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GEOGRAPHICAL LABOUR MOBILITY IN SPAIN: A PANEL DATA APPROACH

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ABSTRACT

In this paper, we study geographical labour mobility taken by workers in Spain from a regional standpoint. Using a panel data set referred to the evolution of these decisions in the 1990-2004 period, the main objective is to determine what are the main variables that influence in labour mobility as well as to quantify their impact. To this respect, regional labour market status, spatial variations in employment opportunities together with per capita GDP and house prices have turned to be the main determinants. Furthermore, the direction of obtained effects supports what economic theory suggests: those provinces characterized by positive aspects such as low employment levels, high per capita GDP or low house prices generally present positive net interprovince migration rate.

Keywords: Labour mobility, panel data, Spain.

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1. Introduction

Intra-regional migration in Spain was very important in the 1960's and the first half of the 1970's. Later, migratory flows were quite moderate till 1982. Since this year, migratory flows started to grew again till the point that in the 1990's migration reaches levels similar to the ones observed in the early 1960's.

In respond to this mobility pattern there has been some studies that analyse the subject. For instance, Bover and Arellano (2000) analyse migration among the 17 spanish autonomies. Romaní et al. (2003) offer a similar analysis but referred only to one spanish region (Catalonia). Nevertheless, these last authors focus on analysing whether or not commuting and residential mobility decisions are simultaneous. Eliasson at el. (2003) study the same subject but distinguishing between migration and commuting. Obviously, in this case, the distance between the region of origin and the region of destination plays an important role. Finally, other international studies are that by Bartel (1979), Widerstedt (1998), Goetz (1999), Borjas (2000) or Andrienko and Guriev (2001).

The approach proposed in this paper goes in the line of previous works, although it makes a clear difference in several aspects. First of all, we consider migration among provinces; consequently, our data set is much more informative than previously analysed. Furthermore, we observe migrations flows along a relative long period of time (1999-2004). Hence, this information enables us to work with a very informative panel data set which lets us avoid problems associated to not considering the two dimensions of data. When only a pure time series data set is used, it is impossible to control for unobservable variables changes occurring over time. Alternatively, cross-section data sets are unable to effectively control for individual-specific effects. The consequence in both cases is the bias in parameter estimates.

Hence, the main objective in this paper is to determine what are the main variables that influence labour mobility as well as to quantify their impact. To this respect, regional labour market status, spatial variations in employment opportunities, accessibility[1] and house prices are supposed to be the main determinants.

The paper is organised as follows. In section 2 we show some descriptive figures on mobility flows among the different provinces. In section 3, data and variables used in the empirical analysed are described. In section 4, econometric models used in the paper are analysed. Section 5 shows the obtained results and finally, some conclusions as well as future research are considered in the last section of the paper.

2. Interprovince migration in Spain: some descriptive figure

As some authors have already pointed (for instance, Maza and Villaverde, 2004), that the important migratory flows occur in Spain in the 1960's and the first half of the 1970's response to economic theory in the sense that flows were generally from poor to rich regions. Hence, on one hand, net flows were very high and, on the other, regional income inequalities in income levels and unemployment rates considerably dismiss.

As said before, in the next two decades internal migratory flow figures were lower. However, since 1982 migratory flows starting to grew again but, in contrast to the previous trend, the observed migratory flows were from rich to poor regions and from regions of low unemployment to region of high unemployment. This pattern has been called "*inverse*" migration (Maza and Villaverde, 2004).

