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Internal Migration in Spain: A Complementary Approach

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Abstract: This study examines the determinants of internal migration of working-age population among provinces in Spain in the aftermath of the economic crisis. It pays special attention to two features of migration that have not been sufficiently studied so far: (a) Distance, namely the differences between the determinants that are behind short-distance and long-distance movements; (b) Age, that is to say, whether young and adult migrants hold different motivations. To accomplish this aim, an extended model is used in which, apart from a variable capturing distance, both economic and non-economic (amenities) variables are included. Findings reveal that both economic factors (mainly unemployment and income) and amenities (measured by a climate condition variable) are more important for adult population and long-distance movements than for young population and movements between neighbouring provinces. Additional findings seem to convey the message that, as far as housing prices are concerned, they play a significant role when migration takes place between neighbouring provinces, but lose importance when all migrations are studied together. Moreover, the paper's results do not cast, as expected, any doubt on the importance of distance regardless of the type of migration or age of the migrant.

Keywords: internal migration; distance; age; migration model; Spanish provinces

JEL Classification: R23; O15; C23

1. Introduction

The analysis of migratory movements has been a significant topic in the economic literature over the past few decades, regardless of which approach—international or internal migration—is used; indeed, as indicated among others by King and Skeldon (2010), both approaches can be integrated into different ways. From a theoretical point of view, one of the main causes behind the importance of this branch of the literature is concerned with economic growth models. When introducing explicitly migratory movements into these models, it can be seen how migration can play a significant role to foster or hamper, depending on the case, the process of convergence between advanced and poor economies. Based on this theory, among others, the number of papers dealing with the determinants of internal migration (when the analysis centres on a single country) and/or international migration (across countries) is so high that is impossible to cover them. As a reference, the surveys by Greenwood (1975, 1997), Todaro (1980), Massey et al. (1993), Ghatak et al. (1996), Cushing and Poot (2003) and Plane and Bitter (2005) are, to name only a selected few, worth mentioning. In a nutshell, two main groups of factors affecting migration can be distinguished: economic and non-economic (the so-called amenities) factors, whose relative importance depends on the theory and/or empirical research carried out.

In this paper, I am going to study the determinants of internal migration, leaving aside movements between countries. More specifically, I am going to use Spain as a case study. As indicated by Álvarez and Royuela (2020), many papers have already employed the Spanish situation as a benchmark when it comes to figuring out the factors explaining internal migration. One of the main reasons behind

this interest is, likely, the strong persistence of both unemployment (Bande et al. 2008, 2019) and wage (Maza and Villaverde 2009) disparities despite the existence of rather intense internal movements. Although these movements are less intense than those that took place in the second half of the 20th century, the arrival of a wave of foreign population at the beginning of the new century, among other factors, has reactivated them notably (see e.g., Maza et al. 2013). Namely, Spain provides a good example of a country where migration is not able to balance these differences, calling into question its effectiveness from this perspective.

Against this backdrop, with many papers already published analysing internal migration in Spain from various, different and complementary perspectives (for a survey, see Álvarez and Royuela 2020), it is important to know the state-of-the-art and to come across a gap that this paper can, at least partially, address. Thus, we can find papers dealing with the personal characteristics of migrants (e.g., Antolín and Bover 1997; Devillanova and Fontes 2004) and with the segmentation of the labour market (e.g., Bentolila and Dolado 1991; Ródenas 1994). At the same time, papers paying attention to the differences between internal migration of foreigners and natives (Maza et al. 2013; Gutiérrez-Portilla et al. 2018) or testing for the existence of non-linearities in some explanatory variables (Maza and Villaverde 2004a, 2004b; Maza 2006; Clemente et al. 2016; Gutiérrez-Portilla et al. 2018; Maza et al. 2019). Besides, some pieces of work include the importance of the geographical situation of each province/region (Maza and Villaverde 2008; Mulhern and Watson 2009), as well as the treatment of multilateral resistance by using combinations of fixed effects (Maza et al. 2019). Finally, the effect of the 2008 economic downturn (Gutiérrez-Portilla et al. 2018; Hierro et al. 2019; Melguizo and Royuela 2020) has also been recently examined.

There are, in any event, some points that so far have been somewhat overlooked. On the one side, I am in line with Álvarez and Royuela (2020, p. 14) when saying, 'there are very few estimates of the determinant of inter-regional migration in Spain that either controlled for or targeted a specific age group'. On the other side, very little attention has been paid to the differences that surely exist between the determinants of short- and long-distance movements. Therefore, I will modestly try to fill this gap by dealing with both issues. In the first case, total migration is going to be divided into two different age cohorts: youth (16–34 years old) and adults (35–65 years old);[1] that is the reason why I employ, as indicated below, microdata samples, since otherwise information on migration by age is not provided. In any case, I want to recognise from the outset that, since data do not allow a household analysis, I have to treat all movements as independent; in other words, I cannot deal with household movements involving children and the householder at the same time. For the second issue, I am going to differentiate between movements across neighbouring provinces and those taking place between non-neighbouring provinces. The two general hypotheses to be tested are as follows: H1. In terms of age, amenities are more important for the adult population than for the young population; H2. As for distance, both economic factors and amenities are more important for long-distance movements than for short-distance ones.

