

**THE ACCESSIBILITY TO EMPLOYMENT OFFICES IN  
THE SPANISH LABOR MARKET: IMPLICATIONS  
IN TERMS OF REGISTERED UNEMPLOYMENT**

**PATRICIA SUÁREZ  
MATÍAS MAYOR  
BEGOÑA CUETO**

**FUNDACIÓN DE LAS CAJAS DE AHORROS  
DOCUMENTO DE TRABAJO  
Nº 610/2011**

De conformidad con la base quinta de la convocatoria del Programa de Estímulo a la Investigación, este trabajo ha sido sometido a evaluación externa anónima de especialistas cualificados a fin de contrastar su nivel técnico.

ISSN: 1988-8767

La serie **DOCUMENTOS DE TRABAJO** incluye avances y resultados de investigaciones dentro de los programas de la Fundación de las Cajas de Ahorros.  
Las opiniones son responsabilidad de los autores.

# **The accessibility to employment offices in the Spanish labor market: Implications in terms of registered unemployment**

**Patricia Suárez<sup>(\*)</sup>**  
**Matías Mayor<sup>(\*)</sup>**  
**Begoña Cueto<sup>(\*)</sup>**

## **Abstract:**

This paper focuses on the differences in the levels of accessibility to public employment offices in Spain. We use administrative data to explore the distribution of unemployed workers and local unemployment rates in the 8,109 Spanish municipalities in 2009.

Also, we connect this distribution with the location of employment offices in Spain. Hence the main purpose of our paper is to evaluate the role of the Public Employment Service (PES) in local labor markets by considering the physical distance to employment offices and the spatial structure of their catchment areas. Firstly, we propose a new accessibility measure and, secondly, we estimate a spatial model and test whether a higher accessibility to employment offices could contribute to reduce local unemployment rates. We also find different levels of accessibility to employment offices across the national territory and propose improvements in the PES performance. Our results reveals that public employment offices are insufficient in number and/or poorly located.

*Keywords:* employment offices, unemployment, accessibility, spatial econometrics.

*JEL classification:* J68, J60, C21, R12.

**Corresponding author:** Patricia Suárez, Applied Economics Department, Faculty of Economics and Business, University of Oviedo, Oviedo (33006), Spain. E-mail:

[suarezcpatricia@uniovi.es](mailto:suarezcpatricia@uniovi.es)

(\*)Applied Economics Department, Faculty of Economics and Business, University of Oviedo (Spain).

## 1. Introduction

After a fifteen-year period of sustained reduction in the Spanish unemployment rates and convergence with most EU countries, the economic downturn has sent Spain back to the top of countries with higher unemployment rates. There is a public outcry for a labor reform which may address the core problems in our labor market and modify issues such as the current active labor market policies (ALMPs). These policies, which also cover the Public Employment Services, have been hardly evaluated, so there is little information available about their effectiveness.

Whenever figures of registered vacancies are considered, the Spanish PES efficiency is regarded as low. This poor performance may be partly explained by the small number of job counselors. In 2006, there were 1,837 mil. unemployed and just 7,996 employees at PES offices (CES, 2009) in Spain. Consequently, each counselor saw about 230 job-seekers—one of the highest records in the EU—and the unemployed were likely to compete for time with their counselor.

In 1998, the Spanish government started to decentralize the PES to the autonomous communities, which were granted complete authority on ALMPs<sup>1</sup>. However, to ensure standards of service provision regardless of place of residence, PESs in the autonomous communities have remained integrated in the National Employment System. The decentralization of ALMPs was undertaken so that each region adopted a needs-based approach which could bring in better management of the available resources, and adapted employment and training programmes to the features of its labor market and unemployed population profile.

With respect to the PES, in theory it provides job-seekers easy access to employers and labor markets at local, regional, national and European level. According to the European Commission, the main task of any PES is to ensure that no job-seeker is marginalized by a lack of adequate assistance to find suitable employment.

Placement services are located in space, hence analyses of the accessibility to employment offices require spatially explicit tools. Also, any improvements in accessibility would translate into better PES performance, so we need to discuss whether the accessibility to employment offices is really equitable regardless of place of residence. Also, recent planning, evaluation and policy analyses have devoted more attention to accessibility measures.

This paper focuses on the spatial distributions of unemployed workers and public employment offices in Spain, and the degree of correspondence between them. Clearly, the distribution of public employment offices in the territory may lead to differences in accessibility for the unemployed and, in turn, have effect on the PES performance.

---

<sup>1</sup> Only the active labor market policy in Spain has been decentralized. The INEM-SPEE is responsible for unemployment insurance (see e.g., Serrano 2004).

Studies on the efficiency of PES offices at local level have been done in Germany (Hagen, 2003), Switzerland (Sheldon, 2003) and Sweden (Althin and Behrenz, 2004). However, these studies have not analyzed whether the spatial distribution of employment offices ensures equal access to such offices. In Spain there are no studies of employment offices at local level and, as in other countries (Fertig et al., 2006), we do not know how public funding is distributed among the offices.

This paper attempts to bridge this gap by combining the methodology of spatial economics with new accessibility measures that take into account the size of an employment office catchment area so that any difference in access may be adequately tackled.

The outline of the paper is as follows: Section II describes the data used in the paper and examines basic features of the unemployed and employment offices in Spain. It also introduces the accessibility measures proposed. Section III presents comparative evidence of the spatial distributions of the unemployed and employment offices across the Spanish municipalities. In Section IV we estimate an unemployment rate equation which includes the accessibility to employment offices as explanatory variable. Section V concludes with some policy recommendations.

## **2. Data and methodology**

### **2.1. Data**

Unemployment data in the following pages have been taken from the Official Unemployment Statistics, which are published monthly by the INEM-SPEE. Data referring to the local employment offices and their catchment areas have been taken from the regional employment authorities websites and the INEM-SPEE website.

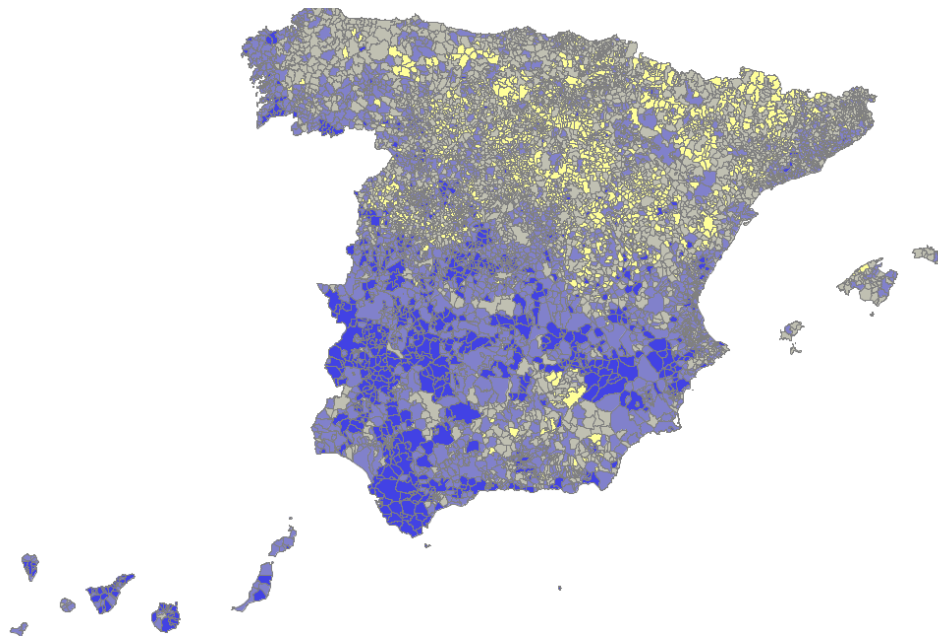
High regional unemployment rates have been endemic in Spain (for a more detailed discussion, see e.g. Jimeno and Bentolila 1998, Bande et al. 2008, Garcia-del-Barrio and Gil-Alana, 2009). Naturally the evolution of the workforce is of paramount importance when the spatial distribution of the unemployed is considered. No data are available on local unemployment rates because the Labor Force Survey (INE) is sample-based and hence data are not gathered in every Spanish municipality. Nevertheless, even if local unemployment rates could be calculated by approximation, the number of unemployed people would still be extremely important, since it constitutes a natural limit to the performance of any employment office<sup>2</sup>.

---

<sup>2</sup> Sheldon (2003) assesses the efficiency of placement services in Switzerland using the absolute number of jobless assigned to each of the 126 placement offices.

Figure 1 displays the 2009 average of unemployment rates by municipality<sup>3</sup>. In relative terms, we may clearly see that high unemployment rates are markedly concentrated in the southern regions and along the Mediterranean coast of Spain.

**Figure 1. Unemployment rates by municipality, 2009 average**



Job counselors at employment offices may only see a limited number of beneficiaries. The Special Plan for Job Counseling, Professional Training and Work Placement estimates that 1,500 new job counselors —approx. two counselors per office— would render a coefficient of 3.5 beneficiaries per counselor and day. Even though the hiring of 1,500 job counselors has led to a significant increase in staff since 2008, current staff numbers are far from meeting the counseling and mediation needs of the unemployed, especially at employment offices that have to attend to a high number of jobless. It is essential to establish clusters of unemployed people at local level, since active job-seeking policies and the modernization of PESs should be more intense in such municipalities.

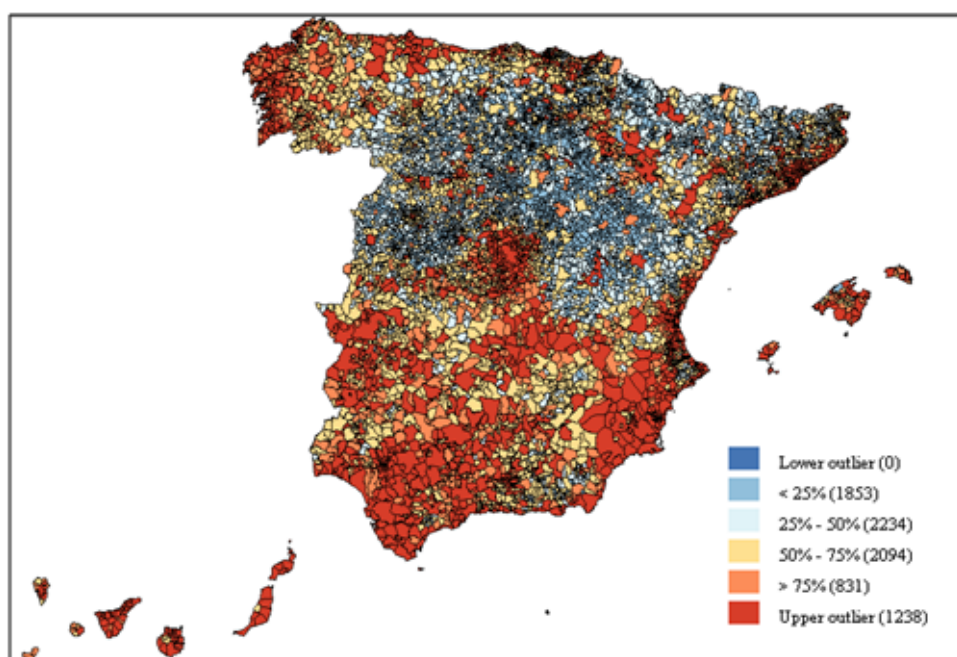
The box map<sup>4</sup> below (Figure 2) shows a concentration of high local unemployment rates, and especially upper outliers (1,238), in the south, Galicia, Asturias and along the Mediterranean coast. Broadly speaking, the map also shows a concentration of low local unemployment rates in Castile and Leon, as well as Aragon (except Zaragoza), Cuenca and Guadalajara.

---

<sup>3</sup> The local unemployment rate is estimated as the total number of unemployed people in the municipality over the total working age population.

<sup>4</sup> See Anselin (1994, 1997), and Talen and Anselin (1998). A box map is a choropleth quartile map augmented with the identification of outliers (those observations in the lowest and highest quartile that fall outside the fences, that is, 1.5 times IQR higher than the third quartile or lower than the first quartile).

**Figure 2. Box map of local unemployment rates, 2009 average**



In any case, the current location pattern of public employment offices in Spain stems from political decisions over the last thirty years. More precisely, employment offices are administrative units established long before the autonomous communities took over ALMPs. The question is whether this location pattern is the most adequate and, if not, how it could be possibly improved. In 2008, the government of the Autonomous Community of Navarre opened a new employment office in Tudela as part of their Plan for the Modernization of the Employment Service of Navarre. Since then the office has provided service to 21 municipalities, as well as the municipality of Tudela itself. Besides alleviating the workload of the employment offices which had to attend to these jobless up to 2008, the office represents a step forward in the autonomy the autonomous communities have been conferred to modernize the PES and improve job counseling and work placement services.

Figure 3 shows the spatial distribution of employment offices in Spain. Clearly, its most striking feature is the large number of municipalities lacking employment offices —7,524 out of 8,109 (see Table 1).

**Figure 3. Employment office location**



The many municipalities with zero employment offices are predominantly concentrated in Castile and Leon, whereas the nonzero ones are in the south and the south-east, Madrid and Barcelona. Notwithstanding that, a slight dehomogenization of these data shows employment offices in every municipality with over 4,000 jobless, except Paterna and Milasta (Valencia metropolitan area), San Vicent del Raspeig (Alicante metropolitan area), Mijas (Malaga) and Los Realejos (Tenerife).

**Table 1. Distribution of the employment offices**

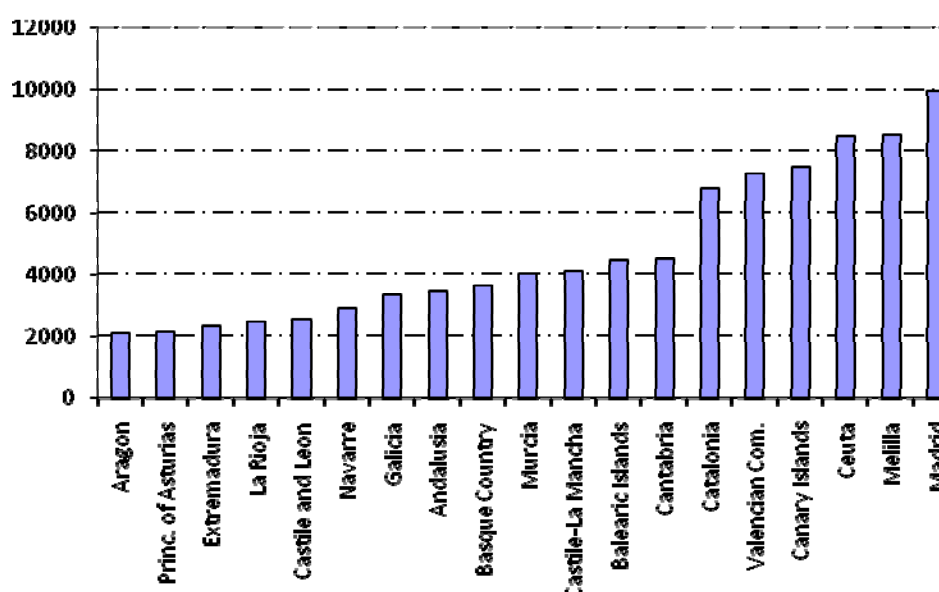
Number of municipalities	Employment
7524	0
526	1
35	2
10	3
6	4
2	5
2	6
2	8
1	11
1	19
Total: 8109	Total: 718

Figure 4 shows the existence of steep differences between the Spanish autonomous communities in the number of unemployed workers per employment office. Spain is made up of 2 autonomous cities —Ceuta and Melilla— and 17 autonomous communities, each with its own heritage, government and PES. The number of employment offices seems to be far below the number of jobless they have to attend to, especially in Madrid, the



Canary Islands, the Valencian Community and Catalonia, so differences in accessibility may be expected.

**Figure 4. Average number of unemployed workers per placement office. NUTS-II (2009)**



## **2.2. Measuring accessibility**

One of the aims of this paper is to assess whether the accessibility to employment offices is equitable in Spain. The core issue we have to address is the measure of accessibility itself. Several authors from different perspectives have analyzed the concept of accessibility within the framework of urban and regional economies. For instance, Krugman (1991) and Fujita et al. (1999) study the importance of accessibility in economic development from a regional perspective. Most existing studies on accessibility belong to the field of transportation economy. Gutierrez (2001) and Holl (2007) analyze accessibility improvements in Spain. From a theoretical perspective, Geurs and Van Wee (2004) review is remarkable for its analysis of the usefulness of accessibility measures in the evaluation of changes in transportation infrastructures and its use by researchers and policy makers alike. With respect to labor markets, accessibility measures are given consideration in few works. For instance, Van Wee et al. (2001) develop a concept of accessibility to analyze whether jobs are accessible for employees. Détang-Dessendre and Gaigné (2009) study the impact of the place of residence on unemployment duration. They rely on an accessibility measure to convey workers' competition for jobs and subsequently tackle labor market tightness. Joassart-Marcelli and Giordano (2006)<sup>5</sup> use a geographic information system to look into the location of One-Stop Centers in

<sup>5</sup> Joassart-Marcelli and Stephens (2009) analyze the immigrants' spatial accessibility to financial institutions in Greater Boston.

Southern California and their level of accessibility. Consequently, their research is closely related to ours. As far as we know, in Spain there is no research on the spatial distribution of employment offices and their levels of accessibility.

It is currently intended that active employment policies become an asset in the fight against unemployment so that assurance of equal access to employment offices is essential. We may begin by stating that, even though employment offices are administrative units that were created long ago, their spatial distribution is by no means random. However, regardless of the fact that it does follow a pattern, such distribution may cause either equity or inequity of access to the offices. Accessibility conditions should be the same regardless of the autonomous community of residence —whose government, in turn, is responsible for the administration of the employment offices. In other words, every unemployed worker should be equally treated, no matter where they may live. For us, spatial equity is just equal access to employment offices.

That leads us not only to calculate the accessibility to employment offices but also to analyze their spatial distribution. Similarly, Talen and Anselin (1998)<sup>6</sup> analyze the accessibility measures from a methodological point of view and take into account the spatial dimensions of equity. Their main conclusion is that accessibility measures must be chosen with care when the spatial distribution of a given service is analyzed.

The simplest measure to analyze job-seeker accessibility to employment offices consists in counting the existing employment offices within a given area. As we explained above, Figure 3 shows the distribution of employment offices in Spain. It is remarkable that the number of employment offices is higher in the south and the south-east.

However, these measures, based on the count of employment offices per municipality, do not take into account other spatial interactions such as the inverse relation existing between the size of an employment office catchment area and its level of accessibility. Catchment areas are set by counting the unemployed assigned to an employment office —i.e. by adding up the number of jobless in the municipalities serviced by a given employment office. In the case of Spain, every unemployed worker is assigned an employment office by the National Employment Authority depending on their place of residence. Gravity potential, average travel cost and minimum distance also take into account the relation between origin and destination.

Consequently, we need further accessibility measures, similar to those that transcend the mere count of employment offices.

Next, we will consider two more types of accessibility measures (also known as gravity-based measures). The first type of measure only takes into account the number of employment offices for each regional labor office and the distance to

---

<sup>6</sup> Talen and Anselin (1998) utilize a case-study on the location of playgrounds in order to analyze the spatial equity in Tulsa.

the municipality in which the corresponding employment office is located. The limited scope of this measure leads us to propose a new accessibility measure which also takes into account the unemployed within each employment office catchment area. We would like to have had access to the number of job counselors and/or counseling sessions per unemployed worker, but access to this information is not provided at local level.