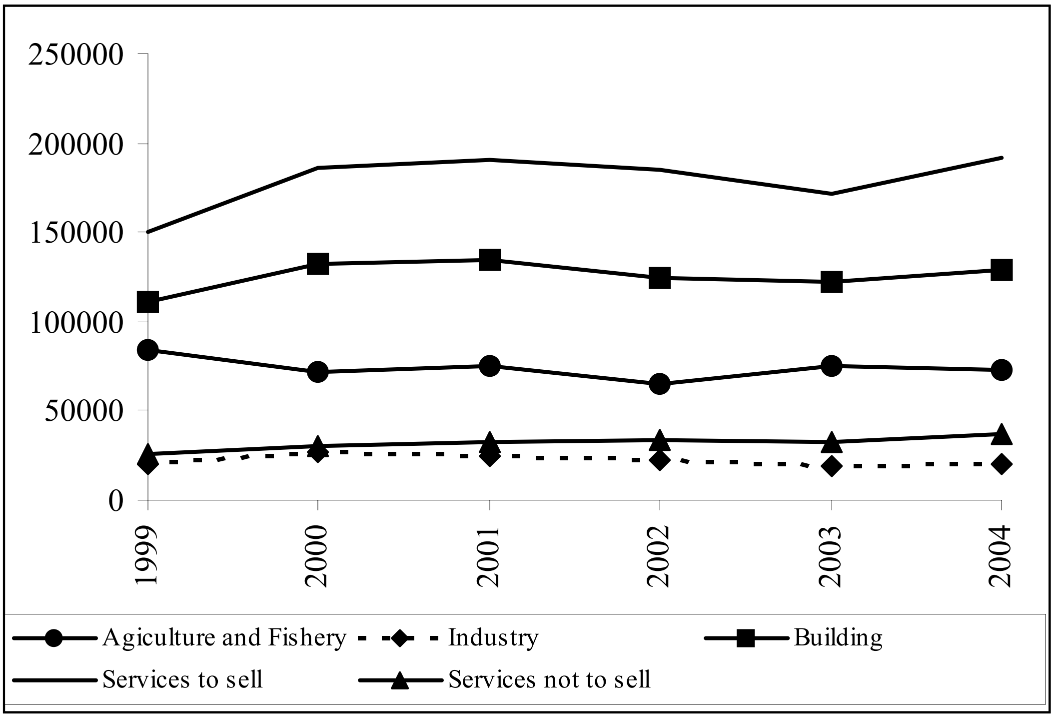
Facing this controversial results, we wonder about what are the main characteristics of internal migratory flows in the last few years?. Are the variables traditionally suggested by economic theory (unemployment, per capita GDP, etc.) explaining internal migratory flows? and if they do it, in what direction?. We will try to solve these important questions throughout the paper. Nevertheless, before that, we will

[1] Accessibility can be defined as the sum of employment in the region of residence and all other possible locations, discounted by the distance between the region of residence and each of the other locations. To this respect, regions closer to large employment centres will have higher accessibility than those further away from such areas. This formulation of accessibility rests upon the assumption that job opportunities increase with the size of employment in an area, due to higher job turnover.

describe some figures on internal migratory flows among the different Spanish provinces between 1999 and 2004.

First of all, it is interesting to observe the evolution of net migratory flows. As shown in Figure 1, it presents a very stable pattern across the considered period. As regards the different sectors, it can be observed that the sector that presents the highest values is the service directed to sell sector, followed by the building, the agriculture and fishery and the services not directed to sell sectors. Finally, the last position is for the industry sector.

Figure 1. Evolution of net migratory flows (1999-2004)



Source: Own elaboration from INAEM data

Finally, it is interesting to know what are the provinces that mainly gain workers (the number of immigrant is larger than that of emigrants) and, on the contrary, what are the provinces that mainly lose them. These information together with a classification by type of sector is displayed in Table 1.

