revenue lower than marginal cost. A transformation-marketing system that approaches the oligopoly market. This model of agri-food production leads to the impoverishment of agriculture in favour of industry and distribution companies. The territory and the village have been reborn thanks to gastronomy, communication on social media, thanks also to the work of some owners of the houses in the village that were abandoned and renovated. For the future, we hope for a model of

interaction between agriculture and tourism itself, as the possible stop of the tourist flow for any reason could lead to the abandonment of the village again. Therefore we hope for the birth of agritourism, holiday homes in the area, educational farms and also a generational change of entrepreneurs. A lot of work has to be done with public institutions on this aspect, given the rigidity of the land supply with respect to income variations. It is hoped that agricultural economic policy actions can provide for the setting up of young entrepreneurs and that there will be young people who adhere given the strong attractiveness of the place.

6. Conclusions

For many centuries the society of the villages and inland areas, with some rare exceptions, has been identified with agricultural and agricultural, forestry and livestock activities. This identification not only led to the formation of local communities that were dedicated to the cultivation of fields, a sort of intimate mixture between the care of the economic interests of farms and the well-being of man in the area where he carries out his work. This mixture has affected the same ways in which, for centuries, socialization has taken place within local communities. In general, the same "vision of the world" of the rural society of the villages and inland areas has remained profoundly influenced by it, incorporating values such as the prevalence of informal networks, the strong and sometimes almost pathological link with the territory, the opportunity to sacrifice immediate interests to long-term visions. Values that on the one hand have contributed to making the model of the village sustainable for many centuries, on the other end up being counterproductive in a dynamic society like the current one and in fact, as we have seen, the lack of profitability in companies has led to exodus phenomena by of man. In developed economies, despite the loss of centrality of the agricultural sector, the need to guarantee the sustainability of development has not disappeared. In this perspective, the contribution, also in terms of values, of the primary sector employees to the governance of local communities in the villages and inland areas continues to be indispensable. Just as, on the other hand, the survival of agricultural activity in inland areas and rural villages passes through the recognition by the community of the productive role and supply of positive externalities of the same. Through, therefore, the recognition of what has been defined as "social legitimacy to produce". In this logic, those forms of bottom-up programming that seem to be, in the current socio-economic context, one of the most effective means of promoting long-term development methods take on particular importance. In fact, for this purpose, the participation of those directly involved is an indispensable requirement to first optimize and enhance the endogenous resources of the territory and, later, to attract resources and activities from outside. From this point of view, therefore, the old ways of participating in economic and social choices developed in a subsistence agricultural economy, such as that of the mountain areas until a few decades ago, can represent a starting point for the identification, through appropriate re-elaborations and adaptations, of new development models adapted to specific local realities. This article proposes a socio-economic study approach which integrates the economic evaluation method in the framework of environmental research and which considers rural areas as complex ecosystems. Borgo Parrini, which represents a key example of villages that are transformed from traditional agricultural in tourist destinations, was chosen as a subject of study. The results of this study can be summarized as follows: through the economic analysis and the determination of economic indicators it can be seen how agricultural activity has changed in the area under investigation and how the model of social development has changed. The modest economic results achieved through the cultivation of lemons, olive trees (for oil) and wine grapes, now lead to the abandonment of land and therefore to a lack of generational turnover. The strictly social aspects, obtained through direct interviews, highlight that the decline of agricultural activity due to the lack of profitability begins in the eighties of the last century, the year in which the village begins to

be abandoned as a permanent residence. for the rural population of the place. Today the village has been reborn thanks to the work of some owners of houses they had abandoned and restored, modelling the characteristics of the rural landscape and taking inspiration from Gaudi (Spain) [46]. The village today is a destination for both Sicilian and non-Sicilian tourists and is especially appreciated for its gastronomic products (pizza, bread, local sweets). In this scenario, we ask ourselves: can we return to a village as it was conceived by the Jesuit Fathers or as it was during the flourishing period of the Duke of Aumale? Currently, we can answer that these conditions are unlikely to exist, especially depending on the state of agricultural activity and its profitability in the area. Surely, as in all developed economies, the village (born for agricultural purposes) today is the basis of food and wine tourism in the area. Indeed, we can affirm that through the revenues deriving from these activities, it is possible to activate endogenous growth models that from tourism favour the recovery of a competitiveness of the agricultural enterprise through its profitability. Diversification of incomes, competitiveness and cooperation is what was lacking in this territory, which is also common to many problems of other territories and rural villages of Sicily. Surely today the destination of the gastronomic tourist is a place of relaxation and which has positive benefits on physical health, social relations and life, the satisfaction of the villagers and the environmental quality, must be taken into account in future strategies. As demonstrated in the present study, the profitability of agricultural activity alone is no longer able to provide of the competitiveness of the company and therefore of the territory. The Borgo has been reborn as a modern agri-food system by combining peasant tradition with local gastronomy. In the future, it is hoped that due to the high disposable income of consumers, the village will find an increasingly agri-food and gastronomic vocation. Indeed, we can say that the profits deriving from the activities of catering companies that arise in the territory can increasingly contribute to shaping the agricultural landscape and to fostering resilience. Ultimately, as highlighted in this paper, rural villages can continue to represent the pivot for territorial development. Before they were at the service of the rural population who lived there to work the neighboring lands. Today they can constitute the reservoir of tourist use and the meeting place for catering and territorial hospitality. This aspect is very important to guide the choices of territorial economic policy. The use of rural environments by residents in large cities represents an opportunity for the development of the rural territory. If we consider the case study of the "Borgo Parrini", this village that develops in the countryside is a tourist destination for many visitors. Visiting the village together with the gastronomic excellence of the area contributes to creating a territorial competitive advantage. It is clear that this solution can represent a territorial development strategy. Otherwise, without the coverage of the gastronomy of the territory, and without the enhancement by man, the village would have died definitively. The development model adopted in the village under analysis can be replicated in those socio-economic realities that pass from rural areas to modern agri-food systems.