The first type of measure (denoted by the superscript 'I') is based on the number of employment offices in the same regional labor office, adjusted for the distance between a municipality  $i$  and its corresponding employment office.

$$A_i^{Ia} = EO_j \left( e^{-\lambda d_{ij}} \right) \quad [1]$$

where  $A_i$  is a measure of the accessibility to the employment offices in the municipality  $i$  in the regional labor office  $j$ ,  $EO_j$  is the number of employment offices in the regional labor office  $j$ ,  $d_{ij}$  is the distance between the municipality  $i$  and that in which is located the employment office the unemployed living in  $i$  have to go to, measured as the Euclidian distance between the municipalities' centroids. Finally,  $\lambda$  is a parameter of the distance-decay function.

This parameter determines the degree of interaction between the place of residence of the jobless and the employment office they have to go to, the accessibility quality decreasing as distance to the office increases. We have no data on trips to the employment offices, so we have been unable to set the parameters of the distance-decay function. Even though several values were used for this parameter whilst doing this paper, the performance of a sensitivity analysis led us to the results presented here, which were eventually obtained using the following values:  $\lambda = 0.10$  and  $\lambda = 0.25$ <sup>7</sup>. Nevertheless, it should also be noted that results do not vary significantly when we use either parameter, especially when we analyze the spatial distribution of accessibility, as it will be shown later.

The study of the internal accessibility or 'self-potential' of employment offices presents further problems, since there are no data on the exact distance to the office when job-seekers are assigned an office within their municipality of residence. This issue has been studied by some authors (Bröcker, 1989; Frost and Spence, 1995). Furthermore, Zwakhals et al. (1998) proposes a measure of this distance based on the surface of the areas considered. In our study, this variation rendered the results unreliable, so we imputed a value of 1 for these municipalities (7.2% out of total), once the distribution of  $d_{ij}$  had been considered.

Accessibility levels have also been calculated using the gravity potential measure so that we could use other well-known expressions.

---

<sup>7</sup> Joassart-Marcelli and Giordano (2006) establishes  $\lambda = 0.25$ .

$$A_i^{lb} = \frac{EO_j}{d_{ij}^\alpha} \quad [2]$$

In this case,  $\alpha$  is a parameter of the distance-decay function. The higher the value of the parameter, the greater will be the resulting differential between near and distant municipalities. This value crucially depends on the type of activity involved (Holl, 2007). Higher values are usually assigned to accessibility measures of public services. In this study, the parameter has been set to a value of 2 and 1.5<sup>8</sup>.

We have refined these measures by including the number of employment offices together with the distance and size of their catchment areas. Consequently, the proposed accessibility measure is more empirically adequate, since some employment offices attend to approx. 20,000 jobless — e.g. Fuenlabrada (Madrid)—, whilst others attend to just 1,000 jobless —e.g. Caudete (Albacete)—. The accessibility to employment services is determined by this fact and that cannot be overlooked.

The second type of measure (denoted by the superscript 'II') is based on the weights of the number of employment offices per unemployed worker within a catchment area, adjusted for the distance between the municipality  $i$  and its corresponding employment office.

$$A_i^{IIa} = \left[ \frac{EO_j}{\sum_{i \in j} u_i} (e^{-\lambda d_{ij}}) \right] \rightarrow A_i^{IIa} = [w_j (e^{-\lambda d_{ij}})] \quad [3]$$

Where  $A_i$  is the municipality accessibility,  $w_j$  is the number of employment offices ( $EO_j$ ) per employment office catchment area ( $\sum_{i \in j} u_i$ ), measured as the number of unemployed workers in the municipalities  $i$  within a single catchment area. Finally,  $d_{ij}$  is the distance between a municipality  $i$  and its corresponding employment office, and  $\lambda$  is a parameter of the distance-decay function. The possible range of values to which that parameter may be set was established above.

Similarly, the index  $A_i^{lb}$  has been modified so that we may know which municipalities implement active labor market policies more extensively. The higher the value of  $w_j$ , the greater is the potential of the employment office for providing better service.

$$A_i^{IIb} = \left[ \frac{EO_j}{\sum_{i \in j} u_i} / d_{ij}^\alpha \right] \rightarrow A_i^{IIb} = [w_j / d_{ij}^\alpha] \quad [4]$$

---

<sup>8</sup> Bruinsma and Rietveld (1993), Gutierrez (2001) and Holl (2007) assume  $\alpha = 1$  in their respective analyses of the accessibility to economic activity.

Again,  $\alpha$  is a parameter of the distance-decay function and adopts the values set before. According to these measures, an employment office located 15 kilometers away will provide a greater contribution to the accessibility index value than one located 30 kilometers away. Once the accessibility measures have been defined, the following step consists of analyzing their spatial distribution.

### **3. Accessibility measure clustering**

The methodology used in this paper to analyze the geographical differences in access to employment services relies upon the exploratory spatial data analysis (ESDA). This type of analysis allows us to identify the main clusters of municipalities with higher numbers of unemployed and test whether the level of accessibility to employment offices is also higher in them. Talen and Anselin (1998) point out the advantages of using a LISA indicator and focus on the fact that this facilitates the detection of relevant patterns of local spatial association. Tsou et al. (2005) also recommend a spatial analytical perspective to evaluate suitability of urban public facilities in assessing whether or not, or to what degree, the distribution of urban public facilities is equitable.

Within the field of labor market studies, several contributions have taken into account the spatial dimension of regional labor markets and pointed out the high degree of interdependence of local labor markets (e.g. Molho, 1995). Furthermore, Patacchini and Zenou (2007) analyze the reasons for the spatial dependence in local unemployment rates. This spatial autocorrelation is mainly due to the fact that the unemployed may seek and find work in different areas, so spatial interactions result from the mobility of the unemployed. This paper adds consideration of spatial dependences in local unemployment rates to the diverse influences exerted by public employment services across different levels of accessibility.

Using the information available, we intend to compare the spatial distribution of the unemployed and the existing clusters of unemployed workers with the distribution of offices so that we may establish the degree of matching between the two distributions. Notwithstanding that, not only is the spatial pattern of the offices relevant, but more complex aspects must also be taken into account, such as those relating to the accessibility indices calculated. Ideally, accessibility to employment offices should be kept at an adequate level even in high local unemployment rate contexts—in other words, there should be no clusters of municipalities with low accessibility levels.

This section examines global and local spatial autocorrelations in local unemployment rates, employment offices and accessibility measures. Our main purpose is to identify the specific patterns that may arise from these autocorrelations—spatial clusters, outlier regions—and analyze the overlapping patterns of the variables considered.

Firstly, we analyze the existence of spatial autocorrelations using Moran's I and the randomization approximation (Cliff and Ord, 1981). Table 2 displays Moran's I for local unemployment rates and the accessibility measures defined previously. Since the statistics are significant, all the variables show positive spatial autocorrelation, which suggests the existence of spillovers across municipalities. That is, the spatial structure of these variables is clear so that none is scattered randomly or independently in space.

**Table 2. Measure of global spatial autocorrelation (Moran's I)**

Variables		I	Z
Unemployed people		0.147	24.334
Local unemployment rate		0.574	85.300
Employment offices*		0.119	18.214
$A_i^{Ia}$	$(\lambda = 0.1)$	0.618	91.427
	$(\lambda = 0.25)$	0.505	75.891
$A_i^{IIa}$	$(\lambda = 0.1)$	0.625	92.272
	$(\lambda = 0.25)$	0.624	91.711
$A_i^{Ib}$	$(\alpha = 2)$	0.142	21.562
	$(\alpha = 1.5)$	0.165	25.126
$A_i^{IIb}$	$(\alpha = 2)$	0.057	8.891
	$(\alpha = 1.5)$	0.076	11.738

Note: All statistics are significant at the 1% level. The expected value for Moran's I is  $-1.234e-04$ .

\* We also applied Moran's I to the square root transformed employment offices variable due to the large number of municipalities without employment offices ( $I=0.137$ ;  $Z=20.230^{***}$ ). The conclusion is the same when BB joint-count statistics and Empirical Bayes test are computed (EB, Assunção y Reis, 1999); the p-value is 0.001 y 0.016 respectively.

### 3.1. Spatial distribution of the unemployed

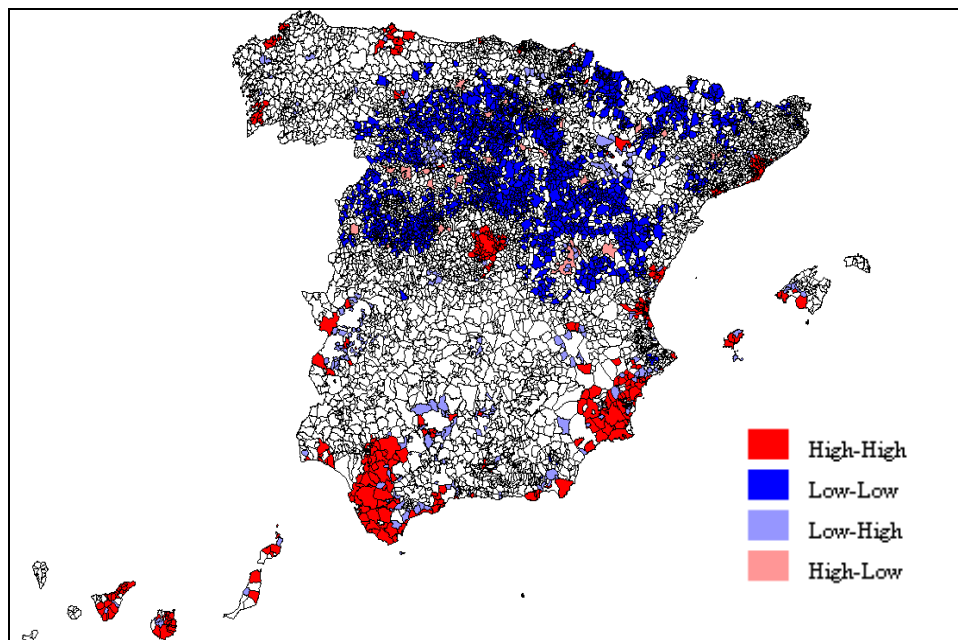
Once the null hypothesis of spatial randomness has been rejected, two additional questions are raised: where are the clusters and what is their spatial extent (Fisher and Getis 2010). Both questions are answered with the help of exploratory spatial data analysis (ESDA), namely the local version of Moran's I, LISA (Anselin, 1995). This measure of spatial autocorrelation describes the degree of similarity or dissimilarity between values in spatially close areas. The local version of Moran's I for each municipality is computed as follows:

$$I_i = \frac{z_i}{\sum_i z_i^2 / n} \sum_j w_{ij} z_j; \quad z_i = x_i - \bar{x} \quad [5]$$

where the observations  $z_i$  and  $z_j$  are in deviations from the mean and the summation over  $j$  is such that only neighboring values of  $i$  are included. A positive value for  $I_i$  indicates spatial clustering of similar values (high or low), whereas a negative value indicates spatial clustering of dissimilar values between a municipality and its neighbors.

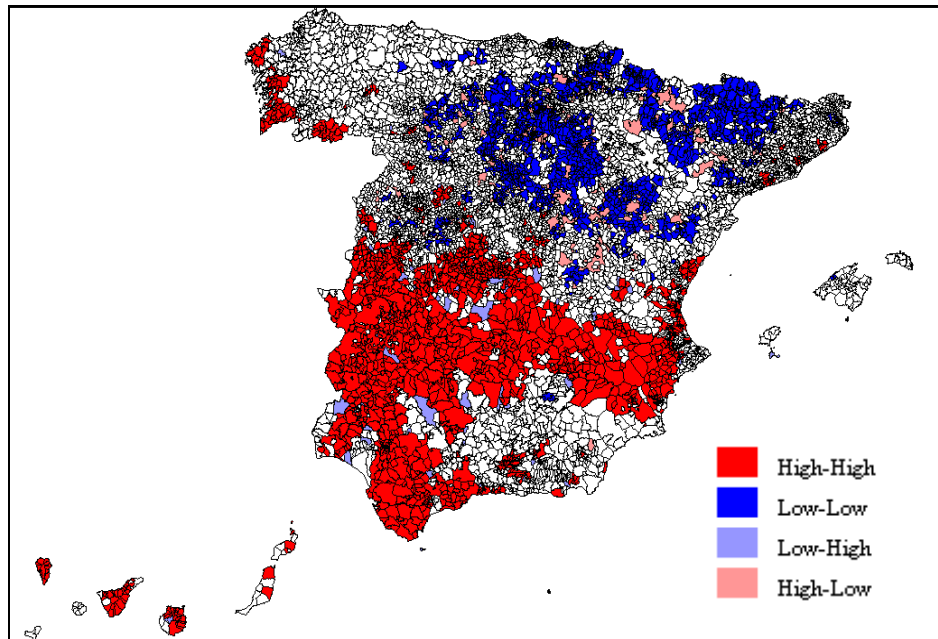
Figure 5 shows the LISA map for unemployed people in Spain for 2009. The figure suggests that high unemployment municipalities tend to be close to other high unemployment municipalities. Most significant high-high (HH) municipalities are located in southern Andalusia (Cadiz and some other municipalities), Murcia, central Asturias, Madrid, Barcelona, Tenerife and Las Palmas de Gran Canaria, among others. The map also points to the existence of clusters of low-low (LL) municipalities. Most significant LL municipalities are located in Castile and Leon, Guadalajara and Aragon (especially in Teruel). These are municipalities of the LL type of spatial regime —i.e. municipalities where local unemployment rates are significantly below average— which, in turn, are surrounded by municipalities with similar rates. These clusters of HH and LL regions indicate the existence of positive spatial autocorrelations across the observations of our data set.

**Figure 5. LISA map for unemployed people, 2009**



As regards the LISA map for local unemployment rates (Figure 6), it seems that Spanish municipalities are characterized by positive spatial autocorrelation, same as in the case of the levelled variable. In this case, the clusters (HH and LL) are made up of a greater number of municipalities, and two areas stand out very clearly: HH in the south and LL in the north-east. The map also reveals the existence of some atypical municipalities, characterized by negative spatial autocorrelation (juxtaposition of negative and positive values). For example, some municipalities in Castile and Leon and Aragon perform much worse than their neighbors, since they are significantly HL.

Figure 6. LISA map for local unemployment rates, 2009



### 3.2. Spatial distribution of the employment offices

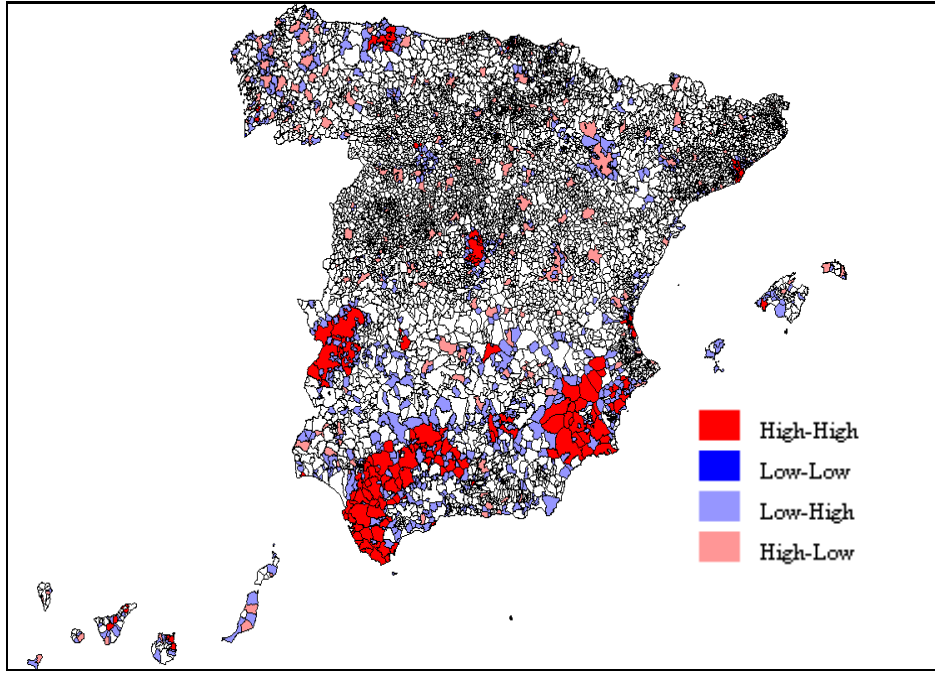
Below we analyze the clusters of municipalities according to the number of employment offices within their territory. Our purpose is to establish a relation between these clusters and those of unemployed workers and test whether the employment offices are located in municipalities where there is positive spatial autocorrelation, namely HH clusters. Since this variable does not conform to a normal distribution (7,254 out of 8,109 municipalities have no employment offices), we have also transformed it by calculating its square root (Talen and Anselin, 1998).

There is a clear pattern of HH spatial clustering in the south (Seville, Cordoba and Cadiz), Valencia, Alicante, Murcia, Barcelona, Madrid, central Asturias and Extremadura. The existence of HL municipalities and the non-existence of LL clusters are good in terms of equity, for it ensures the existence of an employment office near any municipality. In other words, there are no big clusters of municipalities lacking employment offices. Figures 5, 6 and 7 confirm the overlapping between HH spatial clusters of unemployed workers and employment offices. Employment offices are located around municipalities with high numbers of jobless. This distribution may be deemed efficient, but it is not equitable.

Nevertheless, limiting the measure to the number of employment offices is far too simple, since we need to consider some other issues which also have an effect on employment office accessibility.



Figure 7. LISA map for employment offices



### 3.3. Results based on the comparison of accessibility indices

This section compares the accessibility measures proposed by resorting again to Moran's local indicators (LISA). Generally speaking, decreases in accessibility should be expected as we proceed further away from major towns. Figure 8 shows the LISA maps for the accessibility indices  $A_i^{Ia}$  (upper half of the page) and  $A_i^{IIa}$  (lower half of the page). In both cases, the parameter values have been set to  $\lambda = 0.10$  and  $\lambda = 0.25$ . When we examine the LISA for the  $A_i^{Ia}$  index, in which only the number of employment offices and the distance have been considered, we notice the presence of HH clusters that are coincidental with those in Figures 5 and 7.

However, when the number of employment offices per catchment area ( $w_j$ ) is taken into account, the  $A_i^{IIa}$  index shows a different spatial distribution. In this case, the HH and LL clusters are not coincidental with those detected using the  $A_i^{Ia}$  index, but they include municipalities not necessarily linked to major cities. Therefore, when we take into account the number of unemployed people, previously detected HH accessibility clusters disappear in Madrid, Barcelona and their surrounding municipalities, as well as Extremadura, Cadiz, the Balearic Islands and the Canary Islands. For example, there is an HH cluster in western Asturias, since the municipalities in this area present a good  $w_j$  indicator and reasonable distance rates.

The most interesting results are obtained when we analyze the LL clusters detected especially in the Autonomous Community of Madrid, along the

Mediterranean coast, as well as Toledo, Zaragoza, the Balearic Islands and the Canary Islands. This is due to the fact that, even though most employment offices are concentrated in urban areas, as is the case in Barcelona and its metropolitan area, these offices are not sufficient to attend to the high number of jobless from the city itself and the surrounding municipalities, who also have to travel to the offices. Therefore, the relation  $w_j$  is very low in these municipalities.