Table 1. Migratory flow balance

	Total	Agriculture and Fishery(%)	Industry (%)	Building (%)	Services to sell (%)	Services not to sell (%)
Sevilla	-58,909	56.4	4.0	30.9	8.1	0.6
Cádiz	-58,387	17.7	3.5	36.8	35.9	6.1
Granada	-27,551	20.1	3.5	23.2	46.1	7.1
Córdoba	-25,119	17.6	2.4	28.9	42.6	8.4
Cáceres	-21,330	29.2	3.4	33.0	31.7	2.8
Pontevedra	-16,916	0.9	-3.6	27.1	54.3	21.3
Asturias	-16,407	2.2	6.5	16.1	62.3	12.9
Badajoz	-15,084	0.7	6.3	41.1	48.5	3.4
Ciudad Real	-14,897	-12.3	6.4	55.7	43.5	6.8
Toledo	-10,786	-7.5	-9.1	69.4	43.2	4.0
Salamanca	-9,250	3.1	5.5	9.9	66.0	15.6
Albacete	-8,997	10.2	5.1	34.1	42.4	8.3
León	-8,506	2.7	6.4	23.5	61.6	5.9
Orense	-6,523	3.2	0.0	29.6	58.5	8.7
Cantabria	-5,887	3.9	1.3	18.6	61.5	14.7
Valladolid	-5,366	12.9	15.0	-17.9	76.7	13.3
Guipúzcoa	-5,177	6.7	4.5	-15.6	72.7	31.7
Palencia	-5,171	6.3	2.0	30.1	53.0	8.6
Jaén	-4,378	-339.7	20.0	159.5	247.3	13.0
Zamora	-4,269	6.4	8.7	29.8	63.4	-8.4
Lugo	-3,511	-0.5	12.8	37.5	108.3	-58.1
Burgos	-3,447	-10.0	-2.4	3.4	104.2	4.8
Ávila	-3,089	-17.4	5.2	36.5	62.2	13.4
Cuenca	-2,783	-18.9	11.7	38.7	56.1	12.4
Tarragona	-2,518	2.2	26.4	-62.1	103.6	29.9
Guadalajara	-2,190	-4.7	16.4	-63.4	145.5	6.3
Teruel	-879	38.2	-1.7	-38.1	106.0	-4.4
Vizcaya	-874	-18.1	152.6	-14.8	-66.8	47.1
Coruña (La)	-472	234.5	197.8	1010.5	-1063.4	-279.4
Segovia	-295	-440.7	0.8	-100.5	659.2	-18.8
Almería	708	-2.5	-22.6	167.9	20.2	-63.0
Rioja (La)	1,059	350.2	-117.3	74.3	-162.4	-44.7
Soria	1,277	-2.8	25.5	22.5	18.0	36.8
Huesca	1,516	92.5	0.8	30.0	-9.9	-13.5
Valencia	1,904	-88.6	-90.3	-116.3	503.3	-108.1
Navarra	2,494	-7.3	103.6	114.5	-101.2	-9.6
Lérida	3,281	27.3	16.5	42.2	8.0	6.1
Sta. Cruz de Tenerife	3,429	-1.8	-3.2	79.3	18.6	7.1
Alicante	4,321	-5.3	4.3	264.0	-124.8	-38.3
Zaragoza	6,284	44.8	4.5	20.3	28.6	1.9
Álava	8,242	9.3	39.8	29.6	17.7	3.6
Castellón	9,104	19.7	25.2	43.0	7.5	4.6
Murcia	9,122	140.7	10.1	-45.7	-16.9	11.8
Gerona	9,507	0.2	8.8	19.1	65.1	6.8
Huelva	12,999	158.8	-5.9	-9.1	-42.4	-1.4
Palmas (Las)	20,092	-0.5	1.4	40.1	56.6	2.4
Baleares	40,111	-2.0	0.8	32.5	64.2	4.5
Málaga	41,684	16.2	1.0	78.4	0.4	3.9
Barcelona	44,947	-5.6	10.7	3.3	72.9	18.6
Madrid	126,883	-0.9	2.4	26.1	63.2	9.2

