INTERNAL MIGRATIONS IN SPAIN, 1877-1930

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Abstract

Industrialization in European countries caused an increase in both internal migration and emigration. Internal migrants were even more numerous than overseas emigrants. However, few empirical studies have sought to explain internal migrations. This paper examines the causes and effects of internal migration in Spain with the aim answering some of the questions debated in the literature. The results show that internal migrations in Spain were driven by economic forces. Moreover, the lag in rural population transfer can be explained by the scant pull of industrial destinations. The paper also shows that internal migrants differed in some respects from the people who emigrated overseas. Finally, the impact of internal migration on labor markets is measured using three different methods.

1. Introduction

International migrations during the period of industrialization that took place in the 19th and early 20th century industrialization (the first globalization) are well understood thanks to recent analyzes of the channels, causes, and impacts of inter- and intracontinental emigrations (Hatton and Williamson, 1994, 1998; O´Rourke and Williamson, 1999; Chiswick and Hatton, 2003). In the case of European emigration to the New World, this literature shows that the mass emigration "life cycle" –(the rise and subsequent decline of national emigration rates) can be explained by a combination of demographic and economic variables. The fundamentals were demographic pressure, rapid industrialization at home, real wage gaps, and the incentives generated by previous emigrants. The impact of mass emigration on labor markets at home and abroad is also understood. Labor was transferred from labor-rich Europe to the labor-poor New World. With some exceptions, mass emigration was the main source of real wage convergence between origins and destinations, or at least prevented further divergence between large economies such as Britain and the United States.[1] The phenomenon of migration also contributed to a reduction of differences in land prices and rents.

European industrialization also affected internal migrations. While some pre-industrial patterns (i.e. temporary, seasonal, rural-rural, and short or medium distance migrations) survived far into the 19th century, industrialization and structural change produced a new, more permanent type of migration with a higher proportion of medium and even long distance movements to urban destinations (see Lucassen, 1987, ch. 9; Leboutte, 1993; Baines, 1994a; Postel-Vinay, 1994).[2] Moreover, despite problems of definition and measurement, and taking into account national differences in the timing of industrialization, it seems probable that internal European migrations would have increased in the 19th and early 20th centuries (Baines, 1994a).[3] Although the issue of internal migrations during European industrialization has given rise to a copious historical literature, economic and empirical analyzes of most countries are still lacking, with practically the only exception of England and Wales and Germany.[4]

Economic historians have analyzed the main issues regarding internal migrations in late 19th century Britain. These are its relationship with emigration, the characteristics of migrants, and its causes and impact on labor markets.[5] The relationship between emigration and internal migration has been a key issue in the field of European migration. For Britain, Baines (1985, ch. 8, 1994a, 1994b, 1994c) has convincingly shown that there

was no significant general relationship between the two kinds of migration. That is to say, there were cases where emigration and internal migration rates moved in opposite directions in some cases but followed the same pattern in others.[6] In this regard, Boyer and Hatton (1997, p. 707) and Hatton and Williamson (1998, pp. 16-17) argue that the degree to which emigration and internal migration were or were not competing alternatives depended on the response to changes in the two kinds of migration responded to changes in the pull of home and overseas destinations. These destinations may not have been viewed as substitutes by potential migrants, but migration finally responded to the strongest pull. Conversely, potential migrants may have viewed the two destinations as substitutes, but both kinds of migration would increase if economic expansion affected destinations at home and abroad.

Various models also show that most internal out-migrants in Victorian Britain were young - predominantly between 15 and 30 - and their origins were more rural than urban (Baines, 1985; Williamson, 1990; Friedlander, 1992).[7] Using variables for origins and destinations, the model proposed by Boyer (1997) and Boyer and Hatton (1997) confirms that internal migrations were driven by economic incentives such as the benefits derived from real wage and expected income gaps, and the costs of moving and job search. The same fundamentals are to be found in the extensive literature on the causes of internal migrations in developing countries that has grown up since the 1950s.[8] Macro migration functions (based on censuses and similar aggregate data) for developing countries reveal significant effects for economic variables, reflecting the benefits and the costs of moving. The advent of a recent, more sophisticated micro literature based on surveys has confirmed the relevance of economic forces (Lucas, 1997, p. 741).

Economic analyses of 19th century internal migrations in Britain have considered effects on labor markets. According to the model for the determinants of internal migrations, the response of migrants to wage gaps suggests that migrations worked to erode wage differentials between high- and low-wage areas. However, substantial wage gaps persisted. It has been argued that strong supply and demand forces, in particular shifts in labor demand counteracted the impact of migrations and that this explains the persistence of wage gaps (Boyer, 1997, p. 211; Boyer and Hatton, 1997, p.249). Furthermore, internal migrations may in fact have had a weak impact on wage integration in some regions. Boyer and Hatton (1994) estimate the degree of labor market integration between pairs of regions and find that the labor markets of some regional pairs were poorly integrated. Nevertheless, as Boyer (1997, pp. 211-212) shows using a partial equilibrium

approach, migrations may play only a minor role in wage convergence and yet be relevant for strong wage changes in regions with large out- or in-migration rates.

Meanwhile, Grant's (2000) D. Phil. thesis deals with the determinants and impact of internal migrations in Germany between 1870 and WWI. Among other issues, the author shows that German migrants were driven by economic incentives. Demographic conditions and the share of active population employed in agriculture had positive effects on out-migration.[9] However, pull factors such as the rise in the demand for labor and increased wages in industries and services were also crucial to the rise in migration rates. Grant also shows that internal migrations contributed to reduce wage disparities between regions and stabilize urban markets.[10]

The purpose of this paper is to provide a new case study to answer some of the questions debated in the international literature on internal migration. What was the relationship between emigration and internal migration in the Spanish case? The no-substitute relationship found in Britain makes sense if we consider that, in general, both home and overseas destinations expanded in the mid-19th century. However, mass international emigration from Spain happened later, as was the case in other Latin countries. Does this mean that potential Spanish migrants substituted overseas for home destinations?

Another relevant issue is the type of migrant. Were Spanish migrants, as in other cases, young and predominantly rural? Were they the poorest or the least skilled? Did Spanish migrants respond to economic forces? How did they choose their destinations? These questions are particularly relevant in that some economic historians have suggested sociological reasons (low dynamism, conservatism, risk aversion) to explain low migration rates during Spanish industrialization.

Finally, what was the impact of rising internal migration rates during the early decades of the 20th century? Is the size of this phenomenon comparable to the impact of migration in more advanced economies such as Britain or Germany?

The rest of this paper is organized as follows. Section 2 describes the evolution and spatial distribution of internal migrations. Section 3 analyzes the determinants of out-migration and its relationship with overseas emigration, while section 4 deals with analyzes the determinants of the choice of destination. Section 5 discusses several methods to estimate the impact of migrants on labor markets. Section 6 summarizes the main conclusions.

2. Internal migrations in Spain before the Civil War: evolution and spatial distribution

Rural out-migration on a significant scale in Spain goes back to the 1860s. Thus, historians have argued that early industrialization may have had some impact on employment prospects in the countryside (Erdozáin and Mikelarena, 1996). Rural artisans and peasant families, who allocated a part of their labor to rural industry (especially textiles, metal working and transport), may have migrated in response to changes in the regional distribution and concentration of manufacturing during the 19th century.[11] However, it would be wrong to assume that rural and urban populations were "immobile". Pre-industrial and industrializing societies may have had high mobility rates, mainly based on temporary or seasonal migrations (generally over short distances). In the case of Spain, a number of studies have demonstrated the importance of seasonal or temporary mobility in the 19th century. These involved three main types of movements between agricultural areas (Florencio and López-Martínez, 2000), to pre-industrial cities (Reher, 1990; Sarasúa, 2001) and to expanding early industrial centers (Camps, 1992; Arbaiza, 1998).[12]

The size of such "permanent" internal migrations can only be estimated on a consistent spatial basis from the 1870s onwards. Historical studies of permanent internal migrations at the macro level (as well as early research on developed and developing countries) use information about population enumerated in a place *j* at time *t* born in place *i*. This data on "lifetime" migrants allows researchers to estimate flows of migrants from *i*-origins to *j*-destinations between two census dates. In the Spanish case, Born in Another Province (BAP) data are available from 1877. Table 1 shows the evolution of internal migrations using inter-census flows.[13] Between 1877 and 1900, low internal migration rates coincide with low emigration rates. The rising trend of internal migrations in the two decades between the 1900 and 1920 occurred at a time when emigration also rose sharply, particularly up to 1914 (Sánchez-Alonso, 1995, 2000a, 2000b). Internal migration, however, reached a peak in the 1920s, practically doubling earlier levels, precisely when overseas emigration had lost its force because of the disruption of international labor markets (Hatton and Williamson, 1998; O´Rourke and Williamson, 1999; Chiswick and Hatton, 2003). The Spanish Civil War (1936-1939) and its economic and social consequences in the 1940s abruptly broke the ascending path of internal migrations.

The high share of active population employed in agriculture in the 19th century (stable at around 72% until 1910) - and even during the early decades of the 20th century

(63 and 51% in 1920 and 1930) raises the question of why the countryside did not transfer more people to nonagricultural sectors.[14] Interpretations of low migration rates fall into two main groups of supply and demand based arguments.

Supply based interpretations have stressed the low demographic and productive dynamism of agriculture as the main explanation for the absence of structural change. High migration rates would only have been possible towards the end of the century, when the arrival of foreign grain put pressure on agricultural labor in Spain and elsewhere in Europe (Nadal, 1975, ch. 3, 1984, ch. III; Tortella, 1987, 1994, ch. 1).[15] Nevertheless, high protective tariffs would have prevented a large exodus (Tortella, 1994, chs. 1 and 2). Supply based interpretations have also suggested sociological factors such as resistance to mobility, conservatism and risk aversion as possible explanation for low migration (Sánchez-Albornoz, 1977, p. 18; Tortella, 1994, p. 7; Carmona and Simpson, 2003, pp. 92 and 115).

The more elaborate institutional arguments proposed by Simpson (1995a, ch. 8, 1995b) and Carmona and Simpson (2003, ch. 3) focus on land tenure. According to these authors, access to land ownership or the possibility of future access, especially in Andalusia where landless laborers were predominant, could explain why labor was reluctant to leave the countryside, despite higher urban wages. This would also explain the large number of temporary rural-urban migrants. Thus, aspirations to move up the *agricultural ladder* (i.e. to obtain a farm) led part of the labor force to consider migration to the cities as a temporary option.