Figure 9 shows the LISA maps for the accessibility indices  $A_i^{lb}$  (upper half of the page) and  $A_i^{lbb}$  (lower half of the page). In both cases, the parameter values have been set to  $\alpha=2$  and  $\alpha=1.5$ . When we examine the LISA for the  $A_i^{lb}$  index, in which only the number of employment offices and the distance have been taken into account, we may notice that, in general, some HH clusters are coincidental with the HH clusters detected using the accessibility index  $A_i^{la}$  and, therefore, with those in Figures 5 and 7. In the case of the accessibility index  $A_i^{lbb}$ , its spatial pattern does not differ greatly from that of the index  $A_i^{lb}$ . It should be noted that clusters in Madrid, Barcelona, Valencia, Extremadura and central Asturias cease to be HH, but not those in Andalusia. There is no relevant difference with respect to LL clusters.

Even though it is true that some HH clusters in the two above charts disappear when we take into account the number of unemployed people, the HH cluster in Cadiz remains and western Asturias becomes an area with high levels of accessibility to employment offices. As regards the LL clusters, there is no relevant difference between the  $A_i^{lbb}$  and the  $A_i^{lb}$  indices. The results show the influence of the proposed functional form, in which there are greater decreases in accessibility as distance increases. Therefore, it is less sensitive to the variations in the other terms of the expression, namely  $w_j$ .

To sum it up, both Figures 8 and 9 reveal differences in the levels of accessibility to public employment services. The detected LL clusters are especially worrying, even more so if these are coincidental with HH clusters of unemployed people or local unemployment rates. It is for this reason that, on the basis of the research carried out, it is deemed more adequate to use an accessibility measure based on exponential expressions and take into account the size of the employment office catchment area in order to include a competition factor. Job-seekers have to queue at some employment offices due to the high number of unemployed people and, consequently, office performance gets compromised, especially in high-unemployment municipalities with low accessibility. Furthermore, most companies use Internet Self Service Solutions. However, physical presence is still necessary for the unemployed, especially when they request job mediation, counseling and training.

Figure 8. LISA (local indicators of spatial association) maps for indices  $A_i^{Ia}$  and  $A_i^{IIa}$

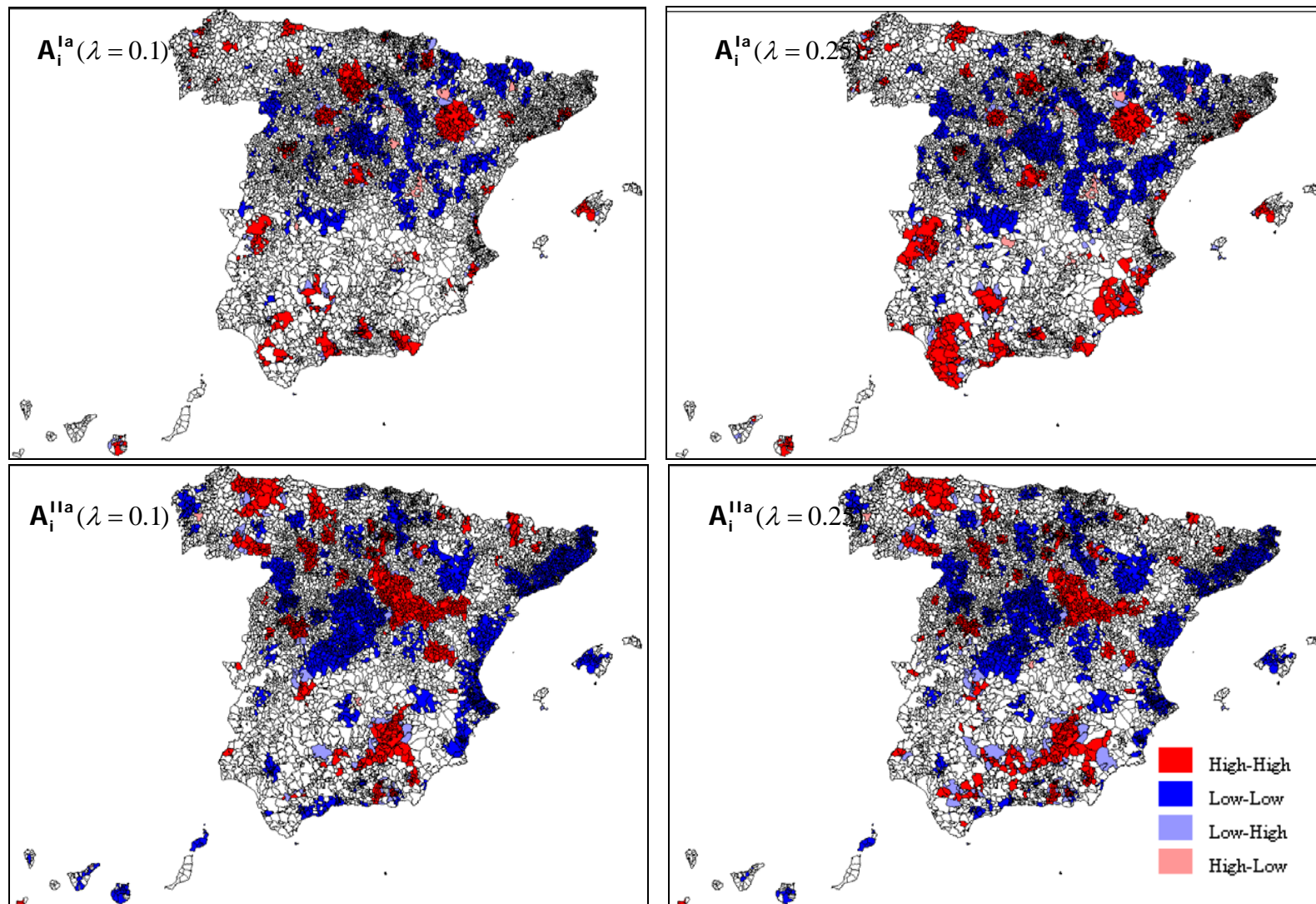
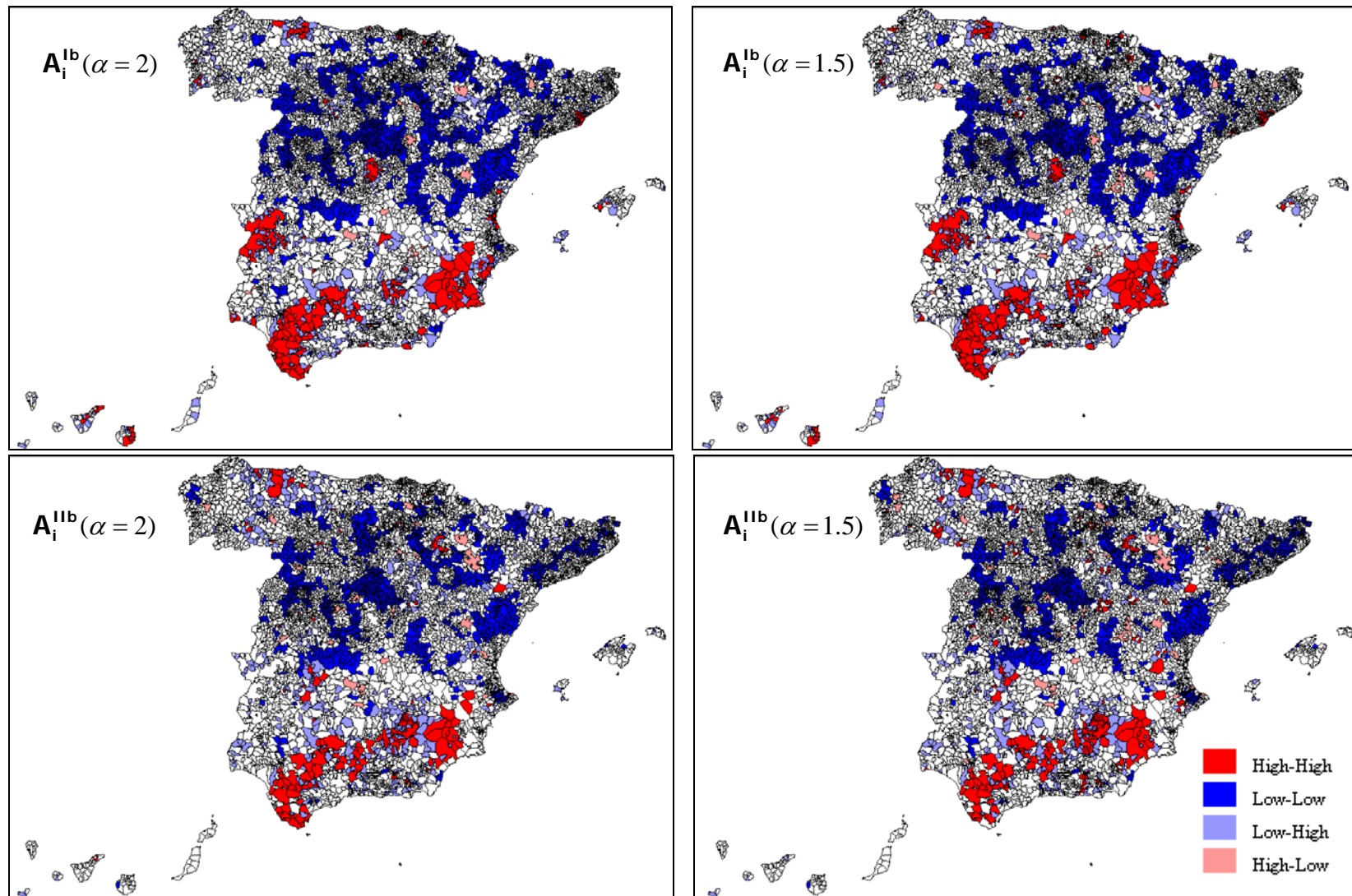


Figure 9. LISA (local indicators of spatial association) map for indices  $A_i^{lb}$  and  $A_i^{llb}$





## 4. Local unemployment rates and access level to employment offices

### 4.1. Theoretical framework

Finally, we will consider in this section whether the accessibility to employment offices has effect on local unemployment rates. Even though it is a highly de-aggregated level and data are obtained only with difficulty, employment offices operate at local level. Hence that level is the most adequate for our analysis.

Recent studies on spatial job search have shown that distance to jobs may reduce the likelihood of leaving unemployment (e.g. Détang-Dessendre and Gaigné, 2009). Ihlanfeldt (1997) asserts that labor market information acquisition is considered a type of investment behavior. At present, theory suggests that the unemployed will go to placement offices in search of information or job-broking services when benefits are greater than costs. The unemployed may refuse to go to a placement office because traveling expenses are too costly and, in some cases, they have to queue at the office.

From a political perspective, insofar as the relation between unemployment rates and accessibility to employment offices remain negative, investments in accessibility bettering will be regarded as meaningful. Joassart-Marcelli and Giordano (2006) point out that One-Stops are well positioned to serve the unemployed and that access to them does help to reduce local unemployment rates. In our study, it should be taken into account that the accessibility variable covers the idea that, whenever a job-seeker finds work, the unemployment rate in their municipality of residence is reduced, accessibility levels ( $w_j$ ) grow in municipalities within the same cluster or regional labor office and, consequently, the performance of the employment services gets improved. When we refer to employment services, we mean not only job-seeking mediation but also career counseling, which allows the identification and development of each individual's talent (2008 INEM-SPEE Annual Report). A comprehensive study on the impact of the accessibility to placement offices on job accessibility is still pending, but that is beyond the scope of this paper.

Regional unemployment differentials have been analyzed theoretically and empirically. Elhorst (2003) has reviewed the papers on regional and labor economics published since 1985. He asserts that «*Whichever model is used, [...] they all result in the same reduced form equation of the regional unemployment rate*». In this equation, labor supply, labor demand and wage-setting factors are usually used as explanatory variables.

The model in this paper includes as explanatory variables the rates of foreign population and males and females of working-age, the educational attainment of the population and two dummy variables, one for municipalities within HH clusters and the other for municipalities within LL ones. The local accessibility level to placement offices is also included. All the variable related information is in Table 3. The basic specification is:

$$\log(u_i) = \eta \log(A_i^{IIa}) + \beta X_i + e_i \quad [6]$$

where  $u_i$  is the unemployment rate of each municipality,  $A_i^{IIa}$  is the selected accessibility measure and the  $X$  matrix collects the explanatory variables described above.

In previous sections, we have established the existence of spatial dependence in unemployment rates, so spatial models must be considered in our specification<sup>9</sup>.

**Table 3. Summary statistics**

Variable	Mean	SD	Definition	Data source
<b>Local unemployment rate</b>	0.0877	0.0426975	Unemployed population / Total population of working age (16-64)	INEM-SPEE and 2009 Census
<b>ILLI</b>	0.0246	0.0283031	% Illiteracy	2001 Municipal census
<b>PRI*</b>	0.3241	0.1490044	% Primary education	2001 Municipal census
<b>SEC</b>	0.3969	0.1383664	% Secondary education or vocational training	2001 Municipal census
<b>UNI</b>	0.0792	0.0483085	% Higher education	2001 Municipal census
<b>HH</b>	-	-	HH cluster	Own elaboration
<b>LL</b>	-	-	LL cluster	Own elaboration
<b><math>A_i^{IIa}</math> with <math>\lambda=0.10</math></b>	0.1558	0.2043911	Accessibility measure	Own elaboration
<b><math>A_i^{IIa}</math> with <math>\lambda=0.25</math></b>	0.0884	0.1484501	Accessibility measure	Own elaboration
<b>FLF</b>	0.5713	0.1037997	Female population 16-64 / Total female population	2009 Municipal census
<b>MLF</b>	0.6447	0.0739879	Male population 16-64 / Total male population	2009 Municipal census
<b>FOR</b>	0.0885	0.0931089	Foreign population (16-64) / Total population of working age (16-64)	2009 Municipal census

\*The percentage of population with incomplete primary education has been omitted so as to avoid multicollinearity.

## 4.2. Empirical model

Firstly, the model has been estimated by means of OLS. Both local unemployment rates and accessibility measures have been considered in logarithmic form, but it should be stressed that the use of these variables in levels makes no considerable difference. The coefficients' signs are as

<sup>9</sup> Longhi and Nijkamp (2007) show that spatial models improve the forecasting performance of nonspatial models, provided that the data available are not correspondent with a well-defined local labor market area.

expected and in accordance with previous theoretical and empirical studies. Also, they are statistically significant.

The effect of the accessibility to placement offices is significant and negative (-0.062 Model I and -0.026 Model II). In Model I, the unemployment rate decreases by 0.062% when accessibility rises by 1%. This estimated elasticity diminishes when the accessibility measure  $A_i^{IIa}$  with  $\lambda = 0.25$  is included in the model.

Standard tests have been carried out so as to assess the adequacy of the regressions. The Breusch-Pagan test for homoskedasticity of the error terms points to heteroskedasticity, which in turn is related to the different sizes of the municipalities considered. Table 4 presents the estimation results by means of weighted least squares (WLS). The heteroskedasticity problem persists, but the value of the Breusch-Pagan statistic is lower<sup>10</sup>. In any case, since spatial dependences may cause this heteroskedasticity (McMillen, 1992), the result has been interpreted with caution. Similarly, Anselin and Bera (1998) assert that *«every type of spatially dependent error process induces heteroskedasticity as well as spatially autocorrelated errors, which will greatly complicate specification testing in practice»*.

We may also note that the Kolmogorov-Smirnov<sup>11</sup> test has led us to reject the assumption of normality of the residuals in models II, III and IV. The WLS estimations obtained are shown in columns 3 and 4 of Table 4. With the exception of the percentages of males of working age (MLF) and illiterates (ILLI), all the coefficients are significant. The effect of the percentage of males of working age is negative but insignificant. Additionally, we may conclude that the effect of the percentage of females of working age (FLF) is higher than that of the males<sup>12</sup>.

Another issue is whether the accessibility variable is endogenous. Wooldridge's score test (1995) has been carried out so as to check the endogeneity of the accessibility variable. This test, whose instruments are geographic (municipality surface) and demographic characteristics, is more appropriate when the residuals show heteroskedasticity. In this case, the endogenous regressors are actually exogenous. Hence the OLS estimator is more efficient<sup>13</sup>.

Moran's I is widely used to detect spatial dependences based on OLS residuals. Here it has been applied to both unweighted and weighted residuals so that heteroskedasticity may be accounted for. The resulting statistic standard deviation is 37.776 with the unweighted residuals and 50.252 with the weighted ones. Here we have used a row-standardized rook contiguity matrix so that

$$w_{ij}^s = w_{ij} / \sum_j w_{ij} \text{ when } i \neq j \text{ and } w_{ij}^s = 0 \text{ when } i = j.$$

<sup>10</sup> The total population of each municipality is included as weight.

<sup>11</sup> The Kolmogorov-Smirnov, Cramer-vol Mises and Anderson-Darling tests are recommended when N is large.

<sup>12</sup> Cracolici et al. (2007) reach the same conclusion for the Italian provinces.

<sup>13</sup> Unless an instrumental variables estimator is really needed, OLS should be used instead. In this case, the robust regression statistic is 1.295 with a p-value 0.255.

At this point, we could consider that the accessibility related variable fully tackles the spatial dependences in the dependent variable, as Martin and Grasjö (2009) show in their study. We should also bear in mind that the accessibility measure in this paper only covers some of the spatial interactions within local labor markets, viz. those related to the activity of public employment services. Other types of spatial interactions (accessibility to jobs and/or firms) are not covered by the measure.

**Table 4. Estimation results (local unemployment rate)**

	<b>Model I</b>	<b>Model II</b>	<b>Model III</b>	<b>Model IV</b>
	<b>OLS-White</b>	<b>OLS-White</b>	<b>OLS-WLS</b>	<b>OLS-WLS</b>
<b>Intercept</b>	-2.947 (0.062)***	-2.939 (0.062)***	-3.515 (0.083)***	-3.562 (0.084)***
$A_i^{IIa}$ with $\lambda = 0.10$	-0.062 (0.006)***	-	-0.084 (0.005)***	-
$A_i^{IIa}$ with $\lambda = 0.25$	-	-0.026 (0.005)***	-	-0.012 (0.004)***
<b>FLF</b>	1.067 (0.114)***	1.148 (0.115)***	2.112 (0.149)***	2.382 (0.152)***
<b>MLF</b>	-0.295 (0.092)**	-0.293 (0.092)**	-0.122 (0.187)	-0.127 (0.191)
<b>HH</b>	0.333 (0.025)***	0.350 (0.025)***	0.067 (0.006)***	0.085 (0.006)***
<b>LL</b>	-0.278 (0.015)***	-0.291 (0.015)***	-0.264 (0.006)***	-0.291 (0.025)***
<b>ILLI</b>	4.571 (0.232)***	4.549 (0.234)***	4.077 (0.229)***	4.069 (0.234)***
<b>PRI</b>	-0.126 (0.046)**	-0.128 (0.046)**	0.0317 (0.069)	0.056 (0.071)
<b>SEC</b>	-0.127 (0.055)**	-0.100 (0.056)	-0.206 (0.064)***	-0.116 (0.066)*
<b>UNI</b>	-2.070 (0.134)***	-2.023 (0.134)***	-1.396 (0.066)***	-1.260 (0.067)***
<b>FOR</b>	-0.176 (0.060)***	-0.141 (0.060)**	-0.765 (0.029)***	-0.691 (0.030)***
<b>Breusch-Pagan test</b>	614.61***	563.12***	3.85**	27.03***
<b>Kolmogorov-Smirnov</b>	0.2073***	0.2076***	0.2658***	0.263***
<b>R<sup>2</sup> (adj.)</b>	0.271	0.262	0.386	0.360
<b>N</b>	7,754	7,754	7,754	7,754
<b>Log-likelihood</b>	-5,164.954	-5,211.458	110.447	-48.638
<b>AIC</b>	10,351.91	10,444.92	-198.895	119.276
<b>SBC</b>	10,428.42	10,521.43	-122.379	195.792

Once spatial autocorrelation has been detected, we may proceed to incorporate it into the proposed model. In spatial econometrics, spatial autocorrelation is modeled by means of the relation between the dependent variable  $Y$  or the error term and its associated spatial lag,  $W_y$  for a spatially lagged dependent variable (spatial lag model) and  $W_e$  for the spatially lagged error term (spatial error model) respectively. The general form for the spatial lag model is:

$$\log(u) = \eta \log(A^{IIa}) + \rho W \log(u) + X\beta + \varepsilon; \quad \varepsilon \sim N(0, \sigma_\varepsilon^2 I) \quad [7]$$



where  $W \log(u)$  is the spatially lagged dependent variable for the weight matrix  $W$ ,  $\rho$  is the spatial autoregressive parameter,  $\eta$  is the accessibility coefficient and  $\beta$  is a vector of regression parameters.