Source: Own elaboration from INAEM data

In the first column of table 1 we show all provinces considered in this paper sorted by migratory flow balance, which it is that indicated in the second column. Furthermore, the next four columns of the table show the contribution of each of the five considered sectors to previous magnitudes. For instance, the province that loses the largest quantity of workers is Sevilla, being the agriculture and fishery sector the main responsible for that (56.4%). Sevilla is nearly followed by Cádiz, but in this case the main contributors to the negative balance are the building and the services directed to sell sectors, which account for the 72.7% of it. As it is shown in the table, the following provinces that also present a negative balance are also belonging to Andalucia (the south part of Spain): Granada and Córdoba. In the opposite position, at the bottom of the table we can find capitals such as Las Palmas and Baleares characterized by its attractive building and services to sell sectors. They are followed by Malaga, another of the main destination of tourists and, therefore another province with a strong building sector. Finally, at the bottom of the table, indeed it is found Barcelona and Madrid (the capital and the start as destination for workers). In both cases, the main responsible for such pattern is the services to sell sector.

3. Data and variables

As said before, the empirical part of the paper is based on a panel data set created from different data sources.

First of all, mobility is defined as the number of persons who move to a different province to work. Thus, it reflects annual bilateral migratory flows between the 50 provinces[2] from the 1999 to 2004. Furthermore, we have aggregated original data into the five main sectors: 1) agriculture and fishery; 2) industry; 3) building; 4) services directed to sell; and 5) services not directed to sell. The INAEM institute has gently provided this information.

From previous information, the dependent variable of the model is defined as the net interprovince migration rate from i to j in period t ($mr_{ij,t}$) following the expression:

[2] Data on mobility for Ceuta and Melilla are also available. However, they have been excluded from the analysis since data for the rest of variables included in it are not available.

$$mr_{ij,t} = \frac{Inmigration_{ij,t} - Emigration_{ij,t}}{Population_{i,t}} \quad (1)$$

where $Inmigration_{ij,t}$ denotes the number of immigrants received by province *i* from province *j* in period *t*; $Emigration_{ij,t}$ are the number of emigrants from province *i* to *j* in period *t*; and $Population_{i,t}$ represents the population of the ith province in period t. Information about population has been gathered from the *Instituto Nacional de Estadística* (INE).

As previous indicated, the main factors that lead to migratory flows refers to differentials between units (provinces in our case) in variables such as the unemployment rate, per capita GDP, the cost of housing and accessibility. Data for unemployment rates and per capita GDP are gathered from the *Instituto Nacional de Estadística* (INE). Information on cost of housing is obtained from the *Sociedad de Tasación*. Finally, the accessibility variable, which introduces the spatial distribution of job openings into the model, has been constructed as follows (Eliasson et al., 2003):

$$ACCESS_{i,t} = \sum_{j \neq i} E_{j,t}\, d_{ij}^{-2} \quad (2)$$

where $E_{j,t}$ is the size of employment in region *j* in period *t*; and d_{ij}^{-2} is a distance decay function with the travel distance by road between the capital of province *i* and *j*.

Indeed, other variables such as educational level, climate, public policies, etc. can also significantly affect migratory decisions, but information on these variables is difficult to gather.

4. Methodology

Let's start this section by defining the model that reflects our starting point of the paper. Bilateral migratory flows must be analysed considering situation of main variables in both provinces we are dealing with. That is, situation of provinces from which individuals emigrate and situation of provinces which receive such individuals. On this assumption the base model for our analysis has the following expression:

$$m_{ij,t} = \alpha_{ij} + \beta_1 \left({u_i}/{u_j} \right)_t + \beta_2 \left({Y_i}/{Y_j} \right)_t + \beta_3 \left({H_i}/{H_j} \right)_t + \beta_4 \left({ACCESS_i}/{ACCESS_j} \right)_t + \varepsilon_{ij,t} \tag{3}$$

where mr_{ij} denotes the net migration rate between provinces i and j; u denotes the unemployment rate; Y, the per capita GDP; H, the cost of housing; and *ACCESS*, the accessibility variable defined in (2). In all cases, the subindices i, j, t refer to province i, province j and time period t, respectively.

