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JEL Classification: N54; N53; Q15

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Was Land Reform Necessary?

Access to Land in Spain, 1860 to 1931

1. Introduction

There are two views of land reforms in the literature today.¹ Advocates of government-initiated land redistribution argue that the operation of land markets in developing countries, including both land sales and tenancy markets, is conducive neither to social equity nor economic efficiency. Cultivation rights and the concentration of land tenure observed historically across countries are an outcome of power relationships. Powerful landowners employed their capacity to coerce and distort markets to extract economic rents from tenants, peasants and laborers, and land sales transactions tended to exacerbate inequality and rural poverty by making it possible to concentrate land tenure in the hands of a few wealthy landowners (Deininger, 2003). In their view, given the failure of land market to reduce the skewed land distribution, a land reform that redistributes the land from landowners out to small farmers in small plots would lead to an increase in overall production and welfare (Binswanger et al., 1995). However, an increasing literature is skeptical about the advantages of this kind of redistributive intervention because it exacerbated social conflict and generally failed to improve land use efficiency and social equity (De Janvry et al., 2001; Otsuka, 2007).² For this reason, many policymakers and academics promote market-oriented reforms,³ expecting that well-functioning land markets would generate a “spontaneous” redistribution of land from inefficient to efficient producers.

These two alternative views about land reform also have contradictory views on the scope of land redistribution. For those favoring government-initiated land reform, the final objective of any land reform should be the creation of an agrarian landscape of small and medium-scale farms. As much as possible, these farms should be family-owned, self-sufficient and independent from labor markets. Instead, advocates of market-oriented reforms have as an objective that

¹ There are numerous surveys available. See the updated reviews of Deininger (2003) and Otsuka (2007).

² Several empirical studies comparing the effect of land redistribution and land sales showed that the operation of markets had been superior to land reform policies in several developing countries. See, for example, Barham et al. (1995) on Guatemala; Deininger et al. (2004) on Colombia; and Deininger et al. (2007) on India.

³ Market-oriented reforms include, among others, measures on the definition of property rights, the elimination of restrictions to the free operation of factor markets, and the development of credit markets for small peasants.

agrarian workers should have access to land ownership without abandoning the labor markets. From their point of view, the possession of any landholding, regardless of size, offers great benefits to peasants because land can be used as credit collateral and act as insurance during downturns. Furthermore, they consider that the allocation of time between self-cultivation and labor market participation is spontaneously and efficiently produced by the action of free rural factor markets.

We believe that the Spanish historical experience could be very illuminating for the current and the historical debate because Spain tried to implement both types of reforms. The Spanish countryside experienced a classical “market-oriented” land reform during the last decades of the 18th century and the first half of the 19th century, the so-called Liberal Reform. This reform secured property rights, enhanced the operation of factor markets and increased the amount of land in the market. However, during the early decades of the 20th century,⁴ the opportunity for a government-initiated land reform with the objective of redistributing land ownership from large landowners to the hands of poor peasants became a major issue in the political scene. This new land reform was approved during the Second Republic (1936), but it was never fully implemented due to the Civil War.

The main question we discuss in this article is whether this government-initiated reform was necessary in Spain because land markets were inefficient in reallocating land to landless workers. The debate over the opportunity in this land reform has been hampered by the absence of quantitative information on access to land in Spain. In this sense, our paper offers the first quantitative evidence on the amount and regional distribution of landless peasants and the causes of their reduction from 1860 to 1930. We show that the amount of landless workers decreased from about two million people in 1860 to about one million people in 1930. At the same time, the number of land tenants and owners remained quite stable at about two-and-a-half million people over the entire period. However, the intensity of this dramatic transformation varied from period to period and from region to region. The balance between landless peasants and people with land access (proprietors and tenants) changed slightly from 1860 to 1890. In other words, the liberal land reform did not produce a massive process of land redistribution. In sharp contrast, the situation changed substantially over the next forty years, from 1890 to 1930, given that the quantity of people with access to land remained stable, while the amount of landless peasants practically halved. In southern Spanish provinces (below the Madrid parallel), the

⁴ The classical account of these agrarian changes during that period is Simpson (1995). See the recent revision of Clar and Pinilla (2008).

increase in peasants with land access arrived later and amounted to less than in the northern part of Spain but was also very significant.

What could account for this dramatic change in the Spanish countryside? This process of change was not driven by any government-initiated land redistribution but by the initiative of the markets. Specifically, we argue that two interrelated market forces caused this impressive transformation. On the one hand, structural change favoring industry and services, urban growth, and foreign and home migrations drained the rural population. On the other hand, the decrease in relative land prices and the action of free land market forces⁵ eased the access of landless peasants to property and avoided concentrating land in a few hands. In other words, the ratio between rural wages and land prices was increasing in Spain, particularly in the most dynamic regions. Our new evidence indicates that access to land for landless rural workers was improving, as was their standard-of-living, during the first decades of the 20th century. It should be emphasized that, without an efficient and active land market, it is likely that the concentration of land ownership increased as a consequence of countryside migrations and the subsequent decrease in the agrarian workforce.

The remainder of the paper is organized as following. In the following Section, we present historical background on land reforms in Europe and Spain. Section 3 presents a straightforward supply-and-demand framework for understanding and analyzing land reforms. Section 4 presents data on the relative evolution of factor prices. Section 5 offers new evidence on the amount of landowners, tenants and landless workers. The following two Sections consider the causes of these changes. Section 6 discusses the importance of structural change for access to land, and the next Section analyses the role of land markets. The last Section concludes and discusses several avenues for further research.

2. Historical background of Land Reforms in Europe and Spain

European historical experience during the late decades of the 19th century and the first decades of the 20th century seems to give certain support to the idea that the free and efficient operation of land markets could improve significantly the position of landless peasants and

⁵ Carmona and Rosés (2009) have already shown that land sales and prices responded quickly to market stimulus and that Spanish land prices were driven by fundamentals. They conclude that land markets were efficient and competitive. According to a substantial literature (e.g. Otsuka, 2007), in competitive markets, land is allocated to the most efficient users, making land reforms unnecessary and detrimental for overall welfare. Thus, from the economic efficiency point-of-view, a land reform redistributing land to poor peasants was neither necessary nor efficient.

generate a 'spontaneous' (market-based) land reform. After 1873, the relative importance of larger holdings decreased while different forms of direct cultivation gained momentum in the majority of Western European Countries (Koning, 1994: 80). In spite of the new legislation in favor of small farms, the market was the main force behind the decrease in the relative importance of larger estates in France, Germany and the Netherlands (Koning, 1994: 88). Large landholders started to sell their estates between 1875 and 1895 (Swinnen, 2001). After the World War I, using the extraordinary war benefits, land sales even increased (Auge Laribe, 1923; Swinnen, 2001). In Germany, the expansion of credit led to an increase in the amount and relative importance of small family farms (Souchon, 1899, 132). In England, despite the problems of getting an accurate measure, the relative importance of large holdings decreased by one fifth (Federico, 2005) as a result of market forces (Dovring, 1965: 123). In many regions of France and Belgium, with no mechanization and population growth, the marked rise of the small family farms provoked that large scale farming, based on wage work, gradually disappeared from the agricultural scene (Van Zanden 1991: 216). Similarly, in Eastern Europe, the dismantling of large farms, to a considerable extent, happened spontaneously and independently of any measure of land reform. In Russia and Poland, many of the large estates were crumbling due to the economic difficulties of the estate owners. The same process also applied, at a slower tempo, to the Eastern German Junker estates, despite their politically favorable situation (Dovring, 1965: 122).

In Spain, the main objective of the Liberal Reform was to secure property rights and to eliminate the restrictions for the free operation of good and factor markets; therefore, it can be considered as a prototypical market-oriented reform of the 19th century.⁶ Authorities derogated the legal apparatus of the Old Regime. Feudal rights were eliminated, together with the restrictions for land sales, grain commerce and labor contracts. Many of the old forms of land tenancy that complicated the definition of property-rights were simply abolished and was established the private property of land. Furthermore, to alleviate their budget problems and to finance wars and infrastructures, successive governments put into the market the properties of the Church, the municipalities and the communal lands, which were sold in auction. According to a substantial literature, all these measures resulted in a moderate expansion of agrarian production but did not redistribute land in hands of landless peasants.⁷ Like in other European countries

⁶ See, for example, García Sanz (1985) and Peset (1992).

⁷ This absence of land redistribution was interpreted negatively by the literature. See, among others, Carrión (1975), Costa (1911-1912), Fontana (1985), Garrabou (1999), Nadal (1975), Pérez Picazo (1990), Robledo (1993), Ruíz Torres (1994) and Villares (1997). For a revision of this interpretation see Carmona and Simpson (2003).

