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Keywords: Regional Inequality; Market Integration; Border Regions; New Economic Geography
JEL Classification: N93; N94; R11

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DEPARTAMENTO DE HISTORIA ECONÓMICA E INSTITUCIONES

INSTITUTO FIGUEROLA DE HISTORIA Y CIENCIAS SOCIALES
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Economic Integration and Regional Inequality in Iberia (1900-2000): A Geographical Approach

1. Introduction

This paper studies the evolution of regional inequality in Iberia from 1900 to 2000 from a geographical perspective. Specifically, we are interested in the description of the geography of the economic inequality in Spain and Portugal, in the long run, during the process of economic integration of their national markets, as well as other economic changes, from mid-XXth century onwards. It was at this point, when both economies started a path of increasing integration into the European and the international economy. This trend of integration into the European economic area was reinforced during the last 30 years of the XXth century, with the diffusion of many preferential trade agreements among Spain, Portugal and the EEC (in 1970 and 1973 respectively), and reach its peak with the formal accession of both economies to the EEC in 1986. These processes cause the whole integration of the Iberian economy.[1] Is in this context, therefore, it seems interesting to analyze whether regional economic inequality has followed a differentiated geographical pattern, as the one followed by the two economies when they remained highly protected and, especially, if we observe a common geographical pattern parallel to the process of mutual economic integration, and also during the integration into the European economy.

From a theoretical perspective, regional income inequality could be related to two main mechanisms. First, could be the case that, along the integration process, some regions specialize in high productivity sectors. Second, some regions can perform better than the average on all industries. So, aggregate labour productivity can differ as a result of regional specialization but, even in the hypothetical extreme case that all the regions had the same economic structure, there might still be variations in regional aggregate productivity due to differences in regional productivity across the sectors considered. In this sense, it can be pointed out that labour productivity can be higher in some regions due to differences in the relative endowment of cumulative factors like human and physical capital. Additionally, in case of existence of agglomeration economies in certain production processes, labour productivity can be higher in those regions with high volumes of production of these types of goods.

[1] A first step for the economic integration among Spain and Portugal took place in 1980, with the trade agreement among Spain and the EFTA. Due to the membership of Portugal into the EFTA, the trade among Spain and Portugal was reinforced by the strong reduction in the duty levels.

In any case, whether regional differences in GDP pc are related to regional productive specialization or due to the existing differences in labor productivity in all the sectors, there are many arguments that would link deeper market integration with the similarities in income levels of regions which are geographically close. Thus, in many cases, neighboring regions often show similar factor endowments (e.g. common climatic characteristics generate similarities in agricultural uses of land that eventually involve similar population densities and hence relative supply of labor and land).

To analyze these geographical patterns in the levels of development of the Iberian regions, firstly, we offer a brief abstract of the historical evolution of the integration process of the Spanish and Portuguese national markets since the beginnings of the XXth century onwards, as well as the main milestones in the process of integration of these economies into the European market. Secondly, we show a new database of regional GDP pc for Spain and Portugal. This database contains retrospective estimations for the Spanish NUTSIII and for the Portuguese Historical Regions (HD), in pesetas and escudos, for all the decennial benchmarks between 1900 and 2000. Moreover, to obtain homogenized values for all the regions, we have converted national currencies in 1990 International Geary-Khamis US dollars, from Maddison (2010). With this information, the third point shows a first approximation of the evolution of the regional economic inequality in the area, and the existing possibility of some regional patterns. Fourth, we go deeper to test this hypothesis through spatial econometric techniques. Particularly, we have obtained some indices of spatial autocorrelation at a regional level of GDP pc, as well as their temporal evolution.

The results show that Portuguese and Spanish national economic growth and integration processes initially fostered the economic divergence of Iberian regions, in terms of their regional pc GDPs. Notwithstanding, ulterior advances in the integration of national markets and the subsequent first stages in the process of adhesion of these two national economies into the UE coexisted with a progressive reduction in Iberian regional inequality. So, Iberian regional inequality depicts a long term U-shaped evolution. Nevertheless, at the same time, Iberian regional inequality shows a significant geographical pattern. The poorest regions cluster in inland territories of the south and west, with regions belonging to this cluster sited on the two sides of the political border. On the contrary, richest regions cluster along the coasts and in the north-east corner of the Iberian Peninsula. Besides, the data show that this pattern was well established in the middle of the XXth century, before the reciprocal openness of national markets in the 1980s. In this

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2. Economic Growth and Integration in Spain and Portugal

During the XXth century, the Portuguese and the Spanish economies have experienced a strong economic transformation, which have led to a process of economic convergence with the European core economies.

Table 1 - Average logarithmic GDP per capita growth rates (1850-2000)

	Portugal	Spain
1850-1883	0,3%	1,4%
1884-1920	0,5%	0,7%
1921-1929	2,8%	2,7%
1930-1952	1,5%	-0,1%
1953-1958	3,1%	4,5%
1959-1974	6,4%	6,8%
1975-1986	2,6%	1,7%
1987-2000	3,2%	3,1%

Source: (Prados de la Escosura and Rosés 2009; Lains 2007; Pereira and Lains 2011).

As it can be seen in Table 1, during the period before to the First World War, the Portuguese economy showed an extremely moderated growth, which prevented its convergence with the European core countries. In that sense, Lains (2007) points out that the nascent industrialization was not enough to modernize the country, despite the context of an increasing integration into the world markets in mid-19th century, as well as during the process of growing protectionism, especially during the end of the 19th century. This pattern changed from the interwar period onwards, when started a long pattern of growth which lasted during the Golden Age till the Oil Crisis, in the 1970s. During this period, the economic growth could be explained by the push of the main productive sectors, both in the industry and agriculture, which were able to pull the whole economy. This strong growth was achieved despite the fact that the Portuguese economy was still operating in an institutional framework characterized by a higher protectionism and state intervention.[2] The later stage, between the Carnation Revolution, and their entry to the EEC was characterized by a strong institutional instability. This derived into a strong macroeconomic instability which was directly related to the existence of significant imbalances in the

[2] See da Silva Lopes (1996) and Lains (2003).

balance of payments. However, later, in parallel with the European integration process, the Portuguese economy recovered the path of economic growth.[3]

The integration of the Portuguese domestic market occurred at a last stage compared with other experiences (Italy, France, USA or even Spain). In fact, only the improvement of the transport network during the last third of the 19th century, focused into the expansion of the railway network, made possible the reduction of the higher transport costs existing among the main urban areas (Porto and Lisbon) and the rural inner and southern regions.[4] Nevertheless, the effects of this expansion must be considered with some caution. In fact, the construction of this infrastructure did not follow the logic of the national market integration. Their objective was the connection with the external borders. It is also worth remembering that the major urban markets, Porto and Lisbon, were supplied by sea. A huge part of short distance transport was done by traditional ways and, therefore, the transport costs remained higher. For the whole 19th century, we can describe Portugal as a country with a fragmented economy, however, the extension of the railroad made available the link of the agricultural production of the inner regions to the international markets, through the ports of the coast. This process was also reinforced with the connection of the main cities (connection Lisbon - Porto). The result was a strong boost of the domestic trade, powered by a protectionist turn of the Portuguese trade policy at the end of the 19th century.[5]

During the first decades of the XXth century, there was a consolidation of the regional networks.[6] However, the construction and the improvement of roads could be described as a late process in European terms. Prior to the spread of railways, highways and roads were bad, channels were almost non-existent and navigable rivers, all transversals, only responded to a logic of short distance transport. Although the first highways appeared just before World War II and the roads between major cities were built during the 1950s and 1960s, the real expansion of those infrastructures would not arrive until the 1980s.