As can be observed, equation (3) has been specified considering a lineal relationship among variables and bearing in mind the panel data set we are working with. Because of this last issue, α_{ij} term is included to denote the effect of all unobservable variables invariant in time, related to provinces i and j. Furthermore, the error term $\varepsilon_{ij,t}$ is, as usual, distributed as $IID\left(0,\sigma_{\varepsilon}^{2}\right)$.

As regards the α_{ij} terms, it is well known that if they are treated as fixed unknown parameters, the model (3) is referred to as the standard fixed effect model. However, if such intercepts are treated as random (they draw from a distribution with mean μ and variance σ_{α}^{2}), model (3) would be called a random effect model.

Whether to treat the individual effects α_{ij} as fixed or random is not an easy question to answer. However, the most common view is that the discussion should not be about the 'true nature' of the effects α_{ij}. The appropriate interpretation is that the fixed effects approach is conditional upon the values of α_{ij}. That is, it is essentially considers the distribution of $m_{ij,t}$ given α_{ij}, where the α_{ij}s can be estimated[3]. Inferences are thus with respect to the effects that are in the sample. In contrast, the random effect

[3] This makes sense intuitively if the individuals in the sample are 'one of a kind' and cannot be viewed as random draw from some underlying population. Hence, it is probably more appropriate when individual units are countries, (large companies) or industries, and predictions we want to make are for a particular country, company or industry.

approach is not conditional upon the individual α_{ij}s, but 'integrates them out'[4]. This model allows one to make inference with respect to the population characteristics.

In our case, because we are dealing with capital of provinces we could intuitively think that the fixed effect model could be more appropriate. However, data can also be interpreted as a sample from a population composed by all possible migratory flows, not only between provinces. In such a case, *i* and *j* would be considered as different geographical area belonging to the same or difference province. If this were the case, the random effect model would be the most appropriate unless the unobservable effects α_{ij} were not independent from the explanatory variables of the model. Consequently, the decision process on which model fits better the data can be relied on a Hausman test (Hausman, 1978), which tests for the null hypothesis of uncorrelation between the α_{ij} and the explanatory variables. The random effect estimator, $\hat{\beta}_{RE}$, is consistent and efficient under the null hypothesis but inconsistent under the alternative, while the fixed effect estimator, $\hat{\beta}_{FE}$, is consistent under the null and the alternative but inefficient under the null. Based on these statistics, and on their respective covariance matrices, $\hat{V}\left\{\hat{\beta}_{RE}\right\}$ and $\hat{V}\left\{\hat{\beta}_{FE}\right\}$, the Hausman test is calculated as follows:

$$\xi_H = \left(\hat{\beta}_{EF} - \hat{\beta}_{RE}\right)' \left[\hat{V}\left\{\hat{\beta}_{EF}\right\} - \hat{V}\left\{\hat{\beta}_{RE}\right\}\right]^{-1} \left(\hat{\beta}_{EF} - \hat{\beta}_{RE}\right) \qquad (4)$$

which has a Chi-square distribution with as many degrees of freedom as the number of variables included in the model.

Nevertheless, model (3) is not capturing a possible inertia or persistence existing on the data. To cope with this objective, it is neccessary to indroduce dynamics into the

[4] In this case, we are not interested in the particular value of some unit α_{ij}s; we just focus on arbitrary units that have certain characteristics.

model. A dynamic model that also incorporates lags of the exogeneous variables has the following expression:

$$m_{ij,t} = \alpha_{ij} + \sum_{\tau=1}^{m} \rho_{\iota} m_{ij,t-\tau} + \sum_{\tau=0}^{m} \beta_{1\iota} \left({u_i}\big/{u_j} \right)_{t-\tau} + \sum_{\tau=0}^{m} \beta_{2\tau} \left({Y_i}\big/{Y_j} \right)_{t-\tau} + \sum_{\tau=0}^{m} \beta_{3\tau} \left({H_i}\big/{H_j} \right)_{t-\tau} + \sum_{\tau=0}^{m} \beta_{4\tau} \left({ACCESS_i}\big/{ACCESS_j} \right)_{t-\tau} + \varepsilon_{ij,t} \quad (5)$$