On the other hand, demand based interpretations (sometimes proposed by the same authors) have focused on low urban dynamism and the scant of industry and services until the 1920s (Nadal, 1975, 1984; Sánchez-Albornoz, 1977; Pérez-Moreda, 1985, 1987; Tortella, 1987, 1994; Maluquer de Motes, 1987; Simpson, 1995a, 1995b). Particularly, Prados de la Escosura (1988, chs. 1 and 3, 1997) has pointed out that the weakness of industrialization would help to explain why labor was not released at a higher rate until the 1920s, taking into account supply-side factors such as institutions or low levels of agricultural productivity. Similar explanations have also been advanced in recent works by Sánchez-Alonso (2000a, p. 326) and Rosés and Sánchez-Alonso (forthcoming, 2003).[16] In fact, the crude comparison made by Prados de la Escosura (2003, p. 154) between the internal inter-census migration rates shown in Table 1 and GDP growth for similar periods, suggests that the dramatic increase of internal migrations could be associated with the acceleration of economic growth.[17]

In an international comparison, the same demand-based interpretation has been used to explain low internal migration rates in France. Although some French economic history suggests peasants were reluctant to leave the farm, Sicsic (1992) argues that modest rates of industrialization in fact generated only weak labor demand. Moreover, the evolution of internal migrations in Spain was similar to other Southern European countries where industrialization arrived late.

Table 2 approximates the evolution of internal migrations in three countries by using the "born in another place" indicator. The size of these geographical units is not comparable, and it is therefore necessary to focus on changes. In the case of Portugal, the percentage of the population born in another district seems to be stable from 1910. The small change occurring between 1910 and 1930 (there is no information for 1920) reflects limited demand for labor outside the districts of Lisbon and Oporto (Baganha and Marques, 1996). However, Lisbon's pull continued to increase over these two decades. The case of Italy is more similar to Spain. Thus, the internal migration rate in Italy increased sharply during the 1920s, also due in part to the fall in emigration overseas caused by the disruption of the international labor market (Treves, 1976; Sori, 1979, ch. 11).[18]

The spectacular growth of the Spanish economy in the 1920s drove the development of industries with a greater pull for migrants, such as building.[19] However, all industries and services attained high growth rates.[20] Economic historians have sometimes been skeptical about the insertion of unskilled agricultural workers in some industries in the early 20th century. For instance, applying a micro approach at factory level in Sabadell (Barcelona), Camps (1997) finds that migrants may had had difficulty entering industries such as textiles where new skill requirements implied that labor recruitment was confined to nearby industrial areas. However, research in the city of Barcelona based on the 1930 register of inhabitants (*padrón*) shows that in-migrants relatively well established in middle-wage occupations across a range of industrial and service sub-sectors, although they were under-represented in the highest-wage occupations (Oyon et al, 2001, chs. 1 and 5).[21]

Another important industrial destination was Vizcaya, where pull was based on the expansion of mining and metal working.[22] For instance, Arbaiza (1998) argues that technological changes in the metal industries from the beginning of the twentieth century, facilitated the absorption of low skilled migrants, resulting in a reduction of temporary migration.[23]

Spain also experienced some rural-rural movements, in which migrants from rural areas moved to agricultural jobs in more prosperous provinces. This is the case of rural Catalonia, where the gaps left by rural-urban migrants to Barcelona were filled by migrants from the neighboring provinces (Aracil et al, 1996). In any case, the pull from rural areas decreased during the 1920s.[24]

Two final features of internal migrations should be considered. First, there is the tendency to spatial concentration of in-migration.[25] Table 3 shows that a significant number of the main destinations in 1930 were already regarded as such in 1877. Meanwhile, two great areas of influence consolidated around Madrid and Barcelona. In Appendix 1 Spain is split into the six macro-regions proposed by Róses and Sánchez-Alonso (forthcoming). Barcelona basically pulled migrants from the Mediterranean provinces, four provinces of the Ebro Valley (21 to 24), and the Andalusian province of Almeria (Arango, 1985; Silvestre, 2001). Madrid, on the other hand, drew in people from North and South Castile and some of the northern provinces (Silvestre, 2001). By 1930, the provinces of Madrid and Barcelona accounted for 45.8 per cent of the total stock of 2,189,450 BAP (Table 3). Seville and Vizcaya, the other two large centers of attraction, lagged far behind and their areas of influence were largely restricted to adjacent provinces. The pull of other destinations gradually faded away.

The second salient feature is the fact that out-migration from Andalusia, the poorest part of the country, was low. Column 6 ("Observed") in Table 6 shows regional out-migration rates for the 1920s. The two regions with rates clearly below the national average value of 64.67 out-migrants per thousand population were Andalusia and the North. The northern provinces exhibit the highest overseas emigration rates, although this was only the case for some coastal provinces of Andalusia (Sánchez-Alonso, 1995, ch. 6, 2000b). Only the censuses of 1920 and 1930 supply data on the origin of BAPs, and therefore it is not possible to estimate out-migrant flows before the 1920s. Residuals obtained from the inter-census balance method for previous decades reflect only slightly negative or even positive migratory balances for the provinces of Andalusia and South Castile over one or more decades (Mikelarena, 1993).[26] In fact, some of these provinces (particularly Albacete, Ciudad Real, Córdoba and Jaén) had a considerable pull for rural migrants, who could find agricultural work especially on the large estates or *latifundios* (Gómez-Díaz and Céspedes, 1996; Florencio and López-Martínez, 2000).[27]

The negative impact of *latifundios* and, in general, of unequal distribution of land on permanent and medium- and long-distance migration and, conversely, the pull exerted by

large estates on short-distance migrants was argued by Bernal (1985) long ago. Similarly, Gallego (2001) has proposed that the reason for the existence of low medium- and long-distance migration rates from the South could be the extent of labor demand for agricultural jobs on large estates for a significant part of the year. Thus, rural-rural migration between southern provinces was based on the recruitment of wage laborers (receiving low but more-or-less constant incomes) and small farmers accessing supplementary employment. By contrast, the more numerous small farmers of northern Spain did not usually have the chance of finding work on large estates. Their response was to seek nonagricultural labor markets, and one or more members of the family would migrate to supplement or substitute agricultural incomes.

3. Determinants of out-migration

Internal migrations in Spain accelerated in the 1920s. Up to that time it seems reasonable to suppose, in view of similar experiences in countries such as France, Italy and Portugal, that the modest pace of industrialization was the main reason for low internal migration rates. In contrast to the case of London, potential destinations at home did not really increase their pull until the second or the third decade of the twentieth century, and, as Tortella (1987) has pointed out, overseas emigration (mainly to Argentina, Brazil, Cuba and Uruguay) was the most plausible alternative for potential migrants. Sánchez-Alonso (1995, 2000b) has performed econometric studies of the determinants of provincial emigration in the two peaks of the flow, 1880/90 and 1911/13. The regressions suggest the substitute nature of both types of migration using the urbanization rate as a proxy for the pull of nearby cities, while the relationship with overseas emigration is found to be negative and strongly significant.

International emigrants presented a clear profile. Spanish emigration was income constrained because workers found it difficult to finance the move. Furthermore, emigration rates tended to be higher not only in high-wage but also in the most advanced provinces (i.e. those with the lowest shares of agricultural labor). Differences in literacy also had a strong impact on migration rates. The relevance of literacy and the "family and friends effect" reflect the relevance of information costs in inter-continental movements.[28] In short, the higher costs and risks associated with overseas emigration determined the type of migrant.

The aim of this section is to test whether the characteristics of international emigrants also apply to internal migrants. Unfortunately, the lack of data means that an econometric model cannot be calculated before the 1920s. However, it was in this decade when internal migrations really intensified. A priori, we may expect a type of migrant with different socioeconomic characteristics, who is basically poorer, probably more agricultural, and unable to finance the move to America. This migrant is also less skilled, without predecessors, and constrained by the cost of job search. The impact of push or supply-based potential determinants is analyzed first, without for the time being considering the destinations chosen and the intensity of the choice. This restriction is equivalent to assuming that the conditions of the destinations and the displacement costs are the same for all origins (Boyer and Hatton, 1997). However, such a condition makes it possible to examine the common features of the provinces from which the population was pushed to a greater or lesser degree, and compare results with those obtained by Sánchez-Alonso (1995, 2000b) for overseas emigration.

Migration is not solely a function of conditions in the sending region, so in a second model (discussed in the next section) we take account of the criteria determining the choice of a specific destination in terms of the costs and benefits associated with the option chosen, displacement and insertion in a given location.[29] In both models, the dependent variable is based on the BAP data supplied by the only two consecutive censuses (1920 and 1930), which offer disaggregated information on the origins and destinations of out-migrants/in-migrants. The object, then, is to estimate the decade-long flow of out-migrants in the first model and in-migrants in the second.[30] The use of BAP items implies that the model focuses on permanent rather than seasonal or temporary migration.

The sources and methods used to construct the variables included in the out-migration model are presented in Appendix 2. Column 1 of Table 4 includes four main "fundamentals" (Hatton and Williamson, 1998, ch. 3; Chiswick and Hatton, 2003, pp. 81-82).[31] According to various studies of migrations in different periods and countries (cited in the Introduction), an abundant stock of young people (POP) may be a significant determinant of out-migration.[32] The relative importance of the agricultural sector, proxied by the share of labor force in agriculture (AGLF), has usually been considered as an indicator of economic backwardness and, in the case of overseas emigration, as a limiting factor on population outflow (Hatton and Williamson, 1998 ch. 3; Sánchez-Alonso, 2000b). In the case of internal migrations, however, migrants were predominantly from rural areas (also see the Introduction). During a period of intense structural change such as

the case analyzed in this paper, the existence of a surplus of agricultural labor could have contributed significantly to expulsion.

