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Abstract: This paper analyses the determinants of internal migration in Spain between 1995 and 2002. After a brief descriptive study, we present an analytical model of internal migration flows. Subsequently, we estimate this model by applying semiparametric techniques. The general conclusion that we come to is that net migration rates are influenced mainly by income and climatic condition differentials between the regions of origin and destination; in addition, unemployment and housing price differentials seem to have a much weaker effect while variables such as aggregate unemployment, on the one hand, and human capital and population density differentials, on the other, do not affect net migration rates.

Key words: migratory flows, Spanish regions, unemployment, incomes.
JEL Classification: J61, R23, C14

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ABSTRACT:

This paper analyses the determinants of internal migration in Spain between 1995 and 2002. After a brief descriptive study, we present an analytical model of internal migration flows. Subsequently, we estimate this model by applying semiparametric techniques. The general conclusion that we come to is that net migration rates are influenced mainly by income and climatic condition differentials between the regions of origin and destination; in addition, unemployment and housing price differentials seem to have a much weaker effect while variables such as aggregate unemployment, on the one hand, and human capital and population density differentials, on the other, do not affect net migration rates.

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1. INTRODUCTION

One of the most disturbing aspects of the Spanish economy in recent decades has been, and indeed continues to be, the deficient functioning of its labour market. In an economic context such as the present, with Spain fully integrated in the European Monetary Union, and with per capita income levels converging slowly but steadily towards the European average and, by historic standards, a low inflation rate, the labour market is still a very interesting research topic. Although it is true that the situation has improved somewhat, it is still far from what would be desirable. The deficiencies in this market are both many and various, although the persistence of high aggregate unemployment rates and regional differentials is without doubt one of its most worrying features[1].

[1] An analysis of the situation of the labour market in Spain is carried out in Villaverde and Maza (2002). The persistence of the effects of a shock in the Spanish regions is addressed in Jimeno and Bentolila (1998), Maza and Villaverde (2004).

Although somewhat neglected in the past, this paper analyses one of the reasons usually given to explain the persistence of regional differences in unemployment rates in Spain: the low level of interregional net labour mobility[2]. This same phenomenon of persistence in structural imbalances has occurred in other countries, mostly in Europe (see, for instance, Layard, Nickell and Jackman, 1991; Partridge and Rickman, 1997), casting doubts upon the ability of migration to reduce and equalize unemployment rates across regions. From the Spanish point of view, different studies have already examined the questions for a persistent high aggregate unemployment rate and persistent high regional unemployment differentials, either directly or indirectly (Ahn, Jimeno and García, 2002; Bentolila, 1997), concluding that most of it is attributed to the low mobility of people (workers) between regions.

This current paper lies within this same line of analysis. Its aim is to try to explain population movements across Spanish regions[3], its major contribution being the use of relatively novel techniques for the study of internal migration. Indeed, we employ semiparametric estimation methods, the main reason for this being that, although parametric techniques allow us to explore some nonlinearities (e.g. quadratics, cubes, …), semiparametric methods are more flexible and illustrative, allowing us to distinguish the influence of some exogenous variables on the endogenous one according to the formers' values.

[2] Greenwood (1985) points out that net migration of people causes both regional labour supply and demand to change, thus affecting regional unemployment.
[3] Following Decressin (1994), and also due to limitations in data availability, this paper uses population migration data instead of labour migration data.

The data employed in this study originate from different sources (FUNCAS, INE, IVIE-BANCAJA, the Ministry for Development and the Spanish Meteorological Institute) and refer to the 17 Spanish Autonomous Communities (regions)[4]. In order to ensure homogeneity in the data series under analysis, the sample period goes from 1995 to 2002; this is due to the fact that for some variables (mainly GDP) there are no homogeneous data previous to 1995[5]. At the same time, 1995 can be considered to a certain extent as the initial year of massive foreign migration into Spain, which has greatly affected interregional migratory flows. Given the reduced timescale, the conclusions we come to must be treated with some caution, and only an extension of the series looked at would permit these conclusions to be confirmed or qualified.

The remainder of this paper is divided into four sections. In Section 2, we carry out a descriptive analysis of the patterns and current situation of internal migration in Spain. In Section 3, we provide a brief discussion of the determinants of migration according to the relevant theoretical literature and present a synthetic model. In order to test this model Section 4 proposes and estimates –using semiparametric methods- various regression equations which allow us to precisely identify the influence of the aforementioned determinants. As is customary, in the final section we outline the most significant conclusions.

2. INTERREGIONAL MIGRATION IN SPAIN: STYLISED FACTS

[4] FUNCAS: "Regional Economic Balance (Autonomous Regions and Provinces). Years 1995-2002"; INE: "Survey of residential variations"; IVIE and BANCAJA: "Human capital and Economic Activity"; Ministry for Development: "Statistical Bulletin"; Spanish Meteorological Institute: "www.inm.es".