For this dynamic model, the situation is substantially different from the static case, since $m_{ij,t-\tau}$ will depend upon α_{ij}, irrespective of the way we treat α_{ij}. Consequently, the fixed effect estimators are biased and inconsistent for a fixed *T*. To solve the inconsistency problem, first of all, it is necessary to take first differences of the model in order to eliminate the α_{ij} terms:

$$\Delta m_{ij,t} = \sum_{\tau=1}^{m} \rho_{\iota} \Delta m_{ij,t-\tau} + \sum_{\tau=0}^{m} \beta_{1\iota} \Delta \left({u_i}\big/{u_j} \right)_{t-\tau} + \sum_{\tau=0}^{m} \beta_{2\tau} \Delta \left({Y_i}\big/{Y_j} \right)_{t-\tau} + \sum_{\tau=0}^{m} \beta_{3\tau} \Delta \left({H_i}\big/{H_j} \right)_{t-\tau} + \sum_{\tau=0}^{m} \beta_{4\tau} \Delta \left({ACCESS_i}\big/{ACCESS_j} \right)_{t-\tau} + \Delta \varepsilon_{ij,t} \quad (6)$$

As it is deduced from (6), first differencing introduces a problem of autocorrelacion of order one. Furthermore, in (6) there is also a simultaneity problem, since, for instance $\Delta m_{ij,t-1} = m_{ij,t-1} - m_{ij,t-2}$ is correlated with $\Delta \varepsilon_{ij,t} = \varepsilon_{ij,t} - \varepsilon_{ij,t-1}$ thought $\varepsilon_{ij,t-1}$. In these circumstances, the minimum distance estimator most appropriate is the Generalized Method of Moments (GMM) estimator. This method minimize the distance between the sample moments ($N^{-1} \sum_{ij=1}^{N} Z_{ij}^{'} \Delta \hat{\varepsilon}_{ij}$) and the population ones, which equals to 0 ($E\left\{ Z_{ij}^{'} \Delta \varepsilon_{ij} \right\} = 0$), where Z_{ij} represents the matrix of instruments. The estimation procedure consists of estimating a system of equation for panel data in which each equation correspond to one time period, being the number of equations equals to the number of sample periods minus the considered lags minus one.

However, model has been specified behind certain hypotheses that it is necessary to validate in order to assure that the obtained estimators are consistent and efficient. To this respect, it is necessary to test the validity of the used instruments, which it is equivalent to test the over-identification conditions applied[5]. This can be accomplished with the Sargan test defined as follows:

$$S = \left(\sum_{ij=1}^{N} Z_{ij}^{'} \Delta \hat{\varepsilon}_{ij} \right)^{'} A_N \left(\sum_{ij=1}^{N} Z_{ij}^{'} \Delta \hat{\varepsilon}_{ij} \right) \qquad (7)$$

where $A_N = \left(\sum_{ij=1}^{N} Z_{ij}^{'} \Delta \hat{\varepsilon}_{ij} \Delta \hat{\varepsilon}_{ij}^{'} Z_{ij} \right)^{-1}$.

Under the null hypothesis of validity of instruments, the Sargan test statistic is distributed as a Chi-square distribution with as many degrees of freedom as the number of sobreidentification restrictions.

5. Results

The model proposed in last section has been estimated for the five considered sectors: 1) agriculture and fishery; 2) industry; 3) building; 4) services directed to sell; and 5) services not directed to sell.

First of all, Breush-Pagan LM Tests have been calculated in order to be sure that our data sets must be treated as panels instead of simple pools of data. Results are gathered in Table 2. The conclusion is clear for all the sectors: we must treat data as pure panels.

The next stage concerning static models is whether the fixed or the random effect model is preferred for each of the sectors. This question is solved thought several

[5] The model is over-identificate because there exists more instruments that parameters to estimate.

