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**AGRICULTURAL CRISIS IN SPAIN  
(19th AND 20th CENTURIES)**

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## Abstract

Spanish agriculture over the last two centuries has been mostly analysed from the perspective of its evolution, on many occasions over the long term, and with respect to its contribution to Spain's economic development (or, on the contrary, its possible "responsibility" for the relative backwardness of Spain). Here, however, the emphasis is placed on the opposite case, on the difficulties or crises which have affected it. Agricultural crises are not only important for explaining difficult periods during which the population and the agricultural sector have faced problematic circumstances. They have also generated a sufficiently large impact so as to provoke a reorganisation of the agricultural sector and significant changes within it. The crisis of the *Ancien Régime* brought about a complete transformation of the predominant agrarian institutions. On occasions, technological change was fostered by crisis situations. The depression at the end of the nineteenth century gave rise to the introduction of new technologies which profoundly modernised the sector to maintain its feasibility. In the same way, international integration affected agriculture and profound changes were required in order to maintain leading positions in international markets. Therefore, without a clear understanding of the agricultural crises, it is difficult to obtain a clear and precise perspective of the profound transformations experienced by Spanish agriculture throughout history.

**Key words:** Spanish economic history, Spanish agricultural history, agricultural crises

## Resumen

La agricultura española de los dos últimos siglos ha sido principalmente analizada desde la perspectiva de su evolución, en general en el largo plazo, y de su contribución al desarrollo económico de España (o por el contrario de su posible 'responsabilidad' en el atraso relativo de España). En este trabajo, sin embargo, el énfasis se pone en las dificultades o crisis que ha experimentado. Las crisis agrarias no son solo importantes para explicar los periodos difíciles en los que la población y el sector agrario se han enfrentado a circunstancias problemáticas. También han generado un impacto suficientemente importante como para provocar la reorganización del sector agrario y cambios significativos en él. La crisis del Antiguo Régimen produjo una transformación completa de las instituciones agrarias predominantes. En ocasiones, el cambio tecnológico ha sido impulsado por situaciones críticas. La depresión de finales del siglo XIX fomentó la introducción de nuevas tecnologías que modernizaron profundamente el sector para asegurar su viabilidad. De la misma forma, la integración internacional afectó a la agricultura y exigió rotundos cambios para mantener posiciones de liderazgo en los mercados internacionales. Consecuentemente, sin una clara comprensión de las crisis agrarias, es difícil lograr una perspectiva precisa de las profundas transformaciones experimentadas por la agricultura española a lo largo de la historia.

**Palabras clave:** Historia económica de España, historia agraria de España, crisis agrarias

**JEL CODES:** N13, N14, N53, N54, Q11

## **1. Introduction: What is an agricultural crisis?<sup>1</sup>**

In 1935, in Berlin, Wilhelm Abel published the first book on the history of European agriculture covering the period between the early Middle Ages and the beginning of the twentieth century. It was titled *Agricultural Fluctuations in Europe from the Thirteenth century to the Twentieth century*. This book was a pioneer in quantitative economic history in Europe due to its systematic use of serial data regarding prices, wages or production. Another of its relevant contributions, as its title indicates, is the central role that it gives to crises to explain the path of European agriculture over an extensive chronological time period.

Therefore, it would be appropriate to begin by determining what an agricultural crisis is. During the pre-industrial period, there was a clear link between crises and the abrupt and sharp decline in agricultural production. The principal consequences of these crisis situations were price increases and significant difficulties for the population to access an adequate diet. In a context of precarious standards of living, these crises usually gave rise to high mortality rates, not only due to hunger, but mostly because of the low resistance of undernourished people to illness. Given the importance of the agricultural sector in the economy during this period, agricultural crises were systemic, as their impact was high and they affected all economic activities. On the other hand, it is essential to take into account the institutional framework within which these crises occurred.

The nature of the agricultural crises fundamentally changed from the mid-nineteenth century. Although the food crises of the early decades of the nineteenth century still shared many similarities with those of the industrial era, they disappeared during the second half of the century. The nature of the crises changed due to the profound transformation of the institutional framework which was shaping a capitalist market economy. Furthermore, the industrialisation and modern economic growth process that took place was fundamental for two reasons. First, because it

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represented a substantial increase in per capita income, which, in turn, gave rise to a significant improvement in calorie intake and a profound dietary diversification. On the other hand, agriculture lost substantial weight in the economy which meant that the sector's problems had a lower impact on other activities. A further change was Spain's increasing integration into the international economy also represented a noteworthy change. For these reasons, the agricultural crises during the last two centuries took a different form. Some of them, such as the depression at the end of the nineteenth century, the crisis of the 1930s or the one in the 1940s were highly conditioned by the international context, which to a great extent explains them. Others, such as the crisis of traditional agriculture from the mid 1950s until the 1970s, were mainly caused by the changes in other economic sectors and new technologies. Agricultural policy also helps to explain the difficulties encountered in the 1930s and 1940s. Finally, the environmental problems generated by agricultural development are the result of the growth model adopted. From the mid-nineteenth century, the problems of shortages started to disappear, with the unusual exception of Spain during the early years of the Franco regime. Meanwhile, overproduction and difficulties to sell crops at viable prices increased and from the beginning of the twentieth century the introduction of new technologies became necessary.