Why is it important to take into account the differences among age groups and among short- and long-distance migration? There are at least two reasons I would like to highlight. First, despite the vast literature on migration devoted to the Spanish case, it is necessary to address these topics if we are to broaden our knowledge of migratory movements. Theoretical models do postulate the existence of differences according to age and distance, so a preliminary empirical approach that deals with them is wanted. Second, and more of a political nature, because of the fact that policymakers could be interested in encouraging a specific type of migratory flows. For example, their strategy in a particular province could lie in attracting young people/preventing them from moving, perhaps because they assume that young people are highly skilled and more resilient to change than people close to retirement are. Another example would be policymakers who, in a setting characterised by commuting movements, try to attract people from neighbouring provinces, as well as stop their citizens

[1] I consider the age of 34 as the limit between youth and adulthood because this is done in many papers regardless of the topic; see, for example, Crescenzi et al. (2018) when dealing with the causes of Brexit.

from moving there. Whatever the case, they will need to be aware of the existence of peculiarities in these groups of population. That is, only by knowing migration drivers of the target population, which are likely to be different, at least to some extent, from those of the general population, will they be able to implement the right policies.

Regarding the data used, I employ microdata coming from the *Estadística de Variaciones Residenciales* (*EVR*)—offered by the Spanish National Statistics Institute (INE)—to collect migration flow data from 2008 to 2018, as well as other databases for the variables included in the model that I will indicate later. I do not use census data because population censuses present significant problems of consistency and non-response in the measurement of migration and are therefore not a reliable statistical source. Data from the EVR are compiled from the information generated by the management of changes in residence in the Municipal Register of Inhabitants. Specifically, the RVS provides information on migrations classified by origin and destination, as well as their distribution according to some personal variables of migrants. As it is an administrative register, the veracity of the information provided depends, on one side, on the degree of compliance among new residents with the legal requirement of registration and, on the other side, on the municipal capacity in the processing and updating of the information. Although for these reasons, it also presents some drawbacks, experts on this subject (e.g., Ródenas and Martí 2009) state that the EVR is arguably the best migration databank for the Spanish case. Indeed, there is nowadays a legal obligation to register, which is necessary in order to access many social services or even to vote, while the computerisation of the statistical management process has contributed to the improvement and speed of information processing. Consequently, the reliability of the EVR has significantly increased over the last two decades, being probably the most used database in migration studies for Spain.

With regard to the unit of analysis, and as can be inferred from the previous paragraph, the EVR dataset provides data for administrative units. There are basically two options within the NUTS—the Nomenclature of Territorial Units for Statistics—classification: regions (NUTS2) or provinces (NUTS3).[2] As the higher the level of disaggregation the higher the reliability of the results obtained is, I use provinces rather than regions; I do not consider intra-provincial movements since their determinants are, in this case, quite different because of, for instance, the high share of commuting movements (Artís et al. 2000). Another important feature to note regarding the data used is that, unlike many other documents studying aggregate migration movements from/towards provinces, the present paper examines bilateral migration flows; that is to say, movements between each pair of provinces. As it is obvious, this fact avoids aggregation and allows us to get more accurate and reliable results.

The remainder of the paper is structured as follows. Section 2 presents an overview of migration between Spanish provinces over the sample period. Section 3 specifies the benchmark model to be estimated first with the complete data and then with different subsamples to test the hypotheses. Section 4 presents the main results. Section 5 summarises the main conclusions of the paper.

2. A Snapshot of the Case Study: Internal Migratory Flows in Spain

This section seeks to place the reader within the case study: as indicated, internal migration among Spanish provinces over the period 2008–2018. The reason I start the analysis in 2008 is that, as showed e.g., by Gutiérrez-Portilla et al. (2018), the outbreak of the financial and economic crisis is deemed a turning point in internal migration; the analysis extends to 2018 since this is the last year available when writing this paper. Before the economic downturn, the inter-provincial gross migration rate—defined as the sum of internal movements among all provinces divided by the Spanish population in the previous year and multiplied by 1000—increased smoothly but, as can be seen in Figure 1, it dropped thereafter until 2016, then registering moderate rises in the last two years under

[2] Leaving aside the possibility of using data at municipal level, since we do not have enough information regarding the potential migration determinants for each municipality.

analysis. In any case, gross migration rates are, throughout the study period, significantly lower than at the beginning of the century. As a complement, an analysis of the migration rates of the young population and the adult population can be seen in Appendix A.

