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INDICATORS OF EMPLOYMENT DISCRIMINATION AT PROVINCIAL LEVEL AND THEIR USE FOR PREVENTING INTERGROUP SOCIAL CONFLICT

Álvaro Morcillo Espina
University of Navarra, Navarra Center for International Development, Pamplona, Spain

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ABSTRACT

This article starts from the conception of unemployment as a potential trigger factor for social tensions that could result in competition and conflict depending on other environmental conditions. From this premise, we analyze the labour market in Spain during the years 2008 and 2009, differentiating between two groups, national and economic migrants. Using the Labour Force Survey (LFS), we focus on the analysis at a provincial level to develop indicators and indices to help classify the provinces according to four ideal theoretical models that combine the national and immigrant unemployment levels with possible strategies for competition. The result is an original use of the LFS that provides new information on the situation of labour market at the provincial level and how it is changing. This information may be helpful in decision-making and public policy.

Keywords: Labour Force Survey (LFS), immigration, unemployment, social conflict, indicators, provinces.
JEL Classification: A1, J6, J7.

Corresponding author: Álvaro Morcillo Espina
University of Navarra
Navarra Center for International Development
E-31080 Pamplona, Spain

Email: alvaromorcillo@unav.es

Introduction

Competition for resources is a major cause of conflict between individuals and groups (Esses et al. 1998). In the current context of economic crisis, there is a resource that is particularly relevant because of its scarcity and because it is irreplaceable as a whole: jobs. The lack of employment is reflected in the existence of a population that seeks employment and wants to work but cannot find where. Statistically this population is defined as unemployed.

For any government the existence of a high percentage of unemployed is a serious economic and social problem that takes its toll in the political arena. When unemployment is not reduced enough in periods of economic growth then we have structural unemployment which depends less on the evolution of the economy, but on the labour market characteristics (flexibility, union wage policies, etc.) (Termes 1999).

The lack of employment and the existence of a large unemployed population can become a trigger for social conflict, which erupts when there is a previous state of extreme tension. Subsequently a trigger is necessary to release those energies and make the conflict come to the surface (Munduate and Martínez 1994).

The increased tension is directly related to the importance of the resources for which the parties are competing and related to the means that each party is willing to use to achieve their goals. The tension also depends on the alternatives to that resource. The fact is that since 2008, for Spaniards the main problem in Spain is "unemployment"

(Table 1) followed at some distance by "problems of an economic nature". "Terrorism, ETA", "housing" or "immigration" are less important.

[Insert Table 1 about here]

When in 2002, people were asked about the three main problems (Table 2) in the country, the Spanish expressed the opinion that the three main problems were "unemployment", "terrorism, ETA" and "insecurity." In fourth place was "immigration". From that year until 2010 the opinion of Spaniards has varied according to various events. However, there is a clear tendency to see "unemployment" as one of the main problems of the country, ranking first in all these years except after the attack of 11-M (2004), when "terrorism, ETA" took the top spot.

[Insert Table 2 about here]

Unemployment has a strong structural component in Spain. Labour market characteristics have led to a relatively high unemployment rate even in periods of economic growth. At the same time, another feature of the Spanish economy is the co-existence of high unemployment with a high percentage of population working in the informal economy. In Spain it is estimated that the underground economy accounts for 20% of the GDP (Anghel and Vázquez 2010).

Work that is supported by an employment contract has traditionally been considered "primary source of income and status for individuals" (Veira and Muñoz 2004). Although this conception may evolve according to the type of society, work as a

primary source of income, is key to people's lives. The lack of income because of unemployment can be balanced by systems of social protection, unemployment benefits, special assistance, pensions, or through informal networks (family, friends, neighbors, NGO's); these do not usually provide financial income, but provide material cooperation to cover basic needs (food and lodging).

The tension rises when there are no earnings or work opportunities. This happens when unemployment assistance runs out; when too many people depend on those incomes and social institutions (Caritas, Red Cross, NGO's) are not sufficient to meet everyday needs. At present a high percentage of the population living in Spain finds itself in this situation. In these circumstances people often find more help from informal networks, especially family, friends and neighbors. On the other hand, immigrants, depending on how long they have resided in Spain, are at risk of social exclusion because their families have remained in their country of origin and they do not have enough friends or acquaintances that can help them in the difficult circumstances they face.

Without being able to consider all the situations which thousands of people may be facing in these years of economic crisis, the truth is that both the Spanish unemployment rate and immigrant unemployment rate are very high but with the difference that the immigrant unemployment rate is nearly double that of the Spanish one in some areas.

At the beginning of the economic crisis around the year 2007, there were voices that raised alarm about what might happen if immigrants became unemployed. There were speculations about the possible social conflicts that could arise; about the rise of racism

and xenophobia in the coming years, etc. However, three years later, almost four, none of these fears has come true. Overall, coexistence between the Spanish and immigrants can be defined as exemplary. Institutions and the media, along with political parties, have established a tacit agreement not to blame immigrants for the economic crisis. In most parts of the country there has been a discreet silence on this issue, although there are some exceptional cases such as Vic, a town in Catalonia where some politicians have made statements against immigration and have proposed xenophobic and racist measures.

This consensus has not prevented the government from tightening the control of illegal immigration and from encouraging immigrants to return to their countries. But locally severe cases of conflict between immigrants and Spanish have been isolated and rare. Situations such as El Ejido of ten years ago, described as one of the most important xenophobic events in EU, have not been repeated (Checa et al. 2010). The last ethnic conflict with some impact in the media took place in Palma de Mallorca, in the district of Son Gotleu, between gypsies and Nigerians, but this occurred within a context of protracted social degradation that had presaged such events years ago (Vecina 2007).

This study does not aim to generate further alarm, but in El Ejido, there were three main factors of tension generation that we should remember, although the eventual spark had to do with the death of three people at the hands of a Moroccan. According to Checa et al. (2010) these factors were: 1) economic ones: on one hand the plight of the fruit and vegetable market and the aggressive competition of Moroccan products, and on the other side, the prejudice towards North African workers, 2) residential problems and arrival of Moroccans to urban areas creating a sense of invasion among nationals and 3)

the role of the media that fuelled the anti-immigrant discourse to which local leaders signed up.

Near the end of 2010, the economic crisis has not abated. Net job creation will take several years according to some estimates. Public support for slum rehabilitation to improve social services and to promote employment will be increasingly smaller since municipalities have financial problems. At the same time unemployment benefit for immigrants runs out sooner than it does for nationals because the contribution period is shorter. This means that the good relations between nationals and immigrants in these years of crisis do not prevent more serious underlying problems of coexistence from arising in the form of intergroup conflicts[1]. Unemployment among immigrants and their dependence on sectors which are highly sensitive to economic fluctuations is a concern to major international organizations (OECD 2010).

In this paper we focus on analyzing one of the many factors that increase the tension in society and that give rise to competition between individuals and sometimes between different and well-defined groups, such as nationals and immigrants. This factor is unemployment, measured at the provincial level and through official data. The analysis we carry out includes a set of hypotheses about attitudes among groups competing for jobs, defined as a scarce resource and not easily substituted by other mechanisms. The objective of this analysis is to devise indicators that might become useful for the public authorities and agencies when deciding to direct their resources towards those areas (provinces), where the labour market has features conducive to the generation of social conflicts.

[1] Currently clashes are taking place between police and youth groups from Muslim majority districts in Melilla. They are complaining about the local employment plans. These are neighbourhoods with high unemployment and school failure.

Background

To date, comparative studies about the labour market situation in Spain between Spaniards and the "economic migrants" (Carrasco 1999) have followed a similar methodology, comparing three specific aspects of the labour market organization: age structure, employed and unemployed (Cuadrado et al. 2007; Izquierdo 2003; Pajares 2009).