(Koning, 1994: 63), it seems that the privatization of communal lands facilitated an increase in average landholding size and the concentration of land in hands of richer peasants (García Perez, 1993: 105-173).

As mentioned earlier, during the early decades of the 20th century, the opportunity for government-initiated land reform appeared as a matter of debate in Spain. This interventionist policy was justified for reasons of economic efficiency, social equity and the distribution of political power. Implicitly, reformers believed that land sales markets failed miserably and that the unmitigated operation of agrarian factor markets would generate persistent equity problems. Several contemporaries claimed that the large southern estates had diseconomies of scale and that substantial efficiency gains could be raised by transforming them into small landholdings, where extensive production could be replaced by intensive farming.⁸ It was also argued that rural workers were not rewarded for their work and were underemployed and that landlords obliged their tenants to pay abusive rents. According to the most notable reformer of the period, Pascual Carrion, the absence of small and medium farms in southern Spain left peasants in the hands of landowners who got higher rents due to their monopolistic power and the widespread hunger for land.⁹ Finally, politicians believed that large landlords, particularly the members of the nobility, took advantage of their economic power, which was directly generated by their ownership of large estates, to coerce rural electors and to get seats in the parliament.

In the end, several reforms affecting land ownership were approved with the support of a large part of the parliament during the Second Republic (1931-1939).¹⁰ This reform, never fully implemented, consisted of four major measures: (1) Landowners were prevented from taking land from peasants at the end of their cultivation contracts; (2) the agrarian work day was limited to eight hours, which was already in force for industrial workers; (3) landowners were forced to exclusively hire laborers who lived at the municipality where the farm was located;¹¹ and (4) under threat of confiscation, owners were required to put all available land into cultivation. It can be

⁸ Pérez Ledesma (1977: 256-59), Robledo Hernández (1993: 110-115).

⁹ Carrión (1932).

¹⁰ The reference to the Republican land reform is still the classical work of Malefakis (1970). See also Robledo (1993)(1996).

¹¹ However, this measure had contradictory consequences on the welfare of landless peasants. It increased the bargaining power of insiders but damaged the position of journeymen who travelled from place-to-place looking for a job. Furthermore, it could have very negative consequences for agricultural production in Southern Spain, where the seasonality of the work was very marked. See Simpson (1992) and Silvestre (2007).

easily seen that all of these reforms sought to increase the bargaining power of small tenants and journeymen with landowners.

3. A straightforward framework for understanding land reforms

Before we proceed with our empirical analysis, it would be useful to have a straightforward model for understanding whether land reforms are necessary for land redistribution. Put simply, the social objective is the reduction in the amount of landless workers and a simultaneous relative increase in landowners and tenants. If markets fail in achieving this goal, a government-initiated land reform appears to be justified. To conduct our theoretical argumentation, we employ a perfect competition model of rural labor markets and a similar model of agrarian land markets. Our choice is for these two models of perfect competition, instead of models of dual markets or imperfect competition, because previous research on the period tends to underline the competitive nature of labor and land rural markets.¹²

[FIGURE 1]

[FIGURE 2]

The effects of demand and supply shifts in agrarian labor markets are portrayed in Figure 1. On the x-axis of Figure 1, we present the relative quantities (measured in hours or full time equivalent male workers) of the self-employed (owners and tenants) and journeymen (Q_{LSE}/Q_L), while on the y-axis, we present the relative income of the two groups (VA/W). Note that the income of the owner-cultivators is equal to value added (rents and wages) per hectare, VA , while salaried workers only get wages, W . In the case of tenant-cultivators, they should share land rent with owners, but one could confidentially assume that their income is, if anything, equal or higher than the opportunity cost of salaried labor, W . Figure 2 presents land markets (as usual, quantities of land ($Quantity_{LN}$) on the x-axis and land relative prices ($Price_{LN}/W$) on the y-axis) under the common assumption that land supply (S) is inelastic. Labor and land markets are related through rents. Increases (decreases) in rents are translated into land price increases (decreases).¹³

¹² See, on labor markets, Rosés and Sánchez-Alonso (2004), and on land markets, Carmona and Rosés (2009).

¹³ Rosés and Carmona (2009) demonstrated econometrically this relation between land prices and rents in Spain.

There are several forces that could produce (relative) demand shifts in rural labor markets. For example, if owners and tenant-cultivators become more efficient than estates employing salaried labor as a result of technological change (or better organization),¹⁴ we should observe a rightward demand shift (**D'**). This shift increases both the relative quantity of the self-employed and their relative remuneration (equilibrium in point **1**). However, this produces an undesirable effect because it makes it more difficult for landless workers to buy or rent land. Land is more desirable, which produces an increase in land demand (in Figure 2, equilibrium is displaced to point **a**). At this point, the only policy solution for easing land access is a government-initiated land reform. A leftward demand shift (**D''**) reduces both the relative quantity of the self-employed and their relative remuneration (equilibrium in point **2**). Again, the action of markets did not generate land redistribution.

Relative supply shifts could be a consequence of migrations across provinces and industries, demographic change and reallocation of workers from salaried to self-employed. If owners-cultivators and tenants tend to migrate, or reallocate across sectors, more than salaried workers do, supply curve moves upward (**S''**).¹⁵ As a result, the relative income of the self-employed increases, while their relative amount decreases (equilibrium in point **4**). In accordance, relative land prices increase, and land demand displaces upward (in Figure 2, equilibrium in **a**). The objective of spontaneous land redistribution fails, and policy intervention appears justified.

Finally, when the relative amount of self-employed workers increases, the supply curve moves downward (**S'**), and their relative income decreases (equilibrium in point **3**). This outcome could be the result of either higher migration (reallocation) rates of landless workers or a reallocation of workers from salaried to self-employed. Note that, if land markets were not competitive, the remaining owners and tenants, who supposedly had control over market outcomes, could appropriate the land of owners and tenants who left agriculture and maintain their relative incomes. Moreover, this social-improving outcome should be accompanied by a contraction of land demand and a subsequent decrease in relative land prices (in Figure 2, equilibrium in **b**). Obviously, the equilibrium in point **3** makes government intervention in land markets unnecessary.

¹⁴ Literature supportive of government-initiated land reforms (e.g., Binswanger et al., 1995) argues that holdings of owners-cultivators are more efficient than estates that hire work.

¹⁵ Sánchez-Alonso (1995) found that international migration is higher in provinces where owners and tenants were relatively more abundant. Instead, Silvestre (2005) found no significant relation for home migrations.

Following this straightforward model, we conclude that land reform is unnecessary only if the relative amount of landless workers decreases and relative wages grow. Additionally, the relative land prices should decrease. If any of these conditions are not fulfilled, land reforms, with the social optimal objective to redistribute land to landless workers, are justified.

4. The evolution of relative factor prices

According to the intuitions of the model in the previous Section, we now consider the evolution of relative factor prices. Information on relative factor prices is only available for the first third of the 20th century (from 1908 to 1931); in consequence, we had to exclude from our analysis the second half of the 19th century. In any case, the Republican project of land reform was justified by the Spanish experience during the first decades of the 20th century.

[FIGURE 3]

Figure 3 presents the evolution of the ratio between value added per hectare and male agrarian wages in Spain. At first glance, one could observe the existence of up to four different periods: an initial period of price stability; a rapid increase in relative prices during the first years of the World War I; relative prices plummeting from 1917 to 1921; and, in the remaining decade, relative prices remaining comparatively low. Overall, the relative prices at the end of the period were considerably lower than during the first years. If one considers regional differences, the major decreases took place in the Ebro Valley, southern Castile and Andalusia (although it affected all regions).

[FIGURE 4]

As we pointed out in Section 3, if land markets worked smoothly, when the ratio VA/W decreases, the relative land prices ($Price_{LN}/W$) should also decrease. Figure 4 confirms this point. Relative land prices decreased significantly over the period in an order of magnitude similar to the ratio between value added per hectare and wages. However, the pattern of relative wage gains is even clearer in this instance. Relative land prices declined steadily from 1908 to 1922, and despite temporal upsurges, their levels were well below the initial levels up to the end of the series. All regions, except the North, shared this declining tendency.

It should be noted that the behavior of relative factor prices presented in this Section is only possible in two labor market situations (see Figure 1): when relative demand for self-

employed agricultural workers moves downward or, alternatively, when their relative supply moves upward. To discriminate between these two possibilities, we now consider the relative quantities of owners, tenants and landless agrarian workers.

5. Measuring owners, tenants and landless workers

Spanish historical sources do not offer unequivocal information about the changes in the amount of land ownership in Spain over the second half of the 19th century and the early decades of the 20th century. For instance, the population censuses did not consistently record the amount of landowners. In consequence, we have inferred, employing different historical sources, the amount of landowners, tenants, and landless workers (see Appendix 1). The main results of our calculations are presented in the following table 1.

