

*Sustainability, resilience and agency
in intensive agricultural enclaves*



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Abstract: This paper addresses the sustainability and resilience of intensive agricultural production in specific contexts. The constitution of an intensive agricultural enclave implies to develop a deep social, labour, production, institutional and technological transformation of the local territories. This multilevel process of transformation pose important contradictions within these territories in terms of ecological and social sustainability. This article attempts to demonstrate that sustainability and resilience are not necessarily interrelated phenomena. Indeed, it is possible to find a highly resilient territory with huge problems of social and ecological sustainability. The article will try to demonstrate it based on the fieldwork conducted in the table grape sector of intensive agricultural production of Murcia, Spain.

Keywords: sustainability, resilience, agri-food production, Murcia.

Sostenibilidad, resiliencia y agencia en enclaves de agricultura intensiva

Resumen: Este artículo aborda la sostenibilidad y la resiliencia de la producción agroalimentaria intensiva en contextos específicos. La constitución de un enclave de agricultura intensiva implica desarrollar un profundo proceso de transformación laboral, productiva, social, institucional y tecnológica de los territorios locales. Dentro de cada territorio, este complejo proceso de transformación plantea importantes problemas en términos de sostenibilidad ecológica y social. En este artículo se intenta demostrar que la resiliencia y la sostenibilidad no van necesariamente unidas. De hecho, es posible encontrar un territorio altamente resiliente pero con enormes problemas de sostenibilidad social y ecológica. Este artículo tratará de demostrar esta hipótesis basándose en el trabajo de campo llevado a cabo en el sector de la uva de mesa de la producción agrícola intensiva de Murcia, España.

Palabras clave: sostenibilidad, resiliencia, producción agroalimentaria, Murcia.

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Introduction

This paper addresses the sustainability and resilience of intensive agricultural production in specific contexts, such as rural enclaves and has its roots in the tradition of rural studies that focus on global and intensive food production (Friedland, 1984, 1991, 1994a, 1994b, 1997, 2001; Friedland *et al.*, 1981; Watts and Goodman, 1997; Bonanno, 1994, Etxezarreta, 2006). Such territories are subject to an intensive farming dynamic whereby the elements of production (land, capital and work) are concentrated and centralized, such that agricultural activity is subordinate to the large-scale supply chains of developed countries. Oriented toward the need to satisfy the consumption patterns of the middle classes of these countries, and their demand for fresh produce, production processes are characterized by a high degree of industrialization and technological transformation (Moraes *et al.*, 2012).

The specialised literature tends to compare these hyper-intensively farmed territories, influenced by the globalised agrifood business, with the diversity of extensive farming systems, concluding that they have low sustainability and resilience on the basis that diversified agriculture has a greater capacity to adapt and change. The work of Quaranta and Salvia (2014) encapsulates this perspective, concluding that intensive and specialized agriculture is less sustainable and resilient because it suffers from a poor capacity to adapt to changes in the global markets, on which they are also highly dependent (see also Hurlings and Marsden, 2011; Fraser *et al.*, 2003; and Abson *et al.*, 2013).

Furthermore, many studies of intensive agriculture demonstrate that these territories have significant problems with ecological and social sustainability (Fernández and Esteve, 2002; van der Ploeg, 2010; Delgado, 2010). However, research also shows that these producing enclaves have a high capacity for persistence and continuity, which ensures their continued survival and expansion (Pedreño, 2014). This article argues that intensive agricultural production systems pose important contradictions within these territories in terms of ecological and social sustainability. Contrary to what the researchers mentioned above argue, if we look at the strategies employed by the agents active in these enclaves, to be become successfully inserted in global food supply chains, a high degree of resilience can be observed. Ultimately, this article attempts to demonstrate that sustainability and resilience are not necessarily interrelated phenomena; it is possible, as we have found, that a territory with sustainability problems may also be highly resilient.