The most prolific statistic source for this type of analysis is the Labour Force Survey (LFS). It is not the only source of data on the labour market, since the Bulletin of Labour Statistics of the Social Security (BEL) or municipal census data, or periodic reports of some migration observatories as the Permanent Observatory of Immigration or Migration Andalusian Permanent Observatory (MAPO), also provide interesting data[2].

Another common feature in most of the studies which exploit micro-data files of the LFS is the level of disaggregation in the variables, because, when it comes to comparing immigrants and Spaniards, they usually take into account only national and regional levels, disregarding the provincial level.

Until 2005, this procedure had its rationale in the methodology of the LFS, which did not take into account the current reality of migration in the sample (Garrido and Toharia 2004); therefore, a provincial level approach lacked sufficient reliability at that time. It is from 2005 when several changes are introduced in the LFS that, in principle, have

[2] Currently these observatories often work with microdata INE, especially the LFS.

brought results closer to reality, but always bearing in mind the difficulty of studying a foreign population that tends to be invisible.

Thanks to these recent changes and improvements in the provincial estimation of the foreign population, the LFS offers more reliable data for the study of immigration and the employment status of foreigners. Without the assurance that these advances are definitive, or that the results of this paper are undisputed, we felt that it was now the time to present some results from a broader analysis of the LFS at provincial level.

The interest of exploiting the micro-data file of the LFS at the provincial level is that it is the lowest allowed level of the LFS and therefore it is the one step closer to what we could call the contact and friction areas (Zapata Barrero 2004)[3], where there is real interaction both between Spaniards and foreigners with institutions and between each other. It is in these real and concrete spaces where we can see the uneven impact of the economic crisis and where we can check for any type of employment discrimination.

Laboral discrimination. Scenarios.

According to Adnett (1996), laboral discrimination, -in times of crisis marked by the increased supply of labour- may be reflected in three types of discrimination that are motivated by causes extrinsic to economics (in our study the main extrinsic cause would be nationality): wage discrimination, when someone earns less for reasons unrelated to productivity; employment discrimination, when some groups (ethnic groups for

[3] Zapata-Barrero (2004) uses the expression *areas of contact and conflict* to refer to abstract scopes where there is consensus or discussion in the relationship with the public institutions. But here the term refers to physical and concrete spaces as the neighbourhood, street, park, workplace, school, etc.

instance) have unemployment rates significantly higher than others; or job discrimination when, for non-economic reasons, some groups are denied access to certain jobs.

In this article we will focus on the second type of discrimination. To find out if employment discrimination exists or not, we need to know the unemployment rates of foreigners and nationals. Data at the provincial level is the main contribution to this article, along with the development of scales with each of the indicators that were chosen to assess whether there is discrimination in the provincial distribution of native and foreign unemployment.

With the indicators and indices developed we can distinguish between four *ideal types* of "*labour cohabitation*" for natives and foreigners as well as the possible consequences for social order in an environment where competitiveness reigns over cooperation

The possibility of social conflicts that disturb the social order in times of job destruction is not new, but the most dangerous of these situations is that there will not be conflict between the unemployed and institutions (government, employers, etc.), but among the unemployed themselves, between the foreign and national unemployed; giving rise to both destruction of the achieved coexistence so far and to complex problems such as xenophobia or racism.

[Insert Table 3 about here]

Case 1. The unemployment rate for nationals is very high and that of immigrants is significantly lower. A situation of this kind would generate feelings of unrest in the native population in a time of economic crisis when foreigners keep their jobs while natives are dismissed. The result is a process of rejection of immigrants, who are blamed for job insecurity and lack of employment. Immigrants are seen as direct competitors in the labour market and also feelings of xenophobia and racism may arise. In principle, situations of insecurity and crime need not occur because of the native employment crisis, since they (nationals) can meet their needs thanks to a solid network both public and private, which is more efficient than the social network of immigrants who have recently arrived to the country.

Case 2. The unemployment rate for nationals is low and high for immigrants. In this situation we have a native population with a normal life and high levels of welfare, while the immigrant population remains marginalized from the labour market for various reasons. In this case, in a context with a proportionally high immigrant population, high unemployment of this population would lead to processes of social marginalization and exclusion, intensification of the differences between rich and poor (natives and foreigners), frustration because of not having achieved the goals or objectives sought by migration, a search for other ways of living outside the institutionalized channels: precarious employment in the informal economy, illegal activities (drugs, theft, prostitution ...), etc. Foreigners do not have primary networks as solid as in their country of origin, since they have not yet been able to develop them due to the short length of stay. Furthermore, access to public services for immigrants depends on their situation and the time they have worked legally in the country. The effect of this process is a climate of insecurity that strengthens the association between

crime and immigration without delving into the causes of this relationship; this stigmatizes the immigrant and creates a vicious cycle which starts with the social marginalization that promotes illegal activities that ends in an insecure atmosphere, giving rise to racist and xenophobic acts which close the cycle and perpetuate the marginalization. This cycle keeps immigrants outside the legal networks of the labour market.

Case 3. The worst theoretical case is one in which unemployment of nationals and immigrants are both high. It tallies with a time of acute economic crisis, in which the labour market imbalance occurs equally in both population sectors. In this situation there are a combination of negative effects of the previous two cases: on the one hand a feeling of rejection towards immigrants emerges in the national population, because they are blamed for the lack of employment and they are considered to be a heavy burden for the welfare state, since their contribution to the social security coffers ends while they still collect unemployment benefits. It seeds the doubt about whether they are really "useful" for the country's economic growth. For the immigrant population, the situation is like the previous case: while they receive unemployment aid they can survive with some dignity, but when this aid is abolished and informal supports are not sufficient to overcome the effects of the crisis, is likely that many people will end up in situations of social exclusion or marginalization, which may lead them to the world of crime, whether drugs, prostitution or other activities outside the law. It is the most explosive combination because both populations are in constant tension. In areas or districts where both groups live together, conflict remains latent until a point that, once passed, releases all the contained energies in a violent and uncontrolled way.

Case 4. This last situation is presumably the most desirable: the existence of low unemployment rates for both immigrants and nationals, which would not be a perfect reflection of labour integration, but at least would be the first step to facilitate the integration of immigrants in society and to avoid serious social conflicts, since the most basic needs would be presumably covered, although there may be improvements and goals to be achieved in the labour arena.

These 4 models are simplifications of reality and therefore should not be interpreted strictly, since immigration is not homogeneous, there are different nationalities, many of them with strong support networks, even better developed than those of nationals. Immigrants, in turn, are characterized by greater mobility in the labour market, are less conditioned by a place and type of employment as nationals and therefore may seek other ways out of unemployment, including the black economy.

Moreover, the relationship between crime and immigration, as is well known, is not a causal relationship in which being an immigrant predetermines that someone will be a criminal. It presents the simplified situation of existential angst, of a lack of resources, of a struggle against poverty, and often resorting to means and ways of life that end up in marginalization and social exclusion. These paths are similar to those chosen by nationals in similar circumstances and with serious problems to progress in an institutionalized manner. (Tezanos 2007).

The main difference between nationals and immigrants, as mentioned before, is that in the case of nationals, the abilities to endure or to escape from this precarious situation are greater than in the case of immigrants, because of legal and social reasons, since

they (nationals) have more rights and their stay in the country does not depend on a work permit; as well as social ones, because networks both primary and secondary, are more comprehensive and effective.

Finally, it should be said that the indicators and indices related to unemployment are not the only determinants of the existence or not of social conflict, but certainly, in our opinion, they are the basis on which to begin building up other indicators and indices to supplement this information, either with indicators for educational levels, for real income, for occupation, for overcrowding housing levels, for origin, for subjective feelings of marginalization, etc.

The LFS and provincial level

As mentioned above, to date there have been a number of studies and statistical reports in which a closer level of analysis was missing to the reality of migration as it is lived from day to day. In this study we attempt to reduce this gap, but are not entirely successful, as unemployment data at the provincial level is still insufficient to shed light upon the reality of a neighbourhood or town, which is where people actually live and where tensions arise every day.