[TABLE 1]

Table 1 shows information on the amount of landless workers, landowners and tenants from 1860 to 1930. The number of agrarian workers with access to land (owners and tenants) collected in table 1, panel A, remained apparently stable in Spain from 1860 to 1930. This broad impression masks important regional and temporal differences. From 1860 to 1890, their amount increased slightly in all regions, except in northern Castile, where it grew by about one-fourth. In consequence, the liberal land reform increased, to some extent, the number of landowners and eased the access to land for landless peasants but did not dramatically change the ownership structure of the Spanish countryside.¹⁶ In the following period (1890-1910), this trend continued, except in northern Castile, and the amount of farmers with access to land decreased by less than five percent.¹⁷ In the last period (1910-1930), the amount of owners and tenants decreased in all regions except Andalusia, where it grew by about 14 percent.

The relatively stable situation presented in the paragraph above, which emerges from the casual observation of the amount of agricultural workers with land access, can be qualified when one takes into account the amount of landless workers (panel B) and the relative balance between agricultural workers with land access and landless workers. The amount of landless workers

¹⁶ This is also the prevalent view in the qualitative historiography. See, for example, García Sanz (1985) and Peset (1992).

¹⁷ During this period, agriculture in Northern Castile experienced a severe crisis due to the grain invasion of the late 19th century and the phloxera epidemic, which damaged severely its vineyards. See, García Orallo (2008).

decreased significantly from 1860 to 1930. Figures were stable from 1860 to 1890 but decreased by half million in each of the two subsequent periods (1890-1910 and 1910-1930).¹⁸ In other words, the number of landless workers halved during these seventy years (from about two million to less than one million people). This dramatic change is even more evident in relative terms: the relative amount of landless workers plummeted from about 46 percent of the male agrarian workforce in 1860 to 28 percent in 1930. All in all, if we employ the intuitions of the model outlined in Section 3, land reform had little justification in the 1920s. The relative quantity of workers with access to land increased, and relative prices decreased (Figure 1, equilibrium 3); that is, the supply curve of self-employed workers moved to the right.

The overall picture for Spain masks important regional differences, particularly in the timing of the overall trend towards a reduction in landless workers. More specifically, in Andalusia, the relative amount of landless workers remained stable from 1860 to 1910 and only decreased in the next twenty years, from 1910 to 1930. Within Andalusia, differences between western (Cadiz, Cordoba, Huelva and Seville) and eastern (Almeria, Granada, Jaen and Malaga) provinces were also significantly large. While eastern Andalusia replicated Spanish trends toward landless worker reduction, western Andalusia remained as the region with more landless workers in absolute and relative terms over the entire period. The fact is that the total amount of landless workers grew, while their percentage remained stable. Additionally, no Spanish province reached Cadiz levels, where two-thirds of the agrarian workforce consisted of agrarian workers without land as late as 1930. In the Ebro Valley and Mediterranean region, a decrease in landless workers had been continuous since the mid-19th century. In the North, this process took place in the forty years from 1890 to 1930. In northern Castile, all reduction took place over the first thirty years, while the relative Figures remained stable from 1890 to 1930. In southern Castile, the relative amount of landless workers remained unchanged over the entire period.

Our new evidence also shows that Spain was not a country of landless workers. More prominently, they were not the majority of agrarian workforce in any of its regions. Additionally, the Spanish situation was not extraordinary in European terms. If we compare Spain with France, one could observe that the relative amount of landless workers was practically identical by the 1920s (about 28 percent in Spain with about 27 percent in France). More surprisingly, French relative Figures remained stable since the mid-19th century,¹⁹ while in Spain, the relative amount of landless workers showed a notable reduction since the end of the 19th century. In Germany,

¹⁸ During, these years demographic growth was intense in Spain, despite large migrations. The population grew from about 17.5 million in 1890 to 23.5 million in 1930.

¹⁹ French Figures are drawn from Sicsic (1992) and from the French Statistical yearbook for 1929.

the relative amount of landless workers was higher than in Spain and remained practically unchanged over the period. In 1882, about 51 percent of the agricultural workforce had no access to land. Fifty years later (1933), the relative Figure was practically identical; that is, more than half of agrarian workforce had no access to land.²⁰

6. Structural change and access to land

The changes in the relative amount of landless workers in Spain may be the result of either shifts in the provincial distribution of agrarian employment (*between* provinces effect) or the changes *within* provinces in the balance between people with and without access to land. The *between* provinces effect could be attributed to broad changes in agrarian trade favoring provinces abundant, or not abundant, in landless workers and the subsequent reallocation of labor across provinces.²¹ Instead, the *within* effect is related to (negative) shifts in the relative supply of landless workers.²² Note that the presence of *between* effects could indicate that a genuine reallocation of land between workers with and without land access did not take place.

To disentangle these *between* and *within* effects, we employ a modified version of the standard approach in the labor economics literature (Berman et al. 1994). Therefore, the change in the share of landless workers in total agrarian employment is broken down into the change in the distribution of employment that occurs *within* provinces and the change in the distribution of employment that happens *between* provinces.

$$(1) \quad \Delta P_{LJ} = \sum_i \Delta S_i \bar{P}_{LJi} + \sum_i \Delta P_{LJi} \bar{S}_i .$$

for $i = 1, \dots, n$ provinces are being considered. $P_{Lji} = Q_{Lji}/Q_{Lj}$ is the proportion of landless workers in province i , $S_i = Q_{Lj}/Q_L$ is the share of agrarian employment in province i . The first term on the right represents the change in the aggregate share of landless workers caused by shifts in the distribution of agrarian employment *between* provinces with different shares of

²⁰ German Figures are drawn from German Population Censuses.

²¹ For example, if international trade favored the exports of farm intensive products like milk and cheese, the employment in provinces specialized in those products increased relatively to employment in the remaining provinces. Given that these productions were prototypical of regions where owners were abundant, the relative amount of owners in Spain necessarily increased.

²² Following the intuitions of the model developed in Section 3, evidence on the relative amount of landless workers of Section 5, and the price evidence of Section 4, we consider that demand shifts played a negligible role in explaining *within* effect.

landless workers. The second term displays the modifications in the aggregate share caused by shifts in the proportion of landless workers *within* each province. The line over the variable denotes the average value for the study period.

[TABLE 2]

The shift-share analysis shows that between 1860 and 1930, the decrease in the relative share of landless workers had been of 0.25 percentage points per year. While changes in the composition of labor that happened *within* provinces accounted for a decrease of about 0.26 percentage points per year, shifts *between* provinces were in the opposite direction and only accounted for a mere increase in 0.003 percentage points per year (Table 2). Therefore, it seems that changes in the relative composition of agrarian labor were common across provinces. Additionally, we observe that, although in the three sub-periods considered the lion's share of the decreases were attributable to the *within* factor, the trends of the two factors were in opposite directions in the initial (1860-90) and final sub-periods (1910-30). In any case, it was during the intermediate sub-period (1890-1910) that the decrease was more intense, 0.43 percentage points per year, of which 0.42 points were attributable to the *within* effect. In sum, overall structural change favoring certain provinces, which were scarce in landless peasants, did not explain the reduction in the amount of landless workers.

We pursued our investigation a bit further. For this reason, we classified the *within* factor by region. With this exercise, we consider if this reduction in landless workers was particular to certain regions (and relatively scarce in the rest). Interestingly, considering the overall period (1860-1930), all regions had negative values. Nevertheless, about half of the total decrease in the *within* factor (0.12 points per year) is attributable to provinces composing the northern region. Instead, the contribution to that decrease of regions where the share of landless workers was larger, Andalusia and southern Castile, was small, in total only about 0.026 percentage points. The contribution of each region to the *within* factor also varied from period to period. In the initial period, northern Castile accounted for more than half of the decrease in landless workers, while the share of landless workers increased in the North region. In the following period (1890-1910), practically all of the substantial decrease in landless workers occurred in the North (0.41 of 0.43 percentage points), while instead, their share grew in Andalusia and northern and southern Castile. Finally, in the last period (1910-1930), the reductions in the share of landless workers occurred simultaneously in all regions, although they were more substantial in the North, Andalusia, and southern Castile (in the range of 0.08 percentage points per year).