To demonstrate this, the analysis focuses on a specific territory, the Region of Murcia in The Levante (the area that comprises a large part of the Mediterranean seaboard of the Iberian peninsula). This politically autonomous region is one of the many agricultural productive enclaves that have proliferated in the peripheral countries of the world economy since the globalization of the food system (Pedreño, 1999; Segura and Pedreño, 2006; Segura, Pedreño and de Juana, 2002). Since the late 1980s, this territory has pursued a development strategy that has involved an insertion into the supply networks of the global economy, mainly through intensive export agriculture, which has involved a profound restructuring at the level of enterprise, infrastructure, local institutions and within the region's rural labour force. The article explores the nature of this restructuring in terms of the concepts of sustainability and resilience, arguing that both analytic viewpoints must be viewed separately in order to undertake a balanced sociological analysis. The research finds that while development through attachment to global agrifood networks may be resilient it is not necessarily sustainable and as such presents important contradictions for local development. Before presenting the findings we explore in some depth the concepts of sustainability and resilience, as they relate to agricultural enclaves.

Sustainability and resilience in rural development strategies

Sustainability and resilience are now important concepts in contemporary development studies; their use, however, is more controversial in sociology. In this

disciplinary field, it has been observed that these concepts don't readily lend themselves to the study of issues such as power, inequality and agency (Leach, 2008, Hornborg, 2009, Davidson, 2010). In a major review of the literature on resilience, Béné *et al.* (2014) show that although the concept has a clear normative use in policy development it doesn't have any particularly established relationship with strategies designed to combat poverty, precisely because of its weak sociological dimension.

However, recognizing the holistic view that such concepts provide, significant advances have been made to incorporate a social dimension to research on sustainability (Camarero and Pino, 2014) and resilience (Folke, 2006). This also forces us to consider their applicability to social systems, since these concepts originate in the physical and environmental sciences¹, having previously been developed in the field of ecology to study the functioning of ecosystems. In fact, when these concepts are translated to social contexts their functionalist and normative bias is evident; resilience is defined as the capacity of the system to adapt to changes in the environment (Holling, 2001), so that the system can return to a point of equilibrium and preserve its basic structures.

Therefore, many authors consider it essential to develop an understanding of resilience that is neither positivist nor normative and that incorporates issues of power, inequality and agency. This would imply an understanding of resilience as a capacity (or even competence) of social agents. This means that the capacity or actions of individuals, households and communities can be understood as resilient in terms of three different types of system response: as persistence or stability, as adaptation and also as transformation. In the first instance, persistence or stability, the system responds to crisis or uncertainty by absorbing impacts in such a way that it maintains its functionality, status or composition. In the case of adaptation, the response requires diverse forms of adjustment by the various individuals or their institutions in order to continue to operate without major qualitative changes in the structure and function of the system. Finally, transformation necessitates innovation and learning that requires fundamental change by people or institutions when the system's social, economic or ecological structures are unsustainable (Béné *et al.*, 2014: 601-603).

From this more sociological, and less normative perspective, the relationship between sustainability and resilience appears much more tenuous. Moreover, it is possible to find systems or unsustainable forms of development in which social

1• The concept of resilience comes from the physical sciences and refers to the physics of materials and mechanical systems, while sustainability originates in the environmental sciences.

groups or institutions show a high degree of resilience in the preservation and continuity of the model, or where they put into action adaptive responses that do not involve substantial changes to the model. In this sense, despite the positive effects of resilience that development policies tend to highlight, so as to justify its use as an analytic tool with which you can observe the adaptive actions of social actors faced with risks and systemic uncertainty, it is no longer a feasible way of analysing the construction of models of sustainable development (Béné *et al.*, 2014).