Agricultural crises are not only important for explaining difficult periods during which the population and the agricultural sector have faced problematic circumstances. They have also generated a sufficiently large impact so as to provoke a reorganisation of the agricultural sector and significant changes within it.

The crisis of the *Ancien Régime* brought about a complete transformation of the predominant agrarian institutions. The market established its hegemony as the principal allocator of resources, but was challenged from the post Second World War period due to the increased role of the State and the agricultural policies. On occasions, technological change was fostered by crisis situations. The depression at the end of the nineteenth century gave rise to the introduction of new technologies which profoundly modernised the sector to maintain its feasibility. In the same way, international integration affected agriculture and profound changes were required in order to maintain leading positions in international markets.

Therefore, without a clear understanding of the agricultural crises, it is difficult to obtain a clear and precise perspective of the profound transformations experienced by Spanish agriculture throughout history.

## **2. Agricultural crises in a capitalist economy**

Spanish agriculture over the last two centuries has been mostly analysed from the perspective of its evolution, on many occasions over the long term, and with respect to its contribution to Spain's economic development (or, on the contrary, its possible “responsibility” for the relative backwardness of Spain)<sup>2</sup>. Here, however, the emphasis is placed on the opposite case, on the difficulties or crises which have affected it.

This does not preclude attempts to find a long-term logic in which to insert the above-mentioned crises. Furthermore, the impact that these crises had was sufficient to generate a reorganisation of the agricultural sector. Their effects have often given rise to processes of change and transformation.

In order to understand the agricultural crises in a capitalist economy undergoing an industrialisation process, as was the case of Spain from the mid-nineteenth century, it is crucial to first take into account the profound change involved in transforming the sector from an agriculture that had difficulties in providing a regular and sufficient food source to the population to a hyperproductive sector which was even able to export a substantial part of its output. The other side of this change is the shift from a highly energy efficient sector to an inefficient one, or from an activity which, while anthropising the natural environment, had a limited impact on it in terms of waste generation and pollution to one which was aggressive towards its environment with a high capacity to pollute it.

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<sup>2</sup> This has generated an intense debate. For the most recent, see the contributions of Pujol *et al.* (2001), Llopis (2002), Palafox (2002), Pascual and Sudrià (2002), Simpson (2002), Pinilla (2004), Clar (2008), Clar and Pinilla (2009).

This double transformation was not unique to Spain, but was also the case for the other developed countries (Grigg, 1992; Federico, 2005). The causes that explain it are not unique either, although obviously each country has their own differentiating characteristics (Clar *et al.*, forthcoming).

However, in this study, we wish to highlight the crises or difficult circumstances which have marked out this path of change and growth. A good part of the crises suffered by Spanish agriculture have given rise to different kinds of changes which, consequently, have been able to condition the subsequent development of the sector. Their repercussion on the Spanish economy as a whole has varied, both due to the weight of the sector within the economy and to the characteristics of the different crises.

The very nature of the crises that are to be studied is not uniform. Institutional change, imbalances between demand and supply, competition with the output from other countries or different types of misalignments in production have played a crucial role, although highly varied, throughout the crises. Therefore, it is advisable to analyse them separately in order to understand their most salient features. Common elements to all of them reside in the imbalances or problems generated by a capitalist type of agriculture with a notable presence in the international economy.

From this perspective, the starting point should be the rupture caused by the disappearance or profound transformation of the agricultural institutions of the *Ancien Régime* which prevailed in most of Spain to a greater or lesser extent at the end of the eighteenth century. This rupture means that from approximately the mid-nineteenth century there was an agriculture with playing rules that were established within an institutional framework that was radically different and defined by what we consider to be a capitalist economy, in which the market sends the signals through prices which determine the behaviour of the economic agents.

But this institutional framework has not remained unchanged since the nineteenth century. The central role of the market was limited considerably as in most developed countries the depression of the 1930s gave rise to a new era of governmental interventionism in the agricultural sector which significantly restricted the role of the market (Federico, 2012a; Pinilla, 2009). The United States from the beginning of the 1930s and the majority of European countries

from 1945 took a decisive turn. In the most developed countries of Western Europe, this translated into an intense regulation of the agricultural sector and the implementation of policies to support agricultural income (Brassley *et al.*, 2012; Martiin *et al.*, 2016). In Eastern Europe, public intervention in agriculture was much more radical as within the construction process of the centrally-planned economies, it involved the collectivisation of the land and the abolition of the market as a mechanism for allocating resources.

In the case of Spain, the analysis of agricultural policies is crucial (Gallego *et al.*, 2010). For example, the rigid and suffocating interventionism of the Franco regime constitutes a significant turning point with respect to the preceding decades; although this approach subsequently changed to become more aligned with the Western European policy of supporting agricultural incomes (Fernández, 2008). Spain's integration into the European Union finally meant the adoption of the common agricultural policy in 1986 which consolidated this line of action even further.