Declaration of competing interest

I declare not to be in conflict of interest Journal of agriculture and food research.

References

- [1] J.-C. Chamboredon, *Territoires, culture et classes sociales*, Éditions Rue d'ULM, Paris, 2019.
- [2] É. Charmes, La revanche des villages. La Vie Des idées, vols. 1–11, 2017. <http://laviedesidees.fr/La-revanche-des-villages.html>.
- [3] F. Entrena Durán, Dinámicas de los territorios locales en las presentes circunstancias de la globalización, *Estud. Sociol.* 28 (84) (2010) 691–728, <https://doi.org/10.2307/25764524>.
- [4] M. Gambino, A. Terrieux, M. Guibert, La reprise démographique des campagnes françaises à l'aune des nouvelles relations rural-urbain, *Perspect. Rural Dev.* 3 (2019) 97–120, <https://doi.org/10.1285/i26113775n3>.

- [5] B. Hervieu, F. Purseigle, *Sociologie des mondes agricoles*, Armand Colin, Paris, 2013.
- [6] B. Jean, La multifonctionnalité des territoires ruraux: une nouvelle perspective de développement territorial, in: B. Jean y D. Lafontaine (Ed.), *La Multifonctionnalité de l'agriculture et des territoires ruraux*, Montréal: Éditions du GRIDEQ - Éditions du CRDT, 2010, pp. 211–228.
- [7] H. Lefebvre, *De Lo Rural a Lo Urbano*, Península, Madrid, 1978.
- [8] T. Linck, El campo en la ciudad: reflexiones en torno a las ruralidades emergentes, *Relac. Estud. Hist. ysociedad* 22 (85) (2001) 87–104. <http://www.redalyc.org/articulo.oa?id=13708504>.
- [9] D. Martínez Godoy, Territorios campesinos y agroindustria: un análisis de las transformaciones territoriales desde la economía de la proximidad. El caso Cayambe (Ecuador), *EUTOPIA* 10 (2016) 41–55, <https://doi.org/10.17141/eutopia.10.2016.2437>.
- [10] L. Martínez Valle, Dinámica de los campesinos-artesanos en la sierra central del Ecuador, *Debate Agrar.* 23 (1995) 69–88.
- [11] L. Martínez Valle, D. Martínez Godoy, Territorial dynamics and social differentiation among peasants in the northern highlands of Ecuador, *J. Agrar. Change* 19 (4) (2019) 635–653, <https://doi.org/10.1111/joac.12322>.
- [12] C. Allmang, Le paradoxe rural ou les enjeux de la ruralité et de la néoruralité aux États-Unis, *Inf. Géogr.* 2 (77) (2013) 72–87, <https://doi.org/10.3917/lig.772.0072>.
- [13] A. Bagnasco, La función de las ciudades en el desarrollo rural: la experiencia italiana, *Número Especial: Políticas Agrícolas*, 1998, pp. 13–36.
- [14] J.A. Berdegué, M.F. Meynard, Las ciudades en el desarrollo territorial rural. (Serie Claves para el Desarrollo Territorial), RIMISP, Santiago, 2012.
- [15] P. Bourdieu, *Le bal des célibataires. Crise de la société paysanne en Béarn*, Éditions du Seuil, Paris, 2002.
- [16] P. Bourdieu, Les structures sociales de l'économie. Paris: Éditions du Seuil. Bourdieu, P., *El Cap. Soc. Apunt. Provisionale Zona Abierta N 94–95* (2000) 83–87.
- [17] É.A. Bühler, V.L. de Oliveira, M. Guibert, Espaces et villes des agricultures entrepreneuriales sud-américaines. Nouvelles dimensions de la relation rural-urbain, in: F. Purseigle, G. Nguyen, P. Blanc (Eds.), *Le nouveau capitalisme agricole. De la ferme à la firme*, Presses de Sciences Po, Paris, 2017, pp. 183–213.
- [18] P. Campagne, B. Pecqueur, Le développement territorial. Une réponse émergente à la mondialisation, Éditions Charles Léopold Mayer, Paris, 2014.
- [19] J.B. Casagrande, A.B. Pipper, La transformación estructural de una parroquia rural en las tierras altas del Ecuador, *Am. Indig.* 4 (29) (1969) 1039–1064.
- [20] M. Neiman, M. Blanco, *Beyond the Pampas: Global Capital and Uneven Development in Argentine Soybean Expansion*, 2020.
- [21] P. Panerai, Les villages se ruralisent et perdent leur spécificité paysanne, *Tous Urbains* 14 (2016) 47–52, <https://doi.org/10.3917/tu.014.0047>.
- [22] L. Paré, La relación campo-ciudad: elementos para agendas en común, *ALASRU* 5 (2010) 95–112.