In rural sociology, sustainability and resilience are becoming widely used conceptual perspectives (Camarero & Pino, 2014; Wolf and Bonanno, 2014). For the purposes of our article, we want to highlight firstly, the contributions that have addressed the nature of rural areas through the lens of diversity and, secondly, those studies that underscore the agency of rural actors. Among the first type we highlight the work of Quaranta and Salvia (2014), who depart from the term 'diversity' for what has become understood in rural studies as 'rural diversity', a term which comprises three different dimensions: "1) the diversity of agricultural activities within a rural region; 2) diversity of non-agricultural activities of farmers, 3) the variety of economic activities within a rural region, whereby agriculture is seen as one of the possible economic activities" (Quaranta & Salvia, 2014: 163-164). This conceptualization of diversity accounts for the complexity of rural contexts, while encompassing a socio-ecological system defined by four variables or types of capital: natural, economic, social and institutional. Thus, the greater the degree of diversity within a system the greater capacity it has for sustainability and resilience. Secondly, when considering the agency of rural actors, we point to the research of Camarero and Pino (2014), whose analysis centres on strategies adopted in domestic settings in rural areas. These authors remind us that when undertaking analysis of rural households we must be aware that these entities are configured by both demographic and economic structures.

Therefore, we suggest that an empirical approach to the study of intensive agriculture production enclaves must address three interrelated theoretical axes. Firstly, diversity must be treated as a complex concept that addresses ecological, economic, social and institutional dimensions. On this basis, although some territories are highly specialized from an economic point of view, they may also be greatly diversified at social and institutional levels. Secondly, research should focus on the range of social agents active in these enclaves (from households to associations and from enterprises to public institutions), understood as a system of unequally distributed social positions (in terms of access to social, economic, cultural and political resources) in which capabilities, in terms of resilience, are differentiated and capacity to act is unequal. Lastly, a perspective that re-territorialises the analysis of

enclaves of intensive agriculture production is necessary. As we go on to argue in more detail in the following section this means a 'territorial turn' that has come about in the literature dedicated to the analysis of global production chains.

From supply chain to territories: a complex analysis of agriculture enclaves

The spatial and organizational restructuring of production that started in the late 1970s has led to the emergence of new approaches to the functioning of the global economy that reflect, firstly, the development and integration strategies of national industries in the global economy and, secondly, new forms of organization, management and production that companies have developed in order to partake in the global market. Among the many approaches that have emerged attention should be drawn to the analysis of Gereffi and Korzeniewicz (1994) on global commodity chains and Gereffi and colleagues' (2005) work on global value chains, both derived from Wallertstein's world-system theory and analysis of global commodity chains, as well as Coe and colleagues' (2008) analysis of global production networks, among others.

On the one hand, the analysis that has emerged from the literature on global commodity chains and global value chains has mainly focused on the role of the leading companies in the context of globally dispersed production, prioritizing the study of forms of corporate governance in the supply chain and analysing the distribution of power throughout the entire chain of production. This literature seeks to address the way that companies ensure quality control of production and products in supply chains that cannot be directly supervised, due to their wide geographic dispersion. As such, these studies are an exploration of forms of indirect corporate control over suppliers and employees. In general, thinking about corporate governance has now moved beyond the consideration of the degree of control of producers or commercial distributors (Gereffi and Korzeniewicz, 1994), to think of governance as forms of coordination between firms (Gereffi *et al.*, 2005), and through the agreement of common industry standards (Ponte, Gibbon and Vesteergard, 2011).

Most striking in this field has been the 'territorial turn' that has occurred in the analysis, either because such approaches have incorporated this variable into their analysis (Bair, 2005; Selwyn, 2013) or because they have developed new decidedly

territorial approaches, such as the study of global production networks (Hess and Yeung 2002, Coe *et al.*, 2008). Thus, from the previous concentration on the role of businesses in networks or global production chains the focus has shifted to a more complete analysis of the institutional and social contexts in which production lines are located. From the off these approaches have analysed the organizational and management strategies used by leading companies to control the different stages of global commodity chains and thus retain more of the value created. Furthermore, these approaches have centred on the governance structures of global chains, focusing either on large production companies or large-scale commercial distribution networks. However, by pursuing the "follow the chain" methodology they have gradually come to pay more attention to what happens in the entire chain, from extractive industries to end consumers, including waste generation at each stage and its reintegration into the production cycle (Talbot, 2009; Coe and Hess, 2013). This far more complex approach has led to the identification of new social actors (not only the leading companies, but also consumers, suppliers, subcontractors, producers and workers) and new supply chain governance structures that seek to account for the complex power relations between these actors. Additionally, studies have tended to analyse the multiple strategies used by companies and other actors, to improve competitive positions within the supply chain; commonly known as upgrading.