In respect of the integration of the Portuguese economy into the international markets, it should be noted that, after the liberal period extending from mid-19th century until the 1880s, the Portuguese trade policy was characterized by a high degree of protection to the domestic industrial and agrarian production. This shift would have their roots in the crisis of the end of the century and was reinforced with the 1886 tariff. Since then, to the timid

[3] Corkill (1999), Afonso and Aguiar (2004) and Pereira and Lains (2011).
[4] In this fragmented economies, a traditional manufacture have survived, which were not able to compete with the products arrived from Lisbon and Porto (Matos, 1991).
[5] Alegria (1988).
[6] Silveira et al. (2011).

attempt of trade liberalization initiated at the end of the 1950's, the ruling feature of the Portuguese trade policy was the higher protection of the domestic production. However, since the early 1960s, the country started a process of a gradual economic liberalization (founding member of EFTA in 1960, signing preferential treaties with the EEC in 1972, or, above all, the formal integration into the EEC in 1986).

The Spanish case, as it can be seen in Table 1 too, modern economic growth started in mid-19th century. From that time onwards, with the exception of the Civil War period and the early years of Franco's regime (1930-1952), Spanish per capita GDP has experienced positive and sustained growth rates. This process of economic growth was enhanced initially by the adoption of the classical innovations of industrial production, the advance in the structural change process and the integration of national markets for goods and factors of production.[7]

From a long-term perspective, Spanish internal market integration received a strong push in mid-19th century. In fact, prior to there, Spanish regions had relatively independent economies. The presence of barriers to interregional trade and the movement of capital and labour were ubiquitous: local tariffs and regulations on domestic commerce were widespread; weights and measures differed across regions; transport costs were very high due to low public investment in transport infrastructures and the particular geography of Spain, which lacked an extensive water transport system; economic information moved slowly across regions; the banking system was underdeveloped; and many regions had their own currencies (although all currencies were based on a bi-metallic monetary system).

Both market liberalization and transport improvements, particularly the completion of Spain's railways network, induced the creation of a national market for most important commodities during the second half of the 19thcentury and this process of national market integration progressed steadily until the Spanish Civil War.[8] Then, the Spanish Civil War and the first years of Franco's regime put a brake both on the Spanish growth process and on the national economic integration. The regulation of markets for goods and factors of production and government control of prices and quantities in final goods, intermediates, energy, capital markets and wages reduced the mobility of factors and resources.

[7] A broad description of the process of national market integration in Spain could be read in Roses, Martinez-Galarraga and Tirado (2010). The main patterns of Spanish economic growth during the 20th century are well described in Prados de la Escosura and Roses (2009).

[8] An exhaustive analysis of the impact of railways construction in the Spanish market integration could be read in Herranz (2008).

The economic liberalisation and stabilisation measures introduced at the end of the 1950s favoured the transition of the Spanish economy toward a new phase of economic development. This period was characterised, among other elements, by high aggregate growth rates of production and by the lead taken by the industrial sector in the country's economic activity. New investments in infrastructures such as roads, railways, communication networks and energy supply and distribution led to further reductions in internal transport costs. The crisis of the 1970s, which in the case of Spain stretched well into the 1980s, put a brake on these upward trends, and high average GDP growth rates were not recorded again until the final years of the XXth century. During the last fifteen years of the XXth century a new wave of investment in infrastructure helped to reduce further transport cost across Spanish regions through the implementation of huge investment programs in freeways, high-speed railway and telecommunications.

The main patterns of integration of the Spanish economy into the global economy are very similar to those described for Portugal. So, in the Spanish case, although the liberal reforms established in the mid-19th century ended the main prohibitions on foreign trade and favoured the free movement of capital and labour across Spain's borders, Spanish foreign trade policy also took a protectionist turn in the late 1880s which extended well until the end of the Primo de Rivera's dictatorship in 1929. The Franco regime adoption of an autarkic policy during the 1940s implied the total isolation of the Spanish economy from the international market. Foreign trade and international capital movements during these years reached their lowest levels in contemporary Spanish economic history.

Nevertheless, the liberalizing policies of the 1950s also affected the Spanish integration into the international economy. Although at a slow pace, Spain started to recover its position in the international markets. Spain's membership in international organisations such as GATT, World Bank and IMF, and the liberal winds regarding the regulation of international commodity and capital movements, marked the starting point for a new wave of growth in the movement of goods, capital and labour across Spanish borders. In any case, the level of integration reached by the Spanish markets for goods and capital during this period cannot be considered those of a truly open economy. Notwithstanding, from the years of the Democratic Transition, Spain experienced major advances in the integration in international markets. In this respect, the signature of the preferential agreement with the EEC in 1970 and overall, the ascension of Spain to the CEE in 1986 acted as big institutional reforms that changed the framework in which the specialization of Spanish regions took place. Finally, considering the economic relations

between Spain and Portugal, the milestone was the signing of Spain's trade agreement with EFTA in 1980 (as Portugal was a member, the Hispano-Portuguese trade recorded since then, a sharp reduction in duties) and the adhesion of these two economies to the EEC in 1986.

3. A New Estimation of pc GDPs for Iberian regions

The database of the study includes data of GDP pc for the Spanish NUTSIII, with the exception of Canarian provinces and the Portuguese historical districts (HD), for all the decennial benchmarks between 1900 and 2000. For the Spanish regions, the figures between 1900 and 1930 come from (Rosés, Martínez-Galarraga, and Tirado 2010). From 1930 on, the data have been collected from different well known sources such as Alcaide Inchausti, (2003) for the years 1940-1950, BBV (1999) for the years 1960-1990 and FUNCAS (2004) for the year 2000. Regional population figures have been collected from *Spanish Population Censuses*.

The Portuguese regional GDP per capita data among 1900 and 1950 comes from Badia-Miró et al. (Forthcoming). From 1950 onwards we consider official sources as Abreu (1969), an official publication from INE, which provides data for the Historical Divisions (HD) for 1953 and 1963, da Conceicao (1975) for 1970 data and Instituto Nacional de Estadística (1988) for 1980. For 1995 onwards, EUROSTAT provides regional data based in NUTS II and NUTS III. The population data comes from Nunes, (1989) and EUROSTAT.

Due to the fact that NUTS-III (from 1990 onwards) and the Historical Division (1900 – 1980) haven't got a direct correspondence, we have obtained new regional GDP data for the historical regions for the whole period as follows. To transform NUTS-III GDP figures into HD GDP figures, we have distributed each NUTS-III GDP across its main municipalities in accordance to each municipality population share. After doing that, we assigned the GDP of each municipality to the HD where this municipality was located in the past. For a more detailed description of the procedure followed for the transformation, see the appendix.

Lastly, in order to homogenize Portuguese and Spanish regional data, we have considered, for each year, the percentage of total GDP corresponding to each region, and we have recalculated it considering the Spanish and the Portuguese GDP, in 1990 International Geary-Khamis US dollars, from (Maddison 2010). Regional GDP pc of Iberian regions is obtained from these results.