Spatial autocorrelation can also be incorporated into the model by specifying a spatial error process for the disturbance terms (spatial error model). The most common specification is a spatial autoregressive error process in the error terms:

$$\begin{aligned} \log(u) &= \eta \log(A^{IIa}) + X\beta + e \\ e &= \theta W e + \varepsilon; \quad \varepsilon \sim N(0, \sigma_e^2 I) \end{aligned} \quad [8]$$

where  $\theta$  is the spatial autoregressive coefficient for the error lag  $W e$ .

Only a few papers deal with how to specify a spatial econometric model (see Mur and Angulo, 2009). Then the problem is how to best identify the structure of the underlying spatial dependences in a given data set. This paper relies on widely used strategy (specific to general), which is based on the LM (Lagrange Multiplier) test and its robust version for local misspecifications (Anselin et al., 1996).

In the classical approach, the LMERR (Lagrange Multiplier for error dependence) and the LMLAG (Lagrange Multiplier for spatially lagged dependent variable) are compared. If the LMERR is lower than the LMLAG, the spatial lag model should be specified. If not, the spatial error model is to be specified. Florax et al. (2003) have developed a hybrid approach based on the robust version of these tests. Mur and Angulo (2009), however, point out that the robust and the classical approaches render identical results.

These tests have been computed on OLS residuals of the previously estimated models. We have also considered different criteria to build the spatial weight matrices that allowed us to analyze the sensitivity of the results. As regards the structure of the spatial effects, three criteria are usually considered in the creation of a spatial weight matrix: contiguity, k-nearest and distance. Firstly, we define a rook contiguity matrix, where  $w_{ij} = 1$  if municipalities  $i$  and  $j$  share a common edge and  $w_{ij} = 0$  otherwise. Secondly, we apply a k-nearest neighbors' criterion ( $k = 3, 4$  y  $5$ ). Then, we obtain a distance-based matrix, where  $w_{ij} = 1$  if the distance between  $i$  and  $j$  is less than  $d_{ij}$  and  $w_{ij} = 0$  if  $i = j$  or  $d > d_{ij}$  ( $d = 20, 30$  and  $40$  km). Table 5 shows the values of the test statistics. The p-value is included only if it is greater than 0.01.

**Table 5: Spatial dependence statistics by alternative spatial weight matrices**

	Wq	WK3	WK4	WK5	W20	W30	W40
LMERR	1417.684	1169.113	1427.895	1695.625	3635.279	5616.056	7286.241
LMLAG	1928.702	1430.668	1829.884	2260.817	3959.976	4611.282	4607.672
RLMERR	3.505	11.202	0.1946(0.695)	3.013(0.082)	337.587	1687.032	3357.163
RLMLAG	514.343	272.750	402.185	568.205	4297.563	682.257	678.594
SARMA	1932.307	1441.869	1830.079	2263.831	519.051	6298.313	7964.835

For the matrices  $W_q$ ,  $WK3$ ,  $WK4$ ,  $WK5$  and  $W20$ , the robust version of these tests (R-LMLAG and R-LMERR) renders the same results and  $LMLAG > LMERR$ , so the spatial lag model is appropriate. However, when these tests are computed with  $W30$  and  $W40$ , the spatial error model becomes more appropriate. Notwithstanding that, our research is based on local data and, from an economic perspective, any attempt at considering long distance is difficult to justify. In fact, when these matrices are used, we lose the advantage of working with a high level of spatial de-aggregation. Consequently, a spatial lag specification has been chosen and, more specifically, one based on both the economic theoretical framework and the results of the specification test<sup>14</sup>. Similarly, LeSage and Pace (2009) assert that spatial lag models have been used in contexts where there is a theoretical motivation for  $Y$  to be dependent on neighboring values of  $Y$ . Molho (1995) and Patacchini and Zenou (2007) provide theoretical explanation for the spatial correlation between unemployment rates.

Maximum likelihood (ML) is the most conventional estimation method for a standard spatial autoregressive model (SAR) where the error terms are assumed to follow a normal distribution. The computational complexities of the Jacobian term ( $|\mathbf{I} - \rho \mathbf{W}|$  in the SAR model and  $|\mathbf{I} - \theta \mathbf{W}|$  in the SEM model) represent the main problem of this method. This computational problem is sorted out by means of the simplification solution proposed by Ord (1975) or the approximation option developed by Smirnov and Anselin (1996).

The use of the spatially lagged dependent variable  $wy$  as explanatory variable may be understood as a form of endogeneity or simultaneity leading to the instrumental variable approach (IV) / two stage least squares (2SLS). Anselin (1988) considers this method more appropriate when the error terms are not normally distributed, but some recent studies have pointed out the inefficiency of 2SLS estimators (2SLSE), especially when compared to the maximum-likelihood estimator (MLE). Furthermore, 2SLSE will be inconsistent when the exogenous regressors are irrelevant (Lin and Lee, 2010).

The Generalized Moment Estimator (GMME) for the autoregressive parameter in a spatial model, proposed by Kelejian and Prucha (1999), also allows us to solve the problems previously described. They prove that the GM estimator is consistent without the assumption of normality. More recently, Lin and Lee (2010) have shown the robustness of the GMM estimators under unknown heteroskedasticity—a context in which the MLE is usually inconsistent.

The local unemployment rate equation has been estimated by means of ML, 2SLS and GMM methods. The results are shown in Table 6. We have also considered some spatial weight matrices based on either geographic contiguity

---

<sup>14</sup>These results bring up one of the unsolved questions in spatial econometrics: the selection of the spatial weight matrix (Fernández-Vázquez et al. 2009).

(municipalities sharing boundaries) or distance between municipalities, but we present only the results obtained with a k-nearest neighbor matrix  $k=5$ .

Generally speaking, it should be noted that the results are qualitatively similar across the different methods. Also, they are quantitatively the same when 2SLS and GMM are compared. The first column in Table 6 shows the estimation results of the model by ML. The coefficient of the spatial lag term is 0.54 and is highly significant. The LR test on the spatial autoregressive coefficient is highly significant, but according to the LM test for residual autocorrelation, uncontrolled spatial effects remain in the residuals. Additionally, a spatial Hausman test has been applied to detect the presence of omitted variables. The null hypothesis<sup>15</sup> (statistic value=522.52\*\*\*) may be rejected in this case and hence a model with a spatial lag of the dependent variable is more plausible than a spatial error model.

According to the results obtained, the unemployment rates in the Spanish municipalities show strong spatial autocorrelation, with an estimated spatial coefficient of around 0.78-0.83. Thus, about 78% (2SLS) / 83% (GMM) of the changes in the unemployment rates of neighboring municipalities will be absorbed by a municipality's own unemployment rate. The estimated spatial coefficient is 0.54 when the model is estimated by ML. A possible explanation for this smaller value could lie in the non-normality of the error term and the aforementioned heteroskedasticity problem<sup>16</sup>. Therefore, 2SLS and GMM are more adequate.

In accordance with our hypotheses, local unemployment rates seem to be inversely related to the accessibility measure. Its coefficient is significant and negative, but it is constrained to -0.026 (ML), -0.014 (2SLS) and -0.009 (GMM). If we were analyzing two linear regression models, it could be possible to conclude that the accessibility elasticity is lower when spatial autocorrelation is included explicitly into the model. However, the interpretation of the parameters is more complicated in models containing the spatial lag of the dependent variable. In the spatial lag model, any change in the dependent variable for a single region may affect the dependent variable in all the other regions. Thus, a change in one explanatory variable in the municipality  $i$  will not only exert a direct effect on its own unemployment rate, but also an indirect effect on the unemployment rates of other municipalities. As consequence, the impact that a change in one of the explanatory variables has on the dependent variable of a region is not usually equal to its estimated coefficient.

---

<sup>15</sup> The Hausman test statistic follows a chi-squared distribution with degrees of freedom equal to the number of explanatory variables.

<sup>16</sup> Lin and Lee (2010) show that the MLE estimator is generally inconsistent with unknown heteroskedasticity if the SAR model were estimated as if the disturbances were i.i.d.

**Table 6. Estimation results (local unemployment rate) for spatial models**

	<b>ML</b>	<b>2SLS</b>	<b>GMM</b>	<b>GMM-HET</b>
<b>Intercept</b>	-1.4273 (0.048)***	-0.7866 (0.104)***	-0.6266 (0.094)***	-0.4339 (0.068)***
<b>A<sub>i</sub><sup>IIa</sup> with <math>\lambda = 0.10</math></b>	-0.0279 (0.005)***	-0.0142 (0.005)**	-0.009 (0.0045)**	-0.006 (0.003)**
<b>FLF</b>	0.5395 (0.057)***	0.3441 (0.069)***	0.2744 (0.070)***	0.223 (0.046)***
<b>MLF</b>	----	----	----	----
<b>HH</b>	0.1867 (0.021)***	0.10548 (0.023)***	0.0904 (0.023)***	0.0729 (0.011)***
<b>LL</b>	-0.1243 (0.013)***	----	----	-0.0535 (0.014)***
<b>ILLI</b>	2.5954 (0.184)***	1.4919 (0.237)***	1.2505 (0.228)***	0.6756 (0.167)***
<b>PRI</b>	----	----	----	----
<b>SEC</b>	----	0.1078 (0.044)**	0.1150 (0.044)***	----
<b>UNI</b>	-1.3766 (0.114)***	-1.0521 (0.119)***	-0.9873 (0.118)***	-0.6419 (0.082)***
<b>FOR</b>	----	----	-0.0874 (0.052)*	----
<b>Rho</b>	0.5451 (0.012)***	0.7856 (0.029)***	0.8318 (0.027)***	0.8712 (0.022)***
<b>Test LR</b>	1,686.3***	----	----	----
<b>Lambda</b>	----	----	----	-0.6677 (0.024)***
<b>Breusch-Pagan test</b>	431.7991***	376.9682***	428.5944***	446.1599***
<b>Kolmogorov-Smirnov</b>	0.2418***	0.2375***	0.2061***	0.2302***
<b>R<sup>2</sup></b>	0.4228	0.4636	0.4607	0.4550
<b>LM test residual autocorrelation</b>	612.79***	----	----	----
<b>N</b>	7,754	7,754	7,754	7,754
<b>Sigma^2</b>	0.1676	0.1630	0.1638	0.1658

Note: In the 2SLS model, the spatial lag of the explanatory variables is included as instrumental variables (WX).

Pace and Lesage (2006) propose new measures to collect all these interactions between regions so that we may reach a correct interpretation of the spatial models and distinguish between the direct and the indirect impact. The direct impact shows the average response of the dependent variable to independent variables, including feedback influences that arise from impacts passing through neighbors and back to the municipality itself<sup>17</sup>. The indirect impact tackles the effect that any change in a region has on others and how changes in all regions affect a region. Table 7 shows the estimated direct and indirect impacts by means of 2SLS, GMM and GMM-HET.

<sup>17</sup>The main diagonal of higher order spatial weight matrices is non-zero, which allows us to collect these feedback effects.

**Table 7: Direct, indirect and total impact estimations by means of 2SLS/IV, GMM and GMM-HET**

	<b>Direct</b>	<b>Indirect</b>	<b>Total</b>
<b>Accessibility (2SLS)</b>	-0.0182 (-2.77)***	-0.0481 (-2.85)***	-0.0662 (-2.88)***
<b>Accessibility (GMM)</b>	-0.0134 (-1.97)**	-0.0455 (-1.88)*	-0.0504 (-1.99)**
<b>Accessibility (GMM-Het)</b>	-0.0092 (-2.07)**	-0.0401 (-2.08)**	-0.0494 (-2.10)***

Note: Z-statistics in parentheses are based on 2000 simulated draws of the parameters.

The accessibility to placement offices has a slightly higher (and significant) direct effect than the coefficient estimate. This difference is caused by impacts passing through neighboring regions and back to the region itself. Consequently, a positive feedback effect is obtained.

Even more interesting is the estimation result of the indirect impact, which is significant and five times higher than the coefficient estimate in the GMM model (3.5 times higher than that in the 2SLS model), showing a positive influence of the accessibility to placement offices across the spatial dependences between municipalities. The total impacts are -0.050 and -0.0662 for GMM and 2SLS respectively. This means that if accessibility increases by 1%, the unemployment rate decreases by 0.0504% / 0.0662%.

All coefficients of the independent variables —except MLF, PRI and FOR— are statistically significant (Table 6). In addition to that, there is evidence in support of the geographical perspective hypothesis on persistent unemployment. The coefficient of the dummy variable HH is positive, which means that a municipality belonging to an HH cluster is strongly constrained by this spatial pattern. However, the variable LL is not significant in 2SLS and GMM models. It is significant and negative in the ML estimation, which means that a municipality belonging to a LL cluster receives a positive influence in terms of unemployment rates.

Regarding the estimation results of the educational attainment variables, the percentage of university graduates is significant and negative, whereas those of illiterates and secondary education graduates are significant and positive. As expected, the coefficient of secondary education graduates is lower than that of illiterates.

Finally, the residuals of the spatial lag model have been analyzed to check whether the spatial autocorrelation had been fully removed. The result of the LM test is significant to reject the null hypothesis of no spatial correlation in the residual errors. However, as we explained above, the heteroskedasticity problem points to the specification of a model in which such unknown heteroskedasticity in the error term may be controlled.

As we described above, the GMM estimation is a good choice when normality cannot be verified. Recently, Kelejian and Prucha (2007) and Arraiz et al. (2010) have extended the GMM approach to a spatial autoregressive disturbance process with heteroskedasticity innovations. It should also be noted that this specification allows for heteroskedasticity of unknown form. The fourth column in Table 6 shows the estimation results of the model by GMM with

heteroskedasticity innovations. The estimated coefficient of the accessibility measure is negative and statistically significant. We have obtained a strong spatial dependence between local unemployment rates with a significant spatial effect.

Thus, the presence of heteroskedasticity has no impact on the coefficient estimates of this empirical model when 2SLS and GMM methods are compared. All these approaches have been applied to the study of local unemployment rates and we have found that the accessibility measure helps to reduce them.

## **5. Conclusions and policy recommendations**

We have obtained that there are spatial differences across the local employment offices in Spain. We have computed the number of unemployed persons per employment office and found that, in some autonomous communities, the number of placement offices is far below the unemployed they have to attend to (especially Madrid, the Canary Islands, the Valencian Community and Catalonia). Even though employment offices are located around municipalities with high numbers of jobless, it may be concluded that, in terms of the accessibility to employment offices, this distribution is synonymous with spatial inequity.

In addition to that, we have improved the precision of the measure of the level of accessibility of a municipality to its corresponding employment office by including the size of the employment office catchment area in the accessibility measure. Also, we have detected the main clusters of municipalities with low accessibility to employment offices and those with high unemployment in 2009. On one side, the results suggest that policy makers should strive to improve the accessibility to placement offices in the municipalities with low accessibility levels so that adequate assistance to find suitable employment may be ensured to every job-seeker. On the other side, we have brought out that accessibility has a significant effect on unemployment rates.

Using ML, 2SLS and GMM results, we have shown a strong spatial correlation between unemployment rates, i.e. neighborhood influences are very important in labor markets. This view is consistent with other empirical studies such as Molho (1995) and Patacchini and Zenou (2007) and, therefore, the spatial perspective cannot be ignored in the analysis of the Spanish labor market. Furthermore, in accordance with our hypotheses, unemployment rates appear to be inversely related to the accessibility measure. In addition to that, when we compute the direct and indirect impacts of the accessibility measure on unemployment rates, the indirect impact is shown to be higher than the coefficient estimate in 2SLS and GMM models. This, in turn, shows a positive influence on the reduction of unemployment rates across the spatial interactions between municipalities. Also, it does strengthen our conclusions about the impact of the accessibility measures on unemployment rates.

As consequence of the decentralization process over the last 20 years in Spain, the autonomous communities have taken over the active labor market policies and the creation and/or reorganization of the employment offices and their catchment areas. We recommend the creation of new employment offices so that the size of catchment areas may be reduced. Support to interoffice collaboration is also recommended, especially when it may lead to higher diffusion of job openings. However, we need to learn more about the efficiency of the several types of services provided at each employment office.

## References

- Arraiz, I., Drukker, D.M., Kelejian, H.H., Prucha, I.R. (2010) A spatial Cliff-Ord-type model with heteroskedastic innovations: small and large sample results. *Journal of Regional Science*, 50: 592-614
- Althin, R., Behrenz, L. (2004) An efficiency analysis of Swedish Employment Offices. *International Review of Applied Economics*, 18: 471-482
- Anselin, L. (1988) *Spatial econometrics methods and models*. Dordrecht: Kluwer Academic Publishers.
- Anselin, L., Bera, A. (1998) Spatial dependence in linear regression models with an introduction to spatial econometrics. In A. Ullah and D. E. Giles (eds) *Handbook of Applied Economic Statistics*, pp 237-289. New York: Marcel Dekker.
- Anselin, L. (1995) Local indicators of spatial association –LISA”. *Geographical Analysis*, 27: 93-115.
- Anselin, L., Bera, A., Florax, R., Yoon, M. (1996) Simple diagnostic tests for spatial dependence. *Regional Science and Urban Economics*, 26: 77–104.
- Bande, R., Fernández, M., Montuenga, V. (2008) Regional unemployment in Spain: disparities, business cycle and wage setting. *Labour Economics*, 15: 885-914.
- Bröcker, J. (1989) How to eliminate certain defects of the potential formula. *Environment and Planning A*, 21: 817-830.
- Bruinsma, F., Rietveld, P. (1998) The accessibility of European Cities: theoretical framework and comparison of approaches. *Environment and Planning A*, 30: 499-521.
- CES (2009) Memoria sobre la situación socioeconómica y laboral en España. Consejo Económico y Social.
- Cliff, A., Ord, J.K. (1981) *Spatial processes: models and applications*. Pion, London.
- Cracolici, M.F., Cuffaro, M., Nijkamp, P. (2007) Geographical distribution of unemployment: an analysis of provincial differences in Italy. *Growth and Change*, 38: 649-670.
- Détang-Dessendre, C., Gaigné, C. (2009) Unemployment duration, city size, and the tightness of the labor market. *Regional Science and Urban Economics*, 39: 266-276
- Elhorst, J.P. (2003) The mystery of regional unemployment differentials: theoretical and empirical explanations. *Journal of Economic Surveys*, 17: 709-748.
- Fertig, M., Schmidt, C.M., Schneider, H. (2006) Active labor market policy in Germany –Is there a successful policy strategy. *Regional Science and Urban Economics*, 36: 399-430.
- Fischer, M.M., Getis. A. (2010) *Handbook of Applied Spatial Analysis*. Springer
- Florax, R., Folmer, H., Rey, S. (2003) Specification searches in spatial econometrics: the relevance of Hendry’s methodology. *Regional Science and Urban Economics*, 33: 557-579.
- Frost, M.E., Spence, N.A. (1995) The rediscovery of accessibility and economic potencial: the critical issue of self-potential. *Environment and Planning A*, 27: 1833-1848.