LFS designers have attempted to improve the representativeness of the survey in view of the demand for data on the foreign population and therefore in recent years the migration data that LFS provides have greatly improved. As LFS are surveys and not records, they includes error representation for some variables, especially at provincial

level. However, there are many provinces that allow a simple breakdown of some variables such as occupation or nationality.

Given the limitations of the LFS, we have made several recodifications for some variables to obtain the data presented here and which have served as a basis with which to define the indicators and indices that we believe are helpful to better understand the provincial status of immigrants.

We have chosen only 30 of the 52 Spanish provinces because the remaining provide very unreliable data, due mainly to the low percentage of foreigners in them and therefore to the small number of immigrants in the sample, which hampers any extrapolation to the real population. Among the 30 provinces selected according to the criteria described below, those with the highest proportion of foreigners (according to LFS), are those with the most reliable data. We say "according to LFS" because LFS estimates a percentage of foreigners for each province different from that provided by the Register of January 1, 2008. Since both sources have their pros and cons, we have decided to opt for the LFS data for all analysis, leaving for other research or studies, a comparison between these data and those provided by other sources such as the Bulletin of Labour Statistics (BLS), the Register, etc.

Finally, it is noteworthy that the autonomous cities of Ceuta and Melilla have been excluded from the list despite being in the initial count because of the bias that they introduce into the analysis and the demographic characteristics of their population.

Preliminary selection of the provinces

To create indicators and indices all the Spanish provinces were initially taken into account and the values obtained in the first quarter of 2009 from the LFS. The result left doubts about the representativeness of these indicators, since the LFS data for some provinces were unreliable and led to biases in the other values, weighted according to the provincial minimums and maximums. For this reason, it was decided to make a preliminary selection of the provinces according to the percentage of foreigners residing there. As data from the first quarter of the LFS 2009 and the Register of January 1, 2008 differed[4], we chose an average value that would bring together both the percentage of foreigners from the LFS and the Register, so that, as with other significance data, the percentage of "foreigners from Area 2"[5] which the LFS also contributed to and definitely referred to the type of foreigner in whom we were interested for the comparison.

Therefore, to make a first selection we choose those provinces whose average was higher ($X_{m,i}$), excluding Ceuta and Melilla because they introduce large deviations in the data set. We calculated the average value of each province by means of the following formula ($X_{m,i}$):

$$X_{m,i} = (P_i+E_i+E_{2,i})/3.$$

[4] This difference is not due simply to the temporal difference, but methodological issues inherent to each source. Census data from January 1, 2009, unavailable at the time of the study, also differ with the LFS in the first quarter of 2009.

[5] For adequate management of data, we have opted to recode the variable "nationality" (Spanish, Dual Nationality and Foreign) with the variable "region of foreign nationality", into a variable that shows 3 categories. In this article we compare categories 1 and 3:

1. Spanish (with or without dual nationality).
2. Foreigner from Area 1: EU-15 EU-25, Oceania, North America.
3. Foreigner from Area 2: Rest of Europe, Africa, Central America and Caribe, South America, Asia.

In the above formula, P_i is the percentage of total foreigners according to the Municipal Register of January 1, 2008 in each province (i), E_i is the percentage of total foreigners (from Area 1 and 2) [6] according to the first quarter of 2009 from the LFS in each province, and $E_{2,i}$ is the percentage of foreigners in Area 2 in each province according to the same source.

The 30 provinces with the highest value of $X_{m,i}$ are displayed in Table 4.

[Insert Table 4 about here]

Indicator 1

The first indicator that we have considered is the percentage of foreign population in Area 2 which the LFS estimates in each province for the first quarter of 2009 ($E_{2,i}$). The choice of this indicator is based on the interest in investigating into issues that may arise in the daily life of natives and foreigners, especially in marginal situations which are exacerbated by the current structural economic. The foreign population percentage must be significant in proportion to the total population to be able to produce situations of marginalization, social exclusion or social conflict among the foreign population or between foreigners and natives.

[6] As shown in Table 4, there is a significant difference between E_i y $E_{2,i}$ which is a bias in the choice of the provinces with high percentages of foreigners from Area 1. This is the case for example in Malaga, Alicante and Santa Cruz de Tenerife. We accept this bias because the overall population of Area 1 is reduced in the other provinces and although in these it is high, it is also is high in Area 2. Nor is this a matter that affects the outcome indicators and indices developed.

The indicator value for each province is the result of the weighting of the percentage of foreigners in Area 2 in the total provincial population. The method consists of a scale of 0 to 10, where 10 is matched with the maximum value of $E_{2,i}$ and 0 with the minimum value of $E_{2,i}$. The other values are obtained by the linear equation of these two points (x_1, y_1) and (x_2, y_2), where

$x_1 = 10$; $y_1 = \text{Max}(E_{2,i}) = 21.3$ (Value of Girona)

$x_2 = 0$; $y_2 = \text{Min}(E_{2,i}) = 5.3$ (Value of Cantabria).

We therefore have two points, among which are the other values. These points are the (10, 21.3) and (0, 5.3). The remaining values are calculated using the following equation:

$$I_{1,i} = [(E_{2,i} - y_2) * x_1] / (y_1 - y_2).$$

[Insert Table 5 about here]

Indicators 2 and 3

Indicators 2 and 3 are produced from unemployment rates of Spaniards and foreigners from Area 2 in each province respectively.

Values of the Indicator 2 ($I_{2,i}$) are obtained from the rate of unemployment of the Spaniards in the first quarter of the LFS 2009 ($TP_{Ñ09,i}$) and with the same procedure as with Indicator 1.

$x_1 = 10$; $y_1 = \text{Max}(TP_{Ñ09,i}) = 27.0$ (Value of Malaga),

$x_2 = 0$; $y_2 = \text{Min}(TP_{Ñ09,i}) = 7.1$ (Value of La Rioja).

The remaining values are calculated by the equation

$$I_{2,i} = [(TP_{Ñ09,i} - y_2) * x_1] / (y_1 - y_2).$$

[Insert Table 6 about here]

To obtain the values of Indicator 3 ($I_{3,i}$) we start from the unemployment rate of foreigners from the area 2, in the first quarter of the LFS 2009 ($TP_{X09,i}$) and we proceed the same way.

$x_1 = 10$; $y_1 = \text{Max}(TP_{X09,i}) = 47.2$ (Value of Las Palmas),

$x_2 = 0$; $y_2 = \text{Min}(TP_{X09,i}) = 22.0$ (Value of Burgos).

The other values of Indicator 3 are calculated with the equation

$$I_{3,i} = [(TP_{X09,i} - y_2) * x_1] / (y_1 - y_2).$$

From these operations we obtain the values[7] shown in Table 6.

[7] The provinces are not ranked according to the new indicators, but by the Indicator 1($I_{1,i}$) of Table 4.

Indicators 4 and 5

Indicators 4 and 5 try to complete the information of Indicators 2 and 3, but this time taking into account *the change* that occurs in a period of one year, from the first quarter of 2008 to the first quarter of 2009, according to LFS data. These indicators allow us to have a dynamic view of the crisis and not just the current situation.

To calculate these indicators we have used the unemployment rates for Spanish nationals and for foreigners in 2008 and 2009, displaying on the one hand, the increase of the native unemployment rate, and on the other hand, the increase of unemployment rate of foreigners from Area 2.

