

## THE RURAL EXODUS AND THE CONCENTRATION OF ECONOMIC ACTIVITY IN SPAIN

The main body of the text linked the Spanish economy's belated process of deagriculturalisation to the greater spatial concentration of the population and of economic activity currently seen relative to other countries. This box aims to set out details of this evidence and to discuss some mechanisms that justify this hypothesis.<sup>1</sup>

The economic development of nations is characterised by a decline in the relative demand for agricultural products in favour of industrial products and services. This transformation in the economic structure of countries poses a challenge for those regions whose main activity in the initial stages of development is agriculture. In particular, the economic future of agricultural regions depends on their capacity to industrialise, since their inhabitants will otherwise migrate to those regions with a more dynamic industrial sector offering better job prospects. Traditionally, the industrialisation capacity of initially agricultural regions has been deemed to depend on their convergence in terms of productivity with those regions leading the way in industrialisation. However, changes in migration and inter-regional trade costs may also be determining factors. For example, a reduction in internal migration and trade costs enables more industrialised regions to attract a larger amount of workers and, in turn, to sell its products to the other regions, increasing the degree of spatial concentration of industry.

Indeed, although the relative productivity of Spain's provinces converged as from the mid-20th century, the predominantly agricultural provinces did not manage to industrialise and experienced negative migratory flows to the provinces with a greater weight of industry. In particular, drawing on information on average labour productivity in each sector and province since 1940, it is seen how the provinces with higher productivity growth in the industrial sector from 1940 were, precisely, those with a lower initial level of productivity. Moreover, this convergence pattern is also seen in agriculture, services and construction (see Chart 1).

Yet despite this convergence in relative productivities, the initially more agricultural provinces underwent the loss of major population swathes in favour of provinces with a

greater weight of industry, especially between 1950 and 1970. For example, provinces such as Ávila, Jaén, Lugo and Teruel, more than two-thirds of whose employment was concentrated in agriculture in 1940, lost population, whereas more industrial provinces such as Barcelona, Madrid, Valencia and Vizcaya, where less than one-third of employment was in agriculture in 1940, attracted considerable population flows (see Chart 2). The outcome of this intense inter-provincial migratory process is visible today insofar as most of the provinces initially specialising in agriculture have not recovered their 1940 population levels despite the substantial growth of the population at the national level.

These developments pose something of a paradox in light of the traditional models of structural change. Unlike the case observed for Spain, these models predict, for fixed transport and migration costs, the industrialisation of those agricultural regions that are capable of converging in terms of their relative productivity. Thus, to analyse the Spanish development experience and its consequences for the spatial distribution of activity, it is essential to bear in mind additional mechanisms related to the decline in trade and migration costs in conjunction with the changes in cross-regional relative sectoral productivity.

To quantify the significance of the different mechanisms that influence the geographical dimension of development and structural change, we consider a macroeconomic model of structural change with migration and domestic trade.<sup>2</sup> Specifically, the model postulates an economy comprising four sectors of activity (agriculture, construction, manufacturing and services) and a set of provinces. In each province and sector there are many potential producers, but only the most productive survive the competition at the national level. Further, the goods and services produced by the sectors and consumed by households are subject to heterogeneous inter-provincial trade costs across sectors and provinces. In turn, workers may choose to migrate to provinces offering better opportunities, but always subject to migration costs and to their own heterogeneous preferences to live in specific areas. Against this background, the cross-provincial

1 This box summarises part of the analysis developed in Budi-Ors and J. Pijoan-Mas (2021): "Migration, Trade, and Structural Change", mimeo.

2 Interested readers can consult the essential features of these types of models in L. Caliendo, M. Dvorkin, and F. Parro (2019): "Trade and Labor Market Dynamics: General Equilibrium Analysis of the China Trade Shock". *Econometrica*, 87, pp 741-835; Morten, M. and J. Oliveira (2018): "The Effects of Roads on Trade and Migration: Evidence from a Planned Capital City". NBER Working Paper 22158.