However, the real value of this recent trend toward the reterritorializing of analysis lies in going outside the chain and paying more attention to local actors and the social, political and institutional conditions that enable a production line to be established in a specific territory (Bair, 2005, Coe and Hess, 2013). Unfortunately, few studies have focused on the analysis of the restructuring processes (economic, productive, technological, labour, legislative) required for the insertion of a specific territory into the global food supply chain, nor the strategies employed by different actors to bring such an insertion about (Coe *et al.*, 2008). Moreover, when these 'reterritorializing' studies do focus on analysing the strategies employed by local actors, to achieve successful insertion into the supply chain and to maintain their position, they tend to omit the specific social, political and historical dynamics of the territories under analysis.

Hence, this perspective of sustainability and resilience may be useful precisely because it permits a view of the processes of restructuring not from the perspective of the logic of the global supply chain, but from the logic of the territory itself. In other words, by looking through the perspectives of sustainability and resilience we are not just concerned with the restructuring needs that the global economy demands of a specific territory, but the way in which economic activities can contribute to the social reproduction needs of the local area. In sum, the social sustainability focus

refers, specifically, to the extent of compatibility between both dynamics and allows the exploration of the mutually constitutive relations between the supply chain and the territory.

Studies in this area are also scarce and have struggled to make visible the complete sphere of social reproduction, that is, the survival strategies of individuals and households and the different ways in which work is valued and re-valued socially and culturally (Coe and Hess, 2011; Kelly, 2013). An analysis of such survival strategies means studying the social structure of the territory to critically investigate how vulnerable social positions, occupied by certain segments of the working class, the main source of labour in the supply chains, are reproduced. Put another way, it is necessary to study the social logic of the local areas (Bagnasco, 1991) in order to investigate the developmental trajectories of specific enclaves and link their endogenous dynamics. As such, we note that some studies have indicated that the process of insertion into supply chains and global production networks is a complex operation that can lead to social tension, ruptures, dislocations, and expulsions (Coe and Hess, 2013; Bair and Werner, 2011). It is therefore a political process of strategic coupling in which the global networks of actors insert themselves into the complex networks of local power (Gibbon and Ponte, 2008).

The relevance of the study of these processes of restructuring of the territory lies in stressing the importance of the local dynamics of social, economic and political transformation for the configuration of global commodity chains. Moreover, by analysing the role of different local actors one can make visible the political, and therefore disputed, nature of such processes of transformation that take place in local territories by way of insertion into the global economy. Therefore, local actors represent the point of convergence of global and local dynamics. From unequal positions of power, it is the local actors that develop strategies, or adjust, to make themselves compatible with the network, rather than the other way around.

The constitution in the region of Murcia of an enclave of intensive farming

The Region of Murcia is one of the most intensive agricultural enclaves that have emerged in the peripheral countries of the world economy. Arguably, the

intensive production system developed in the region has been one of the key pathways by which it has inserted itself into the global economy and specifically the global agrifood supply chains. From the outset, Murcia's primary production focus was in the fruit and vegetable subsector, meeting the need for fresh produce that has arisen in the new food requirements of the markets of countries in advanced stages of capitalism (Friedland, 1997, 2001).

The resilience of Murcia's agrifood system is evident in the major transformations² it has undertaken in order to establish itself as an exporting territory. The careful cultivation of its image and identity through strategies designed to differentiate its product in terms of variety and quality, has required not only innovation in cultivation, but also in warehousing and in the development of packaging and grading systems to prepare the product for market through calibration, cleaning, sorting, bagging and labelling processes (Pedreño *et al.*, 2014). Moreover, agricultural production processes require new forms of business organization, the development of new competencies and work skills, and the intensive use of semi-skilled labour. In effect, the increase in the scale of production required by the globalization process means that the casual agricultural labourer has become a progressively more central figure, while labour organised around the family unit has lost importance. In short, the insertion into the supply chain has led to the restructuring of production processes, both on farms and in warehousing, through technological, biological and business innovations as well as reorganizing labour force relations.