[5] There is a breakdown in the GDP series provided by FUNCAS in 1995. Previous to this year, the estimates were made by using the European Accounting System-79 (ESA-79); afterwards, the estimates were made by using the new ESA-95.

The aim of this section is to briefly give an overview of the stylised facts that have characterised the process of interregional migration in Spain. During the last four decades, Spain has witnessed dramatic changes in its internal migration flows. It is a well known fact that in the 1960's and first half of the 1970's migratory movements in Spain grew in strength; internal migration was very intense (Bover and Velilla, 2002), contributing significantly to the actual pattern of regional distribution of the Spanish population and to reducing regional inequalities in income levels and unemployment rates. In a similar way to what happened in countries like the United States (Greenwood, 1985) and Italy (Carillo and Marselli, 2003), the flows were generally unidirectional; consequently the net flows were very high. During these years most of the internal migration took place from the rural underdeveloped Southern regions to the more urban[6] and industrial North-eastern regions (plus Madrid)[7].

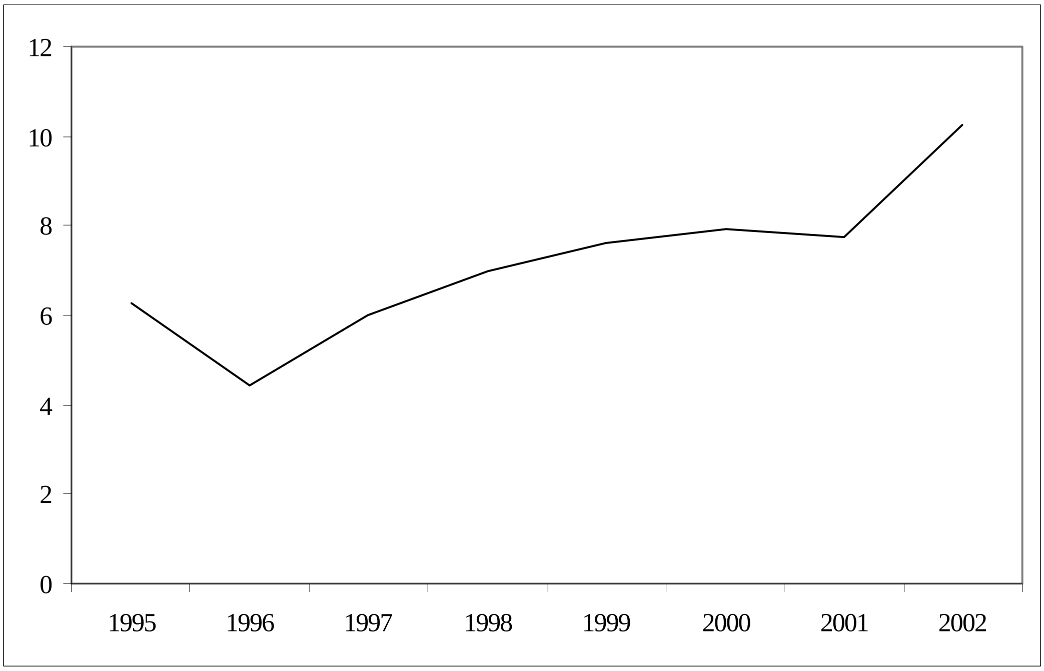
For a decade following the mid 1970's internal migratory flows slowed somewhat, notwithstanding existing remarkable differences in economic and non-economic factors between regions. Later on –and despite consistently high and rising aggregate and regional unemployment rates- interregional migration started to grow again, until in the 1990's migration approached the levels last seen in the early 1960's. Nevertheless, the pattern of these new migratory flows was totally different from that of earlier decades, and net migration was very low (Antolin and Bover, 1997). This regional shift implied that, as well as the traditional flows, there were now flows from rich to poor regions and from regions of low unemployment

[6] The influence of urbanization on migration flows is considered, for instance, in Glaeser et. *al.* (1992).
[7] During this time unemployment rates were very low both at the national and regional levels.

to regions of very high unemployment. These migratory movements, in flagrant contradiction to conventional economic theory, have become known as *inverse* migration (both life-cycle and economic considerations[8] can help to explain this result).

In view of the above changes in the traditional patterns of internal migration, it is instructive to take a look at the developments that have occurred over the last few years. A simple description of migratory flows during the period under analysis (1995-2002) is shown in Figure 1, which presents, for each year, gross interregional migration rates[9]. It is noticeable in this figure that the aforementioned rate falls in the first year, but from then on recovers (apart from year 2001), reaching 10.25 per 1000 in 2002.