However, it is not only the institutional framework that is important for understanding the different crises experienced by Spanish agriculture over the last two centuries. The growing integration of the Spanish economy, together with its agriculture, into the international economy, is also a key element. Spanish agriculture participated in the economy of the first wave of globalisation, both as an exporter and importer of agricultural products. The exporting possibilities were determined by supply due to its competitiveness and the evolution and adaptation of the demand to it. The trade policies of these countries may have also affected the exporting possibilities (Pinilla and Ayuda, 2002; Pinilla and Serrano, 2008). Similarly, agricultural imports into Spain were determined by the evolution of its income, the competitiveness of Spanish production and the trade policy developed (Gallego, 2001a). Both imports and exports were facilitated by the reduction of the obstacles to trade, due to the fall in transport costs, the liberalisation of trade or other factors (Findlay and O'Rourke, 2007; Jacks, 2006; Jacks *et al.*, 2011). From 1914, a succession of serious phenomena on the international arena, such as the world wars and the depression of the 1930s, represented the end of the first

wave of globalization (Hynes *et al.*, 2012). This seriously affected the international integration of Spanish agriculture in some types of products, while in others the effects were more limited.

After the Second World War, a second wave of globalisation began to emerge. In Spain, a reorganisation of the sector took place after the Civil War, however, within a context of strong isolation, partly sought by the dictatorship and partly forced by the political circumstances and international situation. The isolation from the outside was gradually corrected and mitigated, particularly after the beginning of the 1960s and ended completely upon Spain's entry into the European Union in 1986 (Clar *et al.*, 2015).

Finally, technological change is another key variable to take into account. From the beginning of the nineteenth century, agricultural technology not only changed significantly with respect to the previous centuries but a profound technological rupture also took place. Unlike other sectors of economic activity, mainly industry, this technological rupture occurred several decades after the beginning of the industrial revolution, from a technological point of view. During a good part of the nineteenth century, the increase in agricultural productivity was determined by the adoption, in countries with the right environmental conditions, of innovations developed in the preceding centuries in Great Britain and the Netherlands. However, from the mid nineteenth century, agricultural machines began to be developed which in the long term would completely change agriculture. Similarly, other innovations, such as the use of inorganic or chemical fertilisers, biological innovations in the seeds used or new livestock production methods, reinforced the idea that this technological rupture was to be much more profound from the first third of the twentieth century. The problems and crises faced by Spanish agriculture during the last two centuries are not unrelated to this technological change which has progressively accelerated over time. The competitiveness of the sector, the response options of producers to changes in demand, was largely determined by the successive technological innovation clusters that could be accessed by agriculture. This technological change is also crucial for understanding the increasing capacity of the sector to affect and serious damage to the environment.



### **3. The agricultural crisis of the Old Regime and the fluctuating liberal agrarian reform**

As is well known, the principal objective of the liberal revolution consisted in establishing the legal framework of a new society free from legal and institutional obstacles for developing capitalist relations of production (García Sanz, 1985). Despite its institutionally rupturist nature, we should regard it as a continuance of a series of changes initiated in the last third of the eighteenth century. Its fundamental elements were the establishment and consolidation of new property rights and the transfer of rural estates from collective institutions, mainly the Church and local councils, to individuals.

These types of transformations were common throughout most of the European continent. Inevitably, friction arose between the interests of those who benefited from the characteristic institutional framework of the society of the Old Regime, mainly the aristocracy and the Church, and those of the emerging groups, particularly the bourgeoisie, the peasants and the comfortable farmers. The opposition to the old institutional framework included very different interests and approaches. Therefore, while the bourgeoisie was inspired by a liberal paradigm, the peasants and the farmers, also interested in this type of reforms, were in favour of a more radical path of change. We are therefore contemplating a case in which there were clearly distributive disputes. The different social groups clashed over the definition of the economic institutions (Acemoglu *et al*, 2005). That said, the nature of these disputes was also important so that economic growth could occur. In Europe, there is evidence that the countries which implemented the necessary changes decisively and early on benefited from a faster economic growth a few years later (Acemoglu *et al.*, 2011). Therefore, the so-called crisis of the Old Regime can be evaluated from this double perspective: on the one hand, in terms of the conflict between the old and new interests which gave rise to a fundamental change in agricultural society and the distribution of output; and, on the other hand, in terms of the consequences for economic growth.

Starting with the latter issue, in the Spanish case, the fluctuating nature of the liberal agrarian reform, which lasted for almost half a century until it became definitively consolidated, was not an element that favoured growth. It was a necessary condition for growth and the process

was very slow, with too many setbacks and hesitations. The process began during the war of independence. This gave rise to the end of the absolutist state which prompted the peasant population to question the economic and social organisation of the *Ancien Régime* (Llopis, 2002: 174-175). In 1812-13, with the Cadiz courts and during the Liberal Triennium (1820-23) there were decisive moments in which more radical measures were taken which would later prevail. The bulk of the changes took place between 1836 and 1840. However, it was not completed until the measures of 1845, the tax reform, the Progressive Biennial laws (1854-56) and the mines law of 1868 were implemented.