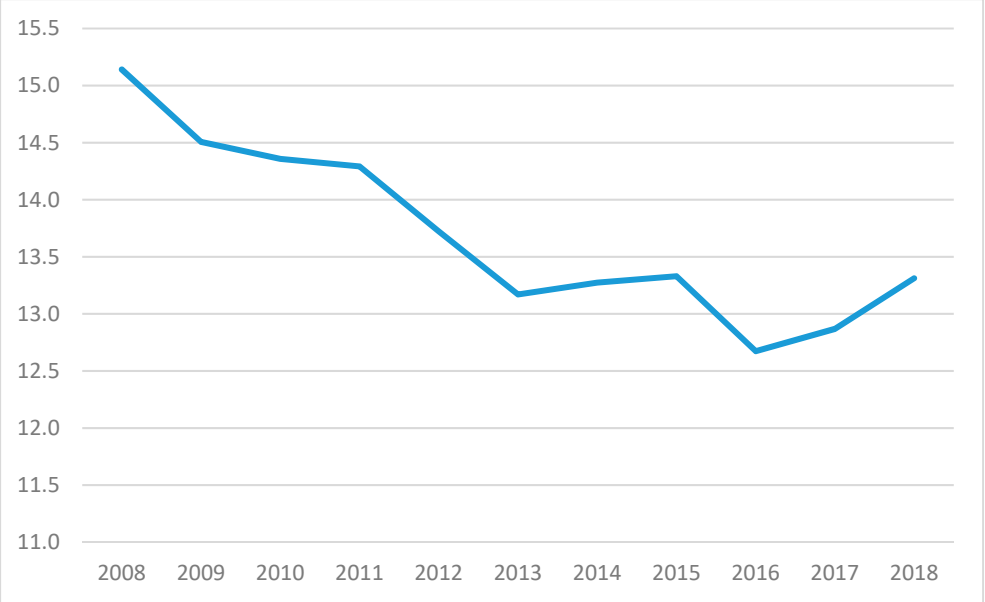

Figure 1. Inter-provincial gross migration rate in Spain. *Source:* Estadística de Variaciones Residenciales (INE) and own elaboration.

By province, Table A1 in Appendix B reports the inter-provincial gross migration rates for each pair of provinces—defined as the sum of out-migration movements from the origin province to the destination one divided by the population of the province of origin in the previous year and multiplied by 1000—corresponding to, as a reference to save space, the last year of the sample (2018). There are several conclusions we can draw from these figures:

1. There are important differences in the intensity of migratory flows throughout Spain.
2. Rates are especially high between neighbouring provinces. Figure 2 displays the geographical location of the 50 Spanish provinces so that the reader can check how gross migration rates increase between them and, as a rule, diminish as the distance increases.
3. In line with the previous conclusion, migratory movements between provinces belonging to the same region (see also Figure 2) are quite high. In Table A1, the cells corresponding to these provinces are shaded and, as can be observed, figures are much higher than average.
4. The role played by provinces such as Madrid and Barcelona, arguably the two most important ones in economic terms, as a destination of migratory flows is unquestionable. These rates are highlighted in bold in the table. In any event, there are also many people leaving these rich provinces to live in neighbouring ones.
5. The island provinces (Baleares, Tenerife and Las Palmas) also stand out both as sending and receiving provinces. Flows towards and from them are intense.
6. Finally, although for the sake of space it is not offered for each pair of provinces but globally, when computing the net migration rate for each province—defined as internal movements from each province (to the remaining ones) minus internal movements (from the rest of provinces) towards it divided by its population in the previous year and multiplied by 1000—one can get a precise idea of the role that each one plays as a province of origin or destination. By doing so, we find out (see Figure 3) that some provinces highlight for being basically destination provinces (namely Guadalajara, Toledo, Alava, Tarragona and Castellon), some others do so as sending provinces

(mainly some areas in the surroundings of Madrid such as Ciudad Real, Zamora and Ávila), while others report a net migration rate close to zero (e.g., Pontevedra, Vizcaya, Coruña and Lleida).

Figure 2. Provincial map of Spain.