Hence, from the perspective of resources, large amounts of land, water, labour and capital have been required to carry out this extensive transformation. In fact, we can reconstruct the transformation of agriculture in Murcia as a differentiated production model in terms of historic responses to three uncertainties related to these resources: the availability of water and land, the insertion into the global market and

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- 2• Of the three types of resilience highlighted by Béné *et al.* (2014), and discussed earlier, transformative resilience can be found in the historical origins of the agri-export model with the conquering of non-arable dry land for cultivation (although an exogenous reason, such as the arrival of water from a state construction programme, is normally attributed with responsibility for this transformation, as was the case in Tajo-Segura diversion scheme, the fact is that there were also endogenous responses by the stakeholders themselves, as aquifers were and continue to be a major source of extractive exploitation), and especially when moving from a Fordist strategy for food production to a more clearly post-Fordist approach linked to the production of fresh fruit and vegetables for diverse markets. Once these transformative changes had occurred the persistence and adaptation responses that had perpetuated the model ceased to dominate.

the availability of cheap labour. In response to these uncertainties Murcia's agricultural production system has been very resilient. However, while all social agents have deployed resilience strategies some have had the power to transform the situation to their advantage and others have had to adapt. The analysis considers the resilience shown by enterprises, institutions and households and the implications of different strategies for social actors.

Business Resilience

Business resilience is characterized by the internationalization of business strategies, concentration of production in order to achieve economies of scale, an emphasis on technological innovation in the management of resources and production processes, and the use of a flexible labour force, each of which we consider separately.

The internationalization of business strategies. Spain's entry into the European Economic Community in 1986 and the establishment of the Single European Market in 1991 enabled Murcia to develop a specialized export-oriented agricultural economy that has become a sort of "garden of Europe" for the supply of fruit and vegetables. The agricultural producers in the region adapted to the burgeoning business logic by embedding themselves in the global agrifood distribution networks, in particular those operating in Europe. By embracing such a strategy producers could guarantee access to a network of clients and markets through the large-scale supply and distribution networks. According to data from a report by the Ministry of Employment and Social Security, 2012, 60% of the agrifood sector's production is oriented to exportation and 93% of these exports go to the EU³.

Concentration of production. The orientation of agriculture towards export has also seen an increase in the scale of production, which has caused a shift from an agricultural economy based on small-scale family holdings to a model dominated by big business and vertical integration between production and distribution, but also by some large farming cooperatives that are forming partnerships to establish second degree or super-cooperatives. This process of concentrating agricultural production requires large capital investments in production and technological infrastructure,

3• Observatory of occupations (2012: 15-6).

which has consolidated the importance of large and medium sized local businesses and gradually displaced smaller producers. The effect of concentration, can be seen in the way that land ownership is consolidated. In Murcia the number of smallholdings reduced from 33,215 in 1999 to 13,715 in 2009, while the average size of a holding has increased from 7.69 hectares per farm in 1999 to 12.37 hectares in 2009. Additionally, over the same period, farms over 50 hectares have increased their average size from 107.6 to 134.5 hectares per farm⁴. At the same time, agrifood production has grown in the region, from 14,857 million of euros in 1990 to 24,344 million of euros in 2011. In the case of the most important products of the region, fruits and vegetables, in the same period production has increased from 7,704 million of euros to 13,111, which also informs of a significant increase in productivity⁵.

Intensive exploitation of water and land. The specialization of the regional territory in the intensive production of fruits and vegetables, and consequent loss of ecological diversity, has leaned heavily on the two natural resources on which it depends: water and arable land. This production model had to break with a centuries-old division between dry lands and arable land, irrigated with natural water. The conversion of dry land to irrigated land has been occurring since the early twentieth century through elevation techniques of the water in the arable lands and the exploitation of aquifers⁶. But the real 'conquest' of the dry lands has happened since the 1970s with the construction, by the State, of the Tajo-Segura water diversion channel and new drilling techniques to extract groundwater. With this development the region's large land reserves could be converted to arable land, making it possible to expand the region's agriculture to the large-scale production model required to be competitive in the international market.