On the other hand, from a distributive perspective, it can be said that the crisis and reforms were varied and enabled both the restructuring of stately old haciendas and forms of management and the extension of peasant properties and the access to ownership by a new bourgeoisie. This spatial heterogeneity in the results could be highly conditioned by the characteristics of the different rural societies at the end of the Old Regime (Gallego 2001b: 17-20)<sup>3</sup>. In other words, it was influenced by the local interests and the correlation of the existing forces, which could have generated results that are apparently diverse yet coherent with this correlation (GEHR, 1994). On the other hand, we should not forget that there was a common regulatory framework which these groups were not able to modify. Therefore, there would have been coordination between general policies and local interests. The crisis could have consolidated sizeable assets at the end of the eighteenth century, but the liberal agrarian reform was also an operation that could not be easily controlled (Millán, 2000). The sectors linked to agrarian individualism at the end of the old regime were not the only winners and differing results were observed. The outbreak of the war and the invasion facilitated the sometimes subversive nature of the revolution, creating space for the

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<sup>3</sup> Over the last few decades there has been an intense historiographic debate about this issue. The first observations of Fontana (1978) or García Sanz (1985) suggested that it was the former lords who were the great beneficiaries of this process, which Fontana likened to the Prussian path in contrast to the French path which was much more favourable for the peasants. Some regional perspectives questioned this view, such as in the case of Ruiz Torres (1985) or Calatayud and Millán (2010) for Valencia (analysis of regional cases in Saavedra and Villares, eds., 1991). Llopis (2002: 182) seeks to provide a more nuanced overall picture emphasising for a good part of Spain, the favourable position of the lords but also pointing out the characteristic features of the Crown of Aragon, where lease cessions were predominant and the intermediate rural groups had a considerable weight.

people's grievances, which enabled the agrarian model to be modified, particularly with respect to the access to irrigation or communal assets. In short, it could be concluded that the crisis did not necessarily mean dispossession for the weakest sectors of rural society as opportunities also arose for the peasant population (Millán, 1993).

It is important to note that the crisis of the Old Regime had a fundamental consequence for the future of Spanish agriculture: a new institutional framework in which to develop. This is undoubtedly its principal effect. Therefore, the transformations, changes or crises thereafter would occur within a different institutional context that would modulate and condition the future growth possibilities and the distribution of this growth among the different participating agents.

The crisis of the Old Regime could have had extremely significant sectoral and territorial consequences. An example is the case of wool and the fall in its exports during the first third of the nineteenth century which occurred during the transhumance crisis and in line with the growing competition of wool from abroad. The transhumance crisis is directly related to the end of the Old Regime. Specifically, the end of the privileges of the Spanish *Mesta* (association of sheep owners) gave rise to a considerable increase in the price of pastures for the winter, which had to be hired on the market. Furthermore, from 1810, the Castilian wools had to compete with Saxon wools in the main European markets. The result was a considerable reduction of the Castilian transhumance flock which fell from 4 million sheep at the end of the eighteenth century to just 1.1 million in 1838 (Llopis 2002: 191). The situation outside of the *Mesta* routes was no different. For example, in the case of Aragon, a similar process took place which significantly reduced its transhumance flock (Pinilla, 1995). The parallel increase in the stationary flocks, driven by the domestic market, led to a restructuring of Spain's livestock sector with the increase in the use of mules in agriculture being particularly noteworthy.

In addition, the loss of the American market due to the independence of the new republics can also be placed in the context of the crisis. They were affected by the disintegration of the empire and those sectors or regions most closely linked to this market suffered the situation to a greater degree (Prados de la Escosura, 1988: 67-94).

#### **4. The persistence of food crises**

Food shortages during the first half of the nineteenth century were not an exceptional feature of Spain within the European context<sup>4</sup>. Even in 1840, the availability of enough food for the population was a weak point in the economic prosperity of Western Europe (Vanhaute et al, 2007: 19). Nonetheless, and with respect to the previous century, there was an overall improvement. In fact, from the end of the 1820s, there were no serious food crises in Europe until the end of the 1840s, thanks to the improvement in agricultural productivity and in transport and communications. Despite this, there are doubts regarding the scope of these improvements in productivity, and it is estimated that 10% of the low income population was still structurally malnourished. This more favourable situation emerged within a context of improved trade terms of agricultural products due to the fall in prices of industrial products and the reduction in subsistence production, which implied that a growing part of output was sold on the market. However, in the 1840s, and particularly in the years 1845-48, the situation changed dramatically, especially in certain places such as Ireland. The whole of Europe suffered the potato plague of 1845 simultaneously and then the poor harvests of the main cereal crops in 1846. Nevertheless, this serious food crisis had traditional characteristics and other more modern features such as the fact that it occurred in a context of considerable market integration and a significant trading of foods between countries (Vanhaute et al, 2007: 38).

In Spain, and also in Europe, the food crises at the beginning of the century (1803-1805 and 1811-1812) were followed by a relatively calm period. According to Barquín (2003), the price increases of 1825 and 1837-38 do not fall in the food crisis category. The crisis of 1847 coincided with the critical situation that most of Europe was undergoing at that time. It is perhaps more remarkable that serious situations that we would consider as food crises could have occurred as late as 1856-1857 and 1868.