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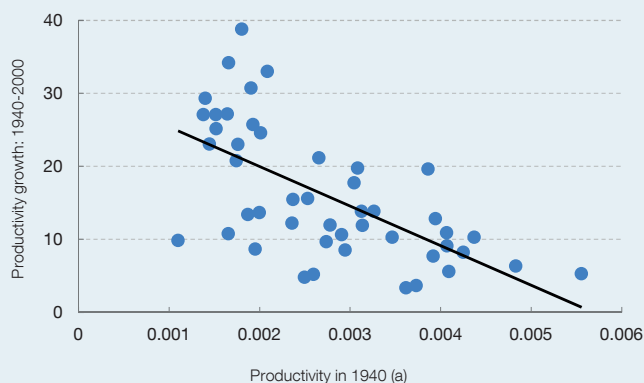
distribution of competitive advantages is key to the development of different sectors. Thus, the most productive provinces in industry will tend to attract workers from the other provinces to produce manufactured goods and sell them to the rest of the country. Conversely, the provinces that import industrial goods will reduce their industrial production, concentrating it in a sub-set of goods in which they are more productive. As a result, industrial productivity growth in the provinces that do not industrialise stems partly from a composition effect. The significance of this mechanism will be greater the bigger the cross-regional differences in sectoral productivity and the lower the inter-provincial trade and migration costs.

Hence, the model's mechanisms allow us to rationalise the apparently paradoxical experience of Spanish development, characterised by the depopulation of initially agricultural regions associated with structural change despite convergence in productivities, via a decline in migration and transport costs. This would be so inasmuch as the decline in transport and migration costs were to come about at greater speed than convergence in productivities of the less developed provinces. While there is no information source that enables us to quantify accurately the reduction in transport costs in Spain, it is worth mentioning some specific figures that suggest a very significant decline in the rural exodus years. For instance,

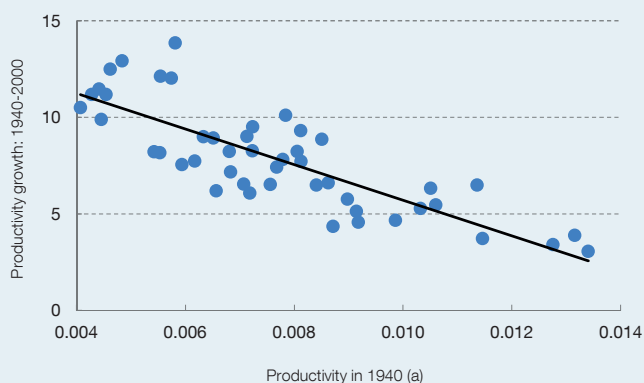
Chart 1  
THE PRODUCTIVITY OF SPANISH PROVINCES HAS CONVERGED IN ALL SECTORS OF ACTIVITY

Those provinces with lower productivity levels in 1940 experienced higher productivity growth in subsequent decades. This pattern of convergence is observable in all sectors of activity.

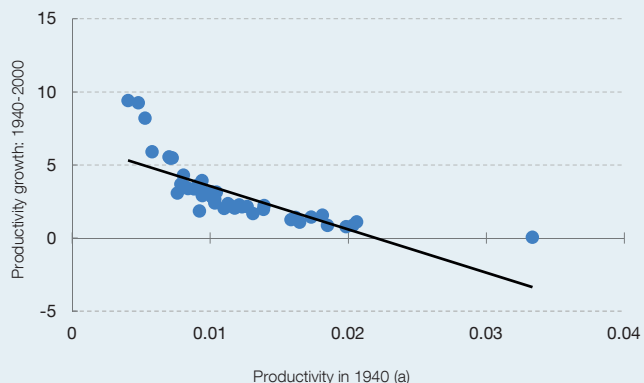
1 AGRICULTURE



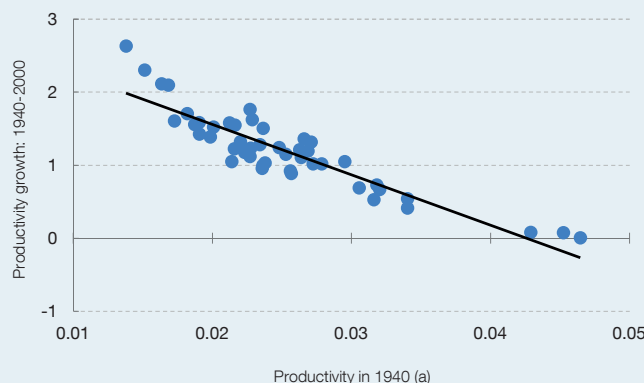
2 INDUSTRY



3 CONSTRUCTION



4 SERVICES



SOURCES: INE and Fundación BBVA.

a Productivity in 1940 in millions of pesetas per worker.