The next variable is the level of real agricultural wages (WAG). In principle, it might be assumed that this variable would be inversely related with migration, in the sense that people moved to wealthier areas. However, poverty was a limiting factor of Spanish overseas emigration (Sánchez Alonso, 2000a, 2000b). Finally, the existence of previous out-migrants (STO) reflects the transmission of information on opportunities in potential destinations, and the assistance in the costs of moving, job and accommodation search, etc.[33]

Columns 2 to 4 extend the set of potential variables. With respect to the level of literacy (LIT), it has traditionally been argued that a skilled population is more likely to be mobile (Sandberg, 1982). It is possible that this relationship was stronger in the case of overseas emigration, in which distance, risks, bureaucratic requirements, and cultural change were usually greater. In any case, *a priori*, the higher the level of literacy, the better job prospects and earnings are likely to be. The inclusion of agricultural output per worker (PRO) seeks to complement the approximation to the standard of living, while the proportion of wage earners in the agricultural sector is used as a proxy for the land tenure system (LAND). According to the literature on Spanish agricultural history (cited in Section 2), the extent of wage relationships in the countryside is an indicator of the existence of complementary agricultural jobs, one of the arguments used to explain the retention and even attraction of labor in the south. Thus, the higher the proportion of wage laborers, the more concentrated land ownership and, therefore, the lower the incentive to out-migrate. The overseas emigration rate (OVER) is also introduced to help explain the relationship between the two types of migration. In particular, this variable will show whether substitution between the two kinds of migration remained when the growing pull of internal destinations made internal migration a clear alternative to emigration throughout Spain. Finally, because the model uses data at the provincial level, the rate of urbanization (URB) has been included in some regressions to control for the existence of nonagricultural job opportunities close to the place of origin and the disincentive that these might represent for migration to other provinces.

The percentage variations in internal out-migration rates explained by the variables considered are high. It thus appears that the high proportion of young people (POP) and the share of the labor force in agriculture (AGLF) had an important influence on internal out-migration.[34] This surplus labor was less likely to migrate if there was a choice of nearby

nonagricultural employment, as shown by the negative correlation between the urbanization rate (URB) and out-migration. The two income level variables (WAG and PRO) are negatively correlated with out-migration, though PRO is only significant at the 10 per cent level in columns 3 and 4. Similarly, the represented by as the land tenure system (LAND) seems to have had no significant impact on out-migration, and it even presents the wrong sing.[35] The existence of previous migrants (STO) increases the incentive to migrate, and the inverse relationship between overseas emigration (OVER) and internal migration reinforces the idea that they were substitutes. If we compare these results with those obtained by Sánchez-Alonso (2000b) for overseas emigration, it emerges that the provinces contributing the highest internal migrations had a different profile from those contributing to overseas emigration. Internal out-migration was mainly determined by large surpluses of young, not necessarily skilled agricultural labor, and was associated with the lowest rates of overseas migration. Again by contrast with overseas emigration, which is generally costlier, internal migration was not constrained by lack of income, although no strong evidence is found that the poorest provinces had the highest levels of internal migration.

One factor that might challenge the hypothesis of a substitution relationship between the two kinds of migrations is stage migration. For Britain, Baines (1985, ch. 9) found that the extent of rural-urban stage migration, previous to emigration, was relatively small, with the only exception of South Wales. For Spain, this is also suggested by Sánchez-Alonso (1995, p. 47), who cites official publications. On the other hand, Moya's (1998, chs. 1 and 3) micro research on villages located in four northern provinces (Pontevedra, Bilbao, Navarre, and Barcelona) suggests that rural-urban staging prior to emigration was very common. The magnitude of these initial movements is, however, difficult to estimate because provincial emigration data refer to the emigrant's last residence, not to his/her place of birth. As Sánchez-Alonso (2000b, p. 739) remarks, "In an age of transoceanic migration, this inevitably introduced a bias in favor of coastal provinces".

Taking into account Moya's research strategy and findings, a macro-approach is also possible to estimate the extent of these movements. For this purpose in-migration rates at province level are calculated first (Appendix 3). Second, in Table 5, emigration rates on three dates are regressed on in-migration rates with the aim of establishing whether provinces sending emigrants had previously received internal in-migrants. Results at the macro level show no positive or significant relationship between the two flows. If this approach is correct, stage migration was probably small.

Finally, Table 6 uses the coefficients obtained in Table 4, column 2, and average values for variables reflect the impact of each determinant of out-migration at the regional and national levels. Among the regions with the lowest rates of out-migration, Andalusia suffered from relatively high demographic pressure (POP), but its lower levels of past migration (STO) may have inhibited migration. The North clearly shows an overseas emigratory pattern (see STO and OVER). Among the regions with the highest rates of out-migration, Table 6 reveals the importance of past or chain migration (STO) in the Ebro Valley and North Castile. Wage impacts (WAG), which are not significant, are either high or low in regions with different levels of out-migration. This issue is considered in the next section.

4. Determinants of the choice of destination

As explained in section 3, internal out-migrants tended to be young, from the most backward provinces, and not necessarily skilled. However, up to this point little has been said about how they chose their destinations. This section seeks to establish whether migrants were driven by differences in economic conditions. The model described takes into account the costs associated with the choice of destination, displacement, and insertion on arrival. Given the high concentration of the migrant stock in Spain around 1930, the model analyzes migration from each place of origin to the twelve most attractive in Spain, which accounted for 70.3%of immigration (see Table 3).[36]

Variables are described in Appendix 4. The wage gap between origins and destinations (WG) is the ratio between bricklayers' wages at destinations and agricultural wages at origins.[37] This assumes that the average wage of an urban bricklayer is representative of the kind of low skilled urban jobs to which migrants would have the easiest access. The distance variable (DIS) reflects displacement costs in a broad sense. Thus, it includes the journey costs, the cost of entering a new labor market and seeking a job, the income foregone during the transition period, "psychological" costs, etc. (Schwartz, 1973). The 'friends and relatives effect' between an origin and specified destinations is also reflected (STO). A fourth variable was also included to reflect differences between destinations, given that not all had the same pull. Thus, the percentage share of the nonagricultural active population (DESAGLF) at each destination is used to approximate the existence of more or fewer job opportunities in both the industrial and

service sectors. According to Simpson (1995b) this variable rather than wages may have been the decisive factor determining migration.

Table 7 shows the main results. Columns 1 and 2 confirm that migrants responded to economic incentives. Internal migration responded both to the wage gap (WG) and to the minimization displacement costs (DIS), job search, accommodation, etc. (STO). Furthermore, the findings confirm the importance of other pull factors such as job opportunities in nonagricultural employment (DESALGF). Columns 3 and 4 show the strong pull of the destinations from another point of view. They also confirm the relative importance of wages in origins found in section 3. The inclusion of the variable WG in columns 1 and 2 recognizes the symmetrical action of wage conditions at origins and destinations act symmetrically. That is to say, potential migrants had the same amount of information on origins and destinations, and responded in the same way to changes in both labor markets (Gabriel et al, 1993). However, if the impacts of wage incentives in the places of origin (ORIWAG) and destinations (DESWAG) are considered separately, they are found to act asymmetrically and , in this particular case, pull seems to have greater strength than push.

Table 8 repeats the simulation reflected in Table 6. In this case, however, the impact of each determinant on in-migration is estimated for the top twelve destinations. The simulation uses the coefficients from Table 7, column 2. Despite its lower predictive power, the model still offers relevant findings. First, Table 8 confirms the importance of nonagricultural employment as probably the main force driving migration. Tables 7 and 8 show that wage gaps were a significant determinant of migration, although small wage gaps in Spain may have inhibited migration.[38] Second, the cost of moving was relatively high. This finding helps to explain why out-migration from the poorest provinces in the south was low, although their inhabitants had the most to gain by the move. The provinces of Andalusia and South Castile were far away from the six main northern destinations of Barcelona, Vizcaya, Guipúzcoa, Zaragoza, Valladolid and Santander. Meanwhile, if some Andalusian provinces were among the top destinations and other Mediterranean destinations such as Valencia an Alicante were not so far from the south, the impacts reflected in Table 8 show that the costs of moving to any of these places were also high. Seville, Cordoba, Valencia and Alicante exhibit the highest percentage contributions for this limiting factor, and Cádiz is above the average for the twelve destinations. Madrid is, in fact, the only exception. However, if we compare the two great destinations, Madrid and Barcelona, Table 8 suggests two models of in-migration. Barcelona offset high moving

costs with high wages, whereas Madrid compensated lower wage gaps with the incentive of its location in the geographic center of the country.

In any event, distance as a proxy to a set of moving costs appears to be a significant inhibiting factor for migration, although it has not usually been considered in the Spanish literature. According to column 4 in Table 7, holding the rest of the variables fixed, a one kilometer increase in distance between origins and destinations led to a 0.3% decline in migration. That is to say, a 100 km increase in distance reduced migration in a 30%. If migration was cancelled out over distances exceeding around 300 km, low migration rates from the south become easier to understand. The average distance between all the origins and Barcelona and Madrid were 774 and 460 kms respectively, whereas in the case of the Andalusian provinces to the same destinations, average distances were 1,118 and 520 km.

5. Labor market impact

Migration affected almost a million people during the 1920s (see Table 1). What was its impact on the labor market? In this section, three complementary methods are applied to analyze the effects of the increase in labor migrations. Section 5.1 considers the relationship between migration and wage convergence. However, to focus on convergence is insufficient to fully understand the relevance of migrations. Section 5.2 uses the model of regional labor markets linked by migration, as proposed by Boyer and Hatton (1994), which is based on the estimation of time series relating the evolution of wages between two regions. Finally, a partial-equilibrium approach is applied in section 5.3 to assess the effect of migration on wage changes, particularly in origins and destinations where the number of migrants were large.

5.2. Migrations and wage convergence

Using the methodology proposed by Barro and Sala-i-Martin (1995), Rosés and Sánchez-Alonso (forthcoming) describe an intense process of wage convergence for both skilled and unskilled urban and rural wages from mid-19th century to 1930. On the one hand, these authors demonstrate the existence of a reduction in wage dispersion, namely σ-convergence. On the other, they show that this σ-convergence was caused by a strong β-convergence, that is to say, the tendency of regions with lower wages to experience greater wage increases than regions with higher wages. This process was only interrupted as a

consequence of World War I and the backlash of globalization. Two periods can be identified based on the speed of convergence (β) estimated by Rosés and Sánchez-Alonso and the volume of migration flows reflected in Table 1. From 1854 to 1914, the catching-up process occurs while internal migration remains low. From 1920 to 1930, wage convergence picked up once more after the hiatus of 1914-1920, while migrations doubled. In fact, considering migration as an explanatory variable in β regressions, the authors show that migration did not contribute substantially to the convergence process over the whole period

This section replicates the convergence analysis only for the 1920s, although more simply and with some minor differences, in order to confirm whether the dramatic increase in internal migrations did or did not have a significant impact on wage convergence, seeking to determine the direct effect of 1920s migrations on rural and urban wages and on wage gaps. Two kind of impacts are considered –those impacting internal migrations (NETINTMIG) and those impacting internal migrations plus overseas emigration (NETMIG).[39] Following Barro and Sala-i-Martin *net* migrations are considered. With respect to the impact of internal net migrations, NETINTMIG is constructed on the basis of the BAP per the 1920 and 1930 censuses and the census survival coefficient (see Appendix 5). Similarly, NETMIG is the traditional migration rate obtained using the inter-census balance method. It therefore reflects the migration/emigration of both internal and overseas migrants. The principal difference between the two variables is that the second also reflects the return to internal destinations of overseas emigrants during the 1920s, which totaled 1,038,407 according to the figures produced by Sánchez Alonso (1995, appendix).