4. Long term paths of regional income inequality in Iberia

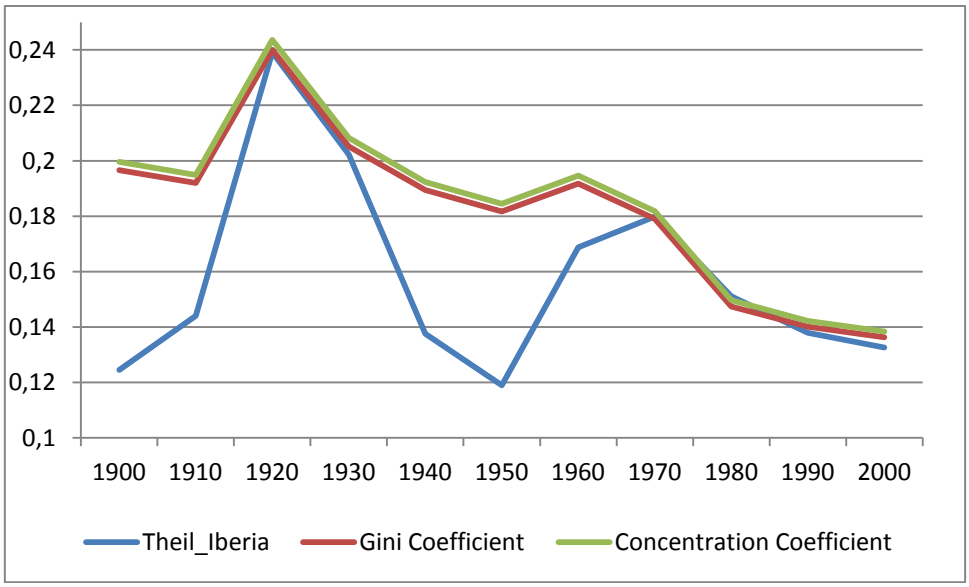
In this section a first look at the evolution of Iberian regional inequality is offered. Table 2 and Figure 1 present the long-term evolution of several inequality indices for Iberian regions between 1900 and 2000.

Tabla 3. Iberian Regional Inequality Indices. NUTS III

	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
Gini Coeff.	0,197	0,192	0,240	0,205	0,189	0,182	0,192	0,179	0,147	0,140	0,136
Concent. Coeff.	0,200	0,195	0,244	0,208	0,192	0,184	0,195	0,182	0,150	0,142	0,138
Theil	0,125	0,144	0,239	0,202	0,138	0,119	0,169	0,180	0,151	0,138	0,133

As it can be seen, the first stages of Spanish and Portuguese economic growth processes witnessed a trend of increasing regional income inequality—that is, between 1900 and 1920.[9] After that time, regional inequality followed a long term pattern of gradual reduction that only was interrupted during the years of explosive growth in the 1950s and 1960s. So, it could be pointed out that, over the long term, regional income inequality followed a U-shaped pattern, with a growth in inequality between 1900 and 1920 followed by a long phase of declining regional inequalities that lasted until the end of the century.

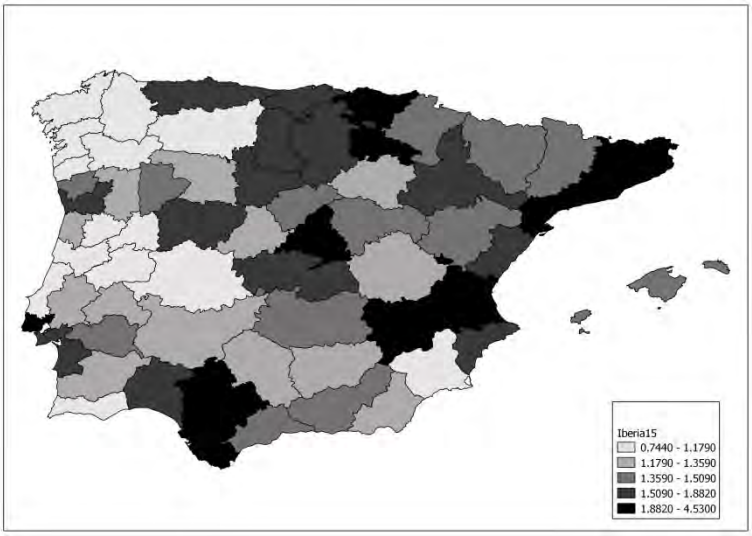
Figure 1. Indices of Regional pcGDP Inequality in Iberia



[9] Roses, Martinez-Galarraga and Tirado (2010) date the beginning of this process of growth of regional inequality in Spain back to the second half of the XIXth century.

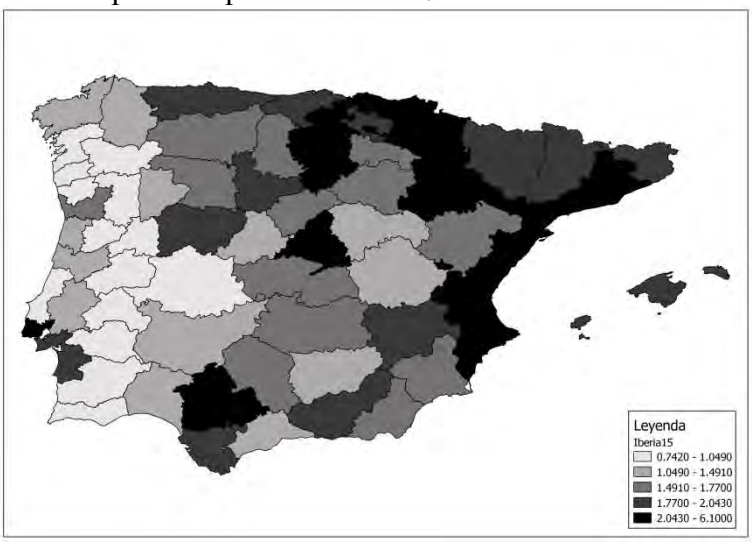
However, as we have pointed out, the objective of this paper is to analyze the possible existence of geographical patterns in the spatial distribution of regional GDP pc levels. In this sense, maps 1 to 6 can provide a first approach to the evolution of the geography of the regional economic inequality in Iberia, in the long run. In particular, the gray scale used includes the per capita income levels relative to the average of the whole region, with darker shades tinting those regions in the first quintile of the regional distribution, in terms of income per capita. By contrast, the white colored would be the poorest regions, which occupied the bottom quintile of the distribution.

Map 1. PIB pc en Miles de $ G-K – Iberia 1900

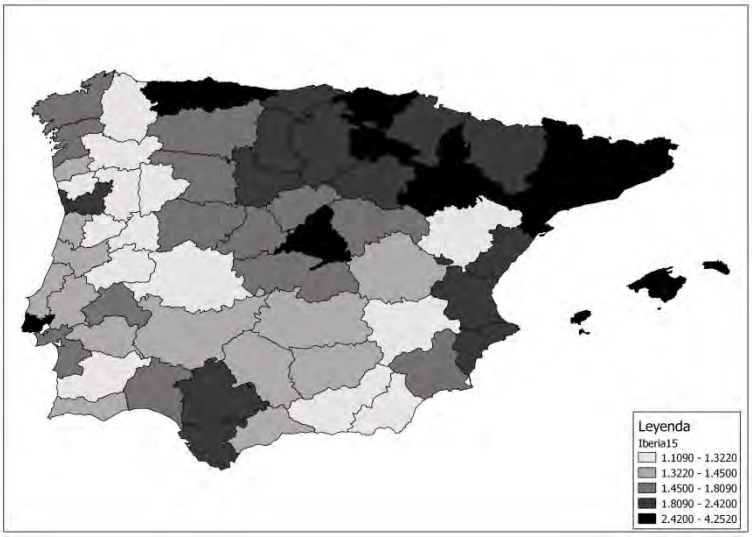


Firstly, the map corresponding to 1900 aims to an Iberian economy with a moderate level of inequality (the abundance of gray represents the concentration of many regions at intermediate levels of income and a geography of relative wealth-poverty not well defined (poor and rich regions were distant, coast-inner regions, north-south).