- Fernández-Vázquez, E., Mayor, M., Rodríguez-Vázquez, J. (2009) Estimating Spatial Autoregressive Models by GME-GCE Techniques. *International Regional Science Review*, 32: 148-172.
- Fujita, M. Krugman, P. Venables, A. J. (1999) *The Spatial Economy. Cities, regions and international trade*. MIT Press, Cambridge, MA
- Garcia-del-Barrio, P., Gil-Alana, P.L., (2009) New revelations about unemployment persistence in Spain: time series and panel data approaches using regional data. *Applied Economics*, 41: 219-236.
- Gutiérrez, J. (2001) Location, economic potential and daily accessibility: an analysis of the accessibility impact of the high-speed line Madrid-Barcelona-French border. *Journal of Transport Geography*, 9: 229-242.
- Geurs, K.T., Van Wee, B. (2004) Accessibility evaluation of land-use and transport strategies: review and research directions. *Journal of Transport Geography*, 12: 127-140.
- Hagen, T. (2003) Three approaches to the evaluation of active labour market policy in East Germany using regional data. ZEW Discussion Paper 03-27, ZEW-Mannheim.
- Holl, A., (2007) Twenty years of accessibility improvements. The case of the Spanish motorway building programme. *Journal of Transport Geography*, 15: 286-297.
- Ihlanfeldt, K.R. (1997) Information on the spatial distribution of job opportunities within metropolitan areas. *Journal of Urban Economics*, 41: 218-242.
- Jimeno, J.F., Bentolila, S., (1998) Regional Unemployment Persistence (Spain, 1976-1994). *Labour Economics* 5: 25-51
- Joassart-Marcelli, P., Giordano, A. (2006) Does local access to employment services reduce unemployment? A GYS analysis of One-Stop Career Centers. *Policy Sciences*, 39: 335-359.
- Kelejian, H. H., Prucha, I. R. (1999) A generalized moments estimator for the autoregressive parameter in a spatial model. *International Economic Review*, 40: 509-533.
- Joassart-Marcelli, P., Stephens, P. (2009) Immigrant banking and financial exclusion in Greater Boston. *Journal of Economic Geography*, first published online November 4, 2009 doi:10.1093/jeg/lbp052.
- Krugman, P. (1991) Increasing returns and economic geography. *Journal of Political Economy*, 99: 483-499.
- Lin, X., Lee, L. F. (2010): GMM estimation of spatial autoregressive models with unknown heteroskedasticity. *Journal of Econometrics*, 157: 34-52.
- LeSage, J., Pace, R.K. (2009) *Introduction to Spatial Econometrics*. CRC Press.
- Longhi, S., Nijkamp, P. (2007) Forecasting regional labour market developments under spatial autocorrelation. *International Regional Science Review*, 30: 100-119.
- Martin, A., Gråsjö, U. (2009) Spatial dependence and the representation of space in empirical models. *The Annals of Regional Science*, 43: 159-180.
- McMillen, D. P. (1992) Probit with spatial autocorrelation. *Journal of Regional Science*. 32: 335-48.
- Molho, I. (1995) Spatial autocorrelation in British unemployment. *Journal of Regional Science*, 35: 641-658.
- Mur, J., Angulo, A. (2009) Model selection strategies in a spatial setting: some additional results. *Regional Science and Urban Economics*, 39: 200-213.

Sheldon, G. M. (2003) The efficiency of public employment services: a nonparametric matching function analysis for Switzerland. *Journal of Productivity Analysis*, 20: 49-70.

Serrano, C. (2004) *Servicios Públicos de Empleo e intermediación laboral en las Comunidades autónomas*. Editorial Tirant Lo Blanch.

SPEE. (2008) Memoria del Servicio Público de Empleo Estatal 2008.

Talen, E., Anselin, L. (1998) Assessing spatial equity: an evaluation of measures of accessibility to public playgrounds. *Environment and Planning A*, 30: 595-613.

Van Wee, B., Hagoort, M., Annema, J. A. (2001) Accessibility measures with competition. *Journal of Transport Geography*, 9: 199-208.

Patacchini, E., Zenou, Y. (2007) Spatial dependence in local unemployment rates. *Journal of Economic Geography*, 7: 169-191.

Wooldridge, J.M. (1995) Score diagnostics for linear models estimated by two stage least squares. In G. S. Maddala, P. C. B. Phillips, and T. N. Srinivasan (eds) *Advances in Econometrics and Quantitative Economics: Essays in Honor of Professor C. R. Rao*, pp. 66-87. Oxford: Blackwell.

Zwakhals, L., Ritsema, van Eck J, Jong, T., Floor, H. (1998) Flowmap for windows 6.0 hands-on. Accessibility analysis and gravity models. Faculty of Geographical Sciences, Utrecht University.

# FUNDACIÓN DE LAS CAJAS DE AHORROS

---

## DOCUMENTOS DE TRABAJO

### Últimos números publicados

- |          |  |
|----------|--|
| 159/2000 | Participación privada en la construcción y explotación de carreteras de peaje<br>Ginés de Rus, Manuel Romero y Lourdes Trujillo  |
| 160/2000 | Errores y posibles soluciones en la aplicación del <i>Value at Risk</i><br>Mariano González Sánchez  |
| 161/2000 | Tax neutrality on saving assets. The spanish case before and after the tax reform<br>Cristina Ruza y de Paz-Curbera  |
| 162/2000 | Private rates of return to human capital in Spain: new evidence<br>F. Barceinas, J. Oliver-Alonso, J.L. Raymond y J.L. Roig-Sabaté   |
| 163/2000 | El control interno del riesgo. Una propuesta de sistema de límites<br>riesgo neutral<br>Mariano González Sánchez   |
| 164/2001 | La evolución de las políticas de gasto de las Administraciones Públicas en los años 90<br>Alfonso Utrilla de la Hoz y Carmen Pérez Esparrells  |
| 165/2001 | Bank cost efficiency and output specification<br>Emili Tortosa-Ausina  |
| 166/2001 | Recent trends in Spanish income distribution: A robust picture of falling income inequality<br>Josep Oliver-Alonso, Xavier Ramos y José Luis Raymond-Bara  |
| 167/2001 | Efectos redistributivos y sobre el bienestar social del tratamiento de las cargas familiares en<br>el nuevo IRPF<br>Nuria Badenes Plá, Julio López Laborda, Jorge Onrubia Fernández  |
| 168/2001 | The Effects of Bank Debt on Financial Structure of Small and Medium Firms in some Euro-<br>pean Countries<br>Mónica Melle-Hernández  |
| 169/2001 | La política de cohesión de la UE ampliada: la perspectiva de España<br>Ismael Sanz Labrador  |
| 170/2002 | Riesgo de liquidez de Mercado<br>Mariano González Sánchez  |
| 171/2002 | Los costes de administración para el afiliado en los sistemas de pensiones basados en cuentas<br>de capitalización individual: medida y comparación internacional.<br>José Enrique Devesa Carpio, Rosa Rodríguez Barrera, Carlos Vidal Meliá |
| 172/2002 | La encuesta continua de presupuestos familiares (1985-1996): descripción, representatividad<br>y propuestas de metodología para la explotación de la información de los ingresos y el gasto.<br>Llorenç Pou, Joaquín Alegre                  |
| 173/2002 | Modelos paramétricos y no paramétricos en problemas de concesión de tarjetas de credito.<br>Rosa Puertas, María Bonilla, Ignacio Olmeda  |

- 174/2002 Mercado único, comercio intra-industrial y costes de ajuste en las manufacturas españolas.  
José Vicente Blanes Cristóbal
- 175/2003 La Administración tributaria en España. Un análisis de la gestión a través de los ingresos y de los gastos.  
Juan de Dios Jiménez Aguilera, Pedro Enrique Barrilao González
- 176/2003 The Falling Share of Cash Payments in Spain.  
Santiago Carbó Valverde, Rafael López del Paso, David B. Humphrey  
Publicado en "Moneda y Crédito" nº 217, pags. 167-189.
- 177/2003 Effects of ATMs and Electronic Payments on Banking Costs: The Spanish Case.  
Santiago Carbó Valverde, Rafael López del Paso, David B. Humphrey
- 178/2003 Factors explaining the interest margin in the banking sectors of the European Union.  
Joaquín Maudos y Juan Fernández Guevara
- 179/2003 Los planes de stock options para directivos y consejeros y su valoración por el mercado de valores en España.  
Mónica Melle Hernández
- 180/2003 Ownership and Performance in Europe and US Banking – A comparison of Commercial, Co-operative & Savings Banks.  
Yener Altunbas, Santiago Carbó y Phil Molyneux
- 181/2003 The Euro effect on the integration of the European stock markets.  
Mónica Melle Hernández
- 182/2004 In search of complementarity in the innovation strategy: international R&D and external knowledge acquisition.  
Bruno Cassiman, Reinhilde Veugelers
- 183/2004 Fijación de precios en el sector público: una aplicación para el servicio municipal de suministro de agua.  
M<sup>a</sup> Ángeles García Valiñas
- 184/2004 Estimación de la economía sumergida en España: un modelo estructural de variables latentes.  
Ángel Alañón Pardo, Miguel Gómez de Antonio
- 185/2004 Causas políticas y consecuencias sociales de la corrupción.  
Joan Oriol Prats Cabrera
- 186/2004 Loan bankers' decisions and sensitivity to the audit report using the belief revision model.  
Andrés Guiral Contreras and José A. Gonzalo Angulo
- 187/2004 El modelo de Black, Derman y Toy en la práctica. Aplicación al mercado español.  
Marta Tolentino García-Abadillo y Antonio Díaz Pérez
- 188/2004 Does market competition make banks perform well?.  
Mónica Melle
- 189/2004 Efficiency differences among banks: external, technical, internal, and managerial  
Santiago Carbó Valverde, David B. Humphrey y Rafael López del Paso

- 190/2004 Una aproximación al análisis de los costes de la esquizofrenia en España: los modelos jerárquicos bayesianos  
F. J. Vázquez-Polo, M. A. Negrín, J. M. Cavasés, E. Sánchez y grupo RIRAG
- 191/2004 Environmental proactivity and business performance: an empirical analysis  
Javier González-Benito y Óscar González-Benito
- 192/2004 Economic risk to beneficiaries in notional defined contribution accounts (NDCs)  
Carlos Vidal-Meliá, Inmaculada Domínguez-Fabian y José Enrique Devesa-Carpio
- 193/2004 Sources of efficiency gains in port reform: non parametric malmquist decomposition tfp index for Mexico  
Antonio Estache, Beatriz Tovar de la Fé y Lourdes Trujillo
- 194/2004 Persistencia de resultados en los fondos de inversión españoles  
Alfredo Ciriaco Fernández y Rafael Santamaría Aquilué
- 195/2005 El modelo de revisión de creencias como aproximación psicológica a la formación del juicio del auditor sobre la gestión continuada  
Andrés Guiral Contreras y Francisco Esteso Sánchez
- 196/2005 La nueva financiación sanitaria en España: descentralización y prospectiva  
David Cantarero Prieto
- 197/2005 A cointegration analysis of the Long-Run supply response of Spanish agriculture to the common agricultural policy  
José A. Mendez, Ricardo Mora y Carlos San Juan
- 198/2005 ¿Refleja la estructura temporal de los tipos de interés del mercado español preferencia por la liquidez?  
Magdalena Massot Perelló y Juan M. Nave
- 199/2005 Análisis de impacto de los Fondos Estructurales Europeos recibidos por una economía regional: Un enfoque a través de Matrices de Contabilidad Social  
M. Carmen Lima y M. Alejandro Cardenete
- 200/2005 Does the development of non-cash payments affect monetary policy transmission?  
Santiago Carbó Valverde y Rafael López del Paso
- 201/2005 Firm and time varying technical and allocative efficiency: an application for port cargo handling firms  
Ana Rodríguez-Álvarez, Beatriz Tovar de la Fe y Lourdes Trujillo
- 202/2005 Contractual complexity in strategic alliances  
Jeffrey J. Reuer y Africa Ariño
- 203/2005 Factores determinantes de la evolución del empleo en las empresas adquiridas por opa  
Nuria Alcalde Fradejas y Inés Pérez-Soba Aguilar
- 204/2005 Nonlinear Forecasting in Economics: a comparison between Comprehension Approach versus Learning Approach. An Application to Spanish Time Series  
Elena Olmedo, Juan M. Valderas, Ricardo Gimeno and Lorenzo Escot

- 205/2005 Precio de la tierra con presión urbana: un modelo para España  
Esther Decimavilla, Carlos San Juan y Stefan Sperlich
- 206/2005 Interregional migration in Spain: a semiparametric analysis  
Adolfo Maza y José Villaverde
- 207/2005 Productivity growth in European banking  
Carmen Murillo-Melchor, José Manuel Pastor y Emili Tortosa-Ausina
- 208/2005 Explaining Bank Cost Efficiency in Europe: Environmental and Productivity Influences.  
Santiago Carbó Valverde, David B. Humphrey y Rafael López del Paso
- 209/2005 La elasticidad de sustitución intertemporal con preferencias no separables intratemporalmente: los casos de Alemania, España y Francia.  
Elena Márquez de la Cruz, Ana R. Martínez Cañete y Inés Pérez-Soba Aguilar
- 210/2005 Contribución de los efectos tamaño, book-to-market y momentum a la valoración de activos: el caso español.  
Begoña Font-Belaire y Alfredo Juan Grau-Grau
- 211/2005 Permanent income, convergence and inequality among countries  
José M. Pastor and Lorenzo Serrano
- 212/2005 The Latin Model of Welfare: Do ‘Insertion Contracts’ Reduce Long-Term Dependence?  
Luis Ayala and Magdalena Rodríguez
- 213/2005 The effect of geographic expansion on the productivity of Spanish savings banks  
Manuel Illueca, José M. Pastor and Emili Tortosa-Ausina
- 214/2005 Dynamic network interconnection under consumer switching costs  
Ángel Luis López Rodríguez
- 215/2005 La influencia del entorno socioeconómico en la realización de estudios universitarios: una aproximación al caso español en la década de los noventa  
Marta Rahona López
- 216/2005 The valuation of spanish ipos: efficiency analysis  
Susana Álvarez Otero
- 217/2005 On the generation of a regular multi-input multi-output technology using parametric output distance functions  
Sergio Perelman and Daniel Santin
- 218/2005 La gobernanza de los procesos parlamentarios: la organización industrial del congreso de los diputados en España  
Gonzalo Caballero Miguez
- 219/2005 Determinants of bank market structure: Efficiency and political economy variables  
Francisco González
- 220/2005 Agresividad de las órdenes introducidas en el mercado español: estrategias, determinantes y medidas de performance  
David Abad Díaz

- 221/2005      Tendencia post-anuncio de resultados contables: evidencia para el mercado español  
Carlos Forner Rodríguez, Joaquín Marhuenda Fructuoso y Sonia Sanabria García
- 222/2005      Human capital accumulation and geography: empirical evidence in the European Union  
Jesús López-Rodríguez, J. Andrés Faíña y Jose Lopez Rodríguez
- 223/2005      Auditors' Forecasting in Going Concern Decisions: Framing, Confidence and Information Processing  
Waymond Rodgers and Andrés Guiral
- 224/2005      The effect of Structural Fund spending on the Galician region: an assessment of the 1994-1999 and 2000-2006 Galician CSFs  
José Ramón Cancelo de la Torre, J. Andrés Faíña and Jesús López-Rodríguez
- 225/2005      The effects of ownership structure and board composition on the audit committee activity: Spanish evidence  
Carlos Fernández Méndez and Rubén Arrondo García
- 226/2005      Cross-country determinants of bank income smoothing by managing loan loss provisions  
Ana Rosa Fonseca and Francisco González
- 227/2005      Incumplimiento fiscal en el irpf (1993-2000): un análisis de sus factores determinantes  
Alejandro Estellér Moré
- 228/2005      Region versus Industry effects: volatility transmission  
Pilar Soriano Felipe and Francisco J. Climent Diranzo
- 229/2005      Concurrent Engineering: The Moderating Effect Of Uncertainty On New Product Development Success  
Daniel Vázquez-Bustelo and Sandra Valle
- 230/2005      On zero lower bound traps: a framework for the analysis of monetary policy in the 'age' of central banks  
Alfonso Palacio-Vera
- 231/2005      Reconciling Sustainability and Discounting in Cost Benefit Analysis: a methodological proposal  
M. Carmen Almansa Sáez and Javier Calatrava Requena
- 232/2005      Can The Excess Of Liquidity Affect The Effectiveness Of The European Monetary Policy?  
Santiago Carbó Valverde and Rafael López del Paso
- 233/2005      Inheritance Taxes In The Eu Fiscal Systems: The Present Situation And Future Perspectives.  
Miguel Angel Barberán Lahuerta
- 234/2006      Bank Ownership And Informativeness Of Earnings.  
Víctor M. González
- 235/2006      Developing A Predictive Method: A Comparative Study Of The Partial Least Squares Vs Maximum Likelihood Techniques.  
Waymond Rodgers, Paul Pavlou and Andres Guiral.
- 236/2006      Using Compromise Programming for Macroeconomic Policy Making in a General Equilibrium Framework: Theory and Application to the Spanish Economy.  
Francisco J. André, M. Alejandro Cardenete y Carlos Romero.