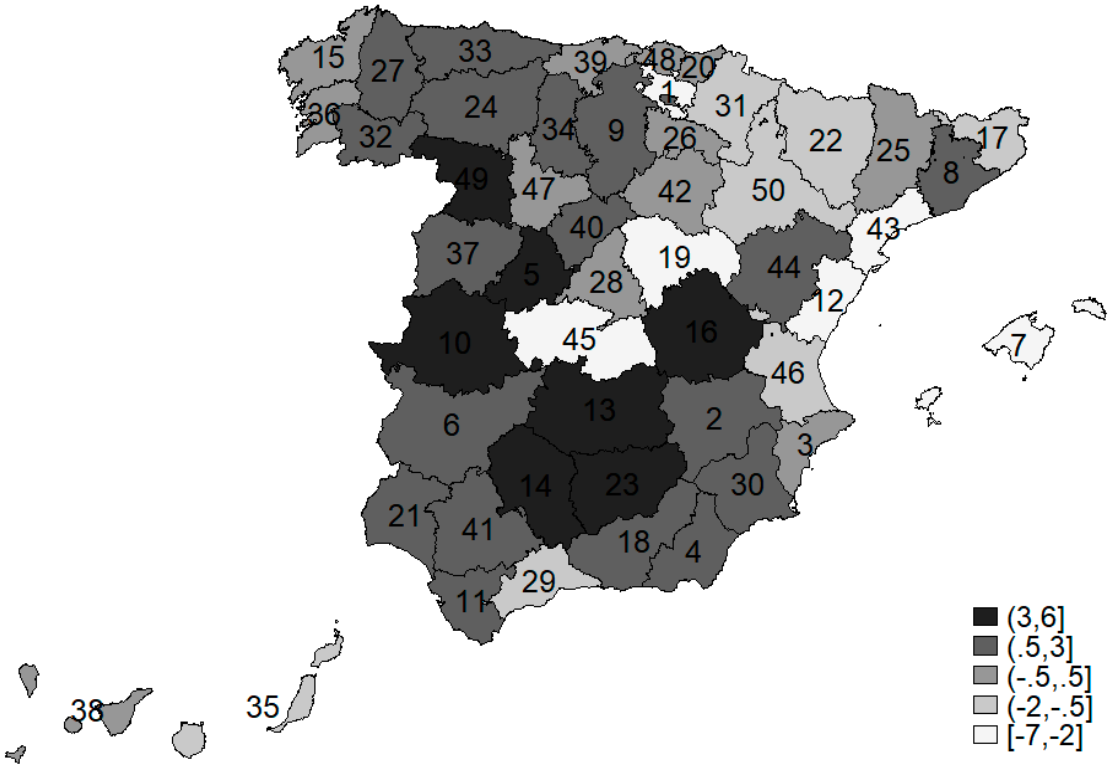

Figure 3. Net migration rates in the Spanish provinces. 2018. *Note*: To know the name of each province see Figure 2.

3. Methodology

As indicated in the Introduction, the theoretical framework in which all migration articles draw is vast. In fact, the first attempts to theorise about migratory movements were focused on internal migration, highlighting the Ravenstein's 'laws of migration' (Ravenstein 1885, 1889). Later on, Sjaastad (1962) proposed a cost-benefit analysis of migration, Wolpert (1965) developed a model based on a behavioural perspective on the decision to migrate, Lee (1966) delved into the Ravenstein's migration rights, stating that migration is triggered because a poor region 'pushes' people to a rich region that 'attracts' labour to it, and to somewhat conclude with the review of classical models, Todaro (1969) developed his well-known model of migration and labour opportunities. Based on this last model and its various extensions, countless empirical works have been carried out.

To provide an extensive theoretical framework is, accordingly, clearly out of the scope of this paper (a standard model can be seen e.g., in Maza and Villaverde 2004a; Gutiérrez-Portilla et al. 2018). Based on migration theory, as well as data availability, this paper simply proposes a 'standard-extended' model that is taken as a benchmark for further analysis. Before presenting the model, it is convenient to stress that a gravity model has been always a great tool to study migration (Greenwood 1997; Mayda 2010; Ramos 2016). Not only this, as indicated by Ramos (2016, p. 1), 'Availability of bilateral data on migratory flows has renewed interest in using gravity models to identify migration determinants'. Thus, the model I propose in this paper is partially a model of gravity; it includes distance in the set of explanatory variables, a main feature of this type of models, but it does not consider the size of the territories since, as will be seen immediately, I am regressing migration rates rather than absolute flows. Therefore, the multiplicative character of a gravity model (which, as is known, has to do with the size of the territories) disappears so that the proposed model is an additive one. In fact, an additive model is usually employed in the migration literature, though it is true that this feature of the model is often achieved by taking logarithms over absolute variables (Ramos and Suriñach 2017).

In short, bearing these considerations in mind and leaving aside the detail of theoretical aspects, this paper puts forward a simple model so that, later on and always considering the working-age population, several versions of it are estimated in order to test for the different hypotheses mentioned in the Introduction. The model reads as follows:

$$GMR_{ij,t} = \beta_1 Inc_{ji,t-1} + \beta_2 UR_{ji,t-1} + \beta_3 HP_{ji,t-1} + \beta_4 CL_{ji,t-1} + Dist_{ij} + \alpha_i + \alpha_j + \mu_t + \varepsilon_{ij,t} \quad (1)$$

where $i(j)$ denotes the pair of provinces you are taking into consideration, and t refers to time. Before going any further, it is mandatory to make some comments on the variables included in the model, as well as to point out the databases employed:[3]

- *GMR* denotes the inter-provincial gross migration rate, defined as above. There is always some discussion on the use of net or gross migration flows; concerning this point, I am in line with Juarez (2000) and believe gross flows are more appropriate since they prevent inflows and outflows from offsetting each other.
- *Inc* refers to the ratio of per capita GDP (destination province over origin province).[4] Regardless of the model you are applying, one main factor behind migration is the wage-gap between territories. It is important to note, therefore, that following, among others, Redding and Venables (2004) and Bruna et al. (2016), I decided to take per capita income as a proxy for wages. Data were collected from the *Contabilidad Regional de España* (INE).