Map 2. PIB pc en Miles de $ G-K – Iberia 1920



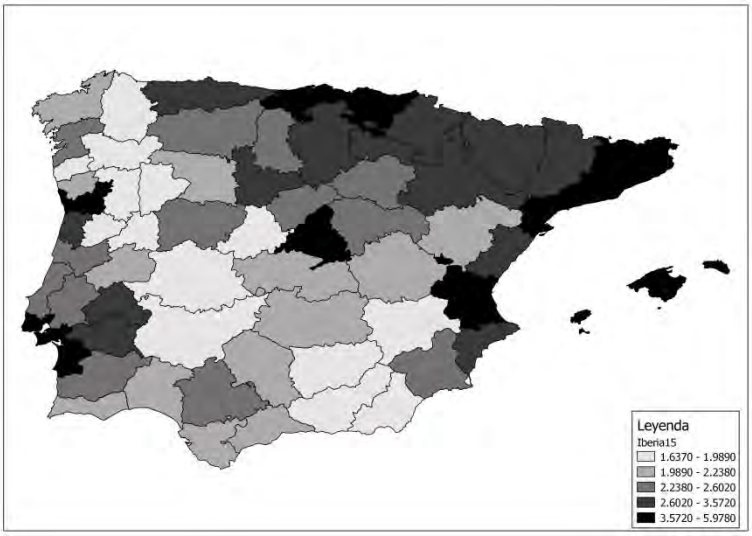
Map 3. PIB pc en Miles de $ G-K – Iberia 1940



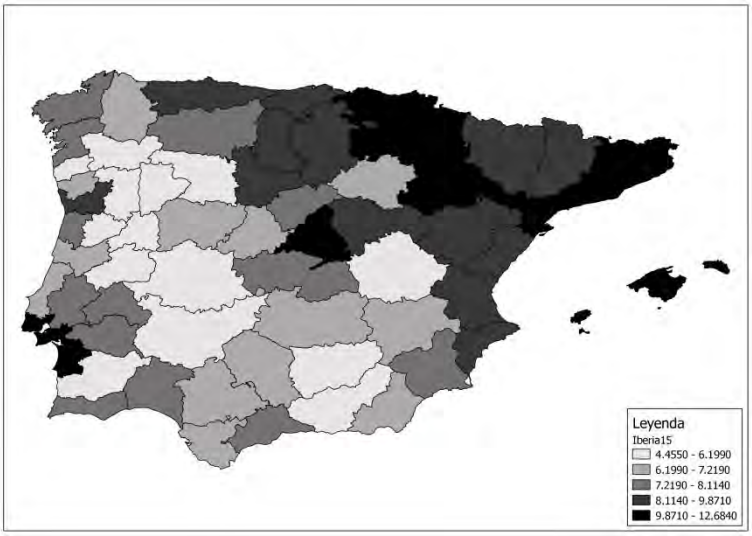
The geographic picture targeted for 1900 changes gradually throughout the XXth century. Particularly, it seems to appear a specific pattern of regional economic inequality in Iberia with some important aspects to highlight. First, it should be noted that this map of inequality points out the formation of some clusters of rich and poor regions, with a strong geographical pattern. That is, the income levels of regions were not randomly distributed in the territory, as rich and poor regions seem to clusters in groups. Secondly, these clusters have a specific location which remains quite stable consolidates along time. Regions in the Northeast quadrant of the peninsula and the coastal regions boast a higher per capita income levels than those located in inland areas, particularly in the West and South of the Peninsula. Thirdly, low levels of income are concentrated in a group of regions located on both sides of the border between Spain and Portugal. The formation of this group has their roots in the first half of the XXth century, and seems to be consolidated in recent

benchmarks, in parallel to the process of integration of both economies into the European economy.

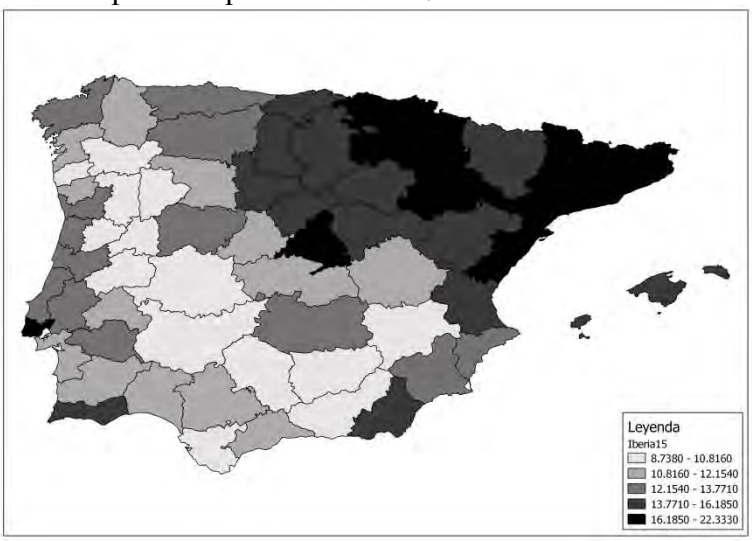
Map 4. PIB pc en Miles de $ G-K – Iberia 1960



Map 5. PIB pc en Miles de $ G-K – Iberia 1980



Map 6. PIB pc en Miles de $ G-K – Iberia 2000



The evidence here described gives a set of stylized facts about the geographical patterns of regional inequality in Iberia that deserve to be checked by statistical analysis. Thereafter, we consider some tools of spatial statistics in order to go deep and sharpen into these hypotheses, derived from direct observation on the evidence described in this section.

5. Spatial Correlation Analysis

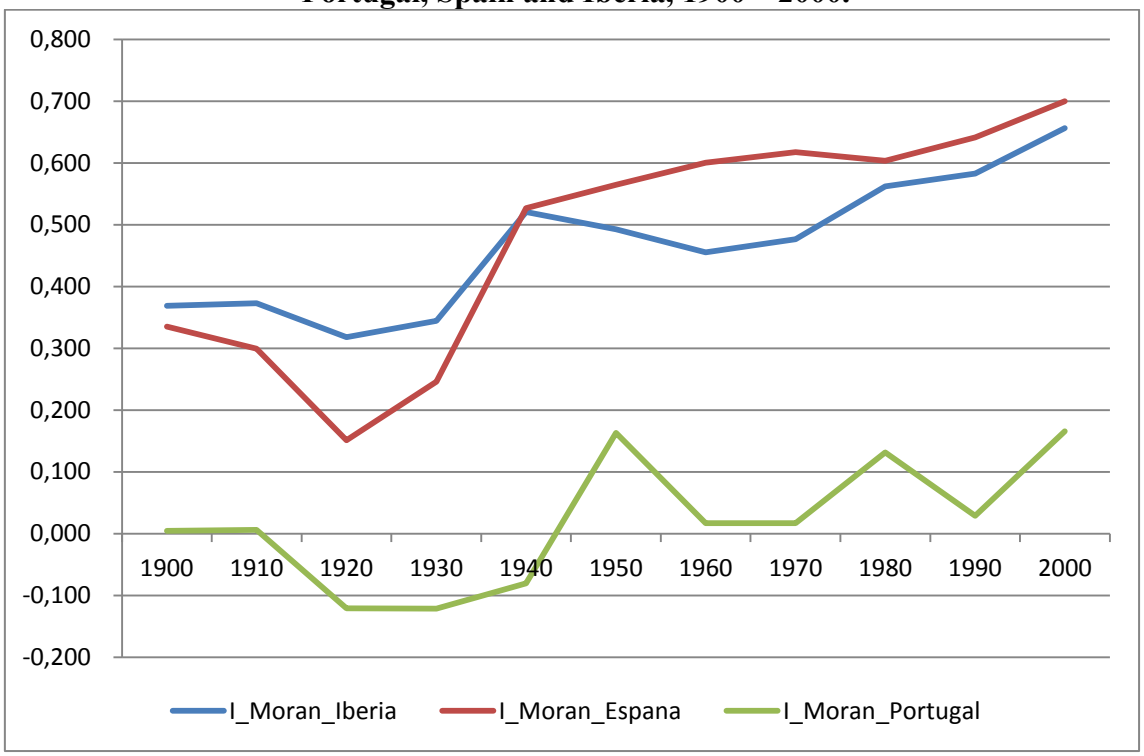
As we have said, we are interested in analyzing the statistical significance of the apparent geographical patterns of regional income inequality described previously. In order to do so, in this section we make use of some spatial statistics techniques. Particularly, we have computed the Moran's I coefficient for the Portuguese historical districts, the Spanish provinces and for the whole Iberia. This coefficient tests the existence of a statistical relationship among the estimated regional GDP pc for any region and the level of GDP pc in the neighboring areas. In this study, we have calculated this index considering a distance matrix, where the cells are one for contiguous provinces and zero in other cases. Therefore, it's an analysis of spatial autocorrelation based in a contacts matrix.[10] The values reached by this coefficient and their temporal evolution could be observed in Figure 2.