- 237/2006 Bank Market Power And Sme Financing Constraints.  
Santiago Carbó-Valverde, Francisco Rodríguez-Fernández y Gregory F. Udell.
- 238/2006 Trade Effects Of Monetary Agreements: Evidence For Oecd Countries.  
Salvador Gil-Pareja, Rafael Llorca-Vivero y José Antonio Martínez-Serrano.
- 239/2006 The Quality Of Institutions: A Genetic Programming Approach.  
Marcos Álvarez-Díaz y Gonzalo Caballero Miguez.
- 240/2006 La interacción entre el éxito competitivo y las condiciones del mercado doméstico como determinantes de la decisión de exportación en las Pymes.  
Francisco García Pérez.
- 241/2006 Una estimación de la depreciación del capital humano por sectores, por ocupación y en el tiempo.  
Inés P. Murillo.
- 242/2006 Consumption And Leisure Externalities, Economic Growth And Equilibrium Efficiency.  
Manuel A. Gómez.
- 243/2006 Measuring efficiency in education: an analysis of different approaches for incorporating non-discretionary inputs.  
Jose Manuel Cordero-Ferrera, Francisco Pedraja-Chaparro y Javier Salinas-Jiménez
- 244/2006 Did The European Exchange-Rate Mechanism Contribute To The Integration Of Peripheral Countries?.  
Salvador Gil-Pareja, Rafael Llorca-Vivero y José Antonio Martínez-Serrano
- 245/2006 Intergenerational Health Mobility: An Empirical Approach Based On The Echp.  
Marta Pascual and David Cantarero
- 246/2006 Measurement and analysis of the Spanish Stock Exchange using the Lyapunov exponent with digital technology.  
Salvador Rojí Ferrari and Ana Gonzalez Marcos
- 247/2006 Testing For Structural Breaks In Variance With additive Outliers And Measurement Errors.  
Paulo M.M. Rodrigues and Antonio Rubia
- 248/2006 The Cost Of Market Power In Banking: Social Welfare Loss Vs. Cost Inefficiency.  
Joaquín Maudos and Juan Fernández de Guevara
- 249/2006 Elasticidades de largo plazo de la demanda de vivienda: evidencia para España (1885-2000).  
Desiderio Romero Jordán, José Félix Sanz Sanz y César Pérez López
- 250/2006 Regional Income Disparities in Europe: What role for location?.  
Jesús López-Rodríguez and J. Andrés Faíña
- 251/2006 Funciones abreviadas de bienestar social: Una forma sencilla de simultaneizar la medición de la eficiencia y la equidad de las políticas de gasto público.  
Nuria Badenes Plá y Daniel Santín González
- 252/2006 “The momentum effect in the Spanish stock market: Omitted risk factors or investor behaviour?”.  
Luis Muga and Rafael Santamaría
- 253/2006 Dinámica de precios en el mercado español de gasolina: un equilibrio de colusión tácita.  
Jordi Perdigueró García



- 254/2006 Desigualdad regional en España: renta permanente versus renta corriente.  
José M. Pastor, Empar Pons y Lorenzo Serrano
- 255/2006 Environmental implications of organic food preferences: an application of the impure public goods model.  
Ana Maria Aldanondo-Ochoa y Carmen Almansa-Sáez
- 256/2006 Family tax credits versus family allowances when labour supply matters: Evidence for Spain.  
José Felix Sanz-Sanz, Desiderio Romero-Jordán y Santiago Álvarez-García
- 257/2006 La internacionalización de la empresa manufacturera española: efectos del capital humano genérico y específico.  
José López Rodríguez
- 258/2006 Evaluación de las migraciones interregionales en España, 1996-2004.  
María Martínez Torres
- 259/2006 Efficiency and market power in Spanish banking.  
Rolf Färe, Shawna Grosskopf y Emili Tortosa-Ausina.
- 260/2006 Asimetrías en volatilidad, beta y contagios entre las empresas grandes y pequeñas cotizadas en la bolsa española.  
Helena Chuliá y Hipòlit Torró.
- 261/2006 Birth Replacement Ratios: New Measures of Period Population Replacement.  
José Antonio Ortega.
- 262/2006 Accidentes de tráfico, víctimas mortales y consumo de alcohol.  
José M<sup>a</sup> Arranz y Ana I. Gil.
- 263/2006 Análisis de la Presencia de la Mujer en los Consejos de Administración de las Mil Mayores Empresas Españolas.  
Ruth Mateos de Cabo, Lorenzo Escot Mangas y Ricardo Gimeno Nogués.
- 264/2006 Crisis y Reforma del Pacto de Estabilidad y Crecimiento. Las Limitaciones de la Política Económica en Europa.  
Ignacio Álvarez Peralta.
- 265/2006 Have Child Tax Allowances Affected Family Size? A Microdata Study For Spain (1996-2000).  
Jaime Vallés-Giménez y Anabel Zárate-Marco.
- 266/2006 Health Human Capital And The Shift From Foraging To Farming.  
Paolo Rungo.
- 267/2006 Financiación Autonómica y Política de la Competencia: El Mercado de Gasolina en Canarias.  
Juan Luis Jiménez y Jordi Perdigueró.
- 268/2006 El cumplimiento del Protocolo de Kyoto para los hogares españoles: el papel de la imposición sobre la energía.  
Desiderio Romero-Jordán y José Félix Sanz-Sanz.
- 269/2006 Banking competition, financial dependence and economic growth  
Joaquín Maudos y Juan Fernández de Guevara
- 270/2006 Efficiency, subsidies and environmental adaptation of animal farming under CAP  
Werner Kleinhanß, Carmen Murillo, Carlos San Juan y Stefan Sperlich

- 271/2006 Interest Groups, Incentives to Cooperation and Decision-Making Process in the European Union  
A. García-Lorenzo y Jesús López-Rodríguez
- 272/2006 Riesgo asimétrico y estrategias de momentum en el mercado de valores español  
Luis Muga y Rafael Santamaría
- 273/2006 Valoración de capital-riesgo en proyectos de base tecnológica e innovadora a través de la teoría de opciones reales  
Gracia Rubio Martín
- 274/2006 Capital stock and unemployment: searching for the missing link  
Ana Rosa Martínez-Cañete, Elena Márquez de la Cruz, Alfonso Palacio-Vera and Inés Pérez-Soba Aguilar
- 275/2006 Study of the influence of the voters' political culture on vote decision through the simulation of a political competition problem in Spain  
Sagrario Lantarón, Isabel Lillo, M<sup>a</sup> Dolores López and Javier Rodrigo
- 276/2006 Investment and growth in Europe during the Golden Age  
Antonio Cubel and M<sup>a</sup> Teresa Sanchis
- 277/2006 Efectos de vincular la pensión pública a la inversión en cantidad y calidad de hijos en un modelo de equilibrio general  
Robert Meneu Gaya
- 278/2006 El consumo y la valoración de activos  
Elena Márquez y Belén Nieto
- 279/2006 Economic growth and currency crisis: A real exchange rate entropic approach  
David Matesanz Gómez y Guillermo J. Ortega
- 280/2006 Three measures of returns to education: An illustration for the case of Spain  
María Arrazola y José de Hevia
- 281/2006 Composition of Firms versus Composition of Jobs  
Antoni Cunyat
- 282/2006 La vocación internacional de un holding tranviario belga: la Compagnie Mutuelle de Tramways, 1895-1918  
Alberte Martínez López
- 283/2006 Una visión panorámica de las entidades de crédito en España en la última década.  
Constantino García Ramos
- 284/2006 Foreign Capital and Business Strategies: a comparative analysis of urban transport in Madrid and Barcelona, 1871-1925  
Alberte Martínez López
- 285/2006 Los intereses belgas en la red ferroviaria catalana, 1890-1936  
Alberte Martínez López
- 286/2006 The Governance of Quality: The Case of the Agrifood Brand Names  
Marta Fernández Barcala, Manuel González-Díaz y Emmanuel Raynaud
- 287/2006 Modelling the role of health status in the transition out of malthusian equilibrium  
Paolo Rungo, Luis Currais and Berta Rivera
- 288/2006 Industrial Effects of Climate Change Policies through the EU Emissions Trading Scheme  
Xavier Labandeira and Miguel Rodríguez

- 289/2006 Globalisation and the Composition of Government Spending: An analysis for OECD countries  
Norman Gemmell, Richard Kneller and Ismael Sanz
- 290/2006 La producción de energía eléctrica en España: Análisis económico de la actividad tras la liberalización del Sector Eléctrico  
Fernando Hernández Martínez
- 291/2006 Further considerations on the link between adjustment costs and the productivity of R&D investment: evidence for Spain  
Desiderio Romero-Jordán, José Félix Sanz-Sanz and Inmaculada Álvarez-Ayuso
- 292/2006 Una teoría sobre la contribución de la función de compras al rendimiento empresarial  
Javier González Benito
- 293/2006 Agility drivers, enablers and outcomes: empirical test of an integrated agile manufacturing model  
Daniel Vázquez-Bustelo, Lucía Avella and Esteban Fernández
- 294/2006 Testing the parametric vs the semiparametric generalized mixed effects models  
María José Lombardía and Stefan Sperlich
- 295/2006 Nonlinear dynamics in energy futures  
Mariano Matilla-García
- 296/2006 Estimating Spatial Models By Generalized Maximum Entropy Or How To Get Rid Of W  
Esteban Fernández Vázquez, Matías Mayor Fernández and Jorge Rodríguez-Valez
- 297/2006 Optimización fiscal en las transmisiones lucrativas: análisis metodológico  
Félix Domínguez Barrero
- 298/2006 La situación actual de la banca online en España  
Francisco José Climent Diranzo y Alexandre Momparler Pechuán
- 299/2006 Estrategia competitiva y rendimiento del negocio: el papel mediador de la estrategia y las capacidades productivas  
Javier González Benito y Isabel Suárez González
- 300/2006 A Parametric Model to Estimate Risk in a Fixed Income Portfolio  
Pilar Abad and Sonia Benito
- 301/2007 Análisis Empírico de las Preferencias Sociales Respecto del Gasto en Obra Social de las Cajas de Ahorros  
Alejandro Esteller-Moré, Jonathan Jorba Jiménez y Albert Solé-Ollé
- 302/2007 Assessing the enlargement and deepening of regional trading blocs: The European Union case  
Salvador Gil-Pareja, Rafael Llorca-Vivero y José Antonio Martínez-Serrano
- 303/2007 ¿Es la Franquicia un Medio de Financiación?: Evidencia para el Caso Español  
Vanessa Solís Rodríguez y Manuel González Díaz
- 304/2007 On the Finite-Sample Biases in Nonparametric Testing for Variance Constancy  
Paulo M.M. Rodrigues and Antonio Rubia
- 305/2007 Spain is Different: Relative Wages 1989-98  
José Antonio Carrasco Gallego

- 306/2007 Poverty reduction and SAM multipliers: An evaluation of public policies in a regional framework  
Francisco Javier De Miguel-Vélez y Jesús Pérez-Mayo
- 307/2007 La Eficiencia en la Gestión del Riesgo de Crédito en las Cajas de Ahorro  
Marcelino Martínez Cabrera
- 308/2007 Optimal environmental policy in transport: unintended effects on consumers' generalized price  
M. Pilar Socorro and Ofelia Betancor
- 309/2007 Agricultural Productivity in the European Regions: Trends and Explanatory Factors  
Roberto Ezcurra, Belen Iraizoz, Pedro Pascual and Manuel Rapún
- 310/2007 Long-run Regional Population Divergence and Modern Economic Growth in Europe: a Case Study of Spain  
María Isabel Ayuda, Fernando Collantes and Vicente Pinilla
- 311/2007 Financial Information effects on the measurement of Commercial Banks' Efficiency  
Borja Amor, María T. Tascón and José L. Fanjul
- 312/2007 Neutralidad e incentivos de las inversiones financieras en el nuevo IRPF  
Félix Domínguez Barrero
- 313/2007 The Effects of Corporate Social Responsibility Perceptions on The Valuation of Common Stock  
Waymond Rodgers , Helen Choy and Andres Guiral-Contreras
- 314/2007 Country Creditor Rights, Information Sharing and Commercial Banks' Profitability Persistence across the world  
Borja Amor, María T. Tascón and José L. Fanjul
- 315/2007 ¿Es Relevante el Déficit Corriente en una Unión Monetaria? El Caso Español  
Javier Blanco González y Ignacio del Rosal Fernández
- 316/2007 The Impact of Credit Rating Announcements on Spanish Corporate Fixed Income Performance: Returns, Yields and Liquidity  
Pilar Abad, Antonio Díaz and M. Dolores Robles
- 317/2007 Indicadores de Lealtad al Establecimiento y Formato Comercial Basados en la Distribución del Presupuesto  
Cesar Augusto Bustos Reyes y Óscar González Benito
- 318/2007 Migrants and Market Potential in Spain over The XXth Century: A Test Of The New Economic Geography  
Daniel A. Tirado, Jordi Pons, Elisenda Paluzie and Javier Silvestre
- 319/2007 El Impacto del Coste de Oportunidad de la Actividad Emprendedora en la Intención de los Ciudadanos Europeos de Crear Empresas  
Luis Miguel Zapico Aldeano
- 320/2007 Los belgas y los ferrocarriles de vía estrecha en España, 1887-1936  
Alberte Martínez López
- 321/2007 Competición política bipartidista. Estudio geométrico del equilibrio en un caso ponderado  
Isabel Lillo, M<sup>a</sup> Dolores López y Javier Rodrigo
- 322/2007 Human resource management and environment management systems: an empirical study  
M<sup>a</sup> Concepción López Fernández, Ana M<sup>a</sup> Serrano Bedia and Gema García Piqueres

- 323/2007 Wood and industrialization. evidence and hypotheses from the case of Spain, 1860-1935.  
Iñaki Iriarte-Goñi and María Isabel Ayuda Bosque
- 324/2007 New evidence on long-run monetary neutrality.  
J. Cunado, L.A. Gil-Alana and F. Perez de Gracia
- 325/2007 Monetary policy and structural changes in the volatility of us interest rates.  
Juncal Cuñado, Javier Gomez Biscarri and Fernando Perez de Gracia
- 326/2007 The productivity effects of intrafirm diffusion.  
Lucio Fuentelsaz, Jaime Gómez and Sergio Palomas
- 327/2007 Unemployment duration, layoffs and competing risks.  
J.M. Arranz, C. García-Serrano and L. Toharia
- 328/2007 El grado de cobertura del gasto público en España respecto a la UE-15  
Nuria Rueda, Begoña Barruso, Carmen Calderón y M<sup>a</sup> del Mar Herrador
- 329/2007 The Impact of Direct Subsidies in Spain before and after the CAP'92 Reform  
Carmen Murillo, Carlos San Juan and Stefan Sperlich
- 330/2007 Determinants of post-privatisation performance of Spanish divested firms  
Laura Cabeza García and Silvia Gómez Ansón
- 331/2007 ¿Por qué deciden diversificar las empresas españolas? Razones oportunistas versus razones económicas  
Almudena Martínez Campillo
- 332/2007 Dynamical Hierarchical Tree in Currency Markets  
Juan Gabriel Brida, David Matesanz Gómez and Wiston Adrián Risso
- 333/2007 Los determinantes sociodemográficos del gasto sanitario. Análisis con microdatos individuales  
Ana María Angulo, Ramón Barberán, Pilar Egea y Jesús Mur
- 334/2007 Why do companies go private? The Spanish case  
Inés Pérez-Soba Aguilar
- 335/2007 The use of gis to study transport for disabled people  
Verónica Cañal Fernández
- 336/2007 The long run consequences of M&A: An empirical application  
Cristina Bernad, Lucio Fuentelsaz and Jaime Gómez
- 337/2007 Las clasificaciones de materias en economía: principios para el desarrollo de una nueva clasificación  
Valentín Edo Hernández
- 338/2007 Reforming Taxes and Improving Health: A Revenue-Neutral Tax Reform to Eliminate Medical and Pharmaceutical VAT  
Santiago Álvarez-García, Carlos Pestana Barros y Juan Prieto-Rodriguez
- 339/2007 Impacts of an iron and steel plant on residential property values  
Celia Bilbao-Terol
- 340/2007 Firm size and capital structure: Evidence using dynamic panel data  
Victor M. González and Francisco González

- 341/2007      ¿Cómo organizar una cadena hotelera? La elección de la forma de gobierno  
Marta Fernández Barcala y Manuel González Díaz
- 342/2007      Análisis de los efectos de la decisión de diversificar: un contraste del marco teórico “Agencia-Stewardship”  
Almudena Martínez Campillo y Roberto Fernández Gago
- 343/2007      Selecting portfolios given multiple eurostoxx-based uncertainty scenarios: a stochastic goal programming approach from fuzzy betas  
Enrique Ballester, Blanca Pérez-Gladish, Mar Arenas-Parra and Amelia Bilbao-Terol
- 344/2007      “El bienestar de los inmigrantes y los factores implicados en la decisión de emigrar”  
Anastasia Hernández Alemán y Carmelo J. León
- 345/2007      Governance Decisions in the R&D Process: An Integrative Framework Based on TCT and Knowledge View of The Firm.  
Andrea Martínez-Noya and Esteban García-Canal
- 346/2007      Diferencias salariales entre empresas públicas y privadas. El caso español  
Begoña Cueto y Nuria Sánchez- Sánchez
- 347/2007      Effects of Fiscal Treatments of Second Home Ownership on Renting Supply  
Celia Bilbao Terol and Juan Prieto Rodríguez
- 348/2007      Auditors’ ethical dilemmas in the going concern evaluation  
Andres Guiral, Waymond Rodgers, Emiliano Ruiz and Jose A. Gonzalo
- 349/2007      Convergencia en capital humano en España. Un análisis regional para el periodo 1970-2004  
Susana Morales Sequera y Carmen Pérez Esparrells
- 350/2007      Socially responsible investment: mutual funds portfolio selection using fuzzy multiobjective programming  
Blanca M<sup>a</sup> Pérez-Gladish, Mar Arenas-Parra , Amelia Bilbao-Terol and M<sup>a</sup> Victoria Rodríguez-Uría
- 351/2007      Persistencia del resultado contable y sus componentes: implicaciones de la medida de ajustes por devengo  
Raúl Iñiguez Sánchez y Francisco Poveda Fuentes
- 352/2007      Wage Inequality and Globalisation: What can we Learn from the Past? A General Equilibrium Approach  
Concha Betrán, Javier Ferri and Maria A. Pons
- 353/2007      Eficacia de los incentivos fiscales a la inversión en I+D en España en los años noventa  
Desiderio Romero Jordán y José Félix Sanz Sanz
- 354/2007      Convergencia regional en renta y bienestar en España  
Robert Meneu Gaya
- 355/2007      Tributación ambiental: Estado de la Cuestión y Experiencia en España  
Ana Carrera Poncela
- 356/2007      Salient features of dependence in daily us stock market indices  
Luis A. Gil-Alana, Juncal Cuñado and Fernando Pérez de Gracia
- 357/2007      La educación superior: ¿un gasto o una inversión rentable para el sector público?  
Inés P. Murillo y Francisco Pedraja

- 358/2007 Effects of a reduction of working hours on a model with job creation and job destruction  
Emilio Domínguez, Miren Ullibarri y Idoia Zabaleta
- 359/2007 Stock split size, signaling and earnings management: Evidence from the Spanish market  
José Yagüe, J. Carlos Gómez-Sala and Francisco Poveda-Fuentes
- 360/2007 Modelización de las expectativas y estrategias de inversión en mercados de derivados  
Begoña Font-Belaire
- 361/2008 Trade in capital goods during the golden age, 1953-1973  
M<sup>a</sup> Teresa Sanchis and Antonio Cubel
- 362/2008 El capital económico por riesgo operacional: una aplicación del modelo de distribución de pérdidas  
Enrique José Jiménez Rodríguez y José Manuel Fera Domínguez
- 363/2008 The drivers of effectiveness in competition policy  
Joan-Ramon Borrell and Juan-Luis Jiménez
- 364/2008 Corporate governance structure and board of directors remuneration policies: evidence from Spain  
Carlos Fernández Méndez, Rubén Arrondo García and Enrique Fernández Rodríguez
- 365/2008 Beyond the disciplinary role of governance: how boards and donors add value to Spanish foundations  
Pablo De Andrés Alonso, Valentín Azofra Palenzuela y M. Elena Romero Merino
- 366/2008 Complejidad y perfeccionamiento contractual para la contención del oportunismo en los acuerdos de franquicia  
Vanesa Solís Rodríguez y Manuel González Díaz
- 367/2008 Inestabilidad y convergencia entre las regiones europeas  
Jesús Mur, Fernando López y Ana Angulo
- 368/2008 Análisis espacial del cierre de explotaciones agrarias  
Ana Aldanondo Ochoa, Carmen Almansa Sáez y Valero Casanovas Oliva
- 369/2008 Cross-Country Efficiency Comparison between Italian and Spanish Public Universities in the period 2000-2005  
Tommaso Agasisti and Carmen Pérez Esparrells
- 370/2008 El desarrollo de la sociedad de la información en España: un análisis por comunidades autónomas  
María Concepción García Jiménez y José Luis Gómez Barroso
- 371/2008 El medioambiente y los objetivos de fabricación: un análisis de los modelos estratégicos para su consecución  
Lucía Avella Camarero, Esteban Fernández Sánchez y Daniel Vázquez-Bustelo
- 372/2008 Influence of bank concentration and institutions on capital structure: New international evidence  
Víctor M. González and Francisco González
- 373/2008 Generalización del concepto de equilibrio en juegos de competición política  
M<sup>a</sup> Dolores López González y Javier Rodrigo Hitos
- 374/2008 Smooth Transition from Fixed Effects to Mixed Effects Models in Multi-level regression Models  
María José Lombardía and Stefan Sperlich