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<sup>4</sup> The pioneer study on the food crisis in Spain in the nineteenth century is Sánchez Albornoz (1963).

These crises took place in Spain in a context of expanding agricultural production, which can be seen as a prolongation of the extensive growth experienced in the eighteenth century, but facilitated by the institutional changes of the liberal agrarian reform (Llopis, 2002). Support for the expansion of domestic production explains the prohibitionist policy with respect to wheat imports which was implemented in 1820. Its effect during the following two decades was that wheat prices in Spain were somewhat higher than international prices (Gallego, 2005: 267-269). However, once Great Britain had abolished its Corn Laws and became a large wheat importer, the international prices began to rise<sup>5</sup>, which meant that from the 1830s, the prohibitionist policy would not represent any significant differences in the levels of wheat prices with respect to those abroad (Gallego, 2004).

However, the wheat trade policy generated problems in the years of shortage as it was slow to react when prices rose. Furthermore, during the price increase, exports of grains took place (Gallego, 2005: 272-273). This situation was more serious for inland regions which, due to their lower prices and higher transport costs, suffered greater shortages than peripheral regions during times of crisis. Neither exports prior to the food crises, which were considerable, or the imports which took place once prices reached a sufficiently high level, were decisive in the price formation processes of wheat, which were fundamentally determined by the harvest movements. A less restrictive import policy would have enabled a more regular supply during times of crisis (Barquín, 2003). It could be said that the prohibition, as well as having social costs<sup>6</sup>, was not vital for maintaining the interests of the cereal producers, as even with a less rigid policy, Spanish prices would not have moved too far away from international prices after the British abolition of the Corn Laws (Gallego, 2005: 278). As in other European countries, the strong wheat

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<sup>5</sup> This abolition significantly changed the nature of the international wheat market. A new change occurred decades later when the most relevant factor for determining prices was no longer British demand but the level of North American exports (Ejrnaes *et al.*, 2008).

<sup>6</sup> Many studies have highlighted the intense social conflict generated by food crises. For example, for the crisis of 1847, see Díaz (2003). The revolts of the Progressive Biennial in Moreno (2003), Pinilla (1985), Sánchez Albornoz (1963). For an overall view of Europe regarding the connection between this type of crisis and the 1848 revolutions, see Berger and Spoerer (2001).

protectionism was a response to the fall in prices after the Napoleonic wars and the owners' concern about the fall in their income (Federico, 2012b). However, it should be understood that the solution that was adopted tended to profit the ownership laws that had been recently acquired or consolidated in the liberal agrarian reform. The supply of food to the population became a secondary priority after these types of considerations.

### **5. The integration of world agricultural product markets: the end-of-the-century depression**

From the end of the first third of the nineteenth century, an increasing international integration of the Spanish agricultural sector occurred. This took place mainly through a growth of exports to more advanced countries and of imports that were not competitive with domestic output. As previously mentioned, in the case of wheat, the market was “naturally” protected by its high international prices (Gallego *et al.*, 2010: 89-91).

This occurred in the context of the beginning of the first wave of globalisation (O'Rourke and Williamson, 2002). The international trade of agricultural products grew significantly due to the increase in demand caused by the rise in income in countries undergoing an industrialisation process, the increase in supply generated by the incorporation of technological change and the effects of the globalisation process on trade, basically the falling transaction costs generated by the reduction in maritime and land transport costs and the liberalisation of trade with the subsequent reduction in customs barriers.

The end-of-the-century agricultural depression was precisely the result of the growing integration of the international agricultural products markets. The arrival to the continent of agricultural products from the Russian Empire or the American continent with lower prices than those of domestic output, called into question the feasibility of many farms. The responses of the different European countries were varied and ranged between the adoption of protectionist measures, the reorientation of production and attempts to increase productivity by incorporating more innovative technology (O'Rourke, 1997; Lains and Pinilla, 2009).

In Spain, the crisis had two very different sides. On the one hand, the increased competition in the domestic markets of fundamentally agricultural products such as cereals or livestock, led to the demise of many farms and a significant increase in emigrations from the countryside to the Americas (Sánchez Alonso, 2000). Production contracted as a consequence of the abandonment of large areas of land and reduced dedication to farming in an attempt to bring down production costs. Given the large size of the agricultural sector in the Spanish economy, the intensity of the crisis had significant consequences (Jiménez Blanco, 1986). Therefore, the first measure taken in order to counter the difficulties in the short term was an increase in customs protection through the *Arancel Cambó* of 1891, followed by other subsequent measures. The main objective was the protection of wheat production and processed agricultural products (Gallego, 2001a and 2003). Second, it was necessary to modernise production. This was achieved through the implementation of the new technology which had been developed in the United States since the mid nineteenth century and was appropriate for the ecological conditions of most of Spain. The introduction of machinery and chemical and inorganic fertilisers, the beginning of seed selection processes and the introduction of new varieties were the most salient factors of this process, together with the expansion of irrigation either through the construction of canals and reservoirs by the State or the extraction of underground water by the farmers themselves. Finally, the difficulties encountered by the wheat sector fostered a significant reorientation of land uses. Here, the expansion of vegetable crops or fruit trees which were highly-export oriented can be highlighted. Furthermore, in other areas, sugar beet or forage plants to feed livestock replaced wheat on the irrigated land.