Hausman tests. As Table 2 shows, for the building and the service directed to sell sectors the fixed effect model adjusts better the data, while for the rest of sectors, it is the random effect model the best specification.

Table 2. Estimated static panel models

Sector	Breush- Pagan LM Test	Hausman Test	Selected model
Agriculture and Fisheries	26771.84*	7.53	Random effect
Industry	26649.74*	10.10	Random effect
Building	29033.27*	35.77*	Fixed effect
Services directed to sell	25656.56*	56.45*	Fixed effect
Services not directed to sell	11691.04*	12.58	Random effect

Results for the respective selected static model is shown in Table 3. Results obtained with the best specification of dynamic models are also displayed in such tables. As regards, dynamic models is important to note that for all the five sectors the null hypothesis of validity of instruments (the Sargan test null hythothesis) cannot be rejected, at least at the 1% level of significance. Hence, these results support the proposed specifications. Furthermore, since most of parameters associated to endogenous lags are significant, we can say that there exists important inertia and persistence in data. Moreover, such parameters would enable us to talk about short and log- run effects.

In relation to the short run effects, the obtained results (those presented in table 3) coincide with expectations. Firstly, it can be observed that unemployment rate variables are mostly negative and significant. As predicted by economic theory, unemployment rate differentials between provinces do exert mostly a negative effect on net migration rates. Thus, a high level of unemployment in the destination province does discourage migratory movements, since it diminishes the likelihood of finding work. However, it is important to note that while for agriculture and fishery sector the negative effect appears instantaneously, for industry, building and services directed to sell it takes one period time to react. These results are understandable since it is in the primary sector where there are many instantaneously migratory flows in harvests, sowing or fishing time.

Differences in per capita GDP levels do exert mostly a positive effect of net migration rates in the short run. This result reflects the clear fact that migratory flows occur from regions with low-income levels to regions with higher income levels. However, there appears not to be significance responses to per capita GDP neither for agriculture and fishery nor for industry sector. As in the previous case, for building and services directed to sell the effect is not instantaneous but it takes also one period to react.

Housing cost differentials also exert the expected negative effect but with some adjustment period in most of the cases. The only exception is again the agriculture and fishery sector. This result can also be explained by the different characteristic of the sector. While the rest of the sectors are mainly associated to concentrated areas (big towns), the agriculture and fishery sector is associated to the opposite. Hence, perhaps in this sector is understandable that emigrants go towards relatively large cities. As regards the adjustment periods, it can be observed that it takes one year to react, for the industry and the building sectors and two, for services.

As expected, accessibility differential parameters, when significant, present positive sign (for building and for service to sell). This result corroborates the hypothesis that accesibility has a negative effect on mobility, as the direction of job search will tend to be allocated towards local job opening.

Finally, it is worth noting that time dummy variables are mostly not significant. Hence, no unobserved specific effects, variable in time, are missing in the model.

To finish up, it is important to calculate the long run effect of the considered variables on the net interprovince migration rate. Results are shown in table 4. In general terms, most of the effects have the expected sign. As regards magnitudes, building and service directed to sell sectors present the most remarkable responses.