Moran's I coefficient for the Portuguese regions was very low, showing negative values for some benchmarks, although with a very low significance level. Nevertheless, from 1950 onwards, the values turn to positive, although the significance remained lower. The Spanish case shows a similar trend, although the starting levels were different. Lower values of this ratio are recorded during the first third of the XXth century. From 1940

[10] A description of the main spatial statistics methods could be read in Anselin, Florax and Rey (2004).

onwards, the series showed a long-term trend of growth in the calculated Moran´s I coefficient, that it to say in the presence of a significant relationship between each region regional income levels and the one observed in its neighboring regions. Moreover, the values reached by the coefficient are always statistically significant.

Figure 2. Spatial correlation coefficient (I-Moran)
Portugal, Spain and Iberia, 1900 – 2000.



Notwithstanding, the most interesting fact showed in the figure is the level and evolution of the Moran's I coefficient calculated for the whole Iberia. First, we observe that for the period prior to the 1940s, the values reached by Moran's I coefficient for Iberia show the existence of a highly significant spatial correlation among regional pc GDPs. In fact, the values reached for this statistic in the sample of Iberia are higher than those calculated independently for each country. This would indicate that the Iberian geographical pattern reflects better the geography of the economic inequality than those derived of the isolate consideration of Spanish or Portuguese economies. This situation changed during the years of the take-off, in the decades of 1950s and 1960s (high growth rates in a context of highly protected economies). However, from the 1960s onwards, Moran's I of Iberia increases, reaching highly significant values. Furthermore, this growth occurred in parallel with the convergence among the values recorded for this Index in Spain and for the whole Iberia. This growing degree of spatial autocorrelation across pc

GDPs of Iberian regions could be related to the strengthening of the Iberian economy along the process of Spanish and Portuguese international economic integration.

However, it would be interesting to analyze which regions determine the overall significance and the evolution of Moran's I statistic, and determine if these spatial relationships exist between the richest regions of the peninsula or between groups of poor regions. Besides, it would also be very interesting to determine if the spatial correlation occurs only among regions belonging to same state or there are groups of regions with high correlation in their levels of income which are located in both sides of the political Hispano-Portuguese border.

With the objective of going further in the understanding of these elements, we present new evidence in Maps 7 to 12. In these maps, following the approach of Anselin, Florax and Rey (2004), we present statistical data on local Moran's I index, which will give us specific information about which regions have some spatial correlation among levels of GDP, and whether that relationship is between groups of regions with low or high-income (above or below average).[11]

The colors of the maps show:

- Blue: high correlation among regions with low level of GDP pc.
- Red: high correlation among regions with high level of GDP pc.
- Light red: high correlation among regions with high level and low level of GDP pc.
- Light blue: high correlation among regions with low level and high level of GDP pc.

From the information provided on the maps, we can highlight the following aspects. First, the spatial correlation between the levels of regional per capita income is significant in a huge number of cases. Moreover, we could point out that, at the beginning of the XXth century this correlation only affected a relatively small number of regions but. Nevertheless, as the century advances, this significant correlation spread to more and more regions.[12]. That is, in correspondence with the growing evolution of Global Moran's I, the

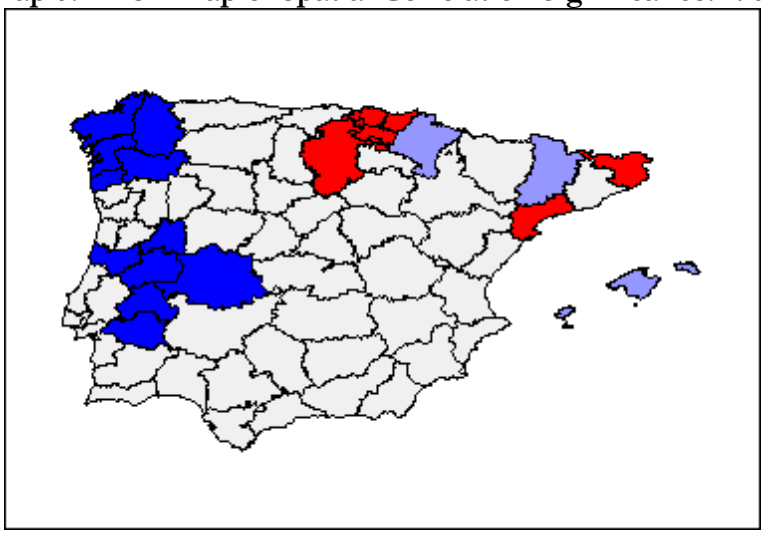
[11] We have used GeoDa to obtain Map 7 to Map 12.

[12] The exception is observed in the map corresponding to 1980. To explain this it could be argued that, in this case, the oil shock of the 1970s, with a strong sector component, had an asymmetric impact in the Iberian regions, which in the short term changed the relative ranking of some of the regions. However, in the long run, the main geographical trends in terms of relative income and spatial correlations reappear on the 2000 map.

presence of a significant spatial correlation among pc GDPs affects to a growing number of regions.

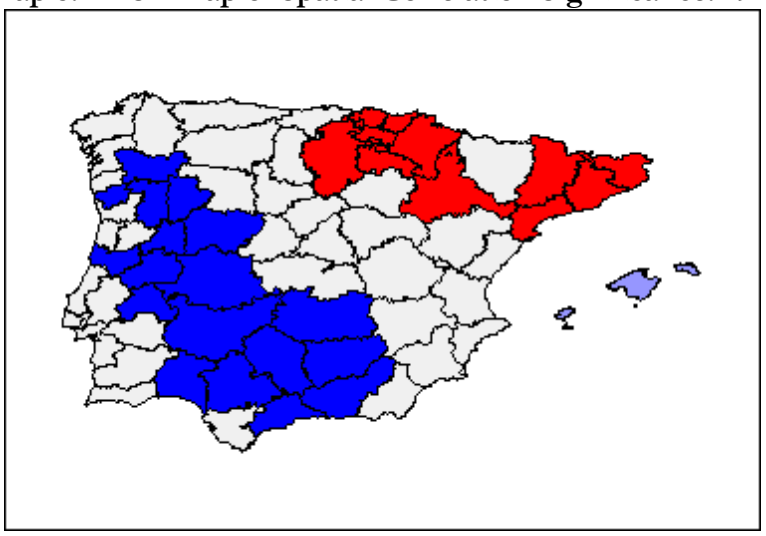
Second, the information contained in the maps shows the gradual generation of a regional economic inequality map in Iberia, placing a cluster of rich regions in the Northeast quadrant of the Peninsula and another group of poor territories in the inland regions of the South and the West.