FIGURE 1
Interregional Migration Rate

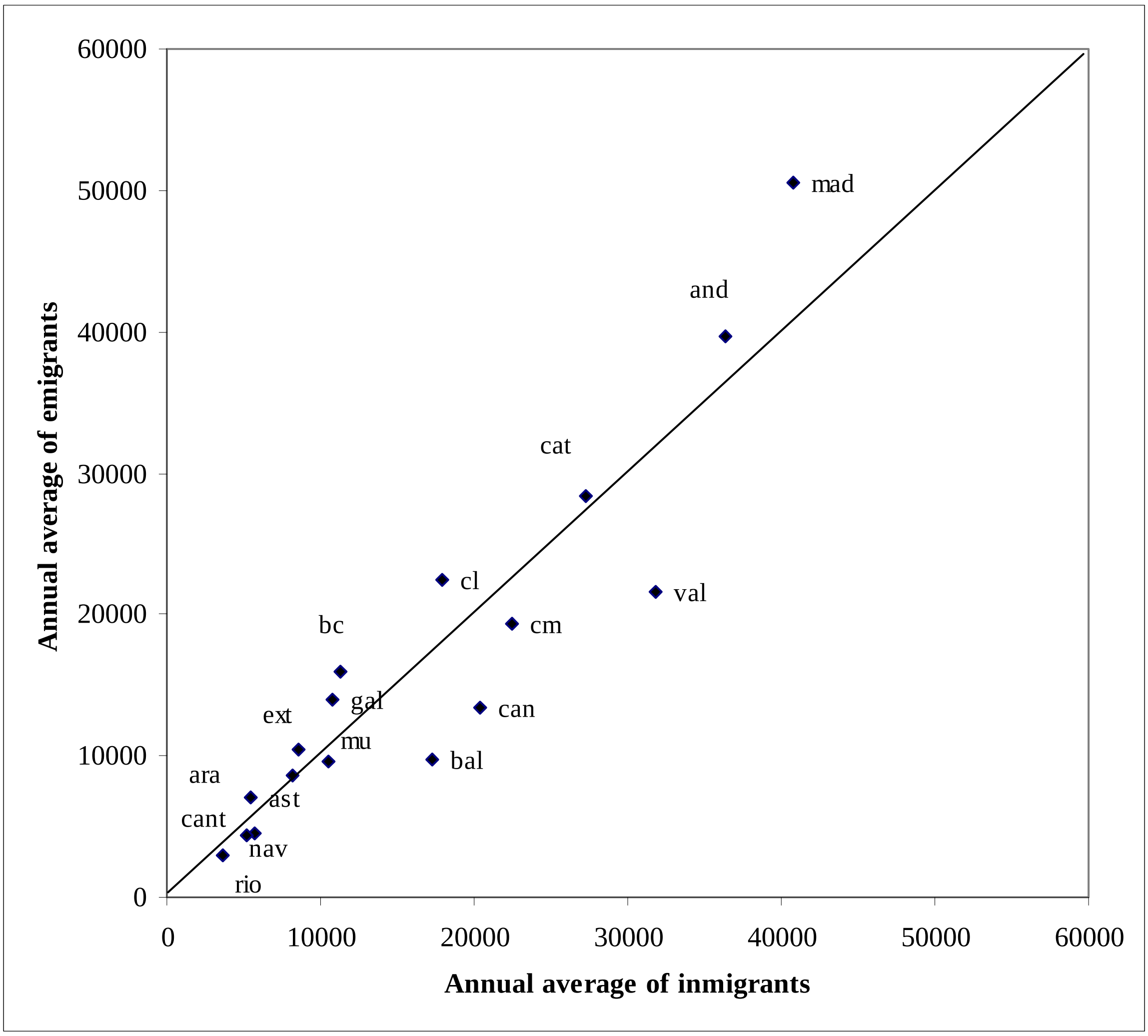


[8] Reduced disparities across regions on employment opportunities and GDP per head, compensating differentials on housing, prices and quality of life, the expansion of the welfare state, …

[9] $$\textit{Gross Interregional Migration Rate} = \frac{\sum entries_t = \sum departures_t}{Total\ \ population_{t-1}} *1000$$

Similarly, the new migration pattern is clearly shown in Figure 2, which reports both in- and out-migration. As can be seen, internal migration is very balanced: most regions are close to the diagonal, which indicates that their net migration is close to zero[10]. The rest of this paper tries to better understand the main factors affecting these migratory flows.

FIGURE 2
Interregional Migration (1995-2002)



LegLegend: and=Andalusia; ara=Aragón; ast=Asturias; bal=Balearic Islands; can=The Canary Islands; cant=Cantabria; cl=Castile-León; cm=Castile-La Mancha; cat=Catalonia; val=Valencian C.; ext=Extremadura; gal=Galicia; mu=Murcia; nav=Navarre; bc=Basque Country; rio= La Rioja

[10] It should be pointed out, however, that gross movement of people varies significantly between regions, with some of them -such as Madrid and Andalusia- experiencing continual and substantial numbers of entries and departures, while others -La Rioja and Navarre- experience very little movement of people.