Table 3. Results for the estimated model for the different sectors

		Agriculture and Fishery		Industry		Building		Services to sell		Service not to sell	
Variables	Lags	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic
mr_{ij}	1		0.695*		0.66*		0.868*		0.826*		0.572*
	2		0.473*		-0.26*		-0.085		-0.053		0.04
Unemployment	0	-0.079*	-0.046*	-0.024*	-0.001	-0.054*	0.04*	-0.043	0.002	0.01	0.005
	1				-0.01*		-0.037*		-0.06*		
Per capita GDP	0	-0.000	-0.08	0.104*	-0.09	0.473*	-0.077	0.960*	-0.128	0.21*	0.075
	1						0.318*		0.633*		
Housing	0	-0.050	0.10*	0.051*	0.019	0.047	0.371*	0.096	0.588*	-0.023	0.118
	1						-0.273*		-0.27		0.012
	2								-0.616*		-0.259*
Accessibility	0	-0.041	0.026	0.0168	-0.002	0.285*	0.162*	0.304*	0.36*	-0.028*	-0.016
	1						-0.019				
Year 1999	0	0.036		0.001		-0.013		0.107*		0.023*	
Year 2000	0	0.038		-0.063		-0.018		0.032		0.01	
Year 2001	0	0.043		-0.01*		-0.019		-0.004		0.008	
Year 2002	0	0.024	-0.015	-0.007	0.002	-0.015	0.011	-0.011	0.03	-0.002	-0.004
Year 2003	0	0.018	-0.003	0.003	0.01*	0.003	0.017	0.054*	0.104*	0.017	0.030
Constant	0	0.229	-0.007	-0.158*	0.0003	-0.879*	0.002	-1.70*	-0.002	-0.195*	-0.002
Sargan Test			14.06		20.18**		12.55		16.50**		6.37
Order 1 autocorrelation test			-2.94*		-2.42*		-2.81*		-1.29		-1.17
Order 2 autocorrelation test			-1.13		1.21		0.66		2.02		-0.20

(*)An asterisk means that the null hypothesis is rejected at the 5% level of significance.
(**) Two asterisks means that the null hypothesis is rejected at the 5% level of significance, but the null is not rejected at the 1% level of significance.

Table 4. Long-run effect on the net interprovince migration rate (m_{ij})

	Agriculture and Fishery	Industry	Building	Services to sell	Service not to sell
Unemployment	0.274	-0.018	0.014	-0.256	0.013
Per capita GDP	0.476	-0.150	1.111	2.225	0.193
Housing	-0.595	0.032	0.452	-1.313	-0.332
Accessibility	-0.155	-0.003	0.659	1.586	-0.041

Concluding remarks

The situation of the labour market is one of the main focus of attention in a country. The better situation is achieved, the better quality of life is assured for citizens. In this paper we have concentrated on one important aspect of labour market: the migratory flows. To this respect, we have explained the net interprovince migration rate from one province to another through the differential in the levels of several variables in such two provinces, more precisely differentials in employment opportunities, per capita GDP, house prices and accessibility.

According to economic theory, those provinces with better position as regards “positive” aspects (such as low employment levels, high per capita GDP and low house prices) would be much more attractive than the rest as migratory destination. However, the empirical evidence for the 1990’s does not seem to support such hypothesis. Then the question solved in this paper was how the situation was in most recent years.

To cope with our objective, we have estimated a complete panel for each of the five sectors: agriculture and fishery, industry, building, services dedicated to sell and services not dedicated to sell. In all cases, as individuals we have considered each pair combination of provinces, while the considered time period has always been from 1999 to 2004. Both, static and dynamic versions of the model have been estimated. However, results seem to support the dynamic versions of the models. That is, we find evidence that there exists certain inertia and persistence in the data, what it is obviously understandable. When one person emigrates to another province and reaches a better quality of life, some of his friends or family will be attractive for that situation and therefore, they will mimic first individual's behaviour. How long does this process takes?. The empirical evidence has shown that, while for the agriculture and fishery and the industry sectors this process could last till two years ahead, for the rest of sectors the effect of one migratory flow only significantly affects to the next period.

Moreover, as regards the effect of the relevant variables considered in this research to explain migratory flows, we have founded evidence in favour of what economic theory suggests: a better situation in differential levels in a province will provoke an increase in net migration rate in such a province. This result makes clear the direction of policy measures aimed at avoiding the decline of certain provinces which persistently lose population, at the same time that they avoid saturation of other areas such as Madrid or Barcelona.

Future research could be directed towards the improvement of the model in terms of including some variables referred to certain socio-demographic characteristics of workers such as education, marital status and the presence of children in the household. We will cope with this objective trying to combine different data set if it was possible.

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