- 375/2008 A Revenue-Neutral Tax Reform to Increase Demand for Public Transport Services  
Carlos Pestana Barros and Juan Prieto-Rodriguez
- 376/2008 Measurement of intra-distribution dynamics: An application of different approaches to the European regions  
Adolfo Maza, María Hierro and José Villaverde
- 377/2008 Migración interna de extranjeros y ¿nueva fase en la convergencia?  
María Hierro y Adolfo Maza
- 378/2008 Efectos de la Reforma del Sector Eléctrico: Modelización Teórica y Experiencia Internacional  
Ciro Eduardo Bazán Navarro
- 379/2008 A Non-Parametric Independence Test Using Permutation Entropy  
Mariano Matilla-García and Manuel Ruiz Marín
- 380/2008 Testing for the General Fractional Unit Root Hypothesis in the Time Domain  
Uwe Hassler, Paulo M.M. Rodrigues and Antonio Rubia
- 381/2008 Multivariate gram-charlier densities  
Esther B. Del Brio, Trino-Manuel Níguez and Javier Perote
- 382/2008 Analyzing Semiparametrically the Trends in the Gender Pay Gap - The Example of Spain  
Ignacio Moral-Arce, Stefan Sperlich, Ana I. Fernández-Saínz and Maria J. Roca
- 383/2008 A Cost-Benefit Analysis of a Two-Sided Card Market  
Santiago Carbó Valverde, David B. Humphrey, José Manuel Liñares Zegarra and Francisco Rodríguez Fernandez
- 384/2008 A Fuzzy Bicriteria Approach for Journal Deselection in a Hospital Library  
M. L. López-Avello, M. V. Rodríguez-Uría, B. Pérez-Gladish, A. Bilbao-Terol, M. Arenas-Parra
- 385/2008 Valoración de las grandes corporaciones farmacéuticas, a través del análisis de sus principales intangibles, con el método de opciones reales  
Gracia Rubio Martín y Prosper Lamothe Fernández
- 386/2008 El marketing interno como impulsor de las habilidades comerciales de las pyme españolas: efectos en los resultados empresariales  
M<sup>a</sup> Leticia Santos Vijande, M<sup>a</sup> José Sanzo Pérez, Nuria García Rodríguez y Juan A. Trespalacios Gutiérrez
- 387/2008 Understanding Warrants Pricing: A case study of the financial market in Spain  
David Abad y Belén Nieto
- 388/2008 Aglomeración espacial, Potencial de Mercado y Geografía Económica: Una revisión de la literatura  
Jesús López-Rodríguez y J. Andrés Faíña
- 389/2008 An empirical assessment of the impact of switching costs and first mover advantages on firm performance  
Jaime Gómez, Juan Pablo Maícas
- 390/2008 Tender offers in Spain: testing the wave  
Ana R. Martínez-Cañete y Inés Pérez-Soba Aguilar



- 391/2008 La integración del mercado español a finales del siglo XIX: los precios del trigo entre 1891 y 1905  
Mariano Matilla García, Pedro Pérez Pascual y Basilio Sanz Carnero
- 392/2008 Cuando el tamaño importa: estudio sobre la influencia de los sujetos políticos en la balanza de bienes y servicios  
Alfonso Echazarra de Gregorio
- 393/2008 Una visión cooperativa de las medidas ante el posible daño ambiental de la desalación  
Borja Montaña Sanz
- 394/2008 Efectos externos del endeudamiento sobre la calificación crediticia de las Comunidades Autónomas  
Andrés Leal Marcos y Julio López Laborda
- 395/2008 Technical efficiency and productivity changes in Spanish airports: A parametric distance functions approach  
Beatriz Tovar & Roberto Rendeiro Martín-Cejas
- 396/2008 Network analysis of exchange data: Interdependence drives crisis contagion  
David Matesanz Gómez & Guillermo J. Ortega
- 397/2008 Explaining the performance of Spanish privatised firms: a panel data approach  
Laura Cabeza Garcia and Silvia Gomez Anson
- 398/2008 Technological capabilities and the decision to outsource R&D services  
Andrea Martínez-Noya and Esteban García-Canal
- 399/2008 Hybrid Risk Adjustment for Pharmaceutical Benefits  
Manuel García-Goñi, Pere Ibern & José María Inoriza
- 400/2008 The Team Consensus–Performance Relationship and the Moderating Role of Team Diversity  
José Henríque Dieguez, Javier González-Benito and Jesús Galende
- 401/2008 The institutional determinants of CO<sub>2</sub> emissions: A computational modelling approach using Artificial Neural Networks and Genetic Programming  
Marcos Álvarez-Díaz , Gonzalo Caballero Miguez and Mario Soliño
- 402/2008 Alternative Approaches to Include Exogenous Variables in DEA Measures: A Comparison Using Monte Carlo  
José Manuel Cordero-Ferrera, Francisco Pedraja-Chaparro and Daniel Santín-González
- 403/2008 Efecto diferencial del capital humano en el crecimiento económico andaluz entre 1985 y 2004: comparación con el resto de España  
M<sup>a</sup> del Pópulo Pablo-Romero Gil-Delgado y M<sup>a</sup> de la Palma Gómez-Calero Valdés
- 404/2008 Análisis de fusiones, variaciones conjeturales y la falacia del estimador en diferencias  
Juan Luis Jiménez y Jordi Perdiguerro
- 405/2008 Política fiscal en la uem: ¿basta con los estabilizadores automáticos?  
Jorge Uxó González y M<sup>a</sup> Jesús Arroyo Fernández
- 406/2008 Papel de la orientación emprendedora y la orientación al mercado en el éxito de las empresas  
Óscar González-Benito, Javier González-Benito y Pablo A. Muñoz-Gallego
- 407/2008 La presión fiscal por impuesto sobre sociedades en la unión europea  
Elena Fernández Rodríguez, Antonio Martínez Arias y Santiago Álvarez García

- 408/2008 The environment as a determinant factor of the purchasing and supply strategy: an empirical analysis  
Dr. Javier González-Benito y MS Duilio Reis da Rocha
- 409/2008 Cooperation for innovation: the impact on innovatory effort  
Gloria Sánchez González and Liliana Herrera
- 410/2008 Spanish post-earnings announcement drift and behavioral finance models  
Carlos Forner and Sonia Sanabria
- 411/2008 Decision taking with external pressure: evidence on football manager dismissals in argentina and their consequences  
Ramón Flores, David Forrest and Juan de Dios Tena
- 412/2008 Comercio agrario latinoamericano, 1963-2000: aplicación de la ecuación gravitacional para flujos desagregados de comercio  
Raúl Serrano y Vicente Pinilla
- 413/2008 Voter heuristics in Spain: a descriptive approach elector decision  
José Luís Sáez Lozano and Antonio M. Jaime Castillo
- 414/2008 Análisis del efecto área de salud de residencia sobre la utilización y acceso a los servicios sanitarios en la Comunidad Autónoma Canaria  
Ignacio Abásolo Alessón, Lidia García Pérez, Raquel Aguiar Ibáñez y Asier Amador Robayna
- 415/2008 Impact on competitive balance from allowing foreign players in a sports league: an analytical model and an empirical test  
Ramón Flores, David Forrest & Juan de Dios Tena
- 416/2008 Organizational innovation and productivity growth: Assessing the impact of outsourcing on firm performance  
Alberto López
- 417/2008 Value Efficiency Analysis of Health Systems  
Eduardo González, Ana Cárcaba & Juan Ventura
- 418/2008 Equidad en la utilización de servicios sanitarios públicos por comunidades autónomas en España: un análisis multinivel  
Ignacio Abásolo, Jaime Pinilla, Miguel Negrín, Raquel Aguiar y Lidia García
- 419/2008 Piedras en el camino hacia Bolonia: efectos de la implantación del EEES sobre los resultados académicos  
Carmen Florido, Juan Luis Jiménez e Isabel Santana
- 420/2008 The welfare effects of the allocation of airlines to different terminals  
M. Pilar Socorro and Ofelia Betancor
- 421/2008 How bank capital buffers vary across countries. The influence of cost of deposits, market power and bank regulation  
Ana Rosa Fonseca and Francisco González
- 422/2008 Analysing health limitations in Spain: an empirical approach based on the European community household panel  
Marta Pascual and David Cantarero

- 423/2008 Regional productivity variation and the impact of public capital stock: an analysis with spatial interaction, with reference to Spain  
Miguel Gómez-Antonio and Bernard Fingleton
- 424/2008 Average effect of training programs on the time needed to find a job. The case of the training schools program in the south of Spain (Seville, 1997-1999).  
José Manuel Cansino Muñoz-Repiso and Antonio Sánchez Braza
- 425/2008 Medición de la eficiencia y cambio en la productividad de las empresas distribuidoras de electricidad en Perú después de las reformas  
Raúl Pérez-Reyes y Beatriz Tovar
- 426/2008 Acercando posturas sobre el descuento ambiental: sondeo Delphi a expertos en el ámbito internacional  
Carmen Almansa Sáez y José Miguel Martínez Paz
- 427/2008 Determinants of abnormal liquidity after rating actions in the Corporate Debt Market  
Pilar Abad, Antonio Díaz and M. Dolores Robles
- 428/2008 Export led-growth and balance of payments constrained. New formalization applied to Cuban commercial regimes since 1960  
David Matesanz Gómez, Guadalupe Fugarolas Álvarez-Ude and Isis Mañalich Gálvez
- 429/2008 La deuda implícita y el desequilibrio financiero-actuarial de un sistema de pensiones. El caso del régimen general de la seguridad social en España  
José Enrique Devesa Carpio y Mar Devesa Carpio
- 430/2008 Efectos de la descentralización fiscal sobre el precio de los carburantes en España  
Desiderio Romero Jordán, Marta Jorge García-Inés y Santiago Álvarez García
- 431/2008 Euro, firm size and export behavior  
Silviano Esteve-Pérez, Salvador Gil-Pareja, Rafael Llorca-Vivero and José Antonio Martínez-Serrano
- 432/2008 Does social spending increase support for free trade in advanced democracies?  
Ismael Sanz, Ferran Martínez i Coma and Federico Steinberg
- 433/2008 Potencial de Mercado y Estructura Espacial de Salarios: El Caso de Colombia  
Jesús López-Rodríguez y Maria Cecilia Acevedo
- 434/2008 Persistence in Some Energy Futures Markets  
Juncal Cunado, Luis A. Gil-Alana and Fernando Pérez de Gracia
- 435/2008 La inserción financiera externa de la economía francesa: inversores institucionales y nueva gestión empresarial  
Ignacio Álvarez Peralta
- 436/2008 ¿Flexibilidad o rigidez salarial en España?: un análisis a escala regional  
Ignacio Moral Arce y Adolfo Maza Fernández
- 437/2009 Intangible relationship-specific investments and the performance of r&d outsourcing agreements  
Andrea Martínez-Noya, Esteban García-Canal & Mauro F. Guillén
- 438/2009 Friendly or Controlling Boards?  
Pablo de Andrés Alonso & Juan Antonio Rodríguez Sanz

- 439/2009 La sociedad Trenor y Cía. (1838-1926): un modelo de negocio industrial en la España del siglo XIX  
Amparo Ruiz Llopis
- 440/2009 Continental bias in trade  
Salvador Gil-Pareja, Rafael Llorca-Vivero & José Antonio Martínez Serrano
- 441/2009 Determining operational capital at risk: an empirical application to the retail banking  
Enrique José Jiménez-Rodríguez, José Manuel Fera-Domínguez & José Luis Martín-Marín
- 442/2009 Costes de mitigación y escenarios post-kyoto en España: un análisis de equilibrio general para España  
Mikel González Ruiz de Eguino
- 443/2009 Las revistas españolas de economía en las bibliotecas universitarias: ranking, valoración del indicador y del sistema  
Valentín Edo Hernández
- 444/2009 Convergencia económica en España y coordinación de políticas económicas. un estudio basado en la estructura productiva de las CC.AA.  
Ana Cristina Mingorance Arnáiz
- 445/2009 Instrumentos de mercado para reducir emisiones de co2: un análisis de equilibrio general para España  
Mikel González Ruiz de Eguino
- 446/2009 El comercio intra e inter-regional del sector Turismo en España  
Carlos Llano y Tamara de la Mata
- 447/2009 Efectos del incremento del precio del petróleo en la economía española: Análisis de cointegración y de la política monetaria mediante reglas de Taylor  
Fernando Hernández Martínez
- 448/2009 Bologna Process and Expenditure on Higher Education: A Convergence Analysis of the EU-15  
T. Agasisti, C. Pérez Esparrells, G. Catalano & S. Morales
- 449/2009 Global Economy Dynamics? Panel Data Approach to Spillover Effects  
Gregory Daco, Fernando Hernández Martínez & Li-Wu Hsu
- 450/2009 Pricing levered warrants with dilution using observable variables  
Isabel Abinzano & Javier F. Navas
- 451/2009 Information technologies and financial prformance: The effect of technology diffusion among competitors  
Lucio Fuentelsaz, Jaime Gómez & Sergio Palomas
- 452/2009 A Detailed Comparison of Value at Risk in International Stock Exchanges  
Pilar Abad & Sonia Benito
- 453/2009 Understanding offshoring: has Spain been an offshoring location in the nineties?  
Belén González-Díaz & Rosario Gandoy
- 454/2009 Outsourcing decision, product innovation and the spatial dimension: Evidence from the Spanish footwear industry  
José Antonio Belso-Martínez

- 455/2009 Does playing several competitions influence a team's league performance? Evidence from Spanish professional football  
Andrés J. Picazo-Tadeo & Francisco González-Gómez
- 456/2009 Does accessibility affect retail prices and competition? An empirical application  
Juan Luis Jiménez and Jordi Perdigüero
- 457/2009 Cash conversion cycle in smes  
Sonia Baños-Caballero, Pedro J. García-Teruel and Pedro Martínez-Solano
- 458/2009 Un estudio sobre el perfil de hogares endeudados y sobreendeudados: el caso de los hogares vascos  
Alazne Mujika Alberdi, Iñaki García Arrizabalaga y Juan José Gibaja Martíns
- 459/2009 Imposing monotonicity on outputs in parametric distance function estimations: with an application to the spanish educational production  
Sergio Perelman and Daniel Santin
- 460/2009 Key issues when using tax data for concentration analysis: an application to the Spanish wealth tax  
José M<sup>a</sup> Durán-Cabré and Alejandro Esteller-Moré
- 461/2009 ¿Se está rompiendo el mercado español? Una aplicación del enfoque de feldstein –horioka  
Saúl De Vicente Queijeiro□, José Luis Pérez Rivero□ y María Rosalía Vicente Cuervo□
- 462/2009 Financial condition, cost efficiency and the quality of local public services  
Manuel A. Muñiz□ & José L. Zafra□□
- 463/2009 Including non-cognitive outputs in a multidimensional evaluation of education production: an international comparison  
Marián García Valiñas & Manuel Antonio Muñiz Pérez
- 464/2009 A political look into budget deficits.The role of minority governments and oppositions  
Albert Falcó-Gimeno & Ignacio Jurado
- 465/2009 La simulación del cuadro de mando integral. Una herramienta de aprendizaje en la materia de contabilidad de gestión  
Elena Urquía Grande, Clara Isabel Muñoz Colomina y Elisa Isabel Cano Montero
- 466/2009 Análisis histórico de la importancia de la industria de la desalinización en España  
Borja Montañó Sanz
- 467/2009 The dynamics of trade and innovation: a joint approach  
Silviano Esteve-Pérez & Diego Rodríguez
- 468/2009 Measuring international reference-cycles  
Sonia de Lucas Santos, Inmaculada Álvarez Ayuso & M<sup>a</sup> Jesús Delgado Rodríguez
- 469/2009 Measuring quality of life in Spanish municipalities  
Eduardo González Fidalgo, Ana Cárcaba García, Juan Ventura Victoria & Jesús García García
- 470/2009 ¿Cómo se valoran las acciones españolas: en el mercado de capitales doméstico o en el europeo?  
Begoña Font Belaire y Alfredo Juan Grau Grau
- 471/2009 Patterns of e-commerce adoption and intensity. evidence for the european union-27  
María Rosalía Vicente & Ana Jesús López

- 472/2009 On measuring the effect of demand uncertainty on costs: an application to port terminals  
Ana Rodríguez-Álvarez, Beatriz Tovar & Alan Wall
- 473/2009 Order of market entry, market and technological evolution and firm competitive performance  
Jaime Gomez, Gianvito Lanzolla & Juan Pablo Maicas
- 474/2009 La Unión Económica y Monetaria Europea en el proceso exportador de Castilla y León (1993-2007): un análisis de datos de panel  
Almudena Martínez Campillo y M<sup>a</sup> del Pilar Sierra Fernández
- 475/2009 Do process innovations boost SMEs productivity growth?  
Juan A. Mañez, María E. Rochina Barrachina, Amparo Sanchis Llopis & Juan A. Sanchis Llopis
- 476/2009 Incertidumbre externa y elección del modo de entrada en el marco de la inversión directa en el exterior  
Cristina López Duarte y Marta M<sup>a</sup> Vidal Suárez
- 477/2009 Testing for structural breaks in factor loadings: an application to international business cycle  
José Luis Cendejas Bueno, Sonia de Lucas Santos, Inmaculada Álvarez Ayuso & M<sup>a</sup> Jesús Delgado Rodríguez
- 478/2009 ¿Esconde la rigidez de precios la existencia de colusión? El caso del mercado de carburantes en las Islas Canarias  
Juan Luis Jiménez□ y Jordi Perdiguero
- 479/2009 The poni test with structural breaks  
Antonio Aznar & María-Isabel Ayuda
- 480/2009 Accuracy and reliability of Spanish regional accounts (CRE-95)  
Verónica Cañal Fernández
- 481/2009 Estimating regional variations of R&D effects on productivity growth by entropy econometrics  
Esteban Fernández-Vázquez y Fernando Rubiera-Morollón
- 482/2009 Why do local governments privatize the provision of water services? Empirical evidence from Spain  
Francisco González-Gómez, Andrés J. Picazo-Tadeo & Jorge Guardiola
- 483/2009 Assessing the regional digital divide across the European Union-27  
María Rosalía Vicente & Ana Jesús López
- 484/2009 Measuring educational efficiency and its determinants in Spain with parametric distance functions  
José Manuel Cordero Ferrera, Eva Crespo Cebada & Daniel Santín González
- 485/2009 Spatial analysis of public employment services in the Spanish provinces  
Patricia Suárez Cano & Matías Mayor Fernández
- 486/2009 Trade effects of continental and intercontinental preferential trade agreements  
Salvador Gil-Pareja, Rafael Llorca-Vivero & José Antonio Martínez-Serrano
- 487/2009 Testing the accuracy of DEA for measuring efficiency in education under endogeneity  
Salvador Gil-Pareja, Rafael Llorca-Vivero & José Antonio Martínez-Serrano
- 488/2009 Measuring efficiency in primary health care: the effect of exogenous variables on results  
José Manuel Cordero Ferrera, Eva Crespo Cebada & Luis R. Murillo Zamorano