To obtain the values of the indicator 4 ($I_{4,i}$) we start from the increase in the unemployment rate of the Spanish between 2008 and 2009 ($\Delta\tilde{N}_{08\text{-}09}$) and these are weighted according to a scale that follows the same method described in previous indicators.

$$\Delta\tilde{N}_{08\text{-}09} = (TP_{\tilde{N}09,i} - TP_{\tilde{N}08,i}),$$

where $TP_{\tilde{N}09,i}$ is the unemployment rate of the natives in the first quarter of 2009 and $TP_{\tilde{N}08,i}$ that of 2008.

$$x_1 = 10; \qquad y_1 = Max(\Delta\tilde{N}_{08\text{-}09}),$$

$$x_2 = 0; \qquad y_2 = Min(\Delta\tilde{N}_{08\text{-}09}).$$

The remaining values are calculated by the equation

$$I_{4,i} = [(\Delta\tilde{N}_{08\text{-}09} - y_2) * x_1] / (y_1 - y_2).$$

To obtain the values of Indicator 5 ($I_{5,i}$) we start from the increase in the unemployment rate of the foreigners from Area 2 between 2008 and 2009 ($\Delta X_{08\text{-}09}$) and then these are weighted according to same type of scale.

$$\Delta X_{08\text{-}09} = (TP_{X09,i} - TP_{X08,i}),$$

where $TP_{X09,i}$ is the unemployment rate of foreigners from Area 2 in the first quarter of 2009 and $TP_{X08,i}$ that of 2008.

$$x_1 = 10; \qquad y_1 = \text{Max}(\Delta X_{08\text{-}09}),$$
$$x_2 = 0; \qquad y_2 = \text{Min}(\Delta X_{08\text{-}09}).$$

The other values are calculated by means of this equation

$$I_{5,i} = [(\Delta X_{08\text{-}09} - y_2) * x_1] / (y_1 - y_2).$$

In these operations we obtain the values[8] shown in Table 7.

[8] These values are not ranked by the new indicators, but by Table 4.

[Insert Table 7 about here]

INDICES

The construction of an index from indicators is always tempting for any researcher, since it is a challenge to reach the maximum synthesis of the results of a painstaking research, in order to be able to summarize a unique value with all the results. Even more tempting is the development of a scale or ranking, to allow us to classify and sort different categories according to the value of that index.

In our case, with great caution we have dared to develop indices that serve as the first sign of possible gaps that are opening at a provincial level between the employment situation of immigrants and the Spaniards. We say with caution because the developed index requires other elements to interpret correctly the wide variety of situations that we present here, and because we are dealing with a very sensitive matter, it is advisable to make a balanced and calm interpretation.

Finally, we should not forget that most of the results of this work come from the statistical analysis of the LFS, currently one of the best sources with which to approach this topic, but with a sampling method that overestimates or underestimates certain population groups (Pajares 2009) compared with other sources.

Index 1

[Insert Table 8 about here]

The index 1 (D_1), attempts to jointly draw indicators I_1, I_2 and I_3 into a single value. It is therefore a *static* index that does not take into account the evolution over time of the employment situation of our two groups, but aims to achieve data in a specific moment, in particular the first quarter of 2009.

The calculation of this index is based on the following formula

$$D_{1,i} = \sum I_{n,i} / 3$$

where $I_{n,i}$ is the value of indicators I_1, I_2 and I_3 for each province.

The simplicity of the index reflects the fact that there are no reasons of sufficient significance to calculate it using a more complex equation such as using a weighting function of the indicators I_1, I_2 and I_3.

Index 2

Index 2 (D_2) gives us an idea of the *intensity of change* experienced by the Spaniards and the immigrant population of each province[9] in relation to the labour market. Indicators I_1, I_2, I_3 and Index D_1 show a cut in time that corresponds to the first quarter of 2009. In the case that in the first quarter of 2009 a province had a high unemployment rate for Spaniards and for foreigners, the value of that data would take on a different meaning like the unemployment rate in both groups in an earlier year, in the first quarter of 2008. The ability of a population to adapt to a profound and rapid change is not the same as its ability to adapt to a process that has dragged on for several years or one that has been caused by a socio-economic structural situation.

Therefore, Index 2 is to unify and complete the *dynamic* indicator information, I_4 and I_5. The value of the index 2 (D_2) is obtained by a different process from the other indicators and indices and its values range between $-\infty$ and ∞, although they are modified in Table 9 to better express the sense of change and its intensity.

This index is calculated using Spanish and foreigner unemployment rates from Area 2, for both the first quarter of 2008 and 2009. Firstly, it calculates the difference of unemployment rates between 2009 and 2008, both Spanish and foreigner from Area 2. In order to relativize this value the 2008 unemployment rate is taken as a base and the annual increase is expressed as a percentage. The ratio (Foreigners/Spaniards) of these two values is the index 2:

[9] Index D_2 refers to each province (i), not to the set of them. D_2 is the same that $D_{2,i}$.

$$D_2 = \Delta X_{08\%} / \Delta \tilde{N}_{08\%},$$

where $\Delta X_{08\%}$ is the increase over 2008 of the unemployment rate of foreigners between the first quarter of 2008 and 2009, while $\Delta \tilde{N}_{08\%}$ is the same but for natives, each being calculated as follows:

$$\Delta X_{08\%} = (TP_{X09,i} - TP_{X08,i}) / TP_{X08,i} \text{ iff } TP_{X08,i} \neq 0;$$

being $TP_{X09,i}$ the unemployment rate of foreigners from Area 2 in the first quarter of 2009 and $TP_{X08,i}$ that of 2008;

$$\Delta \tilde{N}_{08\%} = (TP_{\tilde{N}09,i} - TP_{\tilde{N}08,i}) / TP_{\tilde{N}08,i} \text{ iff } TP_{\tilde{N}08,i} \neq 0;$$

being $TP_{\tilde{N}09,i}$ the unemployment rate of natives in the first quarter of 2009 and $TP_{\tilde{N}08,i}$ that of 2008.

Once the calculations have been made we can find the following values for each province:

$D_2 > 1$ $\quad$ $D_2 = \Delta X_{08\%} / \Delta \tilde{N}_{08\%}$:

If the unemployment rate for foreigners has grown faster than the unemployment rate for natives, the index will have a value greater than 1. A value of 2.5 or 3.1, has the following meaning: the unemployment for foreigners between 2008 and 2009 has grown 2.5 times (or 3.1 times) faster than Spanish unemployment, which indicates that

the crisis is being felt more sharply by the immigrant population and their labour situation is getting worse more quickly. Also this value could be greater than 1 if both increases were negative, a fact that would occur when the unemployment rates of both natives and foreigners were lower in the first quarter of 2009 than in the first quarter of 2008.

$D_2 = 1$ $D_2 = \Delta X_{08\%} / \Delta \tilde{N}_{08\%}$:

If the index is equal to 1 it means that the relative growth of the unemployment rates of the native and foreigners are equal, following the same trend; although in absolute values there are significant differences.This value tells us that to a certain extent the crisis is affecting equally Spaniards and foreigners, whether for better or for worse.

$D_2 = 0$ $D_2 = \Delta X_{08\%} / \Delta \tilde{N}_{08\%}$:

When the index is null, it means that the unemployment rate among foreigners has not changed between 2008 and 2009 in that province.

$D_2 = \infty$ $D_2 = \Delta X_{08\%} / \Delta \tilde{N}_{08\%}$:

The index is ∞ when the unemployment rate of Spaniards has not changed between 2008 and 2009.

$0 < D_2 < 1$ $D_2 = \Delta X_{08\%} / \Delta \tilde{N}_{08\%}$:

When the index is between 0 and 1, it means that $\Delta X_{08\%}$ is smaller than $\Delta \tilde{N}_{08\%}$ because unemployment is affecting Spaniards and foreigners differently, in this case native unemployment would be growing faster than the immigrant unemployment in that province.

To know what extent this growth is greater, we have chosen to calculate the inverse of these values and add the negative sign to highlight the opposite direction of this difference. For example, in the case of Granada, the increase in the unemployment rate of Spaniards between 2008 and 2009 was 70.6% compared to 2008, while that of foreigners was 12.6% with respect to foreign unemployment, 2008. In both cases, we must not forget that we are facing a rise in unemployment, but it appears from the data obtained that the most affected population is the native population. The indicator value would be 12.6/70.6, which is 0.18, a value more complicated to interpret than its inverse 1/0.18, which is 5.6. To avoid confusion and make clear the change, we add the negative sign, which reminds us that in the case of this province it is the Spaniards who suffer unemployment more intensely[10].