Barro and Sala-i-Martin (1995) indicate that if the migration of workers with low human capital from poor to rich regions tends to speed up the convergence of, in this case, wages, the convergence coefficients estimated would include this effect from migration. Therefore, if migration is an important source of convergence, then the estimated convergence coefficient β should decline when migration is included. The main results, are reported in Table 9, are similar to the findings of Rosés and Sánchez-Alonso (forthcoming). When the migration rates are added, the impact is insignificant and the value of β hardly changes, confirming that migrations do not appear to have been be an important source of wage convergence.

5.2. Migrations and labor market integration

Wage convergence is only one consequence of migrations. As Boyer and Hatton (1997) remark, market integration cannot be identified with wage convergence, given that the wage gap between two locations could diverge despite the proper functioning of the labor market, if the factors that condition the demand for and supply of labor do not coincide. To put it another way, wage convergence is possible in the absence of mobility on the part of the labor factor if labor supply and demand tend towards equality. Moreover, a global approach that takes into account all provinces at the same time may hide partial convergence processes between regions. In order to determine whether this is so, this section provides a model of regional labor markets linked by migration as proposed by Boyer and Hatton (1994). The model is based on the estimation of time series relating wage evolution between pairs of regions. Without specific data on annual migration flows, this approach tests whether migrations contribute to integration. This is an *error correction model* that reflects the degree to which common short run forces affect both labor markets (e.g. external shocks in the demand for and supply of jobs) and the tendency towards a long run equilibrium wage relationship.[40]

The model was estimated based on the fairly complete daily series of agricultural and building industry wages included in the Spanish Statistical Yearbooks (*Anuarios Estadísticos)* (Statistics Yearbooks) for the period 1914-1931, disaggregated on a provincial basis.[41] These wages were considered representative for origins and destinations respectively. Wage data was then grouped according to the division of Spain into the six macro-regions proposed by Rosés and Sánchez-Alonso (forthcoming) and comparisons were made between pairs.

The order of integration of the data series is considered first. Table 10 shows that all the series are stationary in levels, with the only exception of the agricultural wage in Andalusia, which is stationary in first differences. Results for this series should therefore be viewed with caution. The results for all pairs of regions in each labor market are shown in Tables 11 (agricultural) and 12 (building). Following the Boyer and Hatton (1994) model, a time trend and an intercept were included. Short-run ($\Delta \log w_{j.t}$) and long-run ($\log(w_i/w_j)_{t-1}$) integration coefficients are respectively positive and negative as expected. The significant sign of the coefficient for the $\Delta \log w_{j.t}$ term in all except in one cases (Table 11, row 9) suggests that common shocks arising from changes in labor demand or supply were important in both origin and destination labor markets. The sign of the $\log(w_i/w_j)_{t-1}$ coefficient is not always significant, showing that in some cases not all of the regions are

integrated in the long run in each sector. Two regions, Andalusia and the North, stand out for their weak integration. In the agricultural market, Andalusia is only integrated in the long run with the two Castiles (Table 11, rows 4 and 5). In the building industry market, Andalusia is not integrated in the long run with the Mediterranean or the North, while the latter is only strongly integrated with Southern Castile, and weakly with Northern Castile.

These results are consistent with the evolution of regional migration rates. Thus, both the North and Andalusia, had relatively low rates of internal out- and in-migration. On the one hand, the North and the coastal Andalusian provinces had the highest rates of overseas emigration (Sánchez-Alonso, 1995, 2000b) and the lowest rates of internal out-migration (Table 6, column "observed"). By the second and third decades of the 20th century, however, the Andalusian provinces had lost a significant part of their pull for southern migrants, as shown by the migratory balances calculated by Mikelarena (1993) and the in-migration rates at the provincial level given in Table 8 (column "observed").[42] Except for Andalusia and the North, short and long integration coefficients between the other regions tend to be high and significant. There are ten pairs airs of regions with both coefficients significantly different from zero in the agriculture market and eleven in the building industry. In any event, these findings suggest that the national wage convergence process was compatible with either strong or weak regional labor market integration.

5.3. Migrations and wage elasticity of labor demand

A further method to determinate the importance of internal migration is to estimate wage changes in origins and destinations produced by the redistribution of workers. In other words, it is possible to estimate what the level of wages would have been if no migration had occurred (for instance, Williamson, 1990, pp. 92-96; Boyer, 1997). For this purpose, it is first necessary to estimate the labor force participation of migrants, and, second, to estimate demand elasticities for labor in origins and destinations. In Table 13, panel A, we assume that the labor force participation of migrants is equal to the labor force participation for the total population. Average labor force participation for each macro-region is multiplied by the relevant out-migration rates, and labor force participation for the two main destinations (Madrid and Barcelona) by in-migration rates.[43] An alternative "reduced" estimation is provided for the two destinations, considering only the origins with the greatest push.[44] Panel B simply assumes a higher and more realistic labor force participation for migrants (90%).[45] The second step consists of estimating labor demand elasticity, that is to say, the wage elasticity of labor demand holding all other inputs fixed.

There are no estimates in historical contexts in the Spanish case. A range of estimations has therefore been assumed based on various empirical studies for different aggregations (basically, countries, groups of countries and large industries) and alternative methods.

Table 13 (panels A and B) provides estimations assuming five different values for wage elasticity. The highest (-1.6 and -2.0) are the long-run elasticities in nonagricultural and agricultural markets assumed by Boyer (1997) for England and Wales between 1861-1901. The first was estimated by Williamson (1990, pp. 92-96) for the British nonagricultural sector in 1841 using a general equilibrium model. The second is assumed by Boyer (1997) considering that the elasticity of labor demand in agriculture was somewhat larger. The lowest (-0.15 and -0.75) are the "reasonable confidence interval" in developed economies proposed by Hamermesh (1993, ch. 3) and are based on a review of more than seventy empirical studies.[46] The value of 1 is used to complete the sensitivity analysis. If the most plausible assumption of 90% is accepted directly as the labor force participation of migrants (panel B) and assuming the intermediate value of labor demand elasticity, 1, the average wage would have been at the least some 6% lower/higher than its actual level in origins/destinations. In regions with the greatest out-migration rates, the impact would have been around 10%, or even over 15% if higher elasticities are considered for agricultural wages, following Boyer. Despite reservations due to the lack of more accurate data, this tentative exercise suggests similar impacts to the British case. Taking into account that only one decade is considered, estimations of around 9-12% in the origin wage (assuming high elasticities for agricultural wages) and around 6% per cent in the destination wage (assuming intermediate elasticities for nonagricultural wages) give values close to those found by Boyer for four decades, 32 and 24-28 for out-migration and in-migration in London respectively

6. Conclusions

Similarly to the French debate described by Sicsic (1992), the Spanish literature abounds with arguments concerning the reasons why internal out-migrations were not greater and, hence, why structural change was not swifter. As Prados de la Escosura (1997, p. 92) remarks, "why out-migration from rural areas did not take place earlier and was not more intense is a key question in the historical debate concerning the underdevelopment of Spain". Some scholars have stressed supply-based approaches related with the backwardness of agriculture and sociological or institutional factors to explain the matter. This paper, while recognizing that the supply side cannot be ignored, defends demand-

based factors as providing the best explanation for the lack of development and low out-migration rates from some parts of the country.

A simple comparison with other European countries suggests that internal migrations were associated with industrialization and economic growth. Therefore, as in other southern European countries, the rise in out-migration occurred rather in the 20th than in the 19th century. While it is true that the alternative of overseas emigration remained, this option was not available to all potential migrants. The work of Sánchez-Alonso (1995, 2000a, 2000b) shows that income constraints were a powerful factor preventing greater overseas emigration. In conjunction with the high costs involved in intercontinental emigration, this factor defined a very specific emigrant profile. These were relatively skilled people who tended to come from the least economically backward regions (by the share of the active population employed in agriculture). The present paper shows that the profile of the emigrant was quite different in the 1920s, when internal out-migration was at its peak. Internal migrants were predominantly unskilled and drawn from poor and rural areas. The lack of data prevents a more detailed depiction of migrants from the 19th century. Nevertheless, the models estimated in this and other studies appear to confirm that a substitution relationship did exist between internal and overseas out-migration at an earlier date.

The internal migrant reacted to economic stimuli, just as the overseas emigrant did. Leaving aside the hypothesis that Spanish workers may have been somehow reluctant to move, this paper shows that internal migrants responded to the economic differences created when growth really took off. The standard factors, comprising wage and employment gaps and the costs of moving and job search, account for much of this migration. The prospects of nonagricultural employment were particularly relevant. As shown in recent studies, however, Spanish rural-urban wage gaps were small, a factor that may have prevented the emergence of higher migration rates.[47]

Another interesting feature of the phenomenon is that out-migration from the most impoverished areas of southern Spain was relatively low. The arguments proposed in the literature to explain why those who had the most to gain did not emigrate to the expanding industrial centers focus, once again, mainly on supply-based factors. The most significant of these is unquestionably the enormous demand for farm labor on the great estates. This demand would have allowed the substitution of medium distance rural-urban out-migration, which tends to be permanent, for short distance temporary or seasonal migration governed by the agricultural cycle. In our analysis of the 1920s, this factor does not seem

to have played an important role, although it is probable that it would have done in earlier decades, when the primary sector in the south was more dynamic.

In any event, an alternative explanatory factor is offered here, which has as yet hardly been considered. This is the cost of moving. The importance of distance on migration, first remarked by Ravenstein (1885) long ago, is clearly relevant in the case of the southern provinces of Spain, which were far away from the main destinations, and particularly from those located in the northeast of the country. Distance should thus be regarded as a proxy for a set of financial and physical costs, as well as for information on labor markets at potential destinations.