3. A THEORETICAL FRAMEWORK OF INTERREGIONAL NET MIGRATIONS

Although there are different models trying to explain the reasons for people moving from one region to another, the neoclassical framework –assuming that the individual's goal is to maximize lifetime expected utility/income- is one of the most interesting[11], either in its version of the potential migrant as a supplier of labour or as an investor in human capital (Sjaastad, 1962; Shields and Shields, 1989). Accordingly, and in order to derive migration flows, it is necessary to first consider the decision to migrate. The idea behind this decision is easy to understand: being rational, an individual will migrate if this improves his welfare (Pissarides and McMaster, 1990). This means that the individual needs to compare the expected income he would obtain should he stay in his home region (*i*) with the expected income he would gain in an alternative region (*j*), taking into consideration the money and non-money costs involved when leaving the home region (Sjaastad, 1962).

The expected income from staying in the region of residence (E_{ii}) depends on the wage rate (W_i) and the probability of being employed (P_i) (Harris and Todaro, 1970), which is a function of the home unemployment rate (U_i) and a set of potential variables related both to economic and non-economic factors (S_i); among these, his accumulated human capital (K_i) might play a vital role. In the same

[11] A completely different line of reasoning is based on the job-matching approach. In this case, individuals migrate after getting a job in the receiving region while in the traditional (neoclassical approach) individuals migrate before having found a job in the destination region (See, for instance, Jackman and Savouri, 1992).

manner, the expected income from moving to an alternative market (E_{ij}) depends on its wage rate (W_j) and the probability of being employed (P_j), which is a function of the aggregate unemployment rate (U), the unemployment rate in the destination region (U_j)[12] and, once again, a set of other variables related both to economic and non-economic factors (S_j). Finally, the cost of moving (C_{ij}) also depends on both economic (housing prices, unemployment benefits, …) and non-economic variables, mainly related to social factors (friendship, kinship, …) and amenities (climate, population density, environment, infrastructures, …)[13]. In consequence, an individual will migrate from region *i* to region j if:

(1) $$E_{ii} \leq E_{ij} - C_{ij}$$

where

(2) $$E_{ii} = P_i\left[U_i, S_i\left(K_i\right)\right] * W_i$$

(3) $$E_{ij} = P_j\left[U, U_j, S_j\left(K_i, K_j\right)\right] * W_j$$

and

(4) $$C_{ij} = C\left(H_{i(j)}, UB_{i(j)}, F_{i(j)}, Ks_{i(j)}, Cl_{i(j)}, Pd_{i(j)}, \ldots\ldots\ldots.\right)$$

where:

H is the housing price in region *i*(*j*), UB refers to the unemployment benefits, F is the friendship variable, Ks is the kinship, Cl denotes the climatic conditions

[12] Pissariades and McMaster (1990) explain that the employment probability in a region is affected both by its unemployment rate -workers are more prone to moving out than employed ones *because the unemployed have less to give up than the employed when they move* (p- 184)- and the aggregate unemployment rate -because *if unemployment is higher everywhere the employed may feel more secure where they are (…) The unemployed may also be discouraged from moving* (p. 184).

[13] As Greenwood (1985) notes, the values of these amenities may be partly reflected in labour (incomes) and land (housing prices) markets. Population density is included as a proxy of agglomeration; this is important because, as is shown in Glaeser *et al*. (1992), the role of technological (knowledge) spillovers in generating economic growth –and, thus, attracting people- is particularly effective in cities.

variable, measured as the average temperature (Aronsson *et. al.*, 2000)[14] and, finally, Pd stands for the population density.

Thus, using equations (1) to (4), the net migration between region *i* and j (NM_{ij} [15]) is given by equation (5):

$$(5) \quad NM_{ij} = f\left(U, U_{i,(j)}, W_{i,(j)}, K_{i,(j)}, UB_{i,(j)}, F_{i,(j)} Ks_{i,(j)}, Cl_{i,(j)}, A_{i,(j)}, Pd_{i,(j)}, ...\right)$$

In order to test the validity of this model for the Spanish case, two different specifications of equation (5) are estimated in the next section.

4. INTERREGIONAL MIGRATION IN SPAIN: A SEMIPARAMETRIC ANALYSIS

According to the above discussed model, net migration rates depend on unemployment (both regional and aggregate rates) and regional wages plus a set of other regional variables such as human capital, the cost of housing, amenities and so on. Taking into consideration that data about some variables are the same for all regions (e.g. unemployment benefits) and that other variables are of qualitative nature (friendship, kinship, …)[16], a possible specification of the regression equation is given by equation (6):

---

[14] Aronsson *et al.* (2000) also stress the role played by factors such as the initial fiscal structures of the regions and some national policies designed to affect regional performance.