But the crisis also affected the most dynamic and buoyant sectors of Spanish agriculture that were enjoying notable success in foreign markets, namely wine and oil.

Wine exports had experienced spectacular growth as a consequence of the phylloxera plague affecting French vines from the end of the 1870s (Chevet *et al.*, forthcoming). The replantation and recovery of the French vineyards did not imply an enormous reduction in imports, as they used grape varieties that produced wines with a pale colour and low strength, so mixing them with more alcoholic wines was essential. From 1891, exports to France faced

discriminatory customs tariffs as a result of the political preference of this country for Algerian wines with similar characteristics to the Spanish wines and which were fundamental in the colonisation process in the north of Africa (Pinilla and Ayuda, 2002). Things got even worse at the end of the century when a temporary authorisation for Spanish wines that had been in force since 1891 expired. The contraction in exports was brutal. The customs policies of other importing countries, such as Argentina or Uruguay, to support domestic production aggravated the situation even further (Pinilla and Serrano, 2008).

In the case of oil, export growth had been based largely on the industrial use of olive oil. At the end of the nineteenth century, however, the replacement of this product with industrial oils and fats delivered a hard blow to Spanish exports. The growing competition in the food applications of olive oil with other vegetable oils accentuated the problems (Zambrana, 1985; Ramon, 2005).

The crisis and the policies adopted in response to it gave rise to a polarisation between two types of agriculture in Spain. One was oriented towards and dependent on external markets. It was therefore interested in gaining easy access to them which required both a trade policy that facilitated the entry of their exports and a higher level of productivity. The other agriculture was related more to the domestic market. Although the improvement in productivity was an indisputable requirement to ensure its continuity, the demand for a sufficient level of protection to be able to compete with more efficient producers was also a key factor.

## **6. Agrarian crisis in the 1930s?**

The international economic crisis, which began in 1929 and lasted for the whole of the following decade, severely affected agriculture. Although production did not plummet, it basically stagnated during this decade and agricultural prices fell considerably (Federico 2004 and 2005). The fall in prices in countries such as the United States, where farms were heavily in debt, led to a profound crisis in agriculture, giving rise to forced migrations, the closure of farms and an acute deterioration of the standard of living of the rural population. Another feature of the crisis was the contraction of international trade. Although the volume of the quantities traded did



not fall significantly throughout the decade, their prices fell considerably (Aparicio *et al.*, 2009). Therefore, there was a double possibility of problems for exporters of agricultural products. For those whose exports corresponded to products with a greater fall in volume or prices, the problems were more relevant.

In the case of Spain, the production of agricultural products stagnated with no significant decreases while prices fell slightly (and decreased with respect to the prices of manufactured goods) (Comín, 2011). Agricultural production oriented towards the domestic market could have benefited from the increase in real wages that took place from the beginning of the 1930s, especially in the case of the products with an elasticity of demand with respect to higher income (Carreras and Tafunell, 2003: 256).

From the point of view of external trade, the Spanish policy sought to avoid the entry of agricultural product imports, particularly cereals. The volume of imports contracted by around 20% between 1929 and 1935. However the volume of exports was also seriously affected by the problems in the destination countries, falling by a slightly smaller amount (Gallego and Pinilla, 1996). As the prices of the exported agricultural products behaved better than the imported products, the coverage ratio of agricultural exports with respect to imports improved during the crisis years (Pinilla, 1995: 163). The impact of Spanish exports on agricultural products varied. At the beginning of the crisis, in 1929-1930, the Spanish exporters of Mediterranean fruit and vegetables obtained their historical maximum sales volumes, both in current and constant values. However, after 1931, their sales fell significantly, as did their prices after 1932 at a rapid pace, although slightly less than overall agricultural prices (Pinilla and Ayuda, 2009 and 2010). In the case of wine exports, the tightening of the French trade policy generated a severe contraction of exports (Pinilla and Ayuda, 2002: 68-71).

During the 1930s, a crisis on a social level emerged in the countryside. The reformist policies of the centre-left republican governments, the profound inequality suffered in many rural areas, particularly visible in the distribution of land ownership and the will of many social agents to improve their situation, generated a high level of tension in some parts of rural Spain which reached its highest point with the fight for agricultural reform (Malefakis, 1976). However, this

opposition was made up of many other facets particularly related to the resistance to apply the new agricultural legislation approved by the first republican governments which affected mainly the hiring of labour and conditioned the management of farms and increased wage costs (Comín, 2002: 302-306; Domenech, 2012). In the case of the agrarian reform, despite its slow and scarce application, at least until February 1936, the large rural landowners felt that their rights were being threatened and developed an intense opposition on many different fronts.