Map 7.- LISA Map of Spatial Correlation Significance. 1900



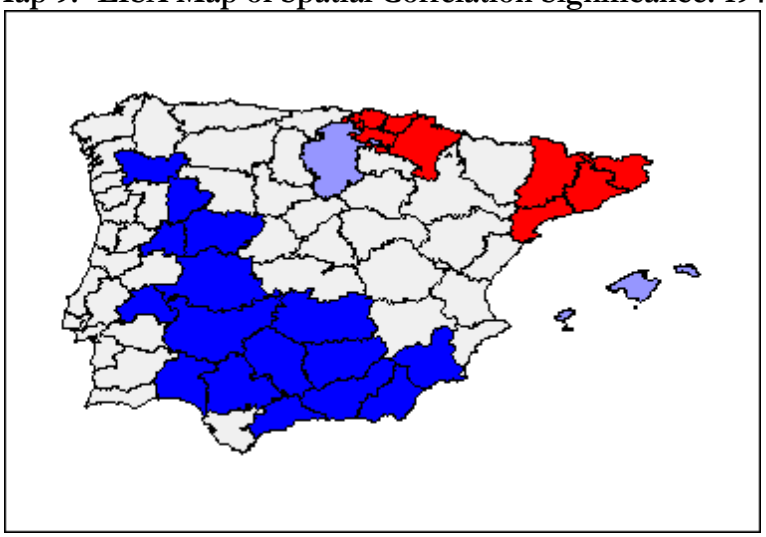
Considering this aspect, we derive two additional assessments. Firstly, it should be noted that the regions where the capital of the two states are located (Madrid and Lisbon) are not members of any of these clusters. Madrid and Lisbon GDP pc are higher than the levels of their neighboring regions. So, it could be pointed out to the existence of a capital effect with no diffusion to the closest regions.

Map 8.- LISA Map of Spatial Correlation Significance. 1920

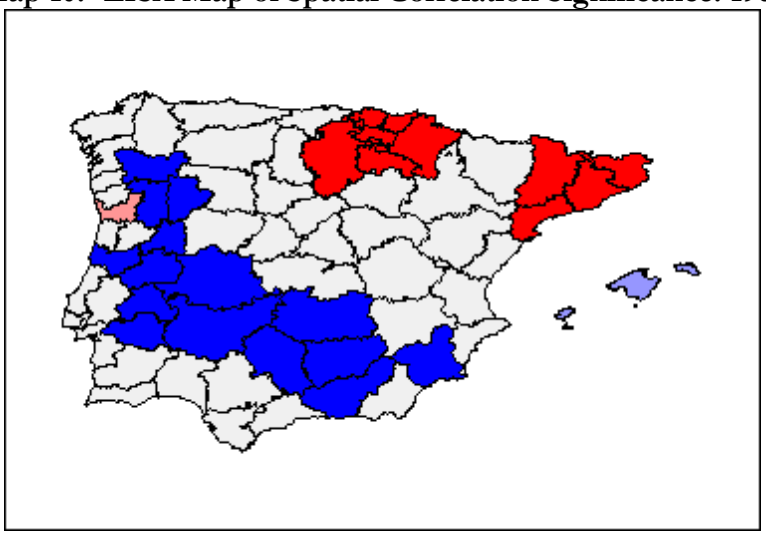


Second, it could be also observed that the cluster of relatively poor regions, where there are significant spatial correlations in level of income, includes regions belonging to the two states that comprise Iberia. It should also be noted that this fact appears already in the beginning of the XXth century, and that it was well established in the 1960s. In this sense, the growing integration of the two Iberian economies since 1970s, and especially since 1986, seems to have reinforced a spatial relationship between income levels of regions on either side of the border that it was already present in the first half of the XXth century.

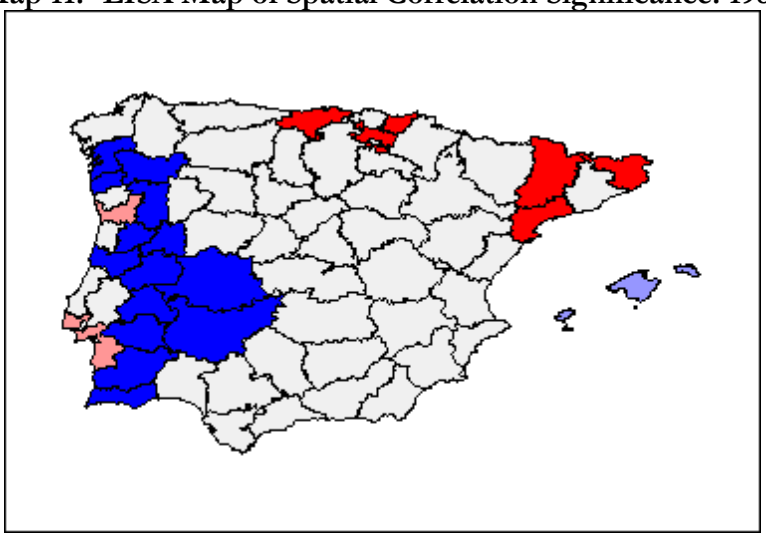
Map 9.- LISA Map of Spatial Correlation Significance. 1940



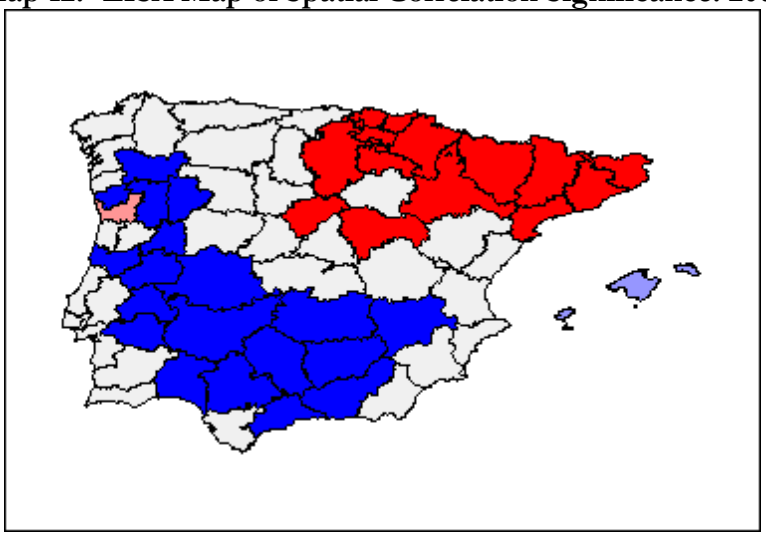
Map 10.- LISA Map of Spatial Correlation Significance. 1960



Map 11.- LISA Map of Spatial Correlation Significance. 1980



Map 12.- LISA Map of Spatial Correlation Significance. 2000



6. Conclusions and research agenda

This paper has studied the evolution of regional inequality in Iberia from 1900 to 2000 from a geographical perspective. For doing that the text presents a new dataset of historical regional GDPs for Spanish NUTS III and Portuguese Historical Divisions, synthetic indices of regional inequality and different measures of spatial correlation across regional pc GDPs. The results show that Portuguese and Spanish national economic integration processes initially favored the economic specialization across Iberian regions fostering the divergence in terms of their regional pc GDPs. Notwithstanding, ulterior advances in the integration of national markets and the subsequent first stages in the process of adhesion of these two national economies into the UE coexisted with a progressive reduction in Iberian regional inequality. So, Iberian regional inequality depicts a long term U-shaped evolution. Nevertheless, at the same time, Iberian regional inequality followed a significant geographical pattern. The poorest regions cluster in inland territories of the south and west, with regions belonging to this cluster sited on the two sides of the political border. On the contrary, richest regions cluster along the coasts, especially in the north-east corner of the Iberian Peninsula. Besides, the data show that this pattern was well established in the middle of the XX century, before the reciprocal openness of national markets in the 1980s. In this respect, the adhesion of both economies to the UE in 1986 seems to have just caused an ulterior deepening in this historical pattern.