[15] $NM_{ij,t} = Inmigration_{ij,t} - Outmigration_{ij,t}$

[16] The role of these factors is addressed by the so-called “network theory” (Parikh and Van Leuvensteijn, 2002)

$$(6)\quad MR_{ij,t} = \alpha_i + \beta_1\left(U_i/U_j\right)_{t-1} + \beta_2\left(Y_i/Y_j\right)_{t-1} + \beta_3\left(H_i/H_j\right)_{t-1} + \beta_4\left(K_i/K_j\right)_{t-1} + \beta_5\left(Pd_i/Pd_j\right)_{t-1} + \beta_6\left(Cl_i/Cl_j\right)_{t-1} + \varepsilon_{ij,t}$$

where $MR_{ij,t}$ denotes the net migration rate between regions *i* and *j* in period *t*[17], *Y* is the per capita GDP used as a proxy for wages[18] and all other variables have their previously mentioned meaning[19]. As can be seen in equation (6), and in order to take into consideration differences between home and destination regions, we have used relative values for most of the variables. Table 1 presents some descriptive statistics and average regional differences for these variables.

Parametric estimation techniques are traditionally employed to carry out this type of analysis. The main characteristic of this approach is that it considers that there is a known functional form (generally linear) between the explanatory variables and the dependent variable. However, there is often no apparent reason (either economic or otherwise) to assume that the relation is in fact of this type; on the contrary, in many cases one can guess that the relation is nonlinear, or at least that the functional form linking the endogenous variable with the exogenous variables is unknown, as is the case here. Then it becomes necessary to use more flexible estimation techniques than the parametric method.

---

17 $MR_{ij.t} = \left(NM_{ij,t}/Population_{t-1}\right)*1000$.

Prior to carrying out this estimation we built an origin-destination migration matrix which means we work with 17*16*7=1904 observations; by working with the net interregional flows of each of the regions *vis a vis* the others we sought to gain in informational content and precision.

18 As far as data on wages are concerned we have opted to use GDP per capita as a proxy because the regional dispersion of wages is very low (thus not having a discriminating effect on people) and because GDP per capita can also be considered as a proxy for other exogenous variables mainly related with amenities (hospitals, infrastructures, …).

19 Human capital (*K*) is defined as the proportion of the population of working age over total population with secondary or higher studies.

TABLE 1
Sample means and standard deviations of variables

Regions	MR	U	Y	K	H	Pd	Cl
Andalusia	-0.56	156.38	73.83	90.92	75.46	104.27	137.78
Aragón	-0.37	58.31	106.89	101.55	82.54	31.26	111.11
Asturias	-1.55	116.14	84.45	99.77	87.68	127.57	95.56
Balearic Islands	9.35	58.92	130.26	102.45	112.47	207.04	118.52
The Canary Islands	4.21	105.08	90.60	94.19	98.70	283.86	157.78
Cantabria	2.27	105.52	91.48	107.26	98.58	124.93	104.44
Cast.-La Mancha	2.13	94.06	83.49	90.13	60.61	27.28	114.07
Cast.-León	-2.02	95.04	93.40	96.74	89.70	33.04	80.74
Catalonia	-0.18	77.51	121.47	105.80	124.92	242.72	114.81
Valencian C.	2.51	96.28	100.99	103.38	72.18	220.33	131.85
Extremadura	-1.74	129.98	70.02	86.33	52.52	32.17	122.96
Galicia	-1.21	85.75	83.75	85.20	75.72	115.64	106.67
Madrid	-1.89	80.28	128.95	112.60	155.54	808.61	104.44
Murcia	0.92	108.06	82.47	97.07	60.64	126.28	126.67
Navarre	1.66	59.08	124.05	107.28	105.47	64.96	92.59
Basque Country	-2.17	109.61	115.65	110.42	147.47	363.28	105.93
La Rioja	2.25	61.03	117.24	95.22	87.18	66.29	137.78
Standard deviation	2.94	27.06	19.78	8.20	28.99	190.24	18.76

Notes: Exogenous variables are given taking the Spanish national average equal to 100.
Sources: INE, FUNCAS, IVIE, Development Ministry and own elaboration.

In view of this, the main innovation of the current study lies precisely in the technique of analysis it employs, which is a semiparametric estimation with panel data. This implies the estimation of an equation in which no strong restrictions are imposed on the functional form of some of its components; it is simply assumed that it is a *smooth* function – i.e., continuous and with a certain degree of differentiability – whose form is unknown.

As its name implies, the semiparametric estimation consists of two elements: the first one is estimated nonparametrically, while the second provides an estimation of a group of parameters. The general form of this model is as follows:

(7) $$Z = \beta^T X + m(T) + \varepsilon$$

where X is the vector of explanatory variables that has a linear influence on the endogenous variable (Z); β is the vector of parameters associated with those variables; $m(T)$ is an unknown function of the vector T, which represents the group of explanatory variables whose influence is – or might be – nonlinear; and ε is the error term, with $E(\varepsilon / X, T) = 0$ and $\mathrm{V}(\varepsilon / \mathrm{X}, \mathrm{T}) = \sigma^2$.