[3] Following the recommendations of a reviewer, I also included interaction variables (income, unemployment and climate, all of them individually with distance), but these interaction variables turned out to be, in all cases, non-significant. Therefore, the importance of these factors does not seem to change with distance.

[4] Although this choice is arguable, I include ratios in the model because, when making a decision, potential migrants compare variables in origin and all the potential destinations.

- *UR* denotes the unemployment rate ratio (as always, destination divided by origin). As in the previous case, employment opportunities are always considered a key factor in explaining migration (see, e.g., the seminal paper by Harris and Todaro 1970, one of the extensions of Todaro's model previously mentioned). Data were collected from the *Encuesta de Población Activa* (INE).
- *HP* means the ratio between housing prices. It is also quite common in migration models to include a variable capturing differences in housing prices between origin and potential destinations (as a reference, see the 'Push-pull' Theory of Migration established by Lee 1966). Data were taken from the Spanish Ministry of Development. Unfortunately, there is no available information about homeownership, which no doubt becomes a crucial factor when making a migration decision (Palomares-Linares and van Ham 2020).
- *CL* denotes the climate condition ratio. As indicated by, for instance, Partridge and Rickman (2003), migration cannot only be economic but also amenity-driven. Here, to check for this type of migration, I consider as a proxy for amenities, in line with many empirical works, a climate variable (which in turn is approximated by the average temperature of each province). Data were collected from different yearly reports provided by INE.
- *Dist* refers to the distance (thousand kilometres of road) between pairs of capitals (except for island provinces, obviously). Data were collected from the Repsol Guide (http://aim-andalucia.com/distancias.html).
- $\alpha_{i(j)}$ refers to origin (destination) fixed effects, and μ_t to time effects. Following Royuela and Ordóñez (2018), I considered different combinations of fixed-effects to deal with multilateral resistance in migration decisions. For the sake of simplicity, here I show the one offering, in my view, better results.
- Finally, it is important to stress that the reason I take lagged variables is two-fold: On the one hand, since when it comes to moving, migrants pay attention to the value of each variable in a previous period; on the other hand, because it is an easy way to somewhat tackle with endogeneity problems arising in any migration model.

4. Results

As said above, Equation (1) is going to be considered the benchmark model, thus offering what can be called aggregate results. Afterwards, I am going to estimate different versions of the model by considering different sub-samples: age groups (young and adult population) and distance (migration between neighbouring provinces and non-neighbouring provinces).

4.1. Benchmark Model

Table 1 reports the results obtained when estimating Equation (1). The estimation was performed by generalised least squares (GLS) since the Breusch-Pagan test pointed to the existence of heteroscedasticity.[5]

As can be seen by looking at the coefficients linked to the main variables of the model (first part of the table), the conclusion is straightforward: internal migrations between Spanish provinces are, generally speaking, economically driven. In other words, people tend to migrate to wealthier provinces—the coefficient linked to the ratio between per capita income in destination and origin is positive and statistically significant—and provinces where employment opportunities are higher—the coefficient linked to the ratio between the unemployment rate in destination and origin is negative and statistically significant. On the contrary, both the coefficients of housing prices and climate conditions turn out to be statistically equal to zero; in any case, these aggregate conclusions will be qualified later on. Regarding distance, as expected, the paper's findings indicate that people tend to move towards nearby provinces; this is a common result in all migration studies I have ever read.

[5] The results obtained by Ordinary Least Squares with robust standard errors are roughly the same.

Concerning fixed effects, to save space I do not provide all of them in the table. More specifically, when referring to 'origin/destination' provinces, only those getting significant coefficients are reported. As for time effects, none of them is shown since all are statistically significant (the most significant ones being those referring to the last two years because of the fact that internal migration grew in strength in the last part of the sample period). Concisely, apart from the idiosyncratic factors of the island provinces (Tenerife, Las Palmas and Baleares), the results point out that most 'origin' provinces are located near Madrid and Barcelona, being these last two the main 'destination' provinces in the country.

Table 1. Benchmark model.