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the emergence of the Seat 600 in the 1950s pioneered the widespread use of the motor vehicle, whereby from 1950 to 1960 the number of cars tripled, lorries doubled and buses grew by 50%. To tackle the unprecedented increase in journeys, projects were launched to modernise and extend the road network. These included the 1962 Road Modernisation Plan and the 1965 REDIA Plan. Based on information from the Ministry of Transport, Mobility and Urban Planning,<sup>3</sup> the national road network increased from 139,212 km in 1970 to 155,675 km in the late 1980s. Note that this 12% increase in two decades does not take into account the improvement in the quality and width of highways, and contrasts with the 1% increase in the past two decades.

Indeed, the fall in merchandise transport and migration costs allows for the concentration of industrial employment in a few leader regions, which export their products to the agricultural regions despite the relative growth of industrial productivity in the latter. By contrast, owing to their less tradable nature, the production of services or construction is not concentrated in specific areas of the national territory with the same intensity. As a result, the pattern of structural

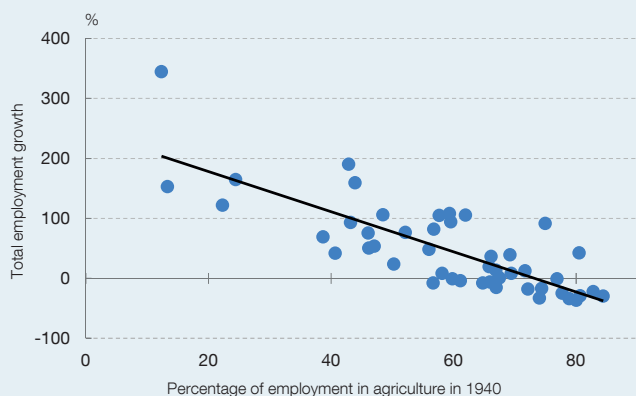
change in the initially agricultural regions exhibits a decline in agricultural employment, which is reassigned to services or construction production in the same province or to manufacturing production in other regions, but not to a local industry. The industrial regions, for their part, with little employment in agriculture in 1940, increase their employment in manufacturing and their population size thanks to the arrival of agricultural workers from other regions.

By way of illustration, this pattern can be seen most markedly in two provinces representative of each group: Jaén and Vizcaya (see Chart 3). Between 1940 and 1980, Jaén lost 100,000 jobs in agriculture. However, unlike the classic pattern of structural change, no growth was discernible in provincial employment in industry or construction, and there was only a slight increase in the services sector. The 100,000 workers ejected from the land did not find new jobs in Jaén, but migrated to other provinces. Vizcaya, in contrast, generated 80,000 industrial jobs and 100,000 services jobs during the same 1940-1980 period. A portion of these workers might have come from agriculture in Vizcaya, which lost 30,000 workers, but

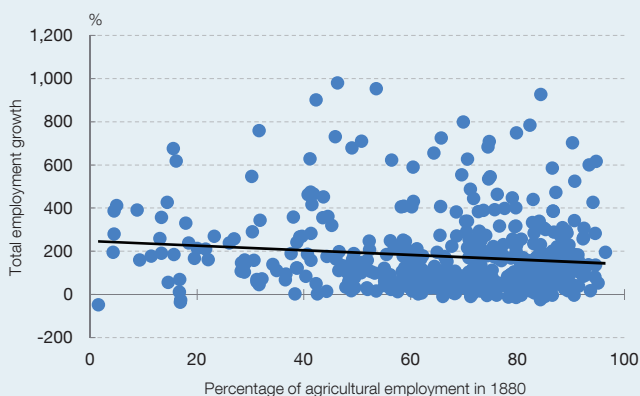
Chart 2  
TOTAL EMPLOYMENT FELL SIGNIFICANTLY IN THOSE PROVINCES WITH A GREATER WEIGHT OF AGRICULTURE IN 1940

The provinces with a greater weight of employment in agriculture in 1940 were those that lost employment in subsequent decades. Also the provinces with a lower weight of agricultural employment in 1940 experienced significant increases in their total employment thereafter. However, this pattern is not observable in the United States, whose structural change process began in 1880.