Finally, we produce a back-of-the-envelope calculation of the “net” amount of workers who make a transition from landless to owners and tenants. Under the assumption that the propensity to leave agriculture is identical across people with and without access to land, we could estimate the “net” movement of peasant from landless to owners and tenants between T and T-1 as:

$$(2) N_{T,T-1} = Q_{LSE,T} - [\theta_{T-1} Q_{LT}],$$

$\theta = Q_{LSE}/Q_L$ is the proportion of people with land access over agrarian employment. The first term on the right is the observed quantity of workers with land access, and the second term is the expected change in the quantity of workers with land access if the proportion of people with and without land access does not vary from one period to the following. This estimation is, if anything, a lower bound of the total amount of landless workers who get land because we assume, implicitly, that no self-cultivator finished as landless worker or died during the period considered. Additionally, if we consider that migration rates tend to be higher among owners and tenants, the net reallocation rates should necessarily be higher than the estimated.

[TABLE 3]

Our analysis, based on equation (2) and presented in table 3, shows that about one-third of landless workers got access to land between 1860 and 1930; in other words, the relative increase in owners and tenants could not be fully attributed to the movement of labor from agriculture to other economic sectors. More prominently, it seems that land transactions were necessarily relevant during the process of labor reallocation. In all Spanish macro-regions, except for southern Castile, a significant amount of landless peasants reallocated to self-employed cultivators. As in the case of structural change, differences across regions and periods were noteworthy. In the first period, net reallocation was less profound than in the following periods, although it was particularly noticeable in northern Castile, where about 40 percent of landless peasants got access to land. It was during the intermediate period, from 1890 to 1910, when net reallocation was the most intense. However, this process was only located in half of the country, particularly in the North. In the last period (1910-1930), the relative Figures of net reallocation were similar to the intermediate period, but the process was shared by all macro-regions. For example, in Andalusia, more than 68,000 peasants (about the 16 percent of landless peasants) got access to land.

7. Market access to land

In this Section, we explore whether landless workers had the possibility of buying land in the market. To put it simply, the probability of access to land depends on two basic factors: workers' earnings and the price of land. In absence of external credit, any increase in the ratio between wages and land prices would make access to land easier, and the contrary also holds.²³ In Section 4, we have already shown that this ratio grew, and hence, access to land improved for landless workers. However, if the initial relative price level is too high, any improvement in relative prices may have no effect on the ability of the landless peasants to get access to land.

[TABLE 4]

Table 4 collects several alternative measures of land access for Spain and its macro-regions. The first and second columns display, respectively, the average price of land per plot and per hectare. From these Figures, it is easy to observe substantial differences across Spanish regions. On average, the most expensive plots were located in Andalusia (with an average price that was about four times those prevalent in the cheapest region, northern Castile). Considering, instead, the price per hectare, the most expensive were the northern and Mediterranean regions, while the cheapest were the southern Castile and Andalusia. The price per hectare seems inversely correlated with the size of farms (that is, larger farms had lower prices per hectare).

The following two columns of table 4 (columns 3 and 4) present, respectively, the total amount of male working days necessary to buy an average plot in different Spanish regions and the same relation, but for hectare. In Andalusia, workers needed more than 800 days of work to pay for the average plot, while in the Ebro Valley, this Figure decreases to only 249 days. However, many small plots were available in all Spanish regions,²⁴ so it is likely that a more efficient measure of access to land in different regions is the amount of working days necessary to acquire one hectare of land. With this measure, the region where workers had to work more days to pay for one hectare of land is the northern region, while access to land was cheaper in Andalusia, which is the region that drew the attention of the same reformers.

²³ Grantham (1989) does not measure this hypothesis directly but suggests the same for France in 1850.

²⁴ We have tested if plot size was inversely correlated with average land price (that is, if small plots were more expensive than the larger ones) by regressing average land price in average size of plots by province. However, regressions showed that the effect of plot size in prices is insignificant. Small plots were not relatively more expensive than the larger ones.

Finally, columns 5 and 6 show, respectively, the number of years of family income that a “typical” family needs to buy the average plot in different Spanish regions and the same relation to buy one hectare. More specifically, we compute the annual family income by assuming that males worked 200 days per year and the females 100 days and that they had two children who worked 50 days/year each.²⁵ As in the previous columns 3 and 4, if we use average plot in the calculations, the region where access to land was more difficult is Andalusia, with a Figure close to three calendar years. In northern Castile, less than one year was needed. Instead, if one considers the years necessary to buy one hectare, we observe again that the North is the most expensive region with a Figure close to three years, while in Andalusia, the Figure decreases to only half a year. In any case, it seems that in all Spanish regions, access to land was not too difficult. For example, these Figures were well below the price-to-income ratio (the ratio of median house prices to median familial disposable incomes) in the last decades in Spain, which moved from a minimum of 2.8 to a maximum of 5.5 (Kim and Renaud, 2009: 16).

[FIGURES 5, 6 and 7]

Now, we will consider the dynamics of access to land. In Figures 5, 6 and 7, we analyze the evolution of our first land access measure, namely, the amount of male working days necessary to buy the average plot.²⁶ If we consider its overall evolution, this land market access measure improved dramatically from 1908 to 1923, when it practically halved. During the remaining years of our series, this tendency reversed but never came back to the initial levels. However, a detailed inspection of the Figures 6 and 7 shows, again, the enormous differences among the different Spanish regions. In the Ebro Valley, the North and northern Castile, this indicator does not show a clear declining trend. For instance, in the North, a short period of rapid improvement in market access conditions was followed by periods of increasingly harder conditions for accessing land. In sharp contrast, in Andalusia, the Mediterranean and southern Castile, the access to land improved largely.

[FIGURE 8]

²⁵ It should be noted that these Figures are probably a lower bound of the total amount of family working days and that the amount of working days in the Spanish countryside grew over the period. See Prados and Rosés (2009) for a discussion on the amount of workings days in Spanish agriculture.

²⁶ It should be noted that the evolution of the land access measure that employs hectares instead of average plots mimics this Figure, though it differs in levels.

Figure 8 analyzes the evolution of our second land access measure, namely, the number of years of family income necessary to buy the average plot. We employ the same definition of family income than in previous table 4. The evolution mimics those of Figure 5, that is, the amount of income practically halved from 1908 to 1923. In 1908, the mean family spent about two-years-and-a-half of income to buy an average plot, while in 1923, this Figure was close to one-year-and-a-half. On closer look, one could observe that this result is mainly driven by the evolution of male wages, which constitutes the main source of family income, while the evolution of female and children agrarian wages is much less favorable, but they also improved their relative income in comparison with landowners.²⁷

Finally, we will consider the cost of leaving the market for a rural family (again, we employ the definition of family income employed in previous table 4). We depart from the following identity:

$$(3) \text{ Family Income} \leq \text{Land productivity} * \varphi \text{ hectares}$$

To exit the market, a family must obtain from its farm at least the same income as wages that it would get from the labor market. This equality also determines the amount of land that they should buy on the market. Solving equation (3), in equilibrium

$$(4) \quad \varphi \text{ hectares} = \frac{\text{Family Income}}{\text{Land Productivity}}$$

Given that the numerator of land productivity is the share of labor in value added (wages x hours worked) plus the share of land (rents x hours worked), we could further simplify the expression (4), then:

$$(5) \quad \varphi = 1 + \frac{\text{Wages}}{\text{Rents}}$$

[TABLE 5]

²⁷ To save space, we skip similar analysis for each of the six Spanish macro-regions (regional Figures are available upon request from the authors). It should be noted, however, that regional evolution of this measure of access to land mimics those presented in Figures 6 and 7. Therefore, the relative situations of landless workers improved more in Andalusia, the Mediterranean and Southern Castile than in Ebro Valley, the North and Northern Castile.

The results of all of these calculations are quite surprising (see table 5). On average, Spanish rural families only need less than two years to get the land necessary to leave the labor market. Additionally, this amount was quite stable over the period considered here. The regions where this possibility was easier were southern Castile (1.25 years) and Andalusia (1.3 years), while it was more difficult in the North (3.53 years). Surprisingly, these results contradict the geography of land ownership in Spain: self-cultivators were relatively scarcer in regions where abandoning the rural labor market was easier, while the contrary also holds.

8. Conclusions and further research

Our main results can be summarized as follows. First, the amount of landless workers decreased dramatically during the period considered. In absolute terms, it decreased from about two million people in 1860 to about one million people in 1930. Accordingly, the share of male workers with access to land grew from about 54 percent in 1860 to about 72 percent in 1930. Second, structural change, particularly the reallocation of labor from agriculture to industry and services, played a central role in this process, but the role of land markets was not negligible. About one-third of landless workers got access to land by means of land transactions between 1860 and 1930. Third, we point out that market forces were improving the situation of agrarian workers and their possibility of acquiring land without any particular policy. The ratio between land prices and wages in Spain decreased by twenty percent. More prominently, different measures of land affordability showed that landless workers increased their land access over the period and that getting land was not very difficult. In consequence, apparently, the Republican land reform was not necessary for transforming the ownership structure of Spanish agriculture.