Independent Variables	Coefficient	*t*-Student
Income (*Inc*)	0.0520 *	2.89
Unemployment rate (*UR*)	−0.0128 *	−3.40
Housing prices (*HP*)	−0.0067	−0.86
Climate (*CL*)	0.0208	0.95
Distance (*Dist*)	−0.0009 *	−17.78
Origin provinces [1]		
Palmas, Las	1.0844 *	8.59
Tenerife	1.0622 *	8.39
Girona	0.3254 *	2.91
Guadalajara	0.2363 **	2.13
Baleares	0.2161 ***	1.95
Tarragona	0.2032 ***	1.83
Lleida	0.1927 ***	1.74
Destination provinces [1]		
Madrid	2.1674 *	19.51
Barcelona	0.9503 *	8.54
Palmas, Las	0.9307 *	7.37
Tenerife	0.8816 *	6.96
Valencia	0.2040 ***	1.84
Number of observations	26,950	
R-square	0.40	

Notes: [1] Origin and destination provinces with statistically significant coefficients; * (**) (***) Significant at 1% (5%) (10%). *Source:* INE, Spanish Ministry of Development, Repsol Guide and own elaboration.

4.2. Dealing with Age

Table 2 shows the results obtained when considering two age cohorts: youth (migrants from 16 to 34 years old) and adulthood (migrants from 35 to 65 years old). Paying attention to the main variables, some quite important differences can be noticed. The effect of the economic determinants of migration is much more intense for the adult population than for the young population. In fact, in the first case, both income and unemployment have the expected sign and are statistically significant, while in the second only the unemployment rate turns out to be significant (at 10%). A tentative explanation of these results is that in the group of young population there are some movements, starring students that, unfortunately, I cannot capture since there is not available information even when you 'squeeze' microdata; indeed, when the minimum age considered is higher than sixteen the results are more in line with the predictions of migration theory. Anyhow, the main conclusion, that economic motives are more important the older the emigrant, persists. This conclusion might, therefore, be related to the fact that adults are less brave than young people, i.e., they only move when the economic prospects are really promising; conversely, young population moves even when economic prospects are bleak since it tends to have, actually, less to lose.

Table 2. Differences depending on age.

Independent Variables	Youth		Adulthood	
	Coefficient	***t*-Student**	**Coefficient**	***t*-Student**
Income (*Inc*)	0.0112	0.92	0.0426 *	4.84
Unemployment rate (*UR*)	−0.0044 ***	−1.71	−0.0082 *	−4.49
Housing prices (*HP*)	−0.0019	−0.35	−0.0049	−1.30
Climate (*CL*)	−0.0084	−0.57	0.0299 *	2.81
Distance (*Dist*)	−0.0004 *	−17.91	−0.0004 *	−17.54
Origin provinces [1]				
Palmas, Las	0.5506 *	8.54	0.5339 *	8.57
Tenerife	0.5385 *	8.33	0.5239 *	8.39
Girona	0.1574 *	2.76	0.1681 *	3.05
Guadalajara	0.1150 **	2.03	0.1206 **	2.20
Baleares	0.1084 ***	1.91	0.1078 **	1.97
Cádiz	0.1014 ***	1.77	-	-
Lleida	0.0975 ***	1.72	0.0953 ***	1.74
Almeria	0.0946 ***	1.66	-	-
Tarragona	-	-	0.1124 **	2.05
Destination provinces [1]				
Madrid	1.2449 *	21.96	0.9220 *	16.83
Barcelona	0.5274 *	9.29	0.4227 *	7.70
Palmas, Las	0.4793 *	7.42	0.4519 *	7.25
Tenerife	0.4531 *	7.00	0.4289 *	6.86
Valencia	0.1047 ***	1.85	0.0994 ***	1.82
Number of observations	26,950		26,950	
R-square	0.44		0.36	

Notes: [1] Origin and destination provinces with statistically significant coefficients; * (**) (***) Significant at 1% (5%) (10%). *Source:* INE, Spanish Ministry of Development, Repsol Guide and own elaboration.

Concerning the hypothesis—H1. In terms of age, amenities are more important for the adult population than for the young population—the results clearly confirm it. The coefficient linked to the climate condition variable is positive and significant only for adults. It is the same as saying that amenity-driven migration is just important for the adult population, even when, as in this case, only the working-age population is considered. Needless is to say that if I include the retired population in the sample the results would be stronger.

Finally, as before, at the bottom of the table, you can see what I have called 'origin' and 'destination' provinces. Focussing my attention only on the differences between these two groups, it is worth mentioning that Cádiz and Almeria are provinces from where a significant portion of young people tends to move, whereas in the case of the adult population Tarragona stands out. On the other hand, within 'destination' provinces there are no remarkable differences, outstanding Madrid and Barcelona and the two provinces of the Canary Islands regardless of age.

4.3. Dealing with Distance

Table 3 shows the results obtained when considering distance: short-distance movements (between neighbouring provinces, accounted for 9% of the total provincial pairs) and long-distance movements (between non-neighbouring provinces, accounted for 91% of the total provincial pairs). By doing so, I can test my second hypothesis—H2. As for distance, both economic factors and amenities are more important for long-distance movements than for short-distance ones.