Technological innovation. Technological innovation of agricultural production processes has been a major strategy of the Murcian agrifood industry to integrate with and compete in the global agrifood system. Local entrepreneurs have introduced so many production innovations that Murcia is now a technological pioneer in the production of high quality fresh food and vegetables. The transformation of the

4• The arable agricultural area has increased from 457,032 hectares in 1999 to 394,538 hectares in 2009 according to the INE agricultural censuses of 1999 and 2009. All data can be found here: http://www.ine.es/inebmenu/mnu_agricultura.htm [16th November 2014].

5• http://www.ine.es/inebmenu/mnu_agricultura.htm[16th November 2014].

6• According to the technical director of one of the leading companies in the sector, it is needed about 7,000 liters per hectare and per year.

production process has been brought about by the introduction of new varieties, new cultivation and irrigation techniques, new methods for pest and plague control and new packaging techniques. Firstly, the development and researching of new varieties has been driven by demands for higher quality products, as well as the need for producers to expand the production calendar. This process of restructuring varieties has led to an increase in the number of higher quality varieties that are also more resistant to the region's weather, pests and plagues, as well as having an extended growing season. Secondly, the emergence of new crop protection structures such as meshes and greenhouses has improved control over the pace of crop maturation and reduced the risk of crop loss due to variable weather. Thirdly, the introduction of drip irrigation has optimized water consumption, which is important because the cost of water in the area is very high and the region is continually at risk of water shortages. Decisively, this water management system has allowed irrigation to be both measured and targeted, which is crucial to the improvement of plant productivity and for the control of levels of sweetness and the achievement of uniform colour. Fourthly, there has been a trend toward the use of natural techniques for the treatment of pests and plague as a replacement for pesticides. Finally, post-harvest technologies have become critically important in the sector. Local producers have used various types of packaging as a way of differentiating their products and improving their competitiveness in the supply chain. In recent years this has led to the advent of large industrial plants where packaging has been mechanised and standardized throughout the food preparation process in order to improve product quality and to accommodate consumer habits⁷.

A flexible labour force. Much of the competitiveness of the Murcian agribusiness is based on the availability of a flexible labour force. The power of large distributors to dictate the times and rates of production, coupled with the constant search for cheaper labour, has created a workforce management approach embodied by two strategies. The first strategy consists in the standard use of day labourers and temporary contracts, and the employment of intermediaries to contract workers, which avoids the necessity of having a direct relationship with labourers⁸. This has been made possible by a second strategy, namely the continued mobilization, around the region, of vulnerable social categories within the social organization of work, principally

7• All this information comes from the interview with the director of ITUM and from the technical directors of two leading companies in the sector in Murcia.

8• As a proof of the high seasonality, it can be noted that the number of contracts made for the categories related to the sector (CNAE09: 01 and 10) reached 1,733,051 in 2011 of which 1,700,117 were temporary (Observatory of occupations 2012: 28).

women and immigrants. This has led to the existence and maintenance of a reserve army of workers and the organisation of a labour market configured and segmented in terms of gender and ethnicity⁹. At first, in the 1970s and 1980s, these workers came from the traditional force of temporary labourers in southern Spain, who were recruited through a process of shifting mobility and internal migration. In a second stage, from the 1990s onwards, a foreign labour force provided by international migration became the primary supplier. This dynamic has resulted in a gradual ethnicization of the labour force in the region. The gendered segmentation of work is evident in the way that different tasks are defined as suitable for women¹⁰. Consequently, the mobilization of socially vulnerable workers has guaranteed access to an available and highly flexible source of labour, which has permitted the containment and reduction of production costs in a sector where labour is one of the major variable costs and margins are slim because the big retail chains can dictate prices¹¹.