The estimation process carried out in this paper is based on that of Li and Stengos (1996), in which they combine semiparametric estimation techniques with the use of panel data. Assuming that the relationship between MR_{ij} and $\left(U_i / U_j \right)$ is non-linear[20], the equation which reflects this assumption would be the following:

(8) $$\begin{aligned} MR_{ij,t} &= \alpha_i + m\left(U_i / U_j \right)_{t-1} + \beta_1 \left(Y_i / Y_j \right)_{t-1} + \beta_2 \left(H_i / H_j \right)_{t-1} + \beta_3 \left(K_i / K_j \right)_{t-1} \\ &+ \beta_4 \left(Pd_i / Pd_j \right)_{t-1} + \beta_5 \left(Cl_i / Cl_j \right)_{t-1} + \varepsilon_{ij,t} \end{aligned}$$

[20] This nonlinear relationship is demonstrated by the fact that a simple neglected nonlinearity test (conditioned on differences between unemployment rates) failed to detect any neglected nonlinearity. A Fan-Ullah (1999) test has been utilized in which the conditional expectation of the residuals took the form: $E\left(\hat{\varepsilon}_{ijt} \middle| \left(U_i / U_j \right)_{t-1} \right) = m\left(\left(U_i / U_j \right)_{t-1} \right)$, where m(.) was estimated using a Nadaraya-Watson estimator (Gaussian Kernel). The Fan-Ullah (t-*test*) statistic is 8.37, which clearly surpasses the 5% critical value of 1.96.

The results obtained are shown in the first two columns of Table 2 and Figure 3. The most relevant conclusions from this analysis are as follows:

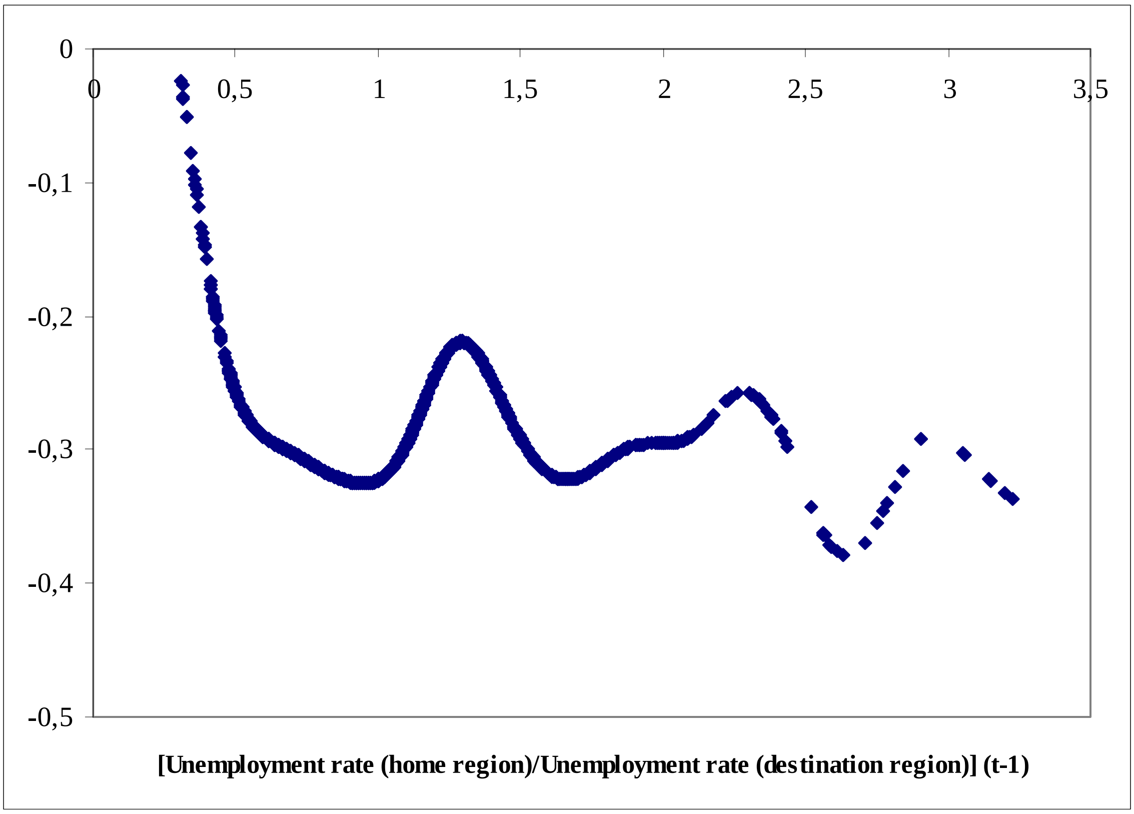
TABLE 2
Net Interregional Flows (1995-2002): Equations