[Insert Table 9 about here]

[10] The interpretation of $D_{2,i}$ is simplified as follows according to the data in the Table: In Segovia the unemployment rate for foreigners has grown over the past year (from the first quarter of 2008 to the first quarter of 2009) eight times more (8.4) that the unemployment rate of the Spanish. In Tarragona the unemployment rates of immigrants and the Spaniards have increased over the past year at the same rate (1.0). In Granada, the unemployment rate of the Spaniards has grown nearly six times (-5.6) more than the unemployment rate of immigrants in the past year.

This case also presents another possibility - that we were faced with two negative increases, i.e., that the Spanish national and foreign unemployment had fallen between 2008 and 2009, but this decrease being higher for the native workers than for the foreigners. The end result, after taking the inverse of previous value, would not be negative because the foreign conditions would be worse than the Spanish, but with the nuance of being a favourable case since unemployment is reduced.

$$D_2 < 0 \qquad D_2 = \Delta X_{08\%} / \Delta \tilde{N}_{08\%.}$$

When the index is less than 0, it means that one of the two increments is negative, which would mean that the unemployment rate for either Spaniards or foreigners has fallen from the first quarter 2008 to the first quarter 2009, while the other group would have continued with a rise inthe unemployment rate.

Comments and conclusions

What is the situation for each of the analyzed provinces according to Table 3? As shown in Table 10, there are provinces in each of the models proposed. From all the provinces, we have focussed on those in which the percentage of immigrant population is among the highest in the country ($I_{1,\,i}$).

In Case 1, with a high native unemployment rate and a low rate for immigrants, Almeria and Toledo are the two most important provinces. In the case of Almeria its labour market structure has the result that immigrants and nationals do not compete for the

same jobs, since most immigrants work in agricultural greenhouses that is a poorly appreciated occupation among nationals because of its hard nature.

In Almeria, there are municipalities such as El Ejido and Roquetas with experiences of intergroup conflict. On the other hand, Toledo is a satellite city of Madrid, and its population depends largely on the economic development of the capital. The building slump has affected many nationals and immigrants, but the difference is that immigrants are often willing to move to other sectors and towards other lower skilled jobs.

In Case 2 Tarragona and Girona feature as two provinces where the unemployment rates of nationals remain low compared to that of immigrants. Girona is a rich province with considerable economic development and where the national population enjoys a good position in the labour market, while the immigrant population has been severely hit by the crisis in sectors such as construction and industry. In both provinces, there are boroughs and municipalities with very high percentages of immigrant population (Cambrils, Salt, Salou, etc). The economic dynamism of this area is a positive factor in reducing tensions in the long term.

In Case 3 there are four provinces with high rates of immigration. Baleares has several areas with a high immigrant population density and in depressed areas, presenting favourable conditions for social exclusion (Son Gotleu, for example). Murcia is a province with municipalities such as Lorca, where the percentage of immigrant population is one of the highest in Spain, and where the crisis is particularly affecting Ecuadorians working in agriculture.

This is provoking the beginning of a voluntary return process among Latin American immigrants in view of the lack of work. Alicante is the Spanish province with the municipalities with the highest percentage of immigrants from around the country. Within the capital there is an unequal spatial distribution of immigration. The neighbourhoods with the highest percentage of migrants (economic immigrants) are those of the northern area, defined by social services as "vulnerable zones" (Virgen del Remedio, Colonia Requena, Virgen del Carmen, Sidi Ifni, etc.). Las Palmas, together with the neighbourhoods of the capital and the municipalities of Arrecife and Santa Lucia de Tirajana, also are a sample of areas with high rates of economic immigrants and high unemployment.

In Case 4 we show the two provinces with the highest percentage of immigrants in Spain: Madrid and Barcelona. These two provinces stand out over the rest of the country due to their economic potential, their commerce, their industries and their service sector development. The percentage of immigrants is very high in some specific areas: neighbourhoods (Lavapies, El Raval, etc) or municipalities (Hospitalet, Leganés, etc). Although there are areas of higher unemployment, there is generally a great economic dynamism and the informal help networks are better structured.

The other provinces have also experienced increased levels of unemployment among nationals and immigrants. These areas had low levels of unemployment as their starting point, and were able to offer an alternative productive sector to those areas most affected by the crisis.

[Insert Table 10 about here]

In Table 11 we compare the indicators and indices developed. First we must reemphasize that they are estimated values for the provincial level and therefore they do not take into account the heterogeneity of each province and each municipality. In the case of Malaga for example, although the weight of the immigrant population is not particularly high, the concentration of this population in vulnerable neighbourhoods coexisting with national population, suggests policy makers should pay attention to this factor. The *static* indicators, I_1, I_2 and I_3, are those that best reflect the situation of each province. The other two *dynamic* indicators help to understand and measure the evolution of unemployment in order to detect situations that require urgent public intervention.

The scarcity of a resource such as employment clearly creates tensions between individuals and between affected groups. The urban element; the characteristics of the neighbourhood or city; infrastructures; the degree of overcrowding in which people live in houses; drug, prostitution and crime problems; are all hugely important factors in the evolution of events and tensions. We have proposed here a conflict of interest whose natural evolution is toward competition and a zero-sum approach. But we also have to give a chance for these situations to generate solutions through cooperation strategies where all sides win.

With respect to Table 11, which compares the two elaborated indices, it is noticeable that the 10 provinces with the highest D_1 are all Mediterranean provinces (except Barcelona) and islands. This is clear proof of how tourism and construction have gone

hand in hand in these years of economic growth and how the housing crisis has seriously affected all these areas.

Index D_2 is more difficult to interpret because it combines more variables. Many provinces have suffered job losses later, in recent years, because their main economic sector had fallen into recession a few years before. A previous crisis of housing and financial sectors was particularly relevant. They have kept a score higher or lower depending on their preceding situation, such as Segovia, which does not stand out for its high unemployment rate but for the growth of last year. On the other hand, in the two studied periods, many provinces had already reached their maximum levels of unemployment because of their strong dependence on the construction sector and therefore the data have not changed in the last year (e.g. Malaga).

[Insert Table 11 about here]

Finally, note that the changes in some provinces has been due to immigration, which stimulates the market, domestic consumption, and provides the necessary manpower in areas requiring more workers to maintain economic growth. One wonders if some of the provinces[11] that were less developed in the past, could have raised economic growth models to facilitate the reception of all immigrants who have lost their jobs in other provinces. The end result could be the revival of their economies with the arrival of human capital, which is a source of wealth.

[11] They are a few provinces that do not appear in this paper for failing to meet some conditions, including having a minimum percentage of immigrants.

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References

Adnett, N. (1996). *European Labour Market: Analysis and Policy*. London&New York: Longman.

Anghel, B., & Vázquez, P. (2010). Economía sumergida. Comparativa internacional y métodos de estimación. In VV.AA. (Ed.), *Implicaciones de la economía sumergida en España* (pp. 17-45). Madrid: Círculo de empresarios.

Carrasco, C. (1999). *Mercados de trabajo: los inmigrantes económicos*. Madrid: Observatorio Permanente de la Inmigración. Secretaría de Estado de Inmigración y Emigración. MTAS.

Cuadrado, J. R., Iglesias, C., & Llorente, R. (2007). *Inmigración y mercado de trabajo en España (1997-2005)*. Bilbao: Fundación BBVA.

Checa, J. C., Arjona, Á., & Checa, F. (2010). Actitudes recientes hacia los inmigrantes en El Ejido (España). *Convergencia, 17*(52), 125-154.

Esses, V., Jackson, L., & Armstrong, T. (1998). Intergroup competition and attitudes toward immigrants and immigration: An instrumental model of group conflict. *Journal of Social Issues*, *54*(4), 699-724.

Garrido, L., & Toharia, L. (2004). La situación laboral de los extranjeros según la Encuesta de Población Activa. *Economistas, 99*, 74-86.