These results open many avenues for further research. The first question is why Republican governments were so interested in implementing land reform when it had little justification. Our intuition is that political issues were a major player in this economic policy. The second major issue is what role was played by financial markets in land acquisition over the period. This period witnessed a major transformation of Spanish banking with a rapid increase in financial intermediation, but the countryside did not take part in this process. Finally, the amount of income that rural families had to save for leaving the market was quite affordable. Therefore, it seems that the same rural families decided to remain in the labor market and to not become owner-cultivators. What was the reason for this decision?

Appendix 1. Estimating the amount of landless workers

We have information on the total amount of landless workers (peasants) for the year 1933 (from the peasants' survey conducted by the Republican authorities); the amount in the agricultural workforce for the years 1860, 1887, 1910, and 1930 (from the population censuses);²⁸ and the amount of taxpayers on land for the years 1855, 1890-91, 1907 and 1930 (from the land taxes yearbook).

Our estimation procedure is the following. First, given that the census of peasants does not cover all judicial districts in all provinces, we infer the total amount of peasants in each province by extrapolating information from the available villages to the rest of villages in the same district. This process allows us to obtain the quantity of peasants for all provinces in 1933 except the Basque Country and Navarre (which we exclude from our calculations). It should be noted that these surveys exhaustively covered those provinces where landless peasants were more abundant and, if anything, exaggerates the amount of landless workers.²⁹ Second, we obtain the amount of owners and tenants in 1930 by deducting from the total amount of workforce in agriculture the (estimated) amount of landless workers. Third, we compute the ratio between the (estimated) amount of owners and tenants and the (observed) amount of taxpayers in the year 1930.³⁰ With this last procedure, we correct the fact that, in provinces with smaller plots and many municipalities, land owners and tenants could have more than one plot in different municipalities and, hence, could be counted several times in taxpayer statistics.³¹ Then, we

²⁸ Prados de la Escosura and Rosés (2010) discusses the quality of this source.

²⁹ Espinoza et al. (2007) discusses the quality and exactitude of the survey, arriving at the conclusion that its data was accurate and that the amount of landless workers was correctly recorded.

³⁰ The source of taxpayers is the *Anuario Estadístico de España* for the respective years.

³¹ Accordingly, we have found that the recorded amount of land owners was strongly correlated with the amount and size of municipalities in any given province. The regression of the relative amount of taxpayers (the amount taxpayers divided by agrarian male working population) on the average agrarian surface by municipality gives a coefficient of -0.4 with an adjusted R² of 0.27 and F-test of 16.83. The number of taxpayers exceeded the amount of rural families in provinces where the number of municipalities was exceptionally large. Thus, level comparisons across provinces employing that data are unreliable. However, because we have no reason to think the amount of ownership in different municipalities varied significantly in different periods, this data could be employed for studying the evolution of the amount of land owners (which is certainly our variable of interest). It should also be noted that this problem of the source was relatively unimportant in Southern provinces, which centered the debate on the agrarian reform. In the provinces below the parallel of Madrid, the large extension of

employ the amount of taxpayers in each year corrected by this ratio to estimate the amount of owners and tenants (and the amount of landless workers) for all benchmarks. Finally, the amount of landless workers is obtained as residual by deleting from the agricultural workforce the estimated amount of landowners and tenants.³²

Appendix 2. Data sources.

Land Price data

Our study uses the information provided by the property register yearbooks (*Anuario de la Dirección General*). We used yearly data from 1904, the year that regular publication began, to 1934 when the political upheavals and later the Civil War interrupted the series until the mid-1940s. Information is grouped by provinces (49),³³ and includes the number and total value of farms registered by reason of sale, inheritance, gift, mortgage and first registration. The source also distinguishes between urban and rural properties, which are the only considered in this paper. In other words, we derived from the sources the nominal average price of plots in each province. To convert these nominal prices into real (base 1910) prices, we used the rural provincial deflator (see above).

Real Wages

The wage data are drawn from Spanish Yearbooks (*Anuario estadístico de España*) for the corresponding years. The quality of the sources is discussed in Rosés and Sánchez-Alonso (2004). To convert these nominal wages into real (base 1910) prices, we used the rural provincial deflator (see above).

Rural provincial deflator

The rural cost-of-living deflator has been constructed with data on rural prices from the corresponding yearbooks of the *Instituto de Reformas Sociales*. The weight of the different

municipalities and the relatively centralized nature of residential locations made it difficult for owner-cultivators to have land plots in more than one municipality.

³² It should be noted that many landless workers, and even many small land owners and tenants, also worked at service and industry jobs for some months of the year (Prados de la Escosura and Rosés, 2009). Furthermore, they were not attached to a particular farm and moved across provinces and regions, following job opportunities by the agrarian calendar (Silvestre, 2007).

³³ However, we do not consider the Canary Islands in our calculations (this choice reduces our sample to a maximum of 48 observations per year).

components of rural cost-of-living deflator and methodology for constructing price indices are drawn from Rosés and Sánchez-Alonso (2004).

Gross Agricultural Value Added

The gross agricultural value added was computed in the following way. The quantities of production of different agrarian products collected by GEHR (1991) were multiplied by the relative prices and the transforming coefficients provided by Simpson (1994). Then, these real values were converted into nominal values using the disaggregated agrarian prices provided by Prados de la Escosura (2003). Finally, current prices series were converted to real gross value added by deflating them using Rosés and Sánchez-Alonso's rural price consumer index (2009).

Productivity per hectare

This is computed as gross value added divided by cultivated hectares. The source of hectares is GEHR (1991).

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Table 1. The amount of Owners, Tenants and Landless Workers in Spain, 1860-1930

Panel A: Owners & tenants	1860		1890		1910		1930	
Andalusia	429,682	(52.6%)	443,806	(53.1%)	471,652	(52.3%)	537,445	(59.9%)
Ebro Valley	189,440	(44.7%)	232,389	(58.3%)	263,091	(71.0%)	231,145	(75.5%)
Mediterranean	530,590	(61.0%)	578,692	(67.2%)	632,303	(69.0%)	526,747	(73.8%)
North	413,813	(43.2%)	429,006	(37.8%)	529,091	(78.4%)	481,368	(91.4%)
Northern Castile	372,771	(58.8%)	461,162	(76.1%)	434,442	(72.6%)	347,675	(75.8%)
Southern Castile	417,784	(65.3%)	436,231	(62.9%)	439,459	(58.0%)	410,798	(66.4%)
Spain	2,354,080	(54.2%)	2,581,286	(57.0%)	2,770,039	(65.6%)	2,535,179	(72.0%)
Panel B: Landless workers	1860		1890		1910		1930	
Andalusia	387,296	(47.4%)	391,977	(46.9%)	429,710	(47.7%)	359,395	(40.1%)
Ebro Valley	234,419	(55.3%)	166,304	(41.7%)	107,609	(29.0%)	75,171	(24.5%)
Mediterranean	339,399	(39.0%)	282,823	(32.8%)	284,539	(31.0%)	187,421	(26.2%)
North	543,092	(56.8%)	707,068	(62.2%)	145,680	(21.6%)	45,543	(8.6%)
Northern Castile	261,413	(41.2%)	144,805	(23.9%)	164,051	(27.4%)	111,057	(24.2%)
Southern Castile	222,417	(34.7%)	257,406	(37.1%)	317,922	(42.0%)	208,295	(33.6%)
Spain	1,988,035	(45.8%)	1,950,383	(43.0%)	1,449,512	(34.4%)	986,881	(28.0%)

Notes: We have grouped the provinces into six macro-regions (following Rosés and Sánchez-Alonso, 2004): Andalusia (Almeria, Cadiz, Cordoba, Granada, Huelva, Jaen, Malaga and Seville), Mediterranean (Gerona, Barcelona, Tarragona, Castellon, Valencia, Alicante and Murcia), Ebro Valley (Lerida, Saragossa, Huesca, Teruel, and Logrono), Southern Castile (Caceres, Badajoz, Albacete, Ciudad Real, Cuenca, Guadalajara, Madrid, Toledo), Northern Castile (Salamanca, Zamora, Leon, Valladolid, Palencia, Burgos, Soria, Segovia) and North (Corunna, Pontevedra, Lugo, Orense, Asturias, Santander).

Sources: see Appendix 1.

Table 2. *Between* and *Within*-Province Breakdown of Changes in the Share of Landless workers in Agrarian Employment, 1860-1930

	1860-1890	1890-1910	1910-1930	1860-1930
Overall	-0.0915	-0.4343	-0.3166	-0.2538
Between component	0.0418	-0.0132	0.0125	0.0032
Within component	-0.1333	-0.4212	-0.3291	-0.2570
	Cross-classified by region			
Andalucía	-0.0014	0.0123	-0.0854	-0.0198
Ebro Valley	-0.0391	-0.0541	-0.0162	-0.0380
Mediterranean	-0.0465	-0.0176	-0.0383	-0.0349
North	0.0271	-0.4134	-0.0889	-0.1235
Northern Castile	-0.0844	0.0215	-0.0198	-0.0342
Southern Castile	0.0109	0.0301	-0.0804	-0.0067

Notes: see Table 1.