### **7. Autarchy, black market and the technological backwardness of the early years of the Franco regime: Crisis in traditional agriculture or crisis in the modernisation process?**

The Spanish civil war had a severe impact on Spain's economy<sup>7</sup>. This is usually the case in these types of situations (Collier *et al.*, 2003). The Spanish case is exceptional because it took an extraordinarily long period time for things to return to normal. The policy followed by the Franco regime has been identified as the main cause for this, particularly the repression and exile of the highest qualified segment of the workforce, the high military costs and difficulty in importing capital goods (Rosés, 2008).

In the case of agriculture, the considerable drop in the volume of production that occurred in 1936 was followed by generally lower values in the subsequent years (Martínez, 2006)<sup>8</sup>. The pre-war levels of production were not regained until 1951 (and lower output levels were still obtained in 1953, 1955 and 1956). The contraction in labour productivity was brutal. Throughout the 1940s, this was, on the whole, lower than pre-war levels by more than 30% and the pre-conflict levels were not obtained again until 1962 (Prados de la Escosura, 2003)<sup>9</sup>. Characteristic levels of the first decade of the twentieth century were then regained. The other available indicators provide data that is equally bleak: a fall in production per hectare, the abandonment of

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<sup>7</sup> The recent estimate by Rosés (2008: 345-346) calculates that its cost was somewhat higher than GDP for the whole of 1935.

<sup>8</sup> However, the destruction caused by the war to crops, means of production, livestock and installations was limited, with the exception of draught animals. See Barciela (1986), pp. 383-386.

<sup>9</sup> See data on this fall in agricultural production and productivity for Aragon in Clar and Pinilla (2011a).

land, a fall in the use of machinery with no replacement of obsolete or broken machines, a fall in the level of fertilisation per hectare, a severe reduction in real agricultural wages, delays in agricultural research and innovation, a strong contraction of exports of the products in which Spain had leadership positions in the world market. All of this suggests that what was taking place was more than a crisis in the traditional agriculture and was more related to a crisis in the agricultural modernisation process that had been in progress since the depression at the end of the nineteenth century<sup>10</sup>. The innovation progress stopped completely, giving rise to a spectacular technological backwardness (Fernández Prieto, 2007). At the same time, hunger returned to the Spanish rural areas, while a formidable black market emerged as an alternative to the failed policy to force the sale of output, particularly basic foods, at prices too low to be able to expand supply profitably (Barciela, 1986; Christiansen, 2012).

Such a profound and long-lasting collapse of agriculture can be explained by the combination of the extraordinary consequences caused by the world war, a critical situation generated by the international isolation resulting from Franco's policy of aligning with the Axis powers and an economic policy which was grossly interventionist and deliberately isolationist.

In terms of agriculture, the war mainly affected livestock, which reduced considerably and in a context plagued by difficulties to replace machinery or to import new machines, this seriously affected the crops and meat production. With a substantial reduction in the availability of organic and inorganic fertilisers and the complete halt of rural-urban migration, productivity experienced a huge setback. Meanwhile, wages dropped as a result of the abundance of labour and the dictatorial framework in which labour relations were developed. All of this affected the production of basic foods which did not meet demand. The creation of the National Wheat Service to control the purchase of basic products, assigning obligatory quotas of production, acquired at low prices, pushed production levels down even further. This output was sold on the market

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<sup>10</sup> For a study on the continuity of the transformation process, see Clar(2008).

through the official channels, determined by rationing and also through a flourishing black market which was tolerated by the authorities (Barciela, 1986: 393-398).

The crisis completely paralysed the process of technical transformations that had begun after the end-of-the-century agricultural depression. The Spanish agricultural sector returned to productivity levels characteristic of the beginning of the twentieth century and although this process did not come to a complete standstill it was substantially delayed (Clar, 2008).

### **8. The final crisis of traditional agriculture**

From the beginning of the 1950s, there was a gradual return to the transformation process that had been interrupted by the war and previous crisis. This was facilitated by the change in agricultural policy from 1951 (Barciela, 1986: 416-434), the end of Spain's international isolation, the arrival to Europe of the technology previously developed in the United States and the strong economic growth of the European continent.

From the mid 1950s and during the successive decades, Spanish agricultural production experienced rapid growth. This growth occurred in a context of a slight increase or fall in the use of land and labour and a significant increase in the use of capital. Consequently, the overall productivity of the factors or labour productivity experienced impressive growth, not only comparable to that of the other western European countries but somewhat higher (Martín-Retortillo and Pinilla, 2015a and 2015b). If the increases in production and productivity were among the highest in Europe, can we talk about a crisis? There was no crisis in the agricultural sector, in fact, it was experiencing explosive growth. However there was a final crisis of the traditional agricultural model upon the completion of a series of changes that had been implemented earlier which had come to a complete standstill due to the war and the problems of the 1940s. The new agricultural model was to be based on an intense capitalisation process, an enormous reduction in the use of the labour force and a complete transformation of the function of production.

The traditional production methods that still prevailed or that had re-emerged as a result of the problems in the 1940s disappeared from the Spanish countryside. The end of this traditional

way of life and, most of all, the ensuing rural exodus took the form of a radical crisis in those areas where the intensity of the emigrations was so great that they gave rise to intense processes of rural depopulation (Collantes and Pinilla, 2011).