Izquierdo, A. (2003). *Inmigración: Mercado de Trabajo y protección social en España*. Madrid: Consejo Económico y Social.

Munduate, L., & Martínez, J. M. (1994). *Conflicto y negociación*. Madrid: Eudema.

OECD (2010). *International Migration Outlook: SOPEMI 2010*: OECD.

Pajares, M. (2009). *Inmigración y mercado de trabajo. Informe 2009* (Vol. 21). Madrid: Ministerio de Trabajo e Inmigración. OPI.

Termes, R. (1999). Aproximación teórica al problema del desempleo en España. *Revista del Instituto de Estudios Económicos*(1-2), 517-534.

Tezanos, J. F. (2007). Nuevas tendencias migratorias y sus efectos sociales y culturales en los países de recepción: doce tésis sobre inmigración y exclusión social. *Reis, 117*, 11-34.

Vecina, C. (2007). La utopía de la interculturalidad. El caso del barrio de Son Gotleu. *Aposta, 33*(Abril-Junio).

Veira, J. L., & Muñoz, C. (2004). Valores y actitudes del trabajo en Europa Occidental. *RES. Revista Española de Sociología*(4), 51-66.

Zapata Barrero, R. (2004). *¿Existe una cultura de la acomodación en España? Inmigración y procesos de cambio en España a partir del 2000* . Barcelona: CIDOB.

Table 1. The main problem in Spain for Spaniards

	Percentage of population			
	2010	2009	2008	2007
Unemployment	59.6	52.9	26.5	16.9
Terrorism, ETA	1.3	1.8	10.4	18.9
Housing	0.4	1.0	8.8	12.8
Problems of an economic nature	18.0	26.4	25.7	6.9
Political class and political parties	6.0	2.9	3.2	5.6
Immigration	2.4	0.3	8.2	11.7

Source: CIS. Opinion Barometer April.

Table 2. Which are for you the three main problems in Spain?

	Percentage of population								
	2010	2009	2008	2007	2006	2005	2004	2003	2002
Unemployment	79.6	75.7	52.0	37.4	49.7	57.9	56.8	63.4	65.7
Insecurity	9.3	11.1	12.1	16.7	17.6	15.1	15.6	23.2	17.6
Terrorism, ETA	12.3	16.0	31.4	36.5	24.9	36.1	62.9	41.5	54.2
Health Service	3.2	4.8	4.8	5.0	4.8	5.9	5.3	5.8	4.2
Housing	6.5	13.1	25.6	32.5	24.6	27.0	22.0	12.8	4.9
Problems of an economic nature	46.8	54.1	48.2	18.0	19.5	16.4	9.9	11.1	8.6
Problems related to job quality	2.4	2.9	8.2	14.4	10.0	7.5	5.0	2.6	2.6
Corruption and fraud	9.4	1.3	0.4	1.7	2.3	0.8	0.4	0.3	2.4
Pensions (retirement, disabled,…)	2.5	1.9	3.3	3.9	2.7	3.3	4.4	3.7	3.5
Political class and parties	19.4	8.8	7.2	11.9	9.9	7.2	5.3	11.3	5.4
Wars	0.0	0.0	0.2	0.1	0.5	0.3	5.4	13.9	0.8
Racism	0.2	0.1	0.2	0.2	0.6	1.2	0.5	0.5	1.1
Immigration	13.3	16.1	26.1	31.9	29.8	29.5	11.8	8.7	13.3
Violence against women	2.6	2.0	3.3	2.7	2.8	2.7	6.1	1.0	2.6

Source: CIS. Opinion Barometer April.

Table 3. Ideal models and scenarios of intergroup conflict

Employment discrimination	Level of unemployment (rate)		Attitudes and feelings		Possible effects-competitive logic
	Native	Immigrant	Native	Immigrant	
Case 1	HIGH	LOW	Jobs for nationals-Immigrant as rival-go away!	Satisfaction and achieving the first goal	Feelings of rejection towards the immigrant xenophobia and racism
Case 2	LOW	HIGH	Fear-worry-insecurity	Frustration, unmet needs, discrimination	Marginalization, exclusion strengthening, rapprochement to crime
Case 3	HIGH	HIGH	Jobs for nationals-Immigrant as rival-go away!	Frustration, unmet needs, discrimination	Xenophobia and Racism. Alternative ways of meeting needs. Delinquency
Case 4	LOW	LOW	Immigrants help the development and welfare system	First goal achieved. New challenges for equality	Coexistence and acceptance of social order

Source: Own elaboration.

Table 4. Selection of Provinces

Provincial code (i) and province	P_i	E_i	$E_{2,i}$	$X_{m,i}$
17 Girona	20.4	24.7	21.3	22.1
04 Almería	19.7	25.1	20.7	21.8
07 Balears (Illes)	20.8	21.0	15.6	19.1
12 Castellón/Castelló	17.8	20.3	18.6	18.9
43 Tarragona	17.7	20.6	18.4	18.9
03 Alicante/Alacant	23.6	19.1	12.7	18.5
30 Murcia	15.8	17.0	16.4	16.4
28 Madrid	16.0	16.8	14.9	15.9
35 Palmas (Las)	13.3	17.7	14.2	15.1
25 Lleida	16.3	13.3	12.9	14.2
26 Rioja (La)	13.8	13.8	13.7	13.8
46 Valencia/València	11.6	15.4	14.1	13.7
08 Barcelona	13.8	13.1	11.3	12.7
19 Guadalajara	14.4	11.4	11.1	12.3
29 Málaga	16.0	12.2	8.2	12.1
45 Toledo	11.2	11.8	11.8	11.6
50 Zaragoza	11.9	11.6	11.0	11.5
40 Segovia	12.5	10.7	10.1	11.1
38 Santa Cruz de Tenerife	14.0	10.6	7.1	10.6
09 Burgos	8.6	11.6	11.0	10.4
44 Teruel	11.7	9.9	8.7	10.1
22 Huesca	10.8	10.3	9.0	10.1
02 Albacete	7.8	10.8	10.7	9.8
31 Navarra	10.5	10.0	8.0	9.5
18 Granada	6.5	10.7	9.2	8.8
42 Soria	8.9	8.2	8.1	8.4
16 Cuenca	11.3	6.5	6.5	8.1
13 Ciudad Real	7.9	7.2	6.8	7.3
05 Ávila	6.9	7.3	7.3	7.1
39 Cantabria	5.7	5.9	5.3	5.6

Source: Own elaboration based on data of INE.

Table 5. Indicator 1

Provincial code (i) and province	$E_{2,i}$	$I_{1,i}$
17 Girona	21.3	10.0
04 Almería	20.7	9.7
07 Balears (Illes)	15.6	6.4
12 Castellón/Castelló	18.6	8.3
43 Tarragona	18.4	8.2
03 Alicante/Alacant	12.7	4.7
30 Murcia	16.4	7.0
28 Madrid	14.9	6.0
35 Palmas (Las)	14.2	5.6
25 Lleida	12.9	4.8
26 Rioja (La)	13.7	5.2
46 Valencia/València	14.1	5.5
08 Barcelona	11.3	3.7
19 Guadalajara	11.1	3.6
29 Málaga	8.2	1.8
45 Toledo	11.8	4.1
50 Zaragoza	11.0	3.6
40 Segovia	10.1	3.0
38 Santa Cruz de Tenerife	7.1	1.1
09 Burgos	11.0	3.6
44 Teruel	8.7	2.1
22 Huesca	9.0	2.3
02 Albacete	10.7	3.4
31 Navarra	8.0	1.7
18 Granada	9.2	2.5
42 Soria	8.1	1.7
16 Cuenca	6.5	0.7
13 Ciudad Real	6.8	0.9
05 Ávila	7.3	1.2
39 Cantabria	5.3	0.0

Source: Own elaboration based on data of LFS.