Sources: see Appendix 1.

Table 3. The reallocation from Landless Workers to Owners and Tenants in Spain, 1860-1930

	1860-1890		1890-1910		1910-1930		1860-1930	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Andalusia	4,234	(1.09%)	-6,977	(-1.78%)	68,159	(15.86%)	65,760	(16.98%)
Ebro Valley	54,197	(23.12%)	47,018	(28.27%)	13,748	(12.78%)	94,240	(40.20%)
Mediterranean	53,270	(15.70%)	16,447	(5.82%)	34,219	(12.03%)	91,189	(26.87%)
North	-62,289	(-11.47%)	274,283	(38.79%)	68,215	(46.83%)	253,506	(46.68%)
Northern Castile	104,977	(40.16%)	-21,032	(-14.52%)	14,685	(8.95%)	78,034	(29.85%)
Southern Castile	-16,424	(-7.38%)	-36,861	(-14.32%)	51,579	(16.22%)	6,789	(3.05%)
Spain	124,439	(6.26%)	366,539	(18.79%)	223,027	(15.39%)	625,692	(31.47%)

Notes: (1) Quantity of landless workers reallocated to owners and tenants; (2) Percent of landless workers reallocated to owners and tenants (workers reallocated divided by landless workers at T-1). See table 1.

Sources: see Appendix 1.

Table 4. The Access to Land in Spain: Regional Differences, 1908-1931

	Average Price per plot (1)	Average Price per hectare (2)	Average days per plot (3)	Average days Per hectare (4)	Average years per plot (5)	Average years Per hectare (6)
Andalusia	1,896.4	377.7	802	153	2.88	0.55
Ebro Valley	873.0	473.7	249	165	0.86	0.57
Mediterranean	1,341.4	767.2	459	255	1.64	0.91
North	1,162.9	1,095.1	780	858	2.66	2.86
Northern Castile	481.7	422.6	286	326	0.91	1.04
Southern Castile	1,229.0	234.1	506	121	1.73	0.42
Spain	1,167.8	434.4	514	316	1.78	1.07

Notes: See text.

Sources: See Appendix 2.

Table 5. Abandoning labor markets: Regional Differences, 1908-1931

	1908-1920 (1)	1921-1931 (2)	1908-1931 (3)
Andalusia	1.263	1.335	1.296
Ebro Valley	1.454	1.753	1.591
Mediterranean	2.083	1.798	1.952
North	3.415	3.663	3.529
Northern Castile	1.527	2.132	1.805
Southern Castile	1.178	1.337	1.251
Spain	1.899	1.894	1.899

Notes: In years of family work. Unweighted provincial average. See text.

Sources: See Appendix 2.

Figure 1. Demand and Supply Shifts in Agrarian Labor Markets

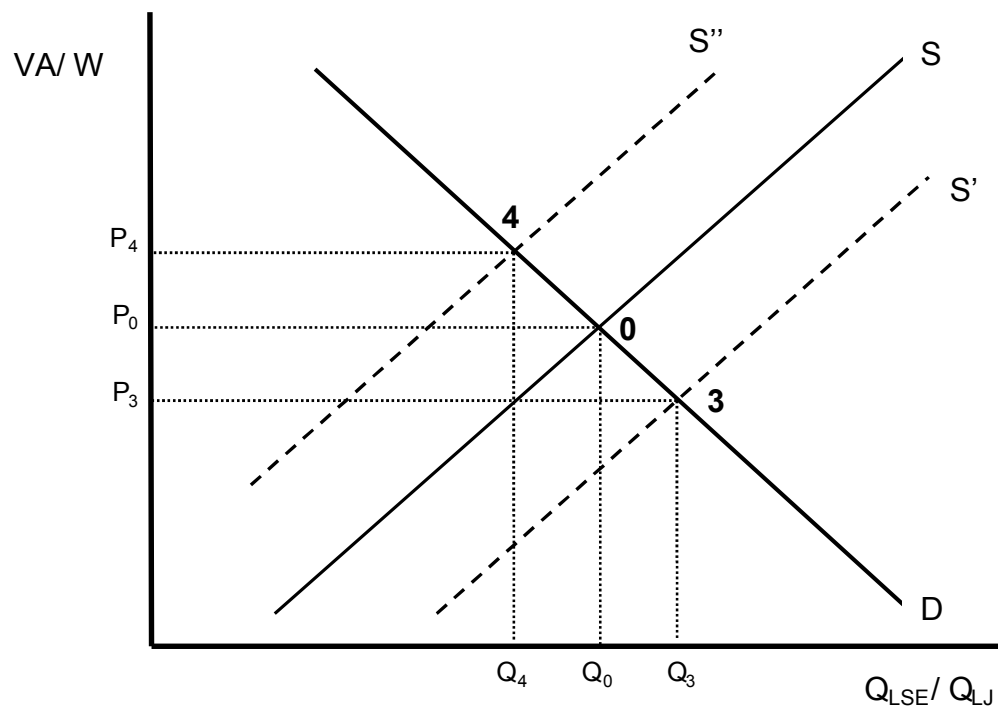
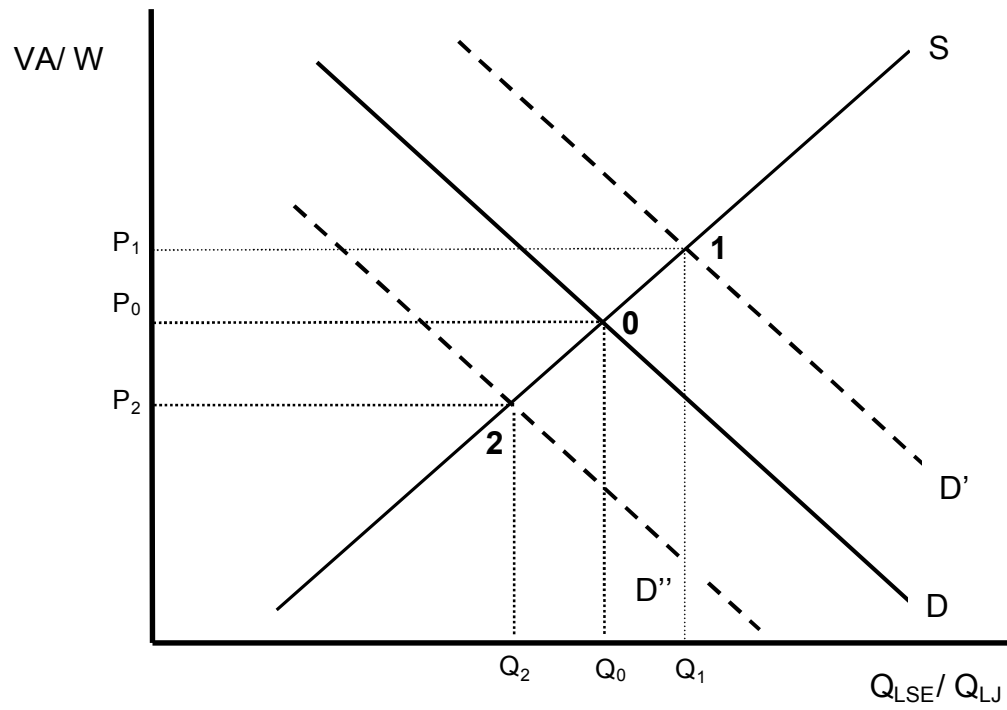