This paper also considers the impact of the spectacular increase in internal migration during the 1920s. Although the effect of rising internal migration on wage convergence is shown to be insignificant, these population movements did act as an integrating force on the major regional labor markets. Meanwhile, Andalusia and the North, the two regions that were least involved in such internal migrations, exhibit a marked lack of labor market integration with substantial parts of the country as a whole. In the North, this was due to overseas emigration. The coastal provinces of Andalusia also saw significant overseas emigration, while the rest of the region was affected by short distance migrations either within its own bounds or towards the closest provinces of other regions. Finally, if we consider the impact of migrations of wage elasticities at origins and destinations it seems that these would have been similar to those calculated by Boyer (1997) for Britain, although the paucity of available data in the Spanish case means that only a tentative estimate is possible.

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Appendix 1. Regions and provinces

Region	Province	Region	Province
North	1-Corunna	Mediterranean	25-Gerona
	2-Lugo		26-Barcelona
	3-Pontevedra		27-Tarragona
	4-Orense		28-Castellón
	5-Oviedo		29-Valencia
	6-Santander		30-Alicante
	7-Vizcaya		31-Murcia
	8-Guipúzcoa		32-Baleares
North Castile	9-León	South Castile	33-Madrid
	10-Palencia		34-Guadalajara
	11-Burgos		35-Cáceres
	12-Zamora		36-Toledo
	13-Valladolid		37-Cuenca
	14-Soria		38-Badajoz
	15-Salamanca		39-Ciudad Real
	16-Avila		40-Albacete
	17-Segovia		
Ebro Valley	18-Alava	Andalusia	41-Huelva
	19-Navarre		42-Seville
	20-Logroño		43-Córdoba
	21-Huesca		44-Jaén
	22-Zaragoza		45-Cádiz
	23-Teruel		46-Málaga
	24-Lérida		47-Granada
			48-Almería

Notes: The Canary Islands are not included. See map for the location of provinces.
Source: Rosés and Sánchez-Alonso (forthcoming).

MAP

Appendix 2. Expulsion model variables (Table 4)

$OUTMI(1920\text{-}1930)_{i,n\text{-}i} = [SO(1930)_{i,n\text{-}i} - (S(1920\text{-}1930)*SO(1920)_{i,n\text{-}i})] / POP(1920)_i$, where SO is the stock of out-migrants born in the province i that reside in the rest of the provinces n-i; S is the census survival coefficient between 1920 and 1930 (See Table 1); and POP is the total population of the province i. Measured per thousand population. All the components are obtained from the Population Censuses of 1920 and 1930.

POP: Percentage of the population aged between 11 and 30 in 1920. Own calculations on the basis of the Population Census of 1920.

AGLF: Percentage of the active male agricultural population in 1920. Own calculations from the Population Census of 1920.

URB: Percentage of the population living in municipalities of 5,000 inhabitants or more in 1920. Taken from Luna (1988).

WAG: Average daily male nominal agricultural wages taken from the1920 Statistical Yearbook (*Anuario Estadístico*) of 1920. These nominal wages have been adjusted by the purchasing-power-parity (PPP) price indices for a common market of goods estimated by Rosés and Sánchez-Alonso (forthcoming).

STO: Out-migrant stock per thousand population in 1920. Own calculations from the Population Census of 1920.

LIT: Proportion of individuals aged between 16 and 30 able to read and write (or only read), variation between 1900 and 1920. Own calculations from the Population Censuses of 1900 and 1920.

PRO: Agricultural output per worker in 1920. Own calculations using various published and unpublished sources and data from Domingo Gallego and the other members of the *Grupo de Estudios de Historia Rural*. In order to check the robustness of the procedure, the agricultural output per worker was also calculated for 1910 and compared with previous estimations by Simpson (1994) for that date. The correlation between the two series was 0.92.

LAND: Land tenure system in 1920 proxied by the percentage of wage earners in agricultural labor force. Own calculations from the Population Census of 1920.

OVER: Gross rate of overseas emigration 1919-1920 per thousand population in 1920 (Sánchez-Alonso, 1995), pp. 292-293.

Appendix 3. Gross in-migration rates, 1877-1887, 1900-1910, 1910-1920 (Table 5)

$INMI(t\text{-}1\ t)_{i,n\text{-}i} = [SI(t)_{i,n\text{-}i} - (S(t\text{-}1,\ t)*SI(t\text{-}1)_{i,n\text{-}i})] / POP(t\text{-}1)\ i$, where SI is the stock of in-migrants that **reside** in the province i born in the rest of the provinces n-i; S is the census survival coefficient between t-1 and t (see Table 1); and POP is the total population of the province i. Measured per thousand population. Own calculations from Population ***Censuses***.

Appendix 4. Variables of the choice of destination model (Table 7)

$INMI(1920\text{-}1930)_{i,j} = [SI(1930)_{i,j} - (S(1920\text{-}1930)*SI(1920)_{i,j})] / POP(1920)_{i\ .}$, where SI is the stock of in-migrants born in the province i that reside in province j; S is the census survival coefficient between 1920 and 1930 (see earlier models); and POP is the total population of the province i. Measured per thousand population. Own calculations from Population Censuses of 1920 and 1930.

WG: Wage gap between the average wage of bricklayers in the destinations and the average agricultural wage in places of origin in 1920. Taken from the Statistical Yearbook of 1920. Deflated by the cost of living index explained in WAG (see Appendix 2).

DIS: Distance by rail between provincial capitals according to the criteria described in Silvestre (2001). The correlation between this distance and the aerial is 0.96.

STO: Migrant stock at destination j in 1920 born in origin i, and then divided by the total population of the origin i in that year. Expressed in per thousands terms. Own calculations from the Population Census of 1920.

DESNAGLF: Percentage of the nonagricultural active population at destination in 1920. Own calculations from the Population Census of 1920.

ORIWAG: Agricultural wages in origins, 1920.

DESWAG: Building wages in destinations, 1920.

Appendix 5. Net internal migration rate, 1920-1930 (Table 9)

$NETINTMIG(1920\text{-}1930)_{i,n\text{-}i} = [[SI(1930)_{i,n\text{-}i} - (S(1920\text{-}1930)*SI(1920)_{i,n\text{-}i})] - [SO(1930)_{i,n\text{-}i} - (S(1920\text{-}30)*SO(1920)_{i,n\text{-}i})]] / POP(1920)_i$, where SI is the stock of in-migrants, SO is the stock of out-migrants, and S is the census survival coefficient, in such a way that the first term on the right hand side is an estimation of the flow of in-migrants and the second term an estimation of the flow of out-migrants. All the above is divided by the population at the beginning of the decade. Own calculations from Population Censuses.

Table 1. Permanent internal migrations in Spain

	Migrations	Share of total Population (%)
1877-1887	369,424	2.2
1888-1900	428,253	2.0
1901-1910	565,830	2.9
1911-1920	583,123	2.8
1921-1930	968,581	4.3

Notes: Internal migrations $_{t-1, t}$ = BAP_t – (S_{t-1}* BAP_{t-1}); where t-1 and t are the corresponding census dates; BAP represents Born in Another Province, and S is the coefficient of the census survival rate obtained by way of the quotient, $Population_t \geq 10$ years / $Population_{t-1}$, the value for each period being 0.81 for 1878-1887, 0.82 for 1888-1900, 0.82 for 1901-1910, 0.84 for 1911-1920 and 0.86 for 1921-1930. The share of total population was calculated using the average population for each period.
Sources: Own calculations on the basis of the corresponding Population Censuses.

Table 2. Stock of internal migrants in Southern Europe

	1877	1890	1900	1910	1920	1930
Portugal		6.0	7.7	8.5		8.7
Italy			4.2	4.8	4.9	7.4
Spain	7.9	8.2	8.7	9.6	10.3	12.3

Notes: Percentage of population born in another district (Portugal), region (Italy), or province (Spain). Complete years in one of the cases for Portugal and Italy; 1887 in the case of Spain.
Sources: For Portugal, Baganha and Marques (1996), p. 104; for Italy, Treves (1976), p. 169; for Spain, own calculations based on the corresponding Population Censuses.

Table 3. Main destinations

1877		1930	
Destination	BAP (percentage of the total)	Destination	BAP (percentage of the total)
Madrid	21.0	Madrid	22.9
Barcelona	12.7	Barcelona	22.9
Cádiz	5.0	Seville	4.4
Seville	4.7	Vizcaya	4.3
Jaén	4.1	Valencia	3.1
Zaragoza	3.6	Guipúzcoa	2.1
Valencia	2.7	Córdoba	2.1
Valladolid	2.5	Zaragoza	2.1
Murcia	2.4	Cádiz	2.1
Málaga	2.2	Valladolid	1.5
Navarre	2.2	Santander	1.4
Vizcaya	2.0	Alicante	1.4
Total	65.1	Total	70.3
Spain	100	Spain	100

Note: BAP = Born in Another Province
Sources: Own calculations on the basis of the corresponding Population Censuses.

Table 4. Determinants of provincial internal out-migration, 1920-1930

Dependent variable: Log $OUTMI_{i,n-i}$	(1)	(2)	(3)	(4)	Mean
Constant	-0.155 (-0.09)	0.370 (0.23)	0.771 (0.54)	0.784 (0.56)	
Population, 11-30 age group, 1920 (POP)	0.076* (1.88)	0.066* (1.70)	0.084** (2.15)	0.078* (1.89)	35.65
Share of labor force in agriculture, 1920 (AGLF)	0.008** (2.45)	0.009** (2.62)			64.94
Urbanization rate, 1920 (URB)			-0.011** (-3.32)	-0.011** (-3.42)	29.13
Agricultural real wages, 1920 (WAG)	-0.008 (-0.38)	-0.024 (-1.03)	-0.019 (-0.82)	-0.016 (-0.68)	5.03
Out-migrant stock, 1920 (STO)	0.008** (8.75)	0.006** (7.63)	0.006** (6.72)	0.006** (6.56)	125.70
Change in literacy, 16-30 age group, 1900-1920 (LIT)		0.111 (0.44)	0.245 (1.08)	0.239 (1.05)	1.32
Agricultural output per worker, 1920 (PRO)		-0.00001 (-0.23)	-0.0001* (-1.82)	-0.0001* (-1.75)	3100.60
Land tenure system, 1920 (LAND)				0.002 (0.68)	73.60
Overseas emigration, 1919-1920 (OVER)		-0.026** (-3.23)	-0.036** (-4.30)	-0.033** (-3.53)	4.59
Adjusted R^2	0.708	0.758	0.780	0.778	
F-statistic	29.44**	21.99**	24.84**	21.49**	
N = 48					

Notes: * Significant for values of $p < 0.10$; ** Significant for values of $p < 0.05$. Equations estimated by Ordinary Least Squares. *t*-statistics in brackets. White standard errors. Canary Islands are not included. AGLF and URB appear in separate equations due to their high correlation, -0.67.
Sources: See Appendix 2.