Table 6. Indicators 2 and 3

Provincial code (i) and province	$TP_{Ñ09,i}$	$I_{2,i}$	$TP_{X09,i}$	$I_{3,i}$
17 Girona	11.3	2.1	39.7	7.0
04 Almería	22.6	7.8	29.1	2.8
07 Balears (Illes)	15.2	4.1	32.5	4.2
12 Castellón/Castelló	13.4	3.2	31.2	3.7
43 Tarragona	13.9	3.4	33.9	4.7
03 Alicante/Alacant	19.5	6.2	32.7	4.2
30 Murcia	15.4	4.2	32.1	4.0
28 Madrid	11.5	2.2	22.0	0.0
35 Palmas (Las)	22.9	8.0	47.2	10.0
25 Lleida	7.4	0.2	26.6	1.8
26 Rioja (La)	7.1	0.0	31.3	3.7
46 Valencia/València	14.5	3.7	28.8	2.7
08 Barcelona	13.1	3.0	30.6	3.4
19 Guadalajara	10.0	1.5	29.2	2.9
29 Málaga	27.0	10.0	34.4	4.9
45 Toledo	17.7	5.4	28.2	2.5
50 Zaragoza	10.3	1.6	31.5	3.8
40 Segovia	11.4	2.2	33.7	4.6
38 Santa Cruz de Tenerife	22.8	7.9	37.1	6.0
09 Burgos	8.5	0.7	22.0	0.0
44 Teruel	8.8	0.9	24.4	1.0
22 Huesca	8.0	0.5	26.5	1.8
02 Albacete	16.1	4.5	33.7	4.7
31 Navarra	7.9	0.4	26.9	1.9
18 Granada	23.8	8.4	24.7	1.1
42 Soria	10.1	1.5	26.5	1.8
16 Cuenca	13.6	3.3	35.4	5.3
13 Ciudad Real	16.3	4.6	43.9	8.7
05 Ávila	15.7	4.3	29.8	3.1
39 Cantabria	11.1	2.0	28.0	2.4

Source: Own elaboration based on data of LFS.

Table 7. Indicators 4 and 5

Provincial code (i) and province	$TP_{\tilde{N}08,i}$	$TP_{\tilde{N}09,i}$	$\Delta\tilde{N}_{08\text{-}09}$	$I_{4,i}$	$TP_{X08,i}$	$TP_{X09,i}$	$\Delta X_{08\text{-}09}$	$I_{5,i}$
17 Girona	5.0	11.3	6.3	4.8	26.0	39.7	13.7	4.1
04 Almería	11.4	22.6	11.2	9.7	17.0	29.1	12.2	3.5
07 Balears (Illes)	8.5	15.2	6.7	5.2	16.4	32.5	16.1	4.9
12 Castellón/Castelló	6.7	13.4	6.7	5.3	11.3	31.2	19.9	6.4
43 Tarragona	5.7	13.9	8.2	6.7	13.7	33.9	20.2	6.5
03 Alicante/Alacant	9.1	19.5	10.3	8.8	18.6	32.7	14.1	4.2
30 Murcia	8.0	15.4	7.3	5.8	15.3	32.1	16.8	5.2
28 Madrid	6.5	11.5	5.0	3.5	11.4	22.0	10.6	2.9
35 Palmas (Las)	14.4	22.9	8.6	7.1	17.5	47.2	29.7	10.0
25 Lleida	3.0	7.4	4.4	3.0	13.5	26.6	13.1	3.8
26 Rioja (La)	4.3	7.1	2.8	1.3	16.4	31.3	14.9	4.5
46 Valencia/València	7.7	14.5	6.8	5.3	15.8	28.8	12.9	3.8
08 Barcelona	6.5	13.1	6.6	5.1	13.1	30.6	17.5	5.5
19 Guadalajara	5.8	10.0	4.2	2.7	14.3	29.2	14.9	4.5
29 Málaga	15.5	27.0	11.5	10.0	17.3	34.4	17.1	5.3
45 Toledo	8.3	17.7	9.4	7.9	19.0	28.2	9.2	2.4
50 Zaragoza	5.0	10.3	5.3	3.8	13.2	31.5	18.3	5.8
40 Segovia	9.9	11.4	1.5	0.0	15.1	33.7	18.6	5.9
38 Santa Cruz de Tenerife	13.5	22.8	9.2	7.7	24.3	37.1	12.8	3.7
09 Burgos	6.7	8.5	1.8	0.3	16.4	22.0	5.6	1.1
44 Teruel	4.4	8.8	4.4	2.9	10.9	24.4	13.5	4.0
22 Huesca	4.9	8.0	3.2	1.7	10.3	26.5	16.3	5.0
02 Albacete	9.2	16.1	6.9	5.4	16.8	33.7	17.0	5.3
31 Navarra	4.9	7.9	3.0	1.5	15.0	26.9	11.9	3.4
18 Granada	14.0	23.8	9.9	8.3	22.0	24.7	2.8	0.0
42 Soria	3.9	10.1	6.1	4.7	11.9	26.5	14.6	4.4
16 Cuenca	6.1	13.6	7.5	6.0	12.7	35.4	22.6	7.4
13 Ciudad Real	9.4	16.3	6.8	5.3	22.6	43.9	21.3	6.9
05 Ávila	7.6	15.7	8.1	6.6	18.4	29.8	11.4	3.2
39 Cantabria	5.9	11.1	5.3	3.8	12.3	28.0	15.7	4.8

Source: Own elaboration based on data of LFS.

Table 8. Index 1

Provincial code (i) and province	$I_{1,i}$	$I_{2,i}$	$I_{3,i}$	$D_{1,i}$
35 Palmas (Las)	5.6	8.0	10.0	7.8
04 Almería	9.7	7.8	2.8	6.8
17 Girona	10.0	2.1	7.0	6.4
29 Málaga	1.8	10.0	4.9	5.6
43 Tarragona	8.2	3.4	4.7	5.5
12 Castellón/Castelló	8.3	3.2	3.7	5.1
30 Murcia	7.0	4.2	4.0	5.0
03 Alicante/Alacant	4.7	6.2	4.2	5.0
38 Santa Cruz de Tenerife	1.1	7.9	6.0	5.0
07 Balears (Illes)	6.4	4.1	4.2	4.9
13 Ciudad Real	0.9	4.6	8.7	4.8
02 Albacete	3.4	4.5	4.7	4.2
18 Granada	2.5	8.4	1.1	4.0
46 Valencia/València	5.5	3.7	2.7	4.0
45 Toledo	4.1	5.4	2.5	4.0
08 Barcelona	3.7	3.0	3.4	3.4
40 Segovia	3.0	2.2	4.6	3.3
16 Cuenca	0.7	3.3	5.3	3.1
50 Zaragoza	3.6	1.6	3.8	3.0
26 Rioja (La)	5.2	0.0	3.7	3.0
05 Ávila	1.2	4.3	3.1	2.9
28 Madrid	6.0	2.2	0.0	2.7
19 Guadalajara	3.6	1.5	2.9	2.7
25 Lleida	4.8	0.2	1.8	2.3
42 Soria	1.7	1.5	1.8	1.7
22 Huesca	2.3	0.5	1.8	1.5
39 Cantabria	0.0	2.0	2.4	1.5
09 Burgos	3.6	0.7	0.0	1.4
31 Navarra	1.7	0.4	1.9	1.4
44 Teruel	2.1	0.9	1.0	1.3