Figure 2. Demand Shifts in Agrarian Land Markets

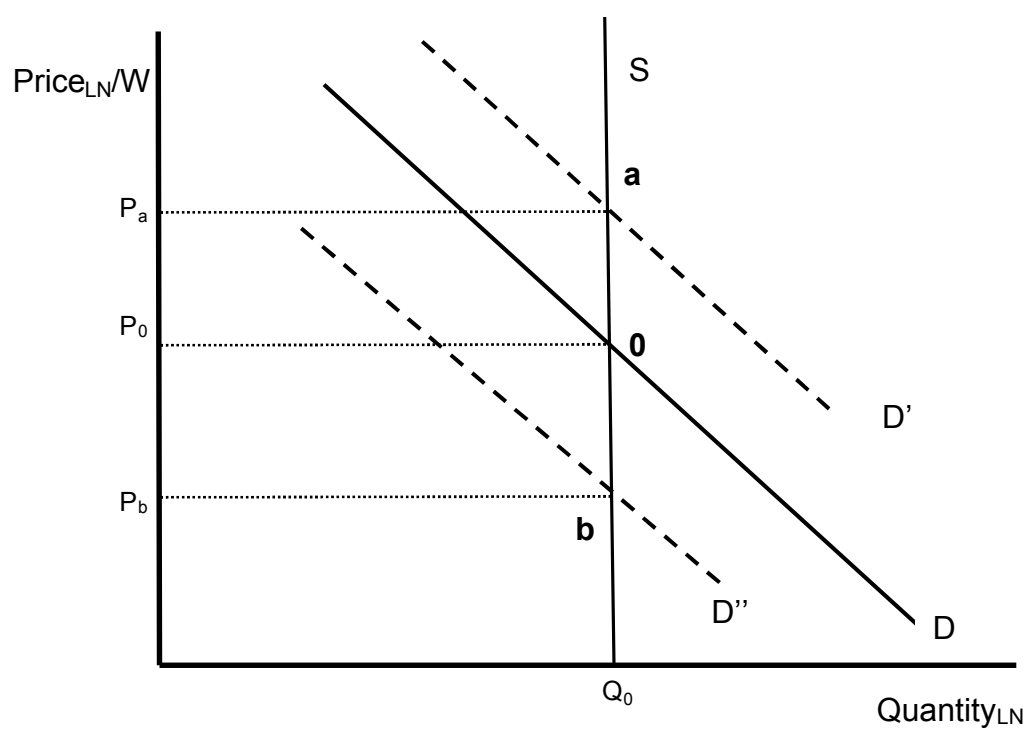
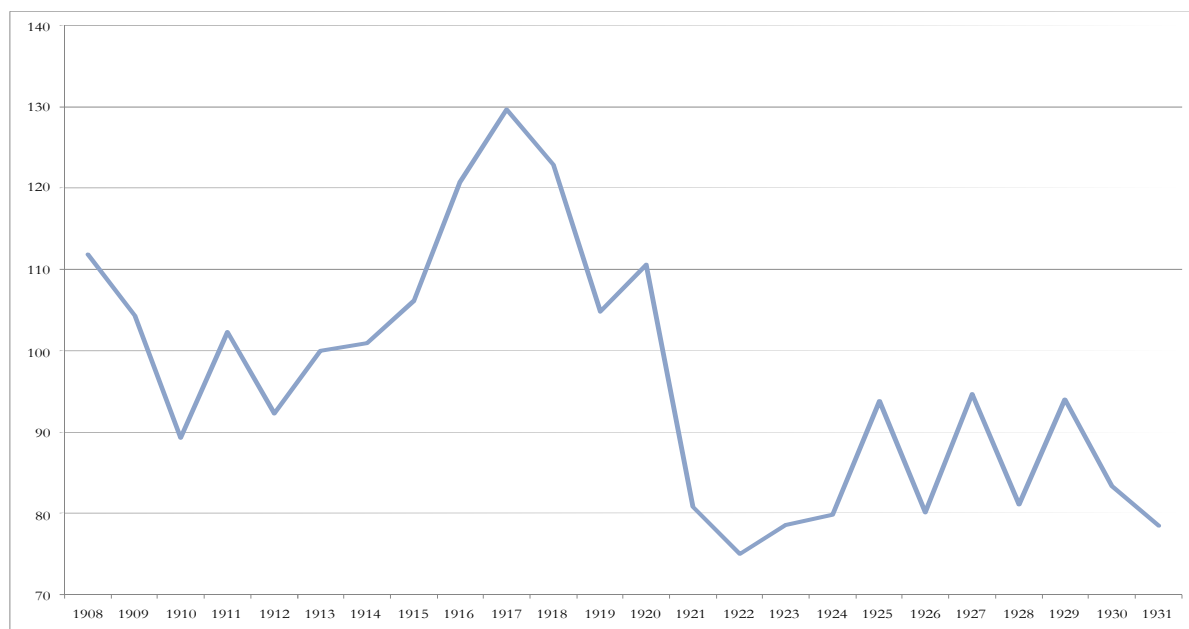


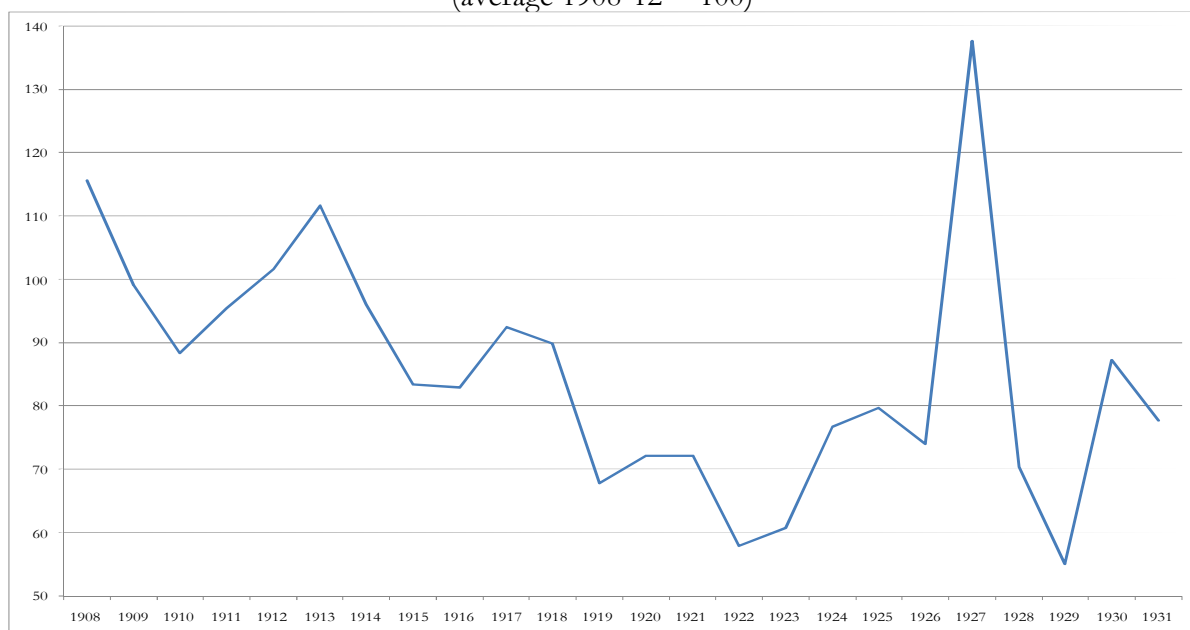
Figure 3. The ratio between Value Added per hectare and wages in Spain, 1904-1931
(average 1908-12 = 100).



Notes: see text.

Sources: see Appendix 2.

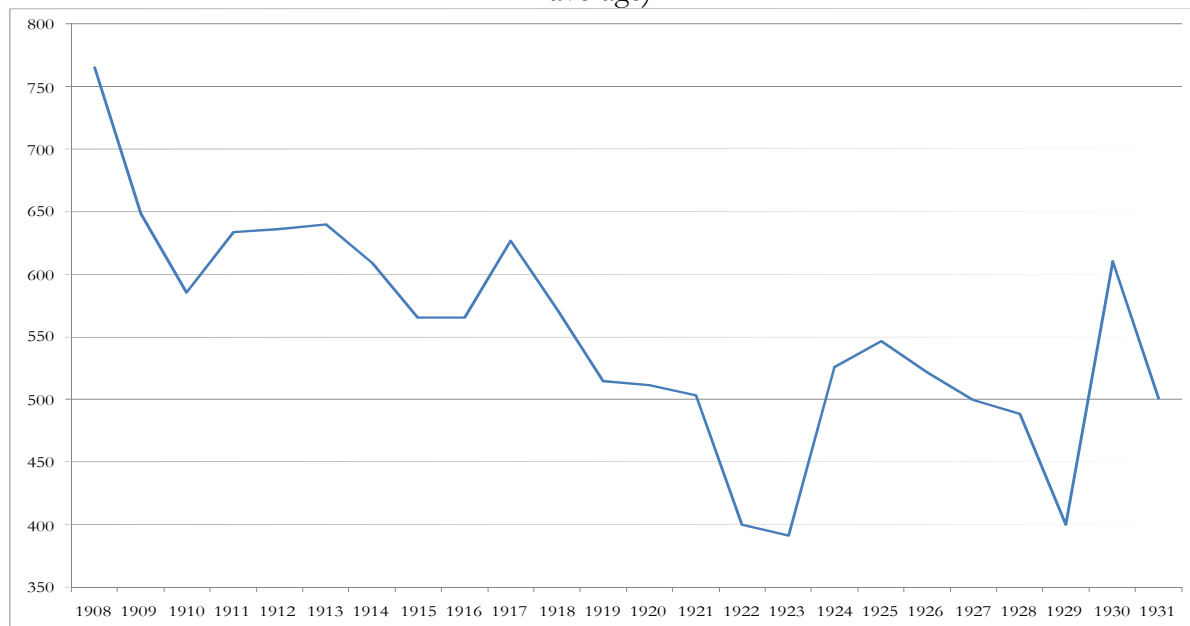
Figure 4. The ratio between land prices per hectare and wages in Spain, 1904-1931
(average 1908-12 = 100)



Notes: see text.