Institutional Resilience

Institutional resilience refers to the role played by various institutions, local and non-local, along with companies, in the development of new strategies for managing the factors that affect production, discussed above. The processes of territorial and productive restructuring have not only been driven by external forces, such as state or supranational institutions or foreign investment and large companies, as in other enclaves of intensive agriculture, but also by local political institutions, which have played a decisive role. Municipalities, regional councils, local research centres, associations of exporting producers, associations of large businesses, small businesses and cooperatives, and labour unions have all helped to develop an institutional architecture that has driven the growth of the sector. We can illustrate how these institutional frameworks function with several examples. As we mentioned previously, the restructuring of varieties has been one of the competitive strategies of the Murcian

9• Specifically, in 2011 555,127 of the 1,733,051 contracts (32%) were signed by foreigners, a ratio that it is higher than the ratio of migrant population in Spain (12%) (Observatory of occupations 2012: 28).

10• In these production enclaves a marked duality in job qualifications has increasingly emerged, which at the same time creates a polarization of employment conditions. While there has been an increase in the demand for highly qualified personnel at the top end (managers, engineers, etc.), at the other end there has been a broad devaluation and deskilling of manual labour.

11• Some evidence of agricultural labour market can be found in Pedreño, Gadea and de Castro (2014).

agricultural sector. In the last ten years, a public-private consortium established by the regional Ministry of Agriculture and Water, the University of Murcia and many local businesses and cooperatives has provided the impulse for the establishment of several technological institutes exclusively devoted to researching new varieties. The Technological Institute of Table Grapes (ITUM) and the company New Varieties of Mediterranean Peach (NOVAMED) have developed and registered numerous varieties that have improved the competitive position of enterprises in the supply chain.

On the other hand, in the Region of Murcia, the ability to expand the amount of arable land and access to water to facilitate cultivation is linked to policies and planning related to infrastructure, land, environment and water, which have been carried out in recent decades by the municipalities (land disposal, rezoning of land), the autonomous regional government (legislative reform, programs to support economic activity) and the State. As for land, the support of the autonomous regional government is evident in the adaptation of the State Land Act of 1998 that allowed the rezoning and disposal of land with little administrative control. Although the law was intended to expand the amount of land developed for residential purposes, the food industry in the region has benefited to the degree that some environmentally protected zones have been converted to farmed land. As for water, Murcia is a particularly hot and dry region that has traditionally had problems with water supply. The development of industries based on intensive use of water has been done through the use of wells operated by irrigation communities and, as mention above, was achieved by the decanting of the River Tagus to the Segura River, through infrastructure built by the State in the 1970s. Historically, the autonomous regional government has supported these measures and in recent years has even promoted campaigns to demand the implementation of new water transfers to meet the growing needs, not only because of the strength of the agrifood sector but also because of the construction and tourism sectors.

Household Resilience

The development and management of a flexible labour force has generated, in terms of career paths for workers, a labour market defined by temporality, sectorial and territorial mobility, and a combination of declared and undeclared income. Workers continually enter and exit formal employment, whereby they attempt to earn as much as possible when work is available, which favours piecework and lengthening of the working

day. When there is no work, labourers sign-on for unemployment benefit, if they entitled, or otherwise turn to informal and undeclared work.

In the interviews we made, social workers of the area say that during the months when there is no work in the field, day laborers seek financial aid to public administration, social organizations or family ("some of them go to social benefits, unemployment benefits or family support. And those who have nothing resort to family support, of Charity organizations as Caritas... And those who have nothing, but nothing, we apply for them to get a basic income". They also often resort to odd jobs usually in the informal economy ("there is also much informal work... for instance, to care an elderly person, a kid, cleaning two hours per week in a house..."). In any case, social workers describe a kind of workers who only get their basic needs, being unable to improve their situation and that of their children ("they can maintain them but without giving them the future, kids will not have resources to study... There is no way out for them")¹².