With regard to the economic determinants of migration, the first two rows of the table convey a foremost message: unemployment rate differentials are only important when explaining long-distance

movements.[6] In my view, this fact could pertain to the availability of information and the communication channels through which further information about the situation of the labour market can be got. Once again, this explanation is tentative and needs more research, but the idea is that migrants do indeed receive more and faster information about vacant jobs in neighbouring provinces, so many of them move once they have already accepted a job offer.

Table 3. Differences depending on distance.

Independent Variables	Short-Distance Movements		Long-Distance Movements	
	Coefficient	*t*-Student	Coefficient	*t*-Student
Income (*Inc*)	0.2490 **	1.97	0.0565 *	3.69
Unemployment rate (*UR*)	−0.0030	−0.09	−0.0109 *	−3.45
Housing prices (*HP*)	−0.4870 *	−8.14	0.0281 *	4.32
Climate (*CL*)	−0.2771	−1.43	0.0362 **	1.99
Distance (*Dist*)	−0.0048 *	−5.00	−0.0003 *	−17.45
Origin provinces [1]				
Guadalajara	1.3232 **	2.58	-	-
Teruel	1.1687 **	2.28	-	-
Huesca	1.2898 **	2.09	-	-
Palmas, Las	-	-	0.4217 *	10.68
Tenerife	-	-	0.3868 *	9.76
Baleares	-	-	0.1977 *	6.13
Destination provinces [1]				
Madrid	9.2419 *	16.16	1.5059 *	45.01
Barcelona	5.4020 *	8.00	0.6888 *	20.89
Valencia	1.0795 **	1.85	0.2177 *	6.54
Palmas, Las	-	-	0.4611 *	11.61
Tenerife	-	-	0.4078 *	10.24
Baleares	-	-	0.2283 *	7.05
Alicante	-	-	0.2227 *	6.67
Malaga	-	-	0.1714 *	5.04
Cádiz	-	-	0.1181 *	3.50
Murcia	-	-	0.0978 *	2.93
Coruña, A	-	-	0.0940 *	2.86
Sevilla	-	-	0.0947 *	2.80
Number of observations	2453		24,497	
R-square	0.88		0.76	

Notes: [1] Origin and destination provinces with statistically significant coefficients; * (**) Significant at 1% (5%). *Source:* INE, Spanish Ministry of Development, Repsol Guide and own elaboration.

As for amenities, for short-distance movements they are not significant; this result was obvious because the differences in climate conditions between neighbouring provinces are quite negligible. The important point here is that for long-distance movements the coefficient of the climate condition variable is positive and significant, thus indicating that people are to some extent also moving to look for a better weather at the destination province.

It is also worth noticing, in this case, the results obtained for the housing prices variable. Its coefficient is significant in both scenarios, but negative for short-distance and positive for long-distance movements. These results explain why, in the aggregate estimate offered by Table 1, these two effects counterbalance and the coefficient of housing prices was no significant. The conclusion is, therefore, that high prices in the origin provinces/low prices in the destination ones only play a role

[6] As can be seen, the income coefficient is higher for short- than for long-distance migration. In any case, the short-distance coefficient is borderline significant and does not differ from the long-distance coefficient according to the Wald test.

as push/pull factor, respectively, in short distance movements, while for long-distance ones it seems that people, contrary to expected, move to provinces where housing prices are high. This is related to the fact that long-distance migratory movements are in many cases headed to provinces such as Madrid and Barcelona.

Finally, it is obvious to say that regarding fixed effects now differences are more intense. The provinces that can be classified as 'origin' ones for short-distance migration are Guadalajara, Teruel and Huesca, while for the long-distance migration the islands stand out. Concerning 'destination' provinces, Madrid, Barcelona and Valencia are noteworthy in both cases, existing also a basket of provinces (see table) highlighting as a destination for long-distance migration.

5. Conclusions

The study of internal migration in Spain has been a heated topic, albeit on and off, since the 1970–1980s. This current work is framed within the same line of analysis, but it delivers new interesting insights into the factors shaping internal migration flows at the provincial level in Spain after the outburst of the 2008 global financial crisis. More specifically, based on a benchmark model, which includes, apart from distance, both economic and non-economic variables as potential determinants of internal movements, it tries to uncover the differences that exist depending, on the one side, on the age of migrants (young people versus adults), and on the other side, on the distance of migratory movements (neighbouring provinces versus non-neighbouring ones). Consequently, this paper contributes to a better understanding of the complex migration patterns that have redistributed the Spanish population over the past decade.