Dependent variable: $mr_{ij,t}$	**Equation 1**		**Equation 2**	
	Coefficient	**"t" Stat.**	**Coefficient**	**"t" Stat.**
u	0.000	0.08	-0.002	-0.77
$\left(u_i / u_j \right)_{t-1}$	n.p.v.		-0.134*	-3.52
$\left(Y_i / Y_j \right)_{t-1}$	0.455*	4.37	n.p.v.	
$\left(H_i / H_j \right)_{t-1}$	-0.247*	-6.13	-0.241*	-6.35
$\left(K_i / K_j \right)_{t-1}$	0.023	0.17	0.131	1.04
$\left(Pd_i / Pd_j \right)_{t-1}$	-0.004	-1.18	-0.008**	-2.36
$\left(Cl_i / Cl_j \right)_{t-1}$	0.454*	9.42	0.489*	10.47
Fixed Effects				
Andalucía	-0.46*	-2.94	-0.26	-1.54
Aragón	-0.53*	-3.42	-0.41*	-2.60
Asturias	-0.41*	-2.74	-0.28	-1.81
Baleares	0.04	0.23	0.25	1.57
Canarias	-0.24	-1.46	-0.10	-0.61
Cantabria	-0.18	-1.14	-0.09	-0.55
Cast.-La Mancha	-0.30**	-2.05	-0.15	-1.02
Cast.-León	-0.44*	-3.11	-0.30**	-2.01
Cataluña	-0.45*	-2.85	-0.29	-1.75
C. Valenciana	-0.40**	-2.46	-0.23	-1.40
Extremadura	-0.55*	-3.78	-0.38**	-2.49
Galicia	-0.46*	-3.32	-0.33**	-2.31
Madrid	-0.46*	-2.95	-0.32**	-1.97
Murcia	-0.43*	-2.77	-0.30	-1.84
Navarra	-0.37**	-2.40	-0.19	-1.23
País Vasco	-0.44*	-2.75	-0.28	-1.66
La Rioja	-0.36*	-2.55	-0.15	-1.01

Notes: 1.- (*) Significant 99%; (**) Significant 95%. 2.- "n.p.v" denotes the nonparametric variable in each case.
Sources: INE, FUNCAS, IVIE, Development Ministry and own elaboration.

FIGURE 3

Nonparametric variable Equation-1 $-m\left({}^{u_i}\!/_{u_j}\right)_{t-1}$ -



1. Aggregate unemployment does not seem to affect net migration rates. Two explanations for this result are possible. On the one hand, it could be because many workers who move between regions emigrate with a job-contract or their main objective for moving is not to find employment. On the other hand, this result might derive from the fact that the changes in unemployment rates were evenly distributed across regions making no region worse off than others.
2. Relative unemployment rates have a negative effect on net migration rates (Figure 3). It also appears that the higher the level of unemployment in the destination region the lower the net migratory rate –since it diminishes the likelihood of finding work in the destination region.

3. Differences in income levels do exert a strong influence on internal migration in Spain. An increase in GDP per capita relative to another region seems to encourage migratory flows; to be precise, an increase of 1 per cent in GDP per capita relative increases net migration rate by 0.455 percentage points.
4. Another factor that appears to be behind net interregional migration in Spain is housing cost differentials; the coefficient associated with this variable is statistically significant, its value being -0.247. Hence, a rise in the cost of housing in the destination region discourages migratory flows to it.
5. Relative human capital does not appear to exert any effect on net migratory flows[21]. As human capital affects both outflows and inflows, this result suggests that they tend to compensate each other, thus having a negligible effect on net migration.
6. In the same way, population density differences do not seem to have any impact on net migratory flows.
7. The coefficient on climate differences (0.454) is statistically significant, meaning that individuals tend to migrate to regions with better climatic conditions than in their home region. This result makes it clear that location-specific amenities do matter (see, for example, Treyz *et. al.*, 1993).
8. Finally, the fixed effects of each region, which represent all those other factors that differentiate them from other regions and which scarcely change over time, are in many cases (14) statistically significant. This

[21] This result changes if the gross migration rate is considered to be the dependent variable. In this case, the estimation reveals, as is usually assumed, that the most qualified people tend to emigrate more.

indicates that along with the more traditional factors determining net migration rates there are others whose influence is difficult to quantify.

Previous results show that the variable having a more powerful influence on net migration rates seems to be regional differences in GDP per capita. Thus, we opted to estimate equation (8) again but with an important change: we associated a coefficient to the variable for regional unemployment differentials, and we allowed the influence on each region's net migration rate of the variable for per capita GDP differentials (which is, in this case, the nonparametric variable) to be nonlinear[22]. In this way, the equation is estimated as follows:

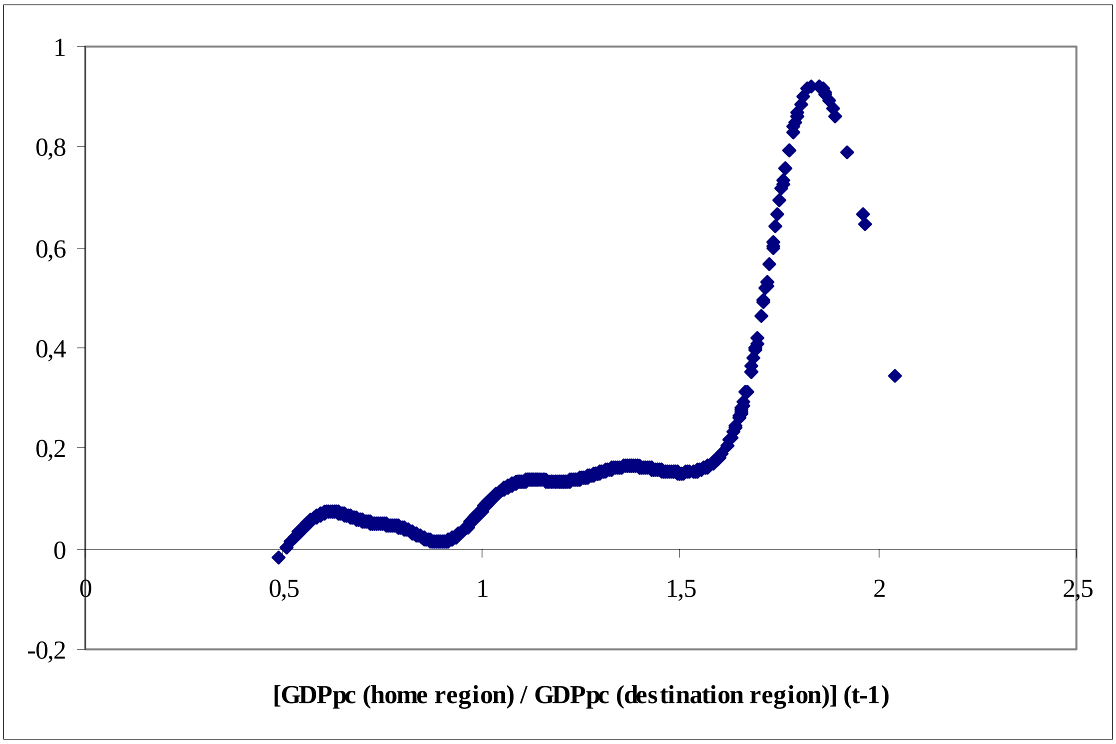
(9)
$$MR_{ij,t} = \delta_i + \pi_1\left(U_i / U_j\right)_{t-1} + m\left(Y_i / Y_j\right)_{t-1} + \pi_2\left(H_i / H_j\right)_{t-1} + \pi_3\left(K_i / K_j\right)_{t-1} + \pi_4\left(Pd_i / Pd_j\right)_{t-1} + \pi_5\left(Cl_i / Cl_j\right)_{t-1} + u_{ij,t}$$

[22] The Fan-Ullah statistic is, in this case, 11.88.

The results obtained are shown in Table 2 (third and fourth columns) and Figure 4. The additional information we obtain shows that:

FIGURE 4

Nonparametric variable Equation-2 – $m\left(Y_i / Y_j\right)_{t-1}$ **-**



1. The parametric coefficient on relative unemployment rates is statistically significant, although quite low. In particular, an increase of 1 per cent in the relative unemployment rate decreases the net migration rate by 0.134 percentage points. This fact could be explained because, as indicated in our model, migration is costly for the individual.
2. Concerning the effect of GDP per capita differences, Figure 4 shows it is especially intense when these differences are very important (more than 50%). Only then does a higher per capita GDP act as a magnet for immigrants.

3. Finally, there are now only five fixed effects which are statistically significant.

5. CONCLUSIONS

Starting from a descriptive analysis of interregional migration in Spain, which shows that net flows have been very low between 1995 and 2002, the paper presents a theoretical framework trying to capture the main factors which affect internal migration.

After this, we estimate this model by computing various regression equations using semiparametric techniques. The results show that the variables that mainly affect migration are differentials in income levels and climatic conditions between home and destination regions. Likewise, we find that differentials in unemployment and housing costs also appear to explain net migration rates, although to a lesser extent. On the other hand, neither the aggregate unemployment rate, nor human capital and population density differentials greatly affect net migratory rates.

In view of the above conclusions, and as was suggested at the beginning of this paper, we might ask whether migratory flows can contribute to resolving the problems of the labour market in Spain, and particularly to reducing the persistently high aggregate unemployment rate and regional differences. These results –which tend to confirm those previously found in the literature- do not allow us to be very optimistic on this point, since they show that the influence of both aggregate and relative unemployment is not very high and that income level differentials are of particular relevance only when they are very great. Only if the migratory flows were very high and they followed patterns predicted in economic theory would the movement of people help to improve the situation of the labour market in this country[23].

[23] Nevertheless, Partridge and Rickman (1997) explain that even with high and increasing mobility rates would be difficult to completely eliminate dispersion in regional unemployment rates.

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