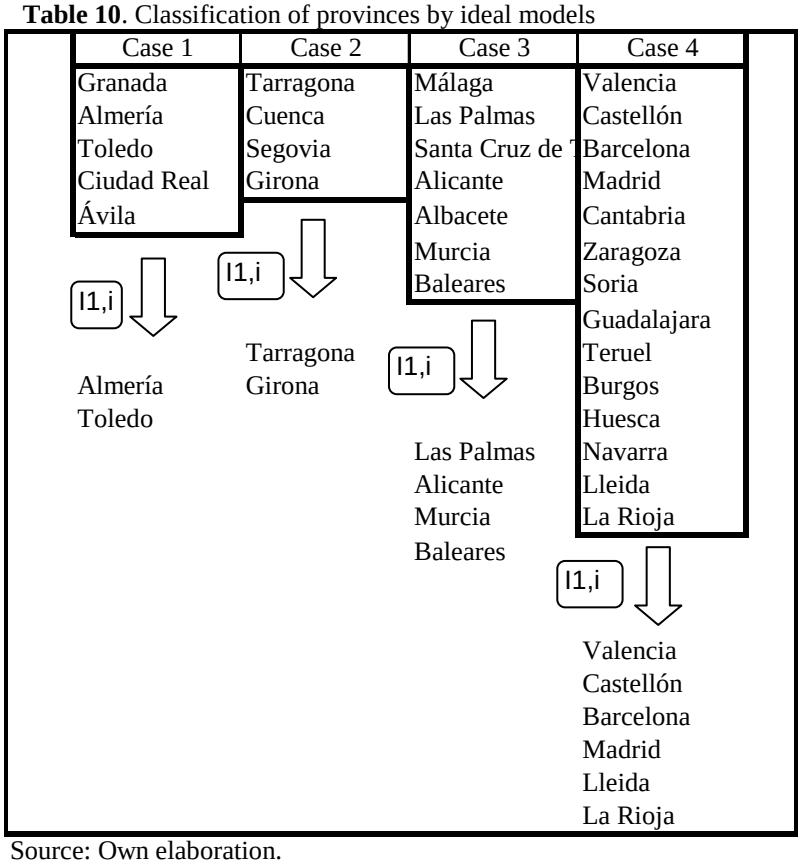
Source: Own elaboration based on data of LFS.

Table 9. Index 2

Provincial code (i) and province	$TP_{\tilde{N}08,i}$	$TP_{\tilde{N}09,i}$	$TP_{X08,i}$	$TP_{X09,i}$	$\Delta\tilde{N}_{08\,\%}$	$\Delta X_{08\,\%}$	$D_{2,i}$
17 Girona	5.0	11.3	26.0	39.7	124.9	52.9	-2.4
04 Almería	11.4	22.6	17.0	29.1	98.4	71.7	-1.4
07 Balears (Illes)	8.5	15.2	16.4	32.5	78.6	97.6	1.2
12 Castellón/Castelló	6.7	13.4	11.3	31.2	101.1	176.7	1.7
43 Tarragona	5.7	13.9	13.7	33.9	143.6	147.5	1.0
03 Alicante/Alacant	9.1	19.5	18.6	32.7	113.4	75.7	-1.5
30 Murcia	8.0	15.4	15.3	32.1	91.2	110.3	1.2
28 Madrid	6.5	11.5	11.4	22.0	76.4	93.2	1.2
35 Palmas (Las)	14.4	22.9	17.5	47.2	59.7	169.1	2.8
25 Lleida	3.0	7.4	13.5	26.6	147.1	97.0	-1.5
26 Rioja (La)	4.3	7.1	16.4	31.3	64.9	90.9	1.4
46 Valencia/València	7.7	14.5	15.8	28.8	87.7	81.6	-1.1
08 Barcelona	6.5	13.1	13.1	30.6	101.9	133.6	1.3
19 Guadalajara	5.8	10.0	14.3	29.2	71.2	103.9	1.5
29 Málaga	15.5	27.0	17.3	34.4	74.5	99.1	1.3
45 Toledo	8.3	17.7	19.0	28.2	113.0	48.6	-2.3
50 Zaragoza	5.0	10.3	13.2	31.5	105.6	138.7	1.3
40 Segovia	9.9	11.4	15.1	33.7	14.7	123.0	8.4
38 Santa Cruz de Tenerife	13.5	22.8	24.3	37.1	68.3	52.6	-1.3
09 Burgos	6.7	8.5	16.4	22.0	26.7	34.3	1.3
44 Teruel	4.4	8.8	10.9	24.4	99.3	123.9	1.2
22 Huesca	4.9	8.0	10.3	26.5	65.5	158.4	2.4
02 Albacete	9.2	16.1	16.8	33.7	75.2	101.3	1.3
31 Navarra	4.9	7.9	15.0	26.9	61.2	79.1	1.3
18 Granada	14.0	23.8	22.0	24.7	70.6	12.6	-5.6
42 Soria	3.9	10.1	11.9	26.5	156.4	122.7	-1.3
16 Cuenca	6.1	13.6	12.7	35.4	122.7	178.1	1.5
13 Ciudad Real	9.4	16.3	22.6	43.9	72.4	94.3	1.3
05 Ávila	7.6	15.7	18.4	29.8	105.7	61.8	-1.7
39 Cantabria	5.9	11.1	12.3	28.0	89.5	128.3	1.4

Source: Own elaboration based on data of LFS.

Table 10. Classification of provinces by ideal models



Source: Own elaboration.

Table 11. Ranking of provinces according to Indices (1 and 2).

Provincial code (i) and province	$\mathbf{D_{1,i}}$	$D_{2,i}$	Provincial code (i) and province	$\mathbf{D_{2,i}}$	$D_{1,i}$
35 Palmas (Las)	**7.8**	2.8	40 Segovia	**8.4**	3.3
04 Almería	**6.8**	-1.4	18 Granada	**5.6**	4.0
17 Girona	**6.4**	-2.4	35 Palmas (Las)	**2.8**	7.8
29 Málaga	**5.6**	1.3	22 Huesca	**2.4**	1.5
43 Tarragona	**5.5**	1.0	17 Girona	**2.4**	6.4
12 Castellón/Castelló	**5.1**	1.7	45 Toledo	**2.3**	4.0
30 Murcia	**5.0**	1.2	12 Castellón/Castelló	**1.7**	5.1
03 Alicante/Alacant	**5.0**	-1.5	05 Ávila	**1.7**	2.9
38 Santa Cruz de Tenerife	**5.0**	-1.3	25 Lleida	**1.5**	2.3
07 Balears (Illes)	**4.9**	1.2	03 Alicante/Alacant	**1.5**	5.0
13 Ciudad Real	**4.8**	1.3	19 Guadalajara	**1.5**	2.7
02 Albacete	**4.2**	1.3	16 Cuenca	**1.5**	3.1
18 Granada	**4.0**	-5.6	39 Cantabria	**1.4**	1.5
46 Valencia/València	**4.0**	-1.1	26 Rioja (La)	**1.4**	3.0
45 Toledo	**4.0**	-2.3	04 Almería	**1.4**	6.8
08 Barcelona	**3.4**	1.3	02 Albacete	**1.3**	4.2
40 Segovia	**3.3**	8.4	29 Málaga	**1.3**	5.6
16 Cuenca	**3.1**	1.5	50 Zaragoza	**1.3**	3.0
50 Zaragoza	**3.0**	1.3	08 Barcelona	**1.3**	3.4
26 Rioja (La)	**3.0**	1.4	13 Ciudad Real	**1.3**	4.8
05 Ávila	**2.9**	-1.7	38 Santa Cruz de Tenerife	**1.3**	5.0
28 Madrid	**2.7**	1.2	31 Navarra	**1.3**	1.4
19 Guadalajara	**2.7**	1.5	09 Burgos	**1.3**	1.4
25 Lleida	**2.3**	-1.5	42 Soria	**1.3**	1.7
42 Soria	**1.7**	-1.3	44 Teruel	**1.2**	1.3
22 Huesca	**1.5**	2.4	07 Balears (Illes)	**1.2**	4.9
39 Cantabria	**1.5**	1.4	28 Madrid	**1.2**	2.7
09 Burgos	**1.4**	1.3	30 Murcia	**1.2**	5.0
31 Navarra	**1.4**	1.3	46 Valencia/València	**1.1**	4.0
44 Teruel	**1.3**	1.2	43 Tarragona	**1.0**	5.5

Source: Own elaboration based on data of LFS.
Note: Negative values appear in red colour and without minus sign.