Table 5. Internal in-migration and overseas emigration

Dependent variable: Log Overseas emigration	1889 (1)	1912 (2)	1920 (3)
Constant	0.542 (0.73)	2.283** (2.96)	1.186* (1.71)
Log Internal in-migration, 1877-1887	-0.082 (-0.31)		
Log Internal in-migration, 1900-1910		-0.199 (-0.79)	
Log Internal in-migration, 1910-1920			-0.267 (-1.11)
R^2	0.002	0.013	0.028
N=	44	48	45

Notes: * Significant for values of $p < 0.10$; ** Significant for values of $p < 0.05$. Equations calculated by Ordinary Least Squares. *t*-statistics in brackets. The number of cases depends on the number of provinces with zero emigration or negative internal in-migration rates that could not be transformed into logs. Gross rate of overseas emigration, 1888-1890, 1911-1913, and 1919-1921, per thousand population in 1887, 1910, and 1920 respectively. See Appendix 3 for the elaboration of dependent variables (INMI).
Sources: Sánchez Alonso (1995), pp. 292-293, for the emigration rates, and Appendix 3.

Table 6. Impacts on out-migration, 1920-1930

Region	Cons.	POP	AGLF	WAG	STO	PRO	LIT	OVER	Predicted	Observed
Andalusia	0.37	2.44	0.59	-0.13	0.55	-0.02	0.15	-0.09	49.43	51.89
		(61.3)	(15.0)	(3.3)	(13.9)	(0.5)	(3.7)	(2.4)	(100)	
Ebro Valley	0.37	2.31	0.65	-0.16	1.17	-0.03	0.15	-0.03	87.34	93.29
		(51.4)	(14.4)	(3.5)	(26.0)	(0.7)	(3.3)	(0.7)	(100)	
Mediterranean	0.37	2.38	0.53	-0.14	0.72	-0.03	0.17	-0.07	53.12	61.02
		(58.7)	(13.2)	(3.4)	(17.9)	(0.8)	(4.1)	(1.8)	(100)	
North	0.37	2.37	0.58	-0.12	0.44	-0.04	0.15	-0.39	30.51	33.17
		(58.1)	(14.2)	(2.8)	(10.8)	(1.0)	(3.6)	(9.5)	(100)	
North Castile	0.37	2.22	0.70	-0.09	1.19	-0.03	0.13	-0.10	84.46	87.31
		(49.7)	(15.7)	(1.9)	(26.7)	(0.7)	(2.9)	(2.3)	(100)	
South Castile	0.37	2.32	0.68	-0.09	0.74	-0.03	0.14	-0.01	64.08	61.70
		(57.9)	(16.8)	(2.3)	(18.5)	(0.7)	(3.4)	(0.3)	(100)	
Total	0.37	2.34	0.62	-0.12	0.81	-0.03	0.15	-0.12	57.80	64.67
		(55.9)	(14.9)	(2.9)	(19.3)	(0.7)	(3.5)	(2.9)	(100)	

Notes: The impact of each factor is obtained by multiplying the coefficients of Table 4, column 2 by the mean values. Predicted impact = [exp(sum of all factors) × exp(one half of the estimated error variance)]. The latter term of the product is necessary when the dependent variable is expressed in logs. Observed is the mean value of the dependent variable. Percentage contribution in brackets.
Sources: See text.

Table 7. Determinants of the choice of provincial internal destination, 1920-1930

Dependent variable: Log $INMI_{i,j}$	(1)	(2)	(3)	(4)	Mean
Constant	-0.003	-2.129**	-0.049	-2.524**	
	(-0.01)	(-8.63)	(-0.14)	(-7.73)	
Real wage gap, 1920 (WG)	0.229**	0.249**			1.62
	(3.58)	(4.89)			
Distance (DIS)	-0.002**	-0.003**	-0.002**	-0.003**	620.67
	(-7.64)	(-11.71)	(-8.44)	(-12.91)	
In-migrant stock, 1920 (STO)	0.051**	0.033**	0.049**	0.029**	8.12
	(6.87)	(5.66)	(6.79)	(5.49)	
Destination share of nonagricultural labor force, 1920 (DESAGLF)		0.048**		0.050**	55.35
		(13.08)		(14.27)	
Origin wage, 1920 (ORIWAG)			-0.088**	-0.088**	5.04
			(-2.62)	(-3.16)	
Destination wage, 1920 (DESWAG)			0.139**	0.185**	6.92
			(3.54)	(6.55)	
Adjusted R^2	0.475	0.616	0.484	0.636	
F-statistic	151.92**	201.72**	118.44**	176.04**	
N = 502					

Notes: ** Significant for values of $p < 0.05$. Equations estimated by Ordinary Least Squares. *t*-statistics in brackets. White standard errors. The Canary Islands are not included. N=[(47*12)-62]: 47 origins by the 12 top destinations less 62 cases in which the number of migrants resident in destination *j* and born in origin *i* fell during the period 1920-1930 taken as a whole.
Sources: See Appendix 4.

Table 8. Impacts on in-migration, 1920-1930

Destination	Constant	Wage gap	Distance	Stock	Non agri. lab. force	Predicted	Observed
Madrid	-2.13	0.31	-1.29	0.96	3.93	14.17	20.12
		(4.8)	(19.9)	(14.9)	(60.5)	(100)	
Barcelona	-2.13	0.59	-2.17	0.75	4.00	6.80	18.86
		(7.9)	(28.9)	(10.0)	(53.5)	(100)	
Vizcaya	-2.13	0.35	-1.76	0.31	3.80	4.23	3.00
		(5.7)	(28.3)	(4.9)	(61.2)	(100)	
Seville	-2.13	0.39	-2.09	0.15	2.26	0.57	2.25
		(8.0)	(42.9)	(3.0)	(46.2)	(100)	
Guipúzcoa	-2.13	0.26	-1.79	0.13	3.05	1.48	1.82
		(5.0)	(34.2)	(2.4)	(58.4)	(100)	
Valencia	-2.13	0.44	-1.68	0.14	1.89	0.63	1.80
		(10.7)	(40.4)	(3.4)	(45.6)	(100)	
Zaragoza	-2.13	0.63	-1.42	0.17	1.68	0.83	1.11
		(16.2)	(36.3)	(4.4)	(43.1)	(100)	
Valladolid	-2.13	0.23	-1.27	0.11	2.00	0.82	1.05
		(6.3)	(35.2)	(3.0)	(55.4)	(100)	
Cádiz	-2.13	0.32	-2.22	0.07	3.05	0.96	1.01
		(5.7)	(39.2)	(1.03)	(53.7)	(100)	
Alicante	-2.13	0.41	-1.84	0.03	1.97	0.50	0.77
		(9.6)	(43.2)	(0.8)	(46.3)	(100)	
Santander	-2.13	0.49	-1.77	0.08	2.47	1.02	0.76
		(10.1)	(36.7)	(1.7)	(51.5)	(100)	
Córdoba	-2.13	0.35	-1.85	0.08	1.70	0.37	0.74
		(8.7)	(46.5)	(2.0)	(42.7)	(100)	
Total	-2.13	0.40	-1.74	0.27	2.66	1.40	4.85
		(7.9)	(34.3)	(5.3)	(52.5)	(100)	

Notes: The impact of each factor is obtained by multiplying the coefficients of Table 7, column 2 by the mean values. Predicted impact = [exp(sum of all factors) × exp(one half of the estimated error variance)]. The latter term of the product is necessary when the dependent variable is expressed in logs. Observed is the mean value of the dependent variable. Percentage contribution in brackets.
Sources: See text.

Table 9. Net migration and β-convergence, 1920-1930

Dependent variable: (1/T) log ($W_{i,T}$ / $W_{i,0}$)

	Agricultural wages				Building wages				Wage gaps			
	(1) OLS	(2) OLS	(3) OLS	(4) IV	(5) OLS	(6) OLS	(7) OLS	(8) IV	(9) OLS	(10) OLS	(11) OLS	(12) IV
Constant	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
ln $w_{i,1920}$	-0.05 (-4.1)	-0.05 (-4.1)	-0.05 (-4.1)	-0.06 (-4.7)	-0.04 (-4.9)	-0.04 (-4.8)	-0.04 (-4.8)	-0.04 (-4.4)				
ln $wg_{i,1920}$									-0.08 (-5.1)	-0.08 (-5.0)	-0.08 (-5.0)	-0.08 (5.4)
NETINTMIG		yes				yes				yes		
NETMIG			yes	yes			yes	yes			yes	yes
Adj. R^2	0.26	0.24	0.24	0.31	0.33	0.31	0.31	0.32	0.34	0.33	0.33	0.42
N = 48												
β	0.067	0.068	0.067	0.068	0.053	0.054	0.054	0.054	0.166	0.166	0.167	0.169

Notes: W_0 y W_T are the average real wages (columns 1 to 8) or the nominal wage gap (columns 9 to 12) of the first three and the last three years of the period (T). β is obtained from -(1/T)log(θT+1). *t* statistics in brackets. See Appendix 3 for NETINTMIG. NETMIG is the traditional rate of migration obtained by the inter-census balance method (growth of the census or total population - natural increase) and which, therefore, reflects the migration of both internal and overseas migrants. In the Instrumental Variables (IV) regressions, Netmig has been instrumented on the basis of the 1910s lagged value in order to avoid problems of potential endogeneity. Netintmig cannot be instrumented since there is no data to construct out-migration flows before the 1920s.

Sources: For wages, see Appendix 4; for NETINTMIG, see Appendix 3. NETMIG taken from Mikelarena (1993).

Table 10. Unit root test on wages, 1914-1931

Occupation	Region	Augmented Dickey-Fuller t-statistic. Levels	Augmented Dickey-Fuller t-statistic. First Differences
Agricultural	Andalusia	-2.55	-4.38***
Agricultural	Ebro Valley	-3.23**	
Agricultural	Mediterranean	-3.01*	
Agricultural	North	-3.67*	
Agricultural	North Castile	-2.66*	
Agricultural	South Castile	-4.69***	
Building	Andalusia	-2.67*	
Building	Ebro Valley	-3.23**	
Building	Mediterranean	-3.01*	
Building	North	-3.80**	
Building	North Castile	-3.08**	
Building	South Castile	-3.77**	

Notes: * Significant for values of $p < 0.10$; ** Significant for values of $p < 0.05$; *** Significant for values of $p < 0.01$.