1 CHANGE IN TOTAL EMPLOYMENT AND INITIAL WEIGHT OF AGRICULTURAL EMPLOYMENT IN SPANISH PROVINCES (1940-2001)



2 CHANGE IN TOTAL EMPLOYMENT AND INITIAL WEIGHT OF AGRICULTURAL EMPLOYMENT IN US REGIONS (1880-1940)



SOURCES: INE, Fundación BBVA and US Census.

3 See Ministerio de Transportes, Movilidad y Agenda Urbana, Catálogo y evolución de la red de carreteras.

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the rest came from other provinces. Consequently, Jaén lost 40% of its initial employment while in Vizcaya it more than doubled in an inter-provincial and inter-sectoral migration process.

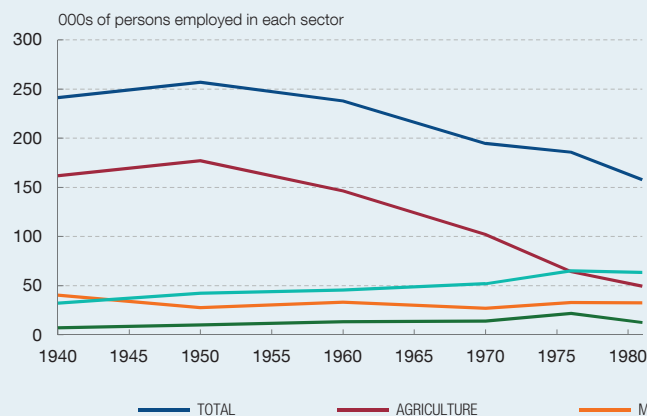
Finally, these development patterns in the Spanish economy contrast with those in other countries. For example, the evidence available for the United States shows that initially agricultural regions did manage, generally, to industrialise and grow in terms of population.<sup>4</sup> Specifically, the relationship between the initial proportion of farm employment and regional employment growth was

very weak in the case of the United States between 1880 and 1940, the period in which the US structural transformation took place (see Chart 2). A plausible explanation based on the theory described in this box is that transport/trade costs and internal migration costs at the end of the 19th century could not be assumed by most economic agents. That gave rise to each region, including the initially agricultural ones, having to develop their own industrial sector. Accordingly, we may conclude that the scale of the trade and internal migration barriers in the initial stages of industrialisation is a major determinant of the degree of spatial concentration of a country's economic activity.

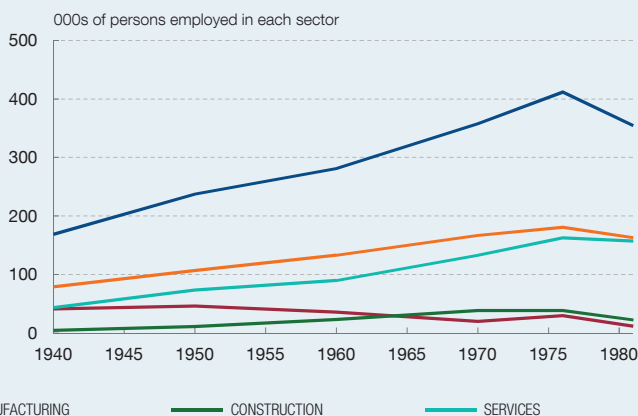
Chart 3  
THE CONSEQUENCES OF INTER-PROVINCIAL MIGRATIONS ON EMPLOYMENT IN DIFFERENT SECTORS IN THE CASES OF JAÉN AND VIZCAYA

An eminently agricultural province in 1940, such as Jaén, experienced a significant decline in total employment owing to the loss of agricultural employment, which was not accompanied by an increase in employment in other productive sectors. An eminently industrial province in 1940, such as Vizcaya, experienced a significant increase in its total employment owing to employment growth in industry and services, despite the diminished momentum of agricultural employment.

1 SECTORAL EMPLOYMENT IN JAÉN



2 SECTORAL EMPLOYMENT IN VIZCAYA



SOURCES: INE and Fundación BBVA.

4 See F. Eckert and M. Peters (2018): "Spatial structural change". mimeo.