This relationship to the labour market is linked to certain survival strategies developed in the context of familial organization, traditionally differentiated along gender lines (Pedreño, 1998, 1999a). Until the 1980s, this family structure was rooted in the casual farm-labourer family, where incomes were supplemented by incorporation of female household members into paid employment at a young age, either in the field, in storage and canning, or in housework. Later, with the launch of the agro-industrial model, improved employment opportunities in the construction and services industries, the development of the welfare state (if somewhat limited), and the increased participation of women in the labour market, meant that many local women abandoned farm work. Subsequently, immigrant worker populations were employed to fill the shortfall of casual farm labourers and meet the labour needs of an expanding industry. Whether local or immigrant labourers, survival strategies originate in the fact that income from formal declared work is insufficient and uncertain. Other sources of income and resources, such as informal labour, public and community resources, domestic work and family support, therefore, take on added importance. The economic crisis has placed great strain on these unstable and precarious resources, or survival strategies, that sustain these communities of labourers. On the one hand, the collapse of the construction sector, in which a significant portion of the male labour force in the area was employed, has created an oversupply of labourers looking for farm work, which is being used by employers to curtail employment conditions. On the other hand, despite the increase of the

12• Interviews with social workers.

informal economy, the chances of getting a casual job are dwindling. Finally, public, community and family mechanisms that minimized the risks of such survival strategies are no longer able to absorb the economic uncertainty that comes with this unstable and fragile labour market.

Some conclusions from Murcia's agricultural enclave: resilient but not sustainable

Murcian agribusiness has been highly efficient in its adaption to the logics of global capitalism. This capability could be described as resilient, but not as sustainable, because this highly profitable model is a source of constant conflict, inequality and dispossession. The lack of sustainability is evident in the vulnerability of a development model that displaces small farmers, is characterised by unemployment and job insecurity, as well as ethnic and gender based labour market segmentation and the overexploitation of natural resources.

If we define social sustainability as "the ability of economic systems to ensure that all its members have a decent standard of living" (Recio, 2010: 200) or the ability to "satisfactorily meet the material and subjective needs of all groups that make up the population of an area" (Camarero, 2009: 23), we must recognize that the agribusiness model, as practiced in Murcia, has important limitations. From the point of view of producers and entrepreneurs, the growing importance of table grapes is changing the structure of agriculture in the area. The scaling up of agricultural production has displaced small producers who can't afford to make the required investments in production and technology infrastructure. The result is a corporate structure organized and optimized for large and medium enterprises. It is therefore an unsustainable model for small producers, who have tended to disappear.

From the point of view of natural resources, expanding the volume of production has resulted in an exponential increase in the extraction of natural resources (land and water). The strategies of expansion of the arable land base have proved unsustainable since, as some environmental groups have complained, the expansion has resorted to the illegal development of protected natural areas or the development of non-arable rural areas. Furthermore, the extraction of groundwater

has also created significant problems both in terms of the salinity of the water table and its overexploitation.

From the point of view of the labour force, it is a model that depends on the existence and reproduction of a casual and seasonal labour force in order to maintain its market competitiveness. This casual labour force, which includes large parts of the population, immigrants, women and youth, is particularly vulnerable, subject to constant uncertainty about their income and as well as originating in social strata with poorer resources for absorbing periods of unexpected unemployment. This is a labour force that only goes to work in the fields because there is no other work available. For these casual workers the strategies employed by the agribusiness model are not sustainable because they experience deteriorating health due to the extreme working conditions and a deterioration in family life brought about by always needing to be available to work, which makes it very difficult to reconcile work schedules with the activities of the rest of the family (school hours, after school activities, leisure time, etc.).

The enclave, as is apparent, has undergone a profound restructuring process since the 1970s, which has required a diverse range of actors to develop strategies for the reorganization of production, the management of labour and, ultimately, supply chain governance. In terms of economic profitability, this adaptation to the global supply chain has been a successful one. The model, however, has generated significant conflict, inequality and dispossession such that while the region could, therefore, be described as resilient, it could never be viewed as sustainable.

This Murcia agribusiness's resilience is not necessary permanent and durable. It will depend on the specific strategies adopted by different actors meeting the changes occurred in the environment, regulation, public policy, international competition, etc., that would allow them to manage better or worse uncertainties that must be answered. However, it is clear that the sector has a structural dependence of cheap and unprotected labor and of cheap and abundant water. In other words, a new regulation that seek to improve the labor (contracts and wages) and environment protection would be the end of the sector.

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