Sources: See text.

Table 11. Regional labor market integration, 1914-1931. Agricultural wages

Dependent variable: $\Delta \log w_{i,}$

Regions i, j	Intercept	Time	$\Delta \log w_{j,t}$	$\log(w_i / w_j)_{t-1}$	R^2	DW
(1) And.-Ebr.	-0.03	0.30	0.92**	-0.33	0.71	1.14
	(-0.42)	(0.06)	(5.39)	(-1.22)		
(2) And.-Med.	-0.00	-0.10	0.84**	-0.12	0.74	0.70
	(-0.03)	(-0.19)	(5.98)	(-0.71)		
(3) And.-Nor.	0.06	-0.44	1.03**	-0.26	0.69	1.04
	(0.91)	(-0.73)	(5.03)	(-1.54)		
(4) And-NoC.	0.06	1.13**	0.71**	-0.59**	0.88	0.95
	(1.48)	(2.01)	(9.59)	(-3.20)		
(5) And.-SoC.	0.16*	-0.21	0.61**	-0.71**	0.65	1.63
	(1.97)	(-0.35)	(2.91)	(-2.96)		
(6) Ebr.-Med.	0.03	-0.52	0.84**	-0.39*	0.79	1.60
	(0.52)	(-0.99)	(6.75)	(-1.80)		
(7) Ebr.-Nor.	0.12	-0.68	1.00**	-0.40*	0.75	1.83
	(1.61)	(-1.23)	(5.29)	(-1.94)		
(8) Ebr.-NoC.	0.13**	0.98	0.55**	-0.57**	0.74	2.13
	(2.18)	(1.45)	(5.23)	(-3.24)		
(9) Ebr.-SoC.	0.31**	-0.47	0.20	-0.81**	0.63	2.68
	(3.43)	(-0.75)	(0.92)	(-4.35)		
(10) Med.-Nor	0.09	-0.17	1.24**	-0.36**	0.87	1.50
	(1.73)	(-0.46)	(8.79)	(-2.13)		
(11) Med.-NoC.	0.10*	1.10	0.63**	-0.43**	0.80	2.05
	(1.79)	(1.44)	(6.41)	(-2.59)		
(12) Med.-SoC.	0.25**	0.54	0.73*	-0.81**	0.62	2.16
	(2.70)	(0.76)	(1.84)	(-3.64)		
(13) Nor.-NoC.	0.01	0.73	0.45**	-0.27*	0.62	2.08
	(0.13)	(1.07)	(4.48)	(-1.95)		
(14) Nor.-SoC.	0.06	0.53	0.41**	-0.59**	0.50	2.39
	(0.95)	(0.89)	(2.21)	(-3.12)		
(15) NoC.-SoC.	0.04	-0.07	0.53**	-0.15	0.67	1.97
	(0.46)	(-0.07)	(3.72)	(-0.48)		

Notes: Number of observations: 18. * Significant for values of $p < 0.10$; ** Significant for values of $p < 0.05$; *t*-statistics between brackets. And. = Andalusia; Ebr. = Ebro Valley; Med. = Mediterranean; Nor. = North; NoC. = Northern Castile; SoC = Southern Castile. DW = Durbin-Watson statistic. Pairs of regions (i,j) that show both $\Delta \log w_{j.t}$ (short-run) and $\log(w_i / w_j)_{t-1}$ (long-run) coefficients significant at usual levels are shown in bold type.

Sources: See text.

Table 12. Regional labor market integration. 1914-1931. Building wages

Dependent variable: $\Delta \log w_{i.}$

Regions i, j		Intercept	Time	$\Delta \log w_{j.t}$	$\log(w_i / w_j)_{t-1}$	R^2	DW
(1)	And.-Ebr.	-0.12**	0.47	1.07**	-0.70**	0.83	2.02
		(-2.10)	(1.20)	(7.90)	(-2.69)		
(2)	And.-Med.	-0.11**	0.11	1.33**	-0.35	0.87	1.76
		(-2.07)	(0.31)	(9.06)	(-1.71)		
(3)	And.-Nor.	-0.04	0.03	1.05**	-0.29	0.84	1.48
		(-0.95)	(0.07)	(7.64)	(-1.18)		
(4)	And.-NoC.	-0.03**	0.51	0.89**	-0.71**	0.84	1.68
		(-0.75)	(1.21)	(5.89)	(-2.52)		
(5)	And.-SoC.	0.10	-0.00	0.76**	-0.91**	0.75	1.67
		(1.67)	(-0.01)	(3.88)	(-3.29)		
(6)	Ebr.-Med.	-0.05	-0.93*	1.09**	-0.90**	0.84	1.81
		(-1.46)	(-1.88)	(7.97)	(-2.88)		
(7)	Ebr.-Nor.	0.02	-0.31	0.88**	-0.31	0.78	1.81
		(0.53)	(-0.69)	(6.62)	(-1.51)		
(8)	Ebr.-NoC.	0.08	0.04	0.71**	-0.61**	0.72	2.11
		(1.58)	(0.09)	(4.71)	(-2.81)		
(9)	Ebr.-SoC.	0.24**	-0.52	0.66**	-0.83**	0.71	1.92
		(2.96)	(-1.18)	(3.92)	(-3.53)		
(10)	Med.-Nor.	0.05	-0.11	0.74**	-0.27	0.81	1.74
		(1.43)	(-0.38)	(7.34)	(-1.69)		
(11)	Med.-NoC.	0.07*	0.13	0.69**	-0.28*	0.78	1.56
		(1.96)	(0.34)	(6.35)	(-1.73)		
(12)	Med.-SoC.	0.22**	0.21	0.64**	-0.62**	0.73	2.05
		(2.98)	(0.59)	(4.83)	(-3.00)		
(13)	Nor.-NoC.	0.03	0.61	0.88**	-0.57*	0.84	1.82
		(0.97)	(1.20)	(7.79)	(-2.06)		
(14)	Nor.-SoC.	0.22**	1.58	0.78**	-1.10**	0.84	1.87
		(3.64)	(1.66)	(6.24)	(-4.17)		
(15)	NoC.-SoC.	-0.12*	0.52	0.92**	-0.76**	0.88	2.24
		(-1.97)	(1.52)	(9.81)	(-2.59)		

Notes: Number of observations: 18. * Significant for values of $p < 0.10$; ** Significant for values of $p < 0.05$; *t*-statistics between brackets. And. = Andalusia; Ebr. = Ebro Valley; Med. = Mediterranean; Nor. = North; NoC. = Northern Castile; SoC = Southern Castile. DW = Durbin-Watson statistic. Pairs of regions (i,j) that show both $\Delta \log w_{j.t}$ (short-run) and $\log(w_i / w_j)_{t-1}$ (long-run) coefficients significant at usual levels are shown in bold type.

Sources: See text.

Table 13. Estimation of the effect of migrations on wages, 1920-1930

A. Assumed labor force participation rate of migrants: total labor force participation rate (TLFPR)

				Assumed elasticity of labor demand				
				-0.15	-0.75	-1.0	-1.6	-2.0
Region	Outmig. rate (per cent) 1920-1930	Average TLFPR 1920	Corrected Outmig. Rate					
				Estimated Effect				
Andalusia	5.2	66	3.4	-1	-3	-3	-5	-7
Ebro Valley	9.3	67	6.3	-1	-5	-6	-10	-13
Mediterranean	6.1	68	4.1	-1	-3	-4	-7	-8
North	3.3	62	2.1	0	-2	-2	-3	-4
North Castile	8.7	64	5.6	-1	-4	-6	-9	-11
South Castile	6.2	67	4.1	-1	-3	-4	-7	-8
Total	6.5	66	4.3	-1	-3	-4	-7	-9
Destination	Inmig. rate (per cent) 1920-1930	TLFPR 1920	Corrected Inmig. Rate					
				Estimated Effect				
Madrid	2.0	62	1.2	0	-1	-1	-2	-2
Madrid reduced	4.5	62	2.8	0	-2	-3	-4	-6
Barcelona	1.9	69	1.3	0	-1	-1	-2	-3
Barcelona reduced	6.2	69	4.3	-1	-3	-4	-7	-9

B. Assumed labor force participation rate of migrants: 9O per cent

				Assumed elasticity of labor demand				
				-0.15	-0.75	-1.0	-1.6	-2.0
Region	Outmig. rate (per cent) 1920-1930	Average TLFPR 1920	Corrected Outmig. Rate					
				Estimated Effect				
Andalusia	5.2	90	4.7	-1	-4	-5	-7	-9
Ebro Valley	9.3	90	8.4	-1	-6	-8	-13	-17
Mediterranean	6.1	90	5.5	-1	-4	-5	-9	-11
North	3.3	90	3.0	0	-2	-3	-5	-6
North Castile	8.7	90	7.9	-1	-6	-8	-13	-16
South Castile	6.2	90	5.6	-1	-4	-6	-9	-11
Total	6.5	90	5.8	-1	-4	-6	-9	-12
Destination	Inmig. rate (per cent) 1920-1930	TLFPR 1920	Corrected Inmig. Rate					
				Estimated Effect				
Madrid	2.0	90	1.8	0	-1	-2	-3	-4
Madrid reduced	4.5	90	4.1	-1	-3	-6	-9	-11
Barcelona	1.9	90	1.7	0	-1	-2	-3	-3
Barcelona reduced	6.2	90	5.6	-1	-4	-6	-9	-11

Notes: Corrected immigration rate results from multiplying the immigration rate per the TLFPR (per cent**)**. The estimated effect results from multiplying the corrected immigration rate per the assumed elasticity of labor demand. The estimated effect has been rounded without taking decimals into account.
Sources: See text.

[1] Grant (2003) explains why emigration was not a source of real wage convergence between Germany and the United States.

[2] Pre-industrial migration patterns have been **gathered** in many studies. Among others, see, for Britain, Baines (1994b); for Germany, Hochstad (1999); for France, Poussou (1989); for Sweden, Drive (2003); for Italy, Kertzer and Hogan (1990); for Spain, Reher (1990).

[3] Similarly to the **evolution of** international emigration, an inverted U pattern has been suggested for internal migration in some countries. For the case of Germany, Hochstadt (1999) shows that internal migration rates fell from the early twentieth century. See Baines (1994a), p. 42, for references to other countries such as Sweden and Switzerland.

[4] Two recent surveys of both emigration and internal migration studies in historical contexts **done through** different social sciences (history, sociology, geography, demography, and economics) can be found in Hochstad (1999), ch. 1, and Lucassen and Lucassen (1999).