Sources: see Appendix 2.

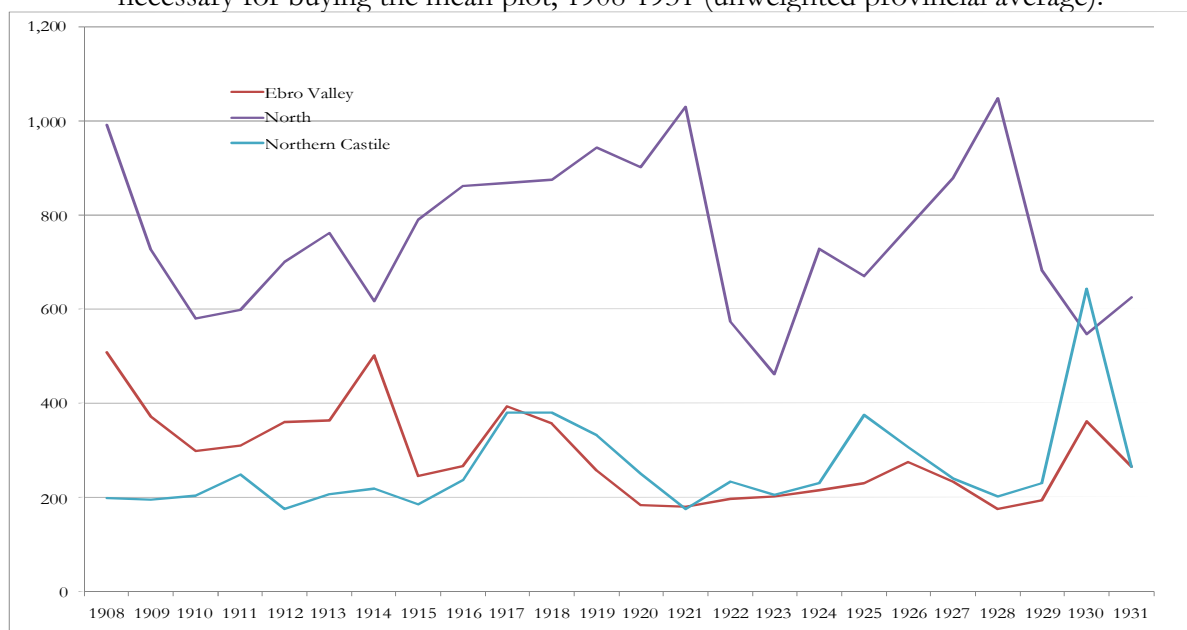
Figure 5. Access to land: Average male days of work necessary for buying the mean plot, 1908-1931 (unweighted provincial average).



Notes: see text.

Sources: see Appendix 2.

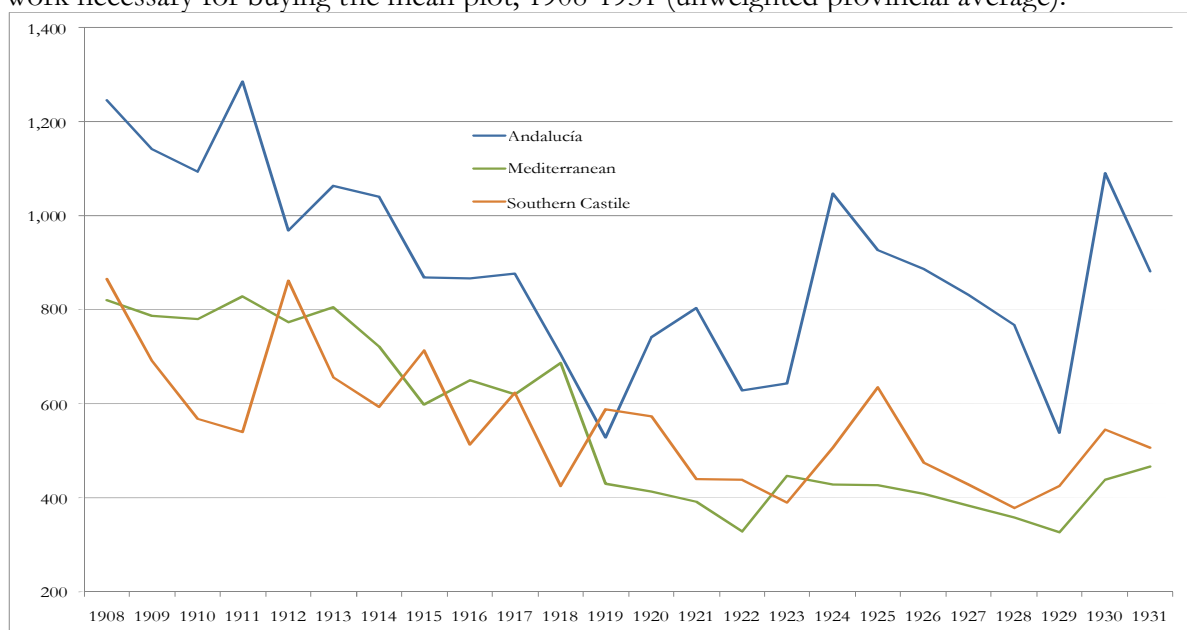
Figure 6. Access to land (Ebro valley, North and Northern Castile): Average male days of work necessary for buying the mean plot, 1908-1931 (unweighted provincial average).



Notes: see text.

Sources: see Appendix 2.

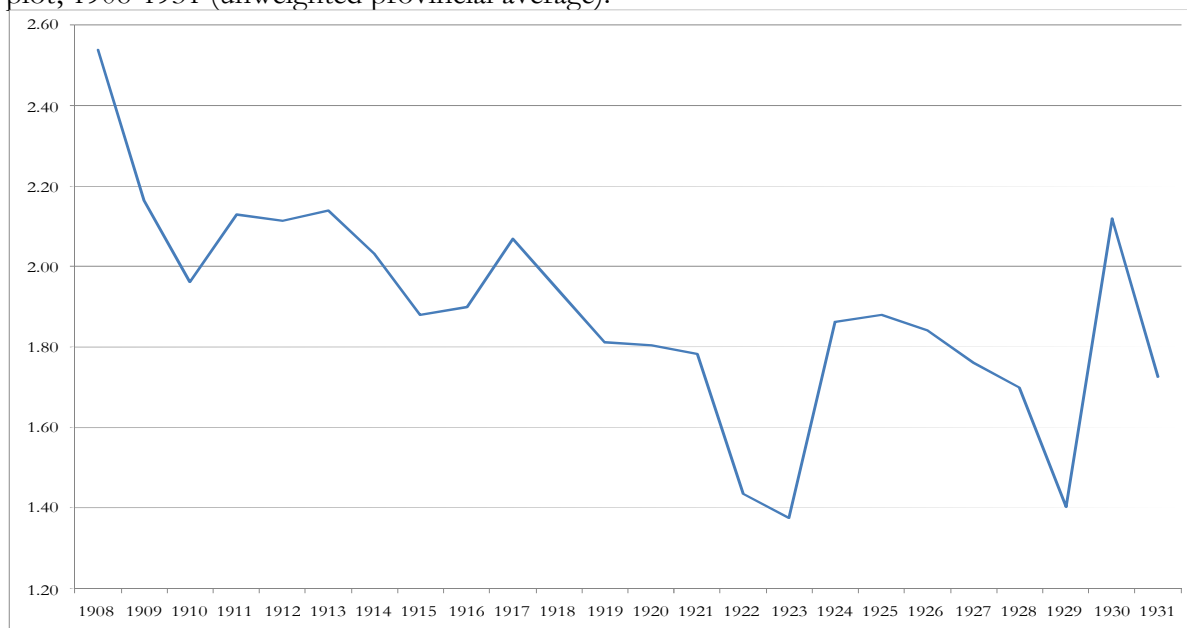
Figure 7. Access to land (Andalusia, Mediterranean and Soththern Castile): Average male days of work necessary for buying the mean plot, 1908-1931 (unweighted provincial average).



Notes: see text.

Sources: see Appendix 2.

Figure 8. Access to land: Estimates average years of family work necessary for buying the mean plot, 1908-1931 (unweighted provincial average).



Notes: see text.

Sources: see Appendix 2.