This new evidence arise new questions to be analyzed in the future. First, it could be interesting to go deeper in the analysis of the main drivers of the regional economic inequality in Iberia. In this regard, a recent work by Legallo and Karamiakis (2011) combines traditional shift share analysis with spatial econometric analysis in order to identify whether spatial relationships in terms of regional GDP pc are due to the similarities in the production structures of adjacent regions or due to those existing in the neighboring regions average productivity levels or in a combination of both effects. The outputs of this exercise could take us a step forward in the understanding of the determinants of the regional inequality in the long term, identifying the role played by differences in relative factor endowments or by the presence of market size effects under a long-term process of increasing economic integration, at a supranational level.

Second, it also could be interesting to use the Iberian economy historical experience in order to analyze the presence and evolution of border effects, in terms of regional GDP pc, among the two states that compose Iberia. This historical episode could give us some insights about the evolution of the magnitude of this effect after the disappearance of the factors which transform a political border into an economic border, such the reduction of transport costs, the disappearance of tariff barriers or the full liberalization of capital and migration flows. This kind of analysis would provide new evidence to the controversy about the economic significance of political boundaries or, from another perspective, make a significant contribution to the debate on the endogeneity of political boundaries.[13] In this respect, contrary to the view held by various authors who suggest that political boundaries are a result of previous economic borders, the evidence showed in this article suggests that the political and institutional border between the two Iberian states has not prevented the existence of intense economic relations between border regions before and after the recent process of European economic integration. That is to say, it seems that the political border did not break the Iberian economic continuities.

Summing up, the results of the present and the future research on the historical patterns of regional income inequality in Iberia may serve to take some light to the current debates on the effects of the ongoing process of EU integration.

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[13] About this topic see Wolf (2005) and Wolf (2008).

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8. Appendix

To obtain homogenized series of the Portuguese Regional GDP in the long run, between 1890 and 2008, we have to consider the changes in the administrative division registered during the 1980s. The new NUTS III division instituted during the entrance of Portugal to the EEC, has not an easy a direct correspondence with the former administrative division (called the historical division). To overcome this problem we propose a shortcut method when a non-direct correspondence between NUTS III and the HD exists: considering the share of population of the municipalities which belong to the former historical division, for each benchmark. The approximation considered in each case could be observed in table A.1:

Table A.1

HD	NUTS III	Note	1991	2001	2008
Aveiro	Baixo Vouga				
Aveiro	Entre Douro e Vouga				
Aveiro	Tâmega	*	0,03	0,03	0,03
Beja	Baixo Alentejo				
Beja	Alentejo Litoral	*	0,27	0,26	0,27
Braga	Ave				
Braga	Cávado				
Braga	Tâmega	*	0,07	0,07	0,07
Bragança	Alto Trás-os-Montes	*	0,40	0,42	0,42
Bragança	Douro	*	0,14	0,14	0,13
Castelo Branco	Beira Interior Sul				
Castelo Branco	Cova da Beira				
Castelo Branco	Pinhal Interior Sul				
Coimbra	Baixo Mondego				
Coimbra	Pinhal Interior Norte	*	0,71	0,73	0,74
Évora	Alentejo Central				
Faro	Algarve				
Guarda	Beira Interior Norte				
Guarda	Douro	*	0,04	0,04	0,04
Guarda	Serra da Estrela				
Leiria	Pinhal Interior Norte	*	0,29	0,27	0,26
Leiria	Pinhal Litoral				
Leiria	Oeste	*	0,52	0,50	0,49
Lisboa	Grande Lisboa				
Lisboa	Oeste	*	0,48	0,50	0,51
Lisboa	Lezíria do Tejo	*	0,09	0,10	0,10
Portalegre	Alto Alentejo				

Porto	Grande Porto	*			
Porto	Tâmega	*	0,79	0,81	0,82
Santarem	Médio Tejo				
Santarém	Lezíria do Tejo	*	0,91	0,90	0,90
Setubal	Alentejo Litoral	*	0,73	0,74	0,73
Setúbal	Península de Setúbal				
Viana do Castelo	Minho-Lima				
VilaReal	Alto Trás-os-Montes	*	0,60	0,58	0,58
VilaReal	Douro	*	0,45	0,26	0,25
VilaReal	Tâmega	*	0,03	0,03	0,03
Viseu	Douro	*	0,37	0,57	0,58
Viseu	Tâmega	*	0,07	0,06	0,06
Viseu	Dão-Lafões	*			

To obtain these values we have considered some approximations. For the *Tamega* region:

NUTSIII (municipal)	Hist. Div.
Castelo de Paiva	Aveiro
Cabeceiras de Basto	Braga
Celorico de Basto	Braga
Amarante	Porto
Baião	Porto
Felgueiras	Porto
Lousada	Porto
Marco de Canaveses	Porto
Paços de Ferreira	Porto
Paredes	Porto
Penafiel	Porto
Mondim de Basto	VilaReal
Ribeira de Pena	VilaReal
Cinfães	Viseu
Resende	Viseu

For the *Alentejo Litoral* region we have considered:

NUTSIII (municipal)	Hist. Div.
Odemira	Beja
Alcácer do Sal	Setubal
Grândola	Setubal
Santiago do Cacém	Setubal
Sines	Setubal

For the *Alto Trás-os-Montes* región we have considerd:

NUTSIII (municipal)	Hist. Div.
Bragança	Bragança
Mirandela	Bragança
Alfândega da Fé	Bragança
Mogadouro	Bragança
Vimioso	Bragança
Vinhais	Bragança
Chaves	VilaReal
Boticas	VilaReal
Macedo de Cavaleiros	VilaReal
Miranda do Douro	VilaReal
Montalegre	VilaReal
Murça	VilaReal
Valpaços	VilaReal
Vila Pouca de Aguiar	VilaReal

For the *Douro* región we have considerd:

NUTSIII (municipal)	Hist. Div.
Carrazeda de Ansiães	Bragança
Freixo de Espada-à-Cinta	Bragança
Torre de Moncorvo	Bragança
Vila Flor	Bragança
Vila Nova de Foz Côa	Guarda
Alijó	VilaReal
Mesão Frio	VilaReal
Peso da Régua	VilaReal
Sabrosa	VilaReal
Santa Marta de Penaguião	VilaReal
VilaReal	VilaReal
Armamar	Viseu
Lamego	Viseu
Moimenta da Beira	Viseu
Penedono	Viseu
São João da Pesqueira	Viseu
Sernancelhe	Viseu
Tabuaço	Viseu
Tarouca	Viseu

For the *Pinhal Interior Norte* región we have considerd:

NUTSIII (municipal)	Hist. Div.
Arganil	Coimbra
Góis	Coimbra
Lousã	Coimbra
Miranda do Corvo	Coimbra
Oliveira do Hospital	Coimbra
Pampilhosa da Serra	Coimbra
Penela	Coimbra
Tábua	Coimbra
Vila Nova de Poiares	Coimbra
Alvaiázere	Leiria
Ansião	Leiria
Castanheira de Pera	Leiria
Figueiró dos Vinhos	Leiria
Pedrógão Grande	Leiria

For the *Oeste* región we have considerd:

NUTSIII (municipal)	Hist. Div.
Alcobaça	Leiria
Bombarral	Leiria
Caldas da Rainha	Leiria
Nazaré	Leiria
Óbidos	Leiria
Peniche	Leiria
Alenquer	Lisboa
Arruda dos Vinhos	Lisboa
Cadaval	Lisboa
Lourinhã	Lisboa
Sobral de Monte Agraço	Lisboa
Torres Vedras	Lisboa

For the *Lezíria do Tejo* región we have considerd:

NUTSIII (municipal)	Hist. Div.
Almeirim	Santarém
Azambuja	Lisboa
Alpiarça	Santarém
Benavente	Santarém
Cartaxo	Santarém
Chamusca	Santarém
Coruche	Santarém
Golegã	Santarém
Rio Maior	Santarém

Salvaterra de Magos	Santarém
Santarém	Santarém

For the *Dão-Lafões* region we have considered that all the region belong to Viseu, despite that Aguiar da Beira belonged to Guarda (only 2%), and also for *Grande Porto* region we have attributed all to Porto, despite Espinho belonged to Aveiro (only 2%).

Table A.2 - Share of the regional GDP over total GDP in Portugal, 1890 - 2008

	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1991	2001	2008
Aveiro	5,5%	5,9%	4,7%	4,9%	5,4%	4,8%	5,4%	6,2%	5,9%	6,4%	8,0%	8,4%	8,2%
Beja	3,0%	2,9%	3,0%	2,4%	2,8%	3,0%	3,4%	2,4%	1,8%	1,5%	1,4%	1,3%	1,5%
Braga	6,5%	7,2%	6,7%	5,4%	5,2%	5,2%	4,9%	4,9%	5,3%	6,0%	6,8%	7,2%	6,9%
Bragança	4,1%	3,6%	3,7%	2,4%	2,5%	2,0%	1,8%	1,6%	1,4%	1,1%	0,9%	0,8%	0,8%
Castel Branco	3,3%	2,8%	3,0%	3,0%	3,0%	3,2%	3,2%	2,6%	2,2%	1,7%	1,6%	1,5%	1,5%
Coimbra	6,1%	5,5%	5,5%	5,4%	5,6%	4,7%	4,2%	3,9%	3,5%	4,0%	3,5%	4,0%	3,9%
Évora	2,8%	2,7%	2,9%	2,2%	2,4%	2,4%	3,0%	2,4%	1,7%	1,8%	1,3%	1,5%	1,4%
Faro	3,5%	3,8%	3,7%	3,3%	3,5%	3,6%	3,0%	2,6%	2,1%	3,2%	3,7%	4,0%	4,3%
Guarda	4,7%	4,2%	4,0%	3,3%	3,3%	2,6%	2,0%	1,8%	1,4%	1,2%	1,2%	1,1%	1,1%
Leiria	4,1%	4,0%	3,9%	3,9%	4,1%	3,8%	4,1%	3,8%	3,6%	3,8%	4,0%	4,2%	4,4%
Lisboa	16,6%	18,4%	19,4%	24,9%	23,3%	27,4%	27,7%	31,0%	35,0%	32,5%	34,1%	33,4%	33,7%
Portalegre	2,3%	2,1%	2,2%	2,1%	2,2%	2,2%	2,6%	1,9%	1,3%	1,3%	1,0%	1,0%	1,0%
Porto	13,6%	14,3%	14,2%	16,9%	15,5%	15,4%	15,0%	16,3%	16,3%	17,0%	16,5%	15,6%	15,0%
Santarém	5,1%	5,0%	5,4%	4,8%	5,3%	4,9%	5,7%	4,4%	4,2%	4,3%	3,5%	4,0%	3,8%
Setúbal	2,8%	3,1%	3,4%	4,8%	4,8%	3,9%	5,7%	7,1%	9,0%	8,5%	6,5%	6,6%	6,8%
Viana do Castelo	4,1%	3,6%	3,8%	3,0%	3,3%	3,1%	2,0%	1,7%	1,3%	1,5%	1,5%	1,5%	1,5%
Vila Real	5,4%	4,5%	4,4%	3,1%	3,3%	3,0%	2,5%	2,2%	1,5%	1,5%	1,8%	1,2%	1,3%
Viseu	6,6%	6,4%	6,0%	4,1%	4,6%	4,6%	3,7%	3,1%	2,5%	2,6%	2,6%	2,9%	3,0%

Source: Own elaboration and Badia-Miró et al. (forthcoming).

Table A.3 – Population of the Portuguese regions, 1890 - 2008

	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1991	2001	2008
Aveiro	291.636	305.863	336.310	347.220	392.367	433.545	483.636	524.893	548.604	622.000	904.826	938.920	993.990
Beja	159.235	164.988	191.588	203.179	243.063	278.298	291.013	276.691	204.868	189.022	163.974	158.024	151.599
Braga	340.509	358.414	380.046	378.355	414.838	487.952	546.589	597.064	613.386	707.548	888.146	925.033	974.782
Bragança	180.160	184.744	190.997	170.287	187.269	213.715	228.414	233.300	179.876	184.367	124.184	124.798	117.692
Castel Branco	206.235	217.397	240.667	241.691	262.721	304.639	324.596	316.396	255.637	235.001	219.236	214.421	204.246
Coimbra	328.217	339.519	364.699	360.432	377.753	415.875	438.737	433.682	401.503	436.032	430.050	434.806	432.555
Évora	121.678	129.009	147.776	156.066	179.348	209.982	221.907	219.822	178.640	180.451	171.475	169.752	168.979
Faro	230.484	257.549	273.786	270.737	295.978	319.628	328.229	314.762	268.806	322.647	360.005	379.620	430.084
Guarda	252.031	264.643	272.892	259.347	259.893	295.681	307.615	282.418	213.625	206.058	176.555	172.351	164.697
Leiria	220.236	242.703	267.170	283.579	310.078	358.132	396.086	404.547	379.780	419.787	453.432	452.686	480.165
Lisboa	498.243	586.453	669.533	744.575	905.001	1.055.272	1.223.305	1.384.320	1.580.006	2.060.577	2.079.719	2.133.465	2.240.694
Portalegre	115.404	126.467	141.923	151.044	165.355	189.069	200.413	188.371	145.997	143.145	126.739	124.821	116.744
Porto	549.702	599.239	671.755	707.259	806.971	941.211	1.054.246	1.194.334	1.313.997	1.558.381	1.620.228	1.678.503	1.249.945
Santarém	255.120	283.623	317.511	335.683	378.800	426.226	460.271	461.751	431.201	454.127	441.648	443.780	456.596
Setúbal	115.446	134.108	162.964	186.657	233.104	270.186	325.903	377.718	468.881	654.717	745.502	780.825	860.134
Viana do Castelo	213.632	218.652	229.979	230.107	233.146	261.178	279.522	277.740	251.374	256.990	248.634	247.217	250.951
Vila Real	238.724	240.590	244.703	235.060	256.342	291.377	319.497	325.232	267.214	264.758	258.241	199.767	191.492
Viseu	399.043	410.382	420.193	411.050	441.993	469.078	494.657	482.304	413.627	423.914	406.092	441.704	452.034

Source: Own elaboration and Nunes (1989)