[5] See Boyer and Hatton (1997) for a complete survey of works and topics.

[6] Also see Baines (1994a), p. 49, for references to Sweden.

[7] Long (2002) uses a new micro data base and shows that migrants were not the poorest in their origins.

[8] Lucas (1997) offers a complete and recent survey. Also see the comments by Mazumdar (1987) and Hatton and Williamson (2003) on African rural-urban migration, especially those referred to the predominance of young adults among migrants.

[9] **Grant´s empirical analysis of the demographic and agricultural factors determining migration is more elaborate. For instance, the author studies the causes of the positive relationship between farm size and out-migration.**

[10] Other empirical works for historical contexts are Newman (1985), for Germany (1880-1910), and Söderberg (1985), for France, Great Britain, Prussia, and Sweden (1860-1910). Both authors estimate econometrically the effect of pull factors, however the dependent variable they use includes both overseas (and return) emigrations and internal migrations. See other references for France in Söderberg (1985), p. 292.

[11] See Tirado et al (2002) and Rosés (2003) for a detailed description and explanation of the concentration process of Spanish manufacturing.

[12] Also see a number of cases gathered in Gómez-Díaz and Céspedes (1996). Indeed, the availability of specific information on temporary migrations in the Spanish censuses allows us to confirm that this type of migration in Spain did not appear to decline during the period under study **in this article**, even during the years of highest permanent internal migration.

[13] To avoid underestimation is necessary to take into account migrants who die between two census dates, *t-1* and *t*. As explained by Boyer (1997), p. 198, such a calculation requires: a) the age distribution of *i*-born migrants living in *j* in *t-1*, b) the age distribution of migrants from *i* to *j* between *t-1* and *t*, and c) a survival table indicating the probability that a *i*-born migrant of certain age living in j in *t-1* will die by *t*. In our case, the *i*-origin of migrants is given only in the 1920 and 1930 censuses. Nor do the Spanish statistics offer information on the distribution per age groups of the BAP, making it impossible to apply, for example, the Baines (1985, ch. 4) method of evaluating the number of migrants who died during the decade, thus allowing a more precise estimation of migration flows as elaborated by Boyer (1997). When faced with this situation, the usual recommendation is to employ the global survival rate of the census (United Nations, 1970).

[14] Shares of agricultural active population based on censuses and taken from Erdozáin and Mikelarena (1999).

[15] According to this explanation, increasing poverty was a determinant of the rise of emigration in the begininning of the twentieth century (Nadal, 1975, ch. 3, 1984, ch. III; Maluquer de Motes, 1987; Tortella, 1994, ch. 1). On the contrary, more recent and empiricallly based studies by Sánchez-Alonso (2000a, 2000b) have demostrated that, in a poor country such as Spain, emigration was income-constrained.

[16] Tarifss in themselves has been said to be insufficient to explain higher rural out-migration (Simpson, 1997; Sánchez-Alonso, 2000a).

[17] GDP growth rates at factor cost are: 0.74 for 1873-1893, 0.31 for 1883-1892, 0.79 for 1892-1901, 0.65 for 1901-1913, 0.82 for 1913-1920, and 2.55 for 1920-1929.

[18] Italian internal migrations continued rising at high rates during the 1930s, despite restrictive migratory policies (Treves, 1976).

[19] With regard to the great pull for migrants **in construction**, see, for instance, Sicsic (1992) for the case of France, Simpson (1995b) for Spain, Boyer and Hatton (1997) for England and Wales, and Grant (2000) for Germany.

[20] Sectorial GDP **annual** growth rates during the 1920s were: agriculture: 1.52; industry: 5.2; building: 6.46; services: 4.42 (Prados de la Escosura, 2003, p. 201).

[21] The pull from Barcelona increased in distance from the late nineteenth century (Arango, 1985). Oyon et al (2001) show that the first influx of migrants from the rest of Cataluña, Aragón and the Community of Valencia were well absorbed. Whereas the poorer migrants from the most distant origins Murcia and Almeria usually filled low-wage ocupations. In any event, the first influx accounts for the 63 per cent of total in-migration, as constrated with the 16 per cent in the case of migrants from Murcia and Almeria (Silvestre, 2001, Table A.2).

[22] These industries were clearly male-biased. A common female-biased industry **during the period under study** was domestic service. There are many studies on migrations of women to work in domestic service. Dubert (1999) and Sarasúa (2001) describe the process of feminization and ruralization of domestic service, and give references on different cases in Spain and Europe

[23] For the same destination, García-Abad (2003), ch. 4, also shows the trend in deskilling of in-migrants between the 1880s and 1920-1935.

[24] See further discussion in this section on the pull from the agrarian provinces of Andalusia. In the case of Portugal, rural-urban migration was constrained to Lisbon and Oporto. The rest of migrations were driven by the agricultural expansion in the south (Baganha and Marques, 1996, p. 89).

[25] In the case of Portugal, Lisbon is clearly the main destination. In the case of Italy, the first decades of the twentieth century are the prelude to the great north-south and east-west migrations that took place during the 1950s and the 1960s. England and Wales shows an early patter of deconcentration from the 1880s, when London and other main destinations began to reduce its pull (Boyer, 1997).

[26] The inter-census balance method consists of the difference between the growth of the census or total population and the natural increase (births less deaths). This "indirect" indicator has two main **flaws**, it includes both internal migrations and emigration, and it does not permit to estimate directions.

[27] Also see Carmona and Simpson (2003, ch. 3), and abundant agricultural history studies cited therein.

[28] On the contrary, Sánchez-Alonso confirms previous results by Hatton and Williamson (1998, ch. 3) with regard to the **unimportance** of demographic forces to explain emigration in Spain. This finding makes sense if we consider that rates of natural increase were low during the second half of the nineteenth century (Pérez-Moreda, 1985, 1987).

[29] Both approaches, out-migration and choice of destination models, are well know in migration literature. See, for instance, the theoretical review by Maier and Weiss (1991). Regressing migration rates on demographic, economic and social variables is the basis of *disequilibrium* models, where there is the underlying concept of the migrant as labor force. In *equilibrium* models, the migrant is also perceived as a consumer of amenities (climate, a better preserved environment, security and other not strictly economic factors). The upsurge of equilibrium models is related with the change in the pattern of internal migration that has taken place in a number of developed countries since the 1970s and, in general, with the increase in prosperity in a range of countries. In this regard, see Greenwood (1997).

[30] For England and Wales, several works have used the existing stock at a given date rather than the flows (a choice that **it would be** possible to made here). However, as Boyer and Hatton (1997, p. 710) indicate, this method tries to explain the accumulation of migrants in a given location on the basis of the value of specific independent variables at a given moment in time and, therefore, the result could be biased.

[31] The estimation of the two models (Tables 4 and 6) is by ordinary least squares. Potential endogeneity bias is, in principle, not considered since all independent variables refer to the beginning of the period under estimation.

[32] For Spain, see the importance of young out-migrants in, for example, Reher (1990, ch. 7), Camps (1992) and Arbaiza (1998). From a theoretical point of view, the higher expected returns of investment in migration by the younger population **is shown** in Sjaastad (1961).

[33] See, for example, from a theoretical point of view, Massey (1990), and from an empirical point of view, Dunlevy (1993) and his reflections on the use of proxies of this variable.

[34] Instead of the stock of young people, the rate of natural increase lagged 20 years was alternatively considered (Easterlin, 1961). The effect on out-migration was also positive but **not** significant.

[35] **Un problema asociado con** this proxy is that it does not include the use of sharecropping arrangements. This kind of contract were particularly abundant in the north of the country, where some employers were employed by others. The impact of a similar variable on overseas emigration presents the expected negative sign, but it is not significant at usual levels (Sánchez-Alonso, 2000b).

[36] Alicante is the only main destination in 1930 that is not among the first twelve destinations in 1920.

[37] Unfortunately, there does not exist information about unemployment to elaborate expected income gaps.

[38] Small wage gaps in Spain in comparison with England, the United States and France are show in Rosés and Sánchez-Alonso (2003).

[39] Rosés and Sánchez-Alonso (2002) consider only the second rate.

[40] See Boyer and Hatton (1994), pp. 90-91 and 103-104, for the complete model.

[41] Some non-available observations were interpolated. The nominal wages were adjusted by cost of living calculated by Rosés and Sánchez-Alonso (forthcoming) for 1914, 1920, 1925, and 1930, as follows. The wages between 1914 and 1919 were adjusted by the 1914 index; from the period 1920-1924, by the 1920 index; from the period 1925-1929, by the 1925 index; and the 1930 and 1931 wages, by the 1930 index.

[42] Temporary in-migrations in the South also showed the same evolution. By 1930, various northern provinces as Guipúzcoa, Barcelona, Madrid, Vizcaya, or Zaragoza, held significant number of both kind of in-migrants, permanent and temporary.

[43] Labor force participation for total population at the level of province has been calculated on the basis of the Population Census of 1920.

[44] As explained in Section 3, the main area of influcence in the case of Barcelona is clear: all the Mediterranean provinces, four provinces of Ebro Valley (21 to 24), and the Andalusian province of Almeria. In the case of Madrid, "reduced" includes 8 provinces from North Castile (all provinces except León), 5 provinces from South Castile (all provices except Badajoz and Albacete), one province from North (Santander), and one province from Andalusia (Jaén). These provinces are chosen according to data provided by Silvestre (2001).

[45] This is the procedure followed by Boyer (1997) for England and Wales. For the case of in-migration in Vizcaya in 1880-1900 and 1920-1935, García-Abad (2003), ch. 4, shows labor share participation rates **por encima del 90 per cent**. Own unpublished data for the case of in-migration in Zaragoza also show similar shares.

[46] Micro studies based on industries or firm do not alter substantialy the confidence interval (Hamersmeh, 1993, p. 103).

[47] Ver Simpson (1995b) and Rosés and Sánchez-Alonso (2003) acerca de los reducidos wage gaps. Furthermore, muchos emigrantes se plantearon la emigración a las ciudades como algo temporal, debido a los elevados salarios agrícolas en épocas veraniegas de máxima demanda y, tal vez, la aspiración de conseguir una explotación propia (Simpson, 1995a, 1995b). Así, las emigraciones temporales no parecieron disminuir durante los 1920s, el periodo de apogeo de las migraciones permanentes. El porcentaje de inmigrantes temporales sobre la población elaborado a partir de las cifras suministradas por los censos de población (entre 1877 y 1930) fue de around 2.5.