- [23] B. Pecqueur, *Le développement local. Pour une économie des territoires*, Syros, Paris, 2000.
- [24] G. Preda, *La Expansión del capital agrario en el norte de Córdoba. Transformaciones y disputa por el territorio*, 2015.
- [25] D. Requier-Desjardins, La construction de la qualification territoriale: une problématique émergente en Amérique Latine, *L'espace géogr.* 44 (3) (2015) 214–228.
- [26] E. Saraceno, Vínculos urbano-rurales, diversificación interna e integración externa: la experiencia europea, *Debate Agrar.* 32 (2001) 143–175.
- [27] F. Sgroi, Food products, gastronomy and religious tourism: the resilience of food landscapes, *Int. J. Gastronomy Food Sci.* 26 (December 2021), 100435, <https://doi.org/10.1016/j.ijgfs.2021.100435>.
- [28] F. Sgroi, G. Marino, Environmental and digital innovation in food: the role of digital food hubs in the creation of sustainable local agri-food systems, *Sci. Total Environ.* 810 (2022), 152257.
- [29] F. Sgroi, *Forest Resources and Sustainable Tourism, a Combination of the Resilience of the Landscape and Development of Mountain Areas*, *Science of the Total Environment*, 2020.
- [30] Citarella F. (a cura di) (1997) *Turismo e diffusione territoriale dello sviluppo sostenibile*. Collana dell'Osservatorio per la Progettazione dello Sviluppo Sostenibile e l'Assetto del Territorio OPSAT, Loffredo Editore, Napoli.
- [31] G. Dall'Ara, *Andar per borghi. La rivista del turismo*, Touring Club Ital. 2 (2010) 52–57, 2010.
- [32] F. Primi, *Borghi d'Italia. Impresa Turismo*, pubblicazione Unioncamere Camere di Commercio d'Italia, 2011, 2011, pp. 30–33.
- [33] T. Aiello, Partinico e la sua storia, Lions Club Partinico Serenianus, 2021.
- [34] V. Lo Iacono, *Gli Orlandi in Sicilia. Il duca d'Aumale, un luminare*, Palermo, Terrasini e Lo Zucco, Opificio Ingham, 2019.
- [35] K. Takeuchi, K. Ichikawa, T. Elmqvist, Satoyama landscape as social-ecological system: historical changes and future perspective, *Curr. Opin. Environ. Sustain.* 19 (2016) 30–39, <https://doi.org/10.1016/j.cosust.2015.11.001>.
- [36] K. Takeuchi, R.D. Brown, I. Washitani, A. Tsunekawa, M. Yokohari, *Satoyama: the Traditional Rural Landscape of Japan*, Springer Science & Business Media, 2012.
- [37] M. Agnoletti, S. Neri Serneri, *The Basic Environmental History*, Springer, 2014.
- [38] X. Yuan, Explicating the traditional village's living wisdom and its current difficulties: from the perspective of energetics, *Chin. Landsc. Architect.* 35 (7) (2019) 67–71, <https://doi.org/10.19775/j.cla.2019.07.0067>.
- [39] M.M. Su, G. Wall, K. Xu, Heritage tourism and livelihood sustainability of a resettled rural community: mount Sanqingshan World Heritage Site, China, *J. Sustain. Tourism* 24 (5) (2016) 735–757, <https://doi.org/10.1080/09669582.2015.1085868>.
- [40] F. Sgroi, F. Modica, Localized agri-food systems: the case of Pecorino Siciliano PDO a food product of the tradition of Mediterranean gastronomy, *Int. J. Gastr. Food Sci.* 27 (2022), 100471.
- [41] P. Singer, *Economía política de la urbanización, Mexico: Siglo XXI* (1975).
- [42] A. Torre, M. Filippi, Les mutations à l'oeuvre dans les mondes ruraux et leurs impacts sur l'organisation de l'espace, in: A. Torre, M. Filippi (Eds.), coord. *Proximités et changements socio-économiques dans les mondes ruraux*, Editions Quae, Paris, 2005, pp. 1–36.
- [43] M. Weber, *Economía Y Sociedad*, T.II, Fondo de Cultura Económica, México, 1977.
- [44] R. Williams, *El campo y la ciudad*, Paidós, Buenos Aires, 2011.
- [45] J. Yanez del Pozo, Yo declaro con franqueza, in: *Memorial oral de Pesillo-Cayambe*, Ediciones Abya-Yala, Quito, 1985.
- [46] P. Pottino, *La nuova fortuna di Borgo Parrini, la Barcellona di Partinico*, Repubblica, 2021.