The other side of this situation was an intense mechanisation of the agricultural activity, an intensive use of means of production such as inorganic and chemical fertilisers, pesticides, new varieties of hybrid seeds and a formidable extension and improvement of irrigation.

The results of all of this was an agricultural sector that was much more closely linked to the industrial sector for the purchase of inputs and the sale of its output to be transformed in the agro-industry, a higher agricultural income due to the strong growth in productivity (higher even than that of other economic sectors), a strong rise in the percentage represented by livestock production of total agriculture (determined by the emergence and boom of the new intensive livestock farming) and a clear dependence on the financial sector for obtaining the necessary capital (Clar and Pinilla, 2009). From the institutional point of view, although the crude interventionism of the 1940s was softened, the surge in intervention and regulation policies in agriculture also affected Spanish agriculture in a similar way as in other developed countries (Fernández, 2008; Pinilla, 2009).

The acceleration and culmination of the industrialisation process in Spain played a key role in the final modernisation of Spanish agriculture. Industry and the cities, which were experiencing strong demographic growth, were demanding labour which caused a mass exodus from the rural areas. At the same time, the strong increase in per capita income generated a profound change in the diet of Spaniards, with an increase in products with higher income elasticity. The production of livestock products such as meat or dairy goods increased considerably as did that of animal fodder, and they became the drivers for the growth of the agricultural output. Similarly, fresh fruit and vegetables also experienced significant increases in production (Clar and Pinilla, 2011b; Collantes, 2014). The interactions between agriculture and industry were also reversed. The agricultural sector became an important purchaser of industrial goods, especially machinery, but also fuel, fertilisers or phytosanitary products.

From the mid-1950s, Spanish agriculture returned to being a sector with enormous export potential, although the misalignments between demand and supply, partly explained by the errors in the agricultural pricing policy, determined that during a good part of the 1960s, the agricultural trade balance was negative. After the 1970s, particularly after Spain's entry into the then European Community, Spanish agriculture reinforced its traditional exporting vocation, occupying a leading position in international markets in many products (Clar *et al.*, 2015; Serrano *et al.*, 2015).

In short, the technological supply for agriculture which was available from the beginning of the 1950s, the culmination of the industrialisation process in Spain and the growing connection with the international economy rendered the social and technological model of the country's traditional agriculture unfeasible.

### **9. The sustainability of modern agriculture: an environmental crisis?**

The agricultural model that finally triumphed is radically different to the so-called traditional agriculture. The intensive use of industrial inputs, particularly machinery, fertilisers, phytosanitary products or fossil fuels is fundamental. This implies three types of consequences with highly significant environmental effects<sup>11</sup>.

On the one hand, the current agricultural model is highly inefficient in terms of energy consumption. The Achilles heel of its large productive capacity is an energy output lower than the energy consumed through its inputs (Naredo, 1996: 303-412; Guzmán and González de Molina, 2006). This has important consequences regarding the land itself, particularly the so-called “territorial unhinging” (or absence of an integrated use of the territory) with significant environmental effects (Tello, 2010).

A second consequence, and a much more short-term effect, is its highly polluting capacity. It is not only the intensity in the use of machinery and other inputs that generates the emission of gases and polluting particles, but the intensive use of chemical fertilisers also

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<sup>11</sup> An overall reflection on the environmental impacts and effects of the agricultural transformations of the nineteenth and twentieth centuries in González de Molina and Guzmán (2006).

contributes to diffuse pollution through nitrates and phosphates (Sánchez-Chóliz and Duarte, 2003). Its contribution to the deterioration of the quality of the waters is also significant.

Finally, the increase in agricultural output has tended to be concentrated in the irrigated areas, given the highly arid nature of a good part of the Spanish territory (Clar *et al.*, forthcoming). The major expansion of agricultural production that took place in Spain since 1860 and 2010 led to growing needs of water resources. Water consumption more than doubled during these years involving an important challenge in Spanish water management. Today, Spain is among the countries with the largest irrigated area, with more water bodies environmentally stressed worldwide and has one of the largest water footprints in the world. In addition, the reservoir capacity has seriously increased (Duarte *et al.*, 2014; Cazcarro *et al.*, 2015a). Therefore, the intense regulation works which have been undertaken have severely affected the natural water cycle in most of Spain's waterways as well as the basins of the regulated rivers and the population that resides therein (Cazcarro *et al.*, 2015b). Furthermore, the salinity of the soils, already high in some areas, has increased substantially due to the implementation of irrigation<sup>12</sup>.

The relationship between agriculture and the environment has therefore been substantially reconsidered as a result of the changes and transformations experienced by agriculture, particularly during periods when these changes have been most prevalent, such as the second half of the twentieth century.

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<sup>12</sup> In the Ebro Basin, as well as these problems (300,000 hectares with serious salinisation problems) the impact on the very survival of the Ebro Delta has been identified. See Pinilla (2006) and Ibarra *et al.* (2008).

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