- 489/2009 Capital structure determinants in growth firms accessing venture funding  
Marina Balboa, José Martí & Álvaro Tresierra
- 490/2009 Determinants of debt maturity structure across firm size  
Victor M. González
- 491/2009 Análisis del efecto de la aplicación de las NIIF en la valoración de las salidas a bolsa  
Susana Álvarez Otero y Eduardo Rodríguez Enríquez
- 492/2009 An analysis of urban size and territorial location effects on employment probabilities: the spanish case  
Ana Viñuela-Jiménez, Fernando Rubiera-Morollón & Begoña Cueto
- 493/2010 Determinantes de la estructura de los consejos de administración en España  
Isabel Acero Fraile□ y Nuria Alcalde Fradejas
- 494/2010 Performance and completeness in repeated inter-firm relationships: the case of franchising  
Vanessa Solis-Rodriguez & Manuel Gonzalez-Diaz
- 495/2010 A Revenue-Based Frontier Measure of Banking Competition  
Santiago Carbó, David Humphrey & Francisco Rodríguez
- 496/2010 Categorical segregation in social networks  
Antoni Rubí-Barceló
- 497/2010 Beneficios ambientales no comerciales de la directiva marco del agua en condiciones de escasez: análisis económico para el Guadalquivir  
Julia Martin-Ortega, Giacomo Giannoccaro y Julio Berbel Vecino
- 498/2010 Monetary integration and risk diversification in eu-15 sovereign debt markets  
Juncal Cuñado & Marta Gómez-Puig
- 499/2010 The Marshall Plan and the Spanish autarky: A welfare loss analysis  
José Antonio Carrasco Gallego
- 500/2010 The role of learning in firm R&D persistence  
Juan A. Mañez, María E. Rochina-Barrachina, Amparo Sanchis-Llopis & Juan A. Sanchis-Llopis
- 501/2010 Is venture capital more than just money?  
Marina Balboa, José Martí & Nina Zieling
- 502/2010 On the effects of supply strategy on business performance: do the relationships among generic competitive objectives matter?  
Javier González-Benito
- 503/2010 Corporate cash holding and firm value  
Cristina Martínez-Sola, Pedro J. García-Teruel & Pedro Martínez-Solano
- 504/2010 El impuesto de flujos de caja de sociedades: una propuesta de base imponible y su aproximación contable en España  
Lourdes Jerez Barroso y Joaquín Teixeira Quirós
- 505/2010 The effect of technological, commercial and human resources on the use of new technology  
Jaime Gómez & Pilar Vargas

- 506/2010      ¿Cómo ha afectado la fiscalidad a la rentabilidad de la inversión en vivienda en España?  
Un análisis para el periodo 1996 y 2007  
Jorge Onrubia Fernández y María del Carmen Rodado Ruiz
- 507/2010      Modelización de flujos en el análisis input-output a partir de la teoría de redes  
Ana Salomé García Muñiz
- 508/2010      Export-led-growth hypothesis revisited. a balance of payments approach for Argentina, Brazil,  
Chile and Mexico  
David Matesanz Gómez & Guadalupe Fugarolas Álvarez-Ude
- 509/2010      Realised hedge ratio properties, performance and implications for risk management: evidence  
from the spanish ibex 35 spot and futures markets  
David G McMillan & Raquel Quiroga García
- 510/2010      Do we sack the manager... or is it better not to? Evidence from Spanish professional football  
Francisco González-Gómez, Andrés J. Picazo-Tadeo & Miguel Á. García-Rubio
- 511/2010      Have Spanish port sector reforms during the last two decades been successful? A cost frontier  
approach  
Ana Rodríguez-Álvarez & Beatriz Tovar
- 512/2010      Size & Regional Distribution of Financial Behavior Patterns in Spain  
Juan Antonio Maroto Acín, Pablo García Estévez & Salvador Roji Ferrari
- 513/2010      The impact of public reforms on the productivity of the Spanish ports: a parametric distance  
function approach  
Ramón Núñez-Sánchez & Pablo Coto-Millán
- 514/2010      Trade policy versus institutional trade barriers: an application using “good old” ols  
Laura Márquez-Ramos, Inmaculada Martínez-Zarzoso & Celestino Suárez-Burguet
- 515/2010      The “Double Market” approach in venture capital and private equity activity: the case of Europe  
Marina Balboa & José Martí
- 516/2010      International accounting differences and earnings smoothing in the banking industry  
Marina Balboa, Germán López-Espinosa & Antonio Rubia
- 517/2010      Convergence in car prices among European countries  
Simón Sosvilla-Rivero & Salvador Gil-Pareja
- 518/2010      Effects of process and product-oriented innovations on employee downsizing  
José David Vicente-Lorente & José Ángel Zúñiga-Vicente
- 519/2010      Inequality, the politics of redistribution and the tax-mix  
Jenny De Freitas
- 520/2010      Efectos del desajuste educativo sobre el rendimiento privado de la educación: un análisis para el  
caso español (1995-2006)  
Inés P. Murillo, Marta Rahona y M<sup>a</sup> del Mar Salinas
- 521/2010      Structural breaks and real convergence in opec countries  
Juncal Cuñado
- 522/2010      Human Capital, Geographical location and Policy Implications: The case of Romania  
Jesús López-Rodríguez□, Andres Faiña y Bolea Cosmin-Gabriel



- 523/2010 Organizational unlearning context fostering learning for customer capital through time: lessons from SMEs in the telecommunications industry  
Anthony K. P. Wensley, Antonio Leal-Millán, Gabriel Cepeda-Carrión & Juan Gabriel Cegarra-Navarro
- 524/2010 The governance threshold in international trade flows  
Marta Felis-Rota
- 525/2010 The intensive and extensive margins of trade decomposing exports growth differences across Spanish regions  
Asier Minondo Uribe-Etxeberria & Francisco Requena Silvente
- 526/2010 Why do firms locate r&d outsourcing agreements offshore? the role of ownership, location, and externalization advantages  
Andrea Martínez-Noya, Esteban García-Canal & Mauro f. Guillén
- 527/2010 Corporate Taxation and the Productivity and Investment Performance of Heterogeneous Firms: Evidence from OECD Firm-Level Data  
Norman Gemmell, Richard Kneller, Ismael Sanz & José Félix Sanz-Sanz
- 528/2010 Modelling Personal Income Taxation in Spain: Revenue Elasticities and Regional Comparisons  
John Creedy & José Félix Sanz-Sanz
- 529/2010 Mind the Remoteness!. Income disparities across Japanese Prefectures  
Jesús López-Rodríguez□, Daisuke Nakamura
- 530/2010 El nuevo sistema de financiación autonómica: descripción, estimación empírica y evaluación  
Antoni Zabalza y Julio López Laborda
- 531/2010 Markups, bargaining power and offshoring: an empirical assessment  
Lourdes Moreno & Diego Rodríguez
- 532/2010 The snp-dcc model: a new methodology for risk management and forecasting  
Esther B. Del Brio, Trino-Manuel Níguez & Javier Perote
- 533/2010 El uso del cuadro de mando integral y del presupuesto en la gestión estratégica de los hospitales públicos  
David Naranjo Gil
- 534/2010 Análisis de la efectividad de las prácticas de trabajo de alta implicación en las fábricas españolas  
Daniel Vázquez-Bustelo□□ y Lucía Avella Camarero
- 535/2010 Energía, innovación y transporte: la electrificación de los tranvías en España, 1896-1935  
Alberte Martínez López
- 536/2010 La ciudad como negocio: gas y empresa en una región española, Galicia 1850-1936  
Alberte Martínez López y Jesús Mirás Araujo
- 537/2010 To anticipate or not to anticipate? A comparative analysis of opportunistic early elections and incumbents' economic performance  
Pedro Riera Sagrera
- 538/2010 The impact of oil shocks on the Spanish economy  
Ana Gómez-Loscos, Antonio Montañés & María Dolores Gadea

- 539/2010 The efficiency of public and publicly-subsidized high schools in Spain. evidence from pisa-2006  
María Jesús Mancebón, Jorge Calero, Álvaro Choi & Domingo P. Ximénez-de-Embún
- 540/2010 Regulation as a way to force innovation: the biodiesel case  
Jordi Perdigueró & Juan Luis Jiménez
- 541/2010 Pricing strategies of Spanish network carrier  
Xavier Fageda, Juan Luis Jiménez & Jordi Perdigueró
- 542/2010 Papel del posicionamiento del distribuidor en la relación entre la marca de distribuidor y lealtad al establecimiento comercial  
Oscar González-Benito y Mercedes Martos-Partal
- 543/2010 How Bank Market Concentration, Regulation, and Institutions Shape the Real Effects of Banking Crises  
Ana I. Fernández, Francisco González & Nuria Suárez
- 544/2010 Una estimación del comercio interregional trimestral de bienes en España mediante técnicas de interpolación temporal  
Nuria Gallego López, Carlos Llano Verduras y Julián Pérez García
- 545/2010 Puerto, empresas y ciudad: una aproximación histórica al caso de Las Palmas de Gran Canaria  
Miguel Suárez, Juan Luis Jiménez y Daniel Castillo
- 546/2010 Multinationals in the motor vehicles industry: a general equilibrium analysis for a transition economy  
Concepción Latorre & Antonio G. Gómez-Plana
- 547/2010 Core/periphery scientific collaboration networks among very similar researchers  
Antoni Rubí-Barceló
- 548/2010 Basic R&D in vertical markets  
Miguel González-Maestre & Luis M. Granero
- 549/2010 Factores condicionantes de la presión fiscal de las entidades de crédito españolas, ¿existen diferencias entre bancos y cajas de ahorros?  
Ana Rosa Fonseca Díaz, Elena Fernández Rodríguez y Antonio Martínez Arias
- 550/2010 Analyzing an absorptive capacity: Unlearning context and Information System Capabilities as catalysts for innovativeness  
Gabriel Cepeda-Carrión, Juan Gabriel Cegarra-Navarro & Daniel Jimenez-Jimenez
- 551/2010 The resolution of banking crises and market discipline: international evidence  
Elena Cubillas, Ana Rosa Fonseca & Francisco González
- 552/2010 A strategic approach to network value in information markets  
Lucio Fuentelsaz, Elisabet Garrido & Juan Pablo Maicas
- 553/2010 Accounting for the time pattern of remittances in the Spanish context  
Alfonso Echazarra
- 554/2010 How to design franchise contracts: the role of contractual hazards and experience  
Vanesa Solis-Rodriguez & Manuel Gonzalez-Diaz

- 555/2010 Una teoría integradora de la función de producción al rendimiento empresarial  
Javier González Benito
- 556/2010 Height and economic development in Spain, 1850-1958  
Ramón María-Dolores & José Miguel Martínez-Carrión
- 557/2010 Why do entrepreneurs use franchising as a financial tool? An agency explanation  
Manuel González-Díaz & Vanesa Solís-Rodríguez
- 558/2010 Explanatory Factors of Urban Water Leakage Rates in Southern Spain  
Francisco González-Gómez, Roberto Martínez-Espiñeira, Maria A. García-Valiñas & Miguel Á. García Rubio
- 559/2010 Los rankings internacionales de las instituciones de educación superior y las clasificaciones universitarias en España: visión panorámica y prospectiva de futuro.  
Carmen Pérez-Esparrells y José M<sup>a</sup> Gómez-Sancho.
- 560/2010 Análisis de los determinantes de la transparencia fiscal: Evidencia empírica para los municipios catalanes  
Alejandro Esteller Moré y José Polo Otero
- 561/2010 Diversidad lingüística e inversión exterior: el papel de las barreras lingüísticas en los procesos de adquisición internacional  
Cristina López Duarte y Marta M<sup>a</sup> Vidal Suárez
- 562/2010 Costes y beneficios de la competencia fiscal en la Unión Europea y en la España de las autonomías  
José M<sup>a</sup> Cantos, Agustín García Rico, M<sup>a</sup> Gabriela Lagos Rodríguez y Raquel Álamo Cerrillo
- 563/2010 Customer base management and profitability in information technology industries  
Juan Pablo Maicas y Francisco Javier Sese
- 564/2010 Expansión internacional y distancia cultural: distintas aproximaciones —hofstede, schwartz, globe  
Cristina López Duarte y Marta M<sup>a</sup> Vidal Suárez
- 565/2010 Economies of scale and scope in service firms with demand uncertainty: An application to a Spanish port  
Beatriz Tovar & Alan Wall
- 566/2010 Fiscalidad y elección entre renta vitalicia y capital único por los inversores en planes de pensiones: el caso de España  
Félix Domínguez Barrero y Julio López Laborda
- 567/2010 Did the cooperative start life as a joint-stock company? Business law and cooperatives in Spain, 1869–1931  
Timothy W. Guinnan & Susana Martínez-Rodríguez
- 568/2010 Predicting bankruptcy using neural networks in the current financial crisis: a study for US commercial banks  
Félix J. López-Iturriaga, Óscar López-de-Foronda & Iván Pastor Sanz
- 569/2010 Financiación de los cuidados de larga duración en España  
Raúl del Pozo Rubio y Francisco Escribano Sotos

- 570/2010 Is the Border Effect an Artefact of Geographic Aggregation?  
Carlos Llano-Verduras, Asier Minondo-Urbe & Francisco Requena-Silvente
- 571/2010 Notes on using the hidden asset or the contribution asset to compile the actuarial balance for pay-as-you-go pension systems  
Carlos Vidal-Meliá & María del Carmen Boado-Penas
- 572/2010 The Real Effects of Banking Crises: Finance or Asset Allocation Effects? Some International Evidence  
Ana I. Fernández, Francisco González & Nuria Suárez Carlos
- 573/2010 Endogenous mergers of complements with mixed bundling  
Ricardo Flores-Fillol & Rafael Moner-Colonques
- 574/2010 Redistributive Conflicts and Preferences for Tax Schemes in Europe  
Antonio M. Jaime-Castillo & Jose L. Saez-Lozano
- 575/2010 Spanish emigration and the setting-up of a great company in Mexico: bimbo, 1903-2008  
Javier Moreno Lázaro
- 576/2010 Mantenimiento temporal de la equidad horizontal en el sistema de financiación autonómica  
Julio López Laborda y Antoni Zabalza
- 577/2010 Sobreeducación, Educación no formal y Salarios: Evidencia para España  
Sandra Nieto y Raúl Ramos
- 578/2010 Dependencia y empleo: un análisis empírico con la encuesta de discapacidades y atención a la dependencia (edad) 2008.  
David Cantarero-Prieto y Patricia Moreno-Mencia
- 579/2011 Environment and happiness: new evidence for Spain  
Juncal Cuñado & Fernando Pérez de Gracia
- 580/2011 Aanalysis of emerging barriers for e-learning models. a case of study  
Nuria Calvo & Paolo Rungo
- 581/2011 Unemployment, cycle and gender  
Amado Peiró, Jorge Belaire-Franch, & Maria Teresa Gonzalo
- 582/2011 An Analytical Regions Proposal for the Study of Labour Markets: An Evaluation for the Spanish Territory  
Ana Viñuela Jiménez & Fernando Rubiera Morollón
- 583/2011 The Efficiency of Performance-based-fee Funds  
Ana C. Díaz-Mendoza, Germán López-Espinosa & Miguel A. Martínez-Sedano
- 584/2011 Green and good?. The investment performance of US environmental mutual funds  
Francisco J. Climent-Diranzo & Pilar Soriano-Felipe
- 585/2011 El fracaso de Copenhague desde la teoría de juegos.  
Yolanda Fernández Fernández, M<sup>a</sup> Ángeles Fernández López y Blanca Olmedillas Blanco
- 586/2011 Tie me up, tie me down! the interplay of the unemployment compensation system, fixed-term contracts and rehiring  
José M. Arranz & Carlos García-Serrano

- 587/2011 Corporate social performance, innovation intensity and their impacts on financial performance: evidence from lending decisions  
Andrés Guiral
- 588/2011 Assessment of the programme of measures for coastal lagoon environmental restoration using cost-benefit analysis.  
José Miguel Martínez Paz & Ángel Perni Llorente
- 589/2011 Illicit drug use and labour force participation: a simultaneous equations approach  
Berta Rivera, Bruno Casal, Luis Currais & Paolo Rungo
- 590/2011 Influencia de la propiedad y el control en la puesta en práctica de la rsc en las grandes empresas españolas  
José-Luis Godos-Díez, Roberto Fernández-Gago y Laura Cabeza-García
- 591/2011 Ownership, incentives and hospitals  
Xavier Fageda & Eva Fiz
- 592/2011 La liberalización del ferrocarril de mercancías en europa: ¿éxito o fracaso?  
Daniel Albalade del Sol, Maria Lluïsa Sort García y Universitat de Barcelona
- 593/2011 Do nonreciprocal preference regimes increase exports?  
Salvador Gil-Pareja, Rafael Llorca-Vivero & José Antonio Martínez-Serrano
- 594/2011 Towards a dynamic analysis of multiple-store shopping: evidence from Spanish panel data  
Noemí Martínez-Caraballo, Manuel Salvador, Carmen Berné & Pilar Gargallo
- 595/2011 Base imponible y neutralidad del impuesto de sociedades: alternativas y experiencias  
Lourdes Jerez Barroso
- 596/2011 Cambio técnico y modelo de negocio: las compañías de transporte urbano en España, 1871-1989  
Alberte Martínez López
- 597/2011 A modified dickey-fuller procedure to test for stationarity  
Antonio Aznar, María-Isabel Ayuda
- 598/2011 Entorno institucional, estructura de propiedad e inversión en I+D: Un análisis internacional  
Félix J. López Iturriaga y Emilio J. López Millán
- 599/2011 Factores competitivos y oferta potencial del sector lechero en Navarra  
Valero L. Casanovas Oliva y Ana M. Aldanondo Ochoa
- 600/2011 Política aeroportuaria y su impacto sobre la calidad percibida de los aeropuertos  
Juan Luis Jiménez y Ancor Suárez
- 601/2011 Regímenes de tipo de cambio y crecimiento económico en países en desarrollo  
Elena Lasarte Navamuel y José Luis Pérez Rivero
- 602/2011 La supervivencia en las empresas de alta tecnología españolas: análisis del sector investigación y desarrollo  
Evangelina Baltar Salgado, Sara Fernández López, Isabel Neira Gómez y Milagros Vivel Búa
- 603/2011 Análisis económico y de rentabilidad del sistema financiero español, por tipo de entidades y tamaño, después de cuatro años de crisis y ante los retos de la reestructuración financiera  
Salvador Climent Serrano

- 604/2011 Does competition affect the price of water services? Evidence from Spain  
Germà Bel, Francisco González-Gómez & Andrés J Picazo-Tadeo
- 605/2011 The Effects of Remoteness in Japanese Educational Levels  
Jesús López-Rodríguez & Daisuke Nakamura
- 606/2011 The money market under information asymmetries and imperfectly competitive loan and deposit markets  
Aday Hernández
- 607/2011 The effects of airline and high speed train integration  
M. Pilar Socorro & M. Fernanda Vicens
- 608/2011 Consecuencias de la imbricación de los clientes en la dirección medioambiental: un análisis empírico  
Jesús Ángel del Brío González, Esteban Fernández Sánchez y Beatriz Junquera Cimadevilla
- 609/2011 Revenue autonomy and regional growth: an analysis for the 25 year-process of fiscal decentralisation in Spain  
Ramiro Gil-Serrate, Julio López-Laborda & Jesús Mur
- 610/2011 The accessibility to employment offices in the Spanish labor market: Implications in terms of registered unemployment  
Patricia Suárez, Matías Mayor & Begoña Cueto