In any event, it is important to admit at the outset that, as mentioned in the Introduction, this is a preliminary paper. Accordingly, all these explanations (and those provided in the previous section) have to be taken with caution and require further investigation and evaluation; this would entail more detailed data that are not available. There are, in fact, several potential extensions for this paper. Leaving aside the methodological ones, some of which were mentioned in the Introduction (non-linearities, spatial dependence, for instance), there is one especially tenting, promising but, at the same time, quite risky. I am referring to the possibility of carrying out the previous analysis by using what can be called a 'linked dataset'. The reason is that, by combining the different sources, one could get much more information about migrants, such as their workplace, level of qualification, if they own a house and so on; I could even treat independently family migrations (household movements) as well as the factors explaining commuting trips between provinces. What is the problem, then, for a researcher? As Martí and Ródenas (2020) recently demonstrated, when merging data coming from different data sources, there can be some consistency problems that, in the worst case, lead to wrong and misleading conclusions. Provided that these drawbacks are sorted out, if possible, there is no doubt about the potential value of employing linked data.

Bearing this caution in mind, very briefly I can indicate that the general conclusion drawn from this paper is that economic determinants (namely, per capita income and unemployment rate differentials between destination and origin) are especially important when it comes to explaining adult and long-distance migration. The same happens, even to a larger extent, with non-economic factors (amenities).

In the case of young population, the most striking result is that the income difference variable does not turn out to be significant, this likely reflecting the fact that young population is more prone to migrate even when the economic prospects are not so bright. This has to do, likely, to what Petersen (1969) indicated about the greater adaptability of younger persons to new situations. Regarding short-distance movements, it is important to note the role played by housing prices, as it seems that people tend to go to nearby provinces where prices are relatively low. As a potential explanation, I can invoke the existence of commuting movements not only within provinces but also between rich provinces such as Madrid and Barcelona and neighbouring ones; that is to say, people are moving from big cities to towns (even located in another province) where housing prices are cheaper. Therefore,

economic policies that facilitate access to relatively low prices—such as, for instance, programs to expand the supply of affordable housing—can greatly affect short-distance migration movements.

Finally, trying to go deeper from a political perspective, I have to say there are many actions that can be done to affect internal migration in Spain, all equally challenging. Not only that, the chasm that usually lies between an idea and its execution is always there. In any case, I believe at least two closely connected recommendations can be drawn from the findings of this paper, which would reinforce the hitherto weak role (see the Introduction) played by 'economic migration' as an adjustment instrument to lower unemployment rates (as well as income) differentials. The first one concerns the implementation of policies that increases wage flexibility (for a reference on this topic, see e.g., Maza and Moral-Arce 2006; Bande et al. 2012; Liu 2018) to try to reduce unemployment rates; according to this paper's findings, this kind of policies could be particularly effective in attracting young people, as they are more concerned with job opportunities than with the level of wages. The second recommendation points to the enactment of policies trying to encourage migration. I refer, for example, to strengthening recruitment agencies as channels of information on vacancies, which would be especially relevant for long-distance movements, or to implementing policies aimed at fostering job match quality. Deriving a conclusion, the combination of these types of policies would trigger economically motivated migration, easing up the situation of the Spanish labour market. This point becomes even more important nowadays since the legacy of the Coronavirus outbreak will be, as one of the main economic consequences of the lockdown (especially lasting in Spain), a widespread increase in the unemployment rate that, without room for doubt, is going to take long to erase. Inasmuch as policymakers take the lead in developing adjustment strategies, migration policy should be among the main ones.

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Appendix A

As I will focus my attention later in the paper, for the working-age population, on two age cohorts (namely, youth and adulthood) as well as the distance of migratory movements (short- versus long-distance), in this first Appendix I want to look over at the differences in the gross migration rate depending on the age of migrants, the boundary between youth and adulthood being the age of 35 years old. Subsequently, in Appendix B and the comments linked to it that are included in the main text of the paper, I will briefly show the importance of distance when it comes to the intensity of migratory movements.

Thus, Figure A1 displays the differences in the size as well as in the evolution of the gross migration rate for both young and adult migrants. As can be seen, differences between rates are quite large, since the gross migration rate of the young population is always around twice as high as that of the adult population. Although less importantly, the dynamics of the gross migration rate was also distinct: to be precise, the mobility of population under 35 years old of age decreased significantly from 2008 to 2016, while the one of the population above that age kept rather stable over this period; in other words, the drop in the national migration rate displayed in Figure 1 was mainly provoked by the group of young population. However, from 2016 to 2018 the dynamics of both groups of population was roughly the same, as the level of mobility rose in both cases. In any event, the degree of mobility in 2018 was lower than the one recorded in the first year of our sample period, regardless of age.

Summing up, two important points are worth noticing. First, there are strong differences between these two age cohorts with regards to the size of the migration rates, being much higher for young people than for adults. Second, the differences in terms of the dynamics of migration rates are not as marked, though the economic downturn seems to have affected the internal mobility of young population to a greater extent. Although clearly beyond the scope of this paper, a tentative explanation would lie in the higher propensity of this group of population to move to other countries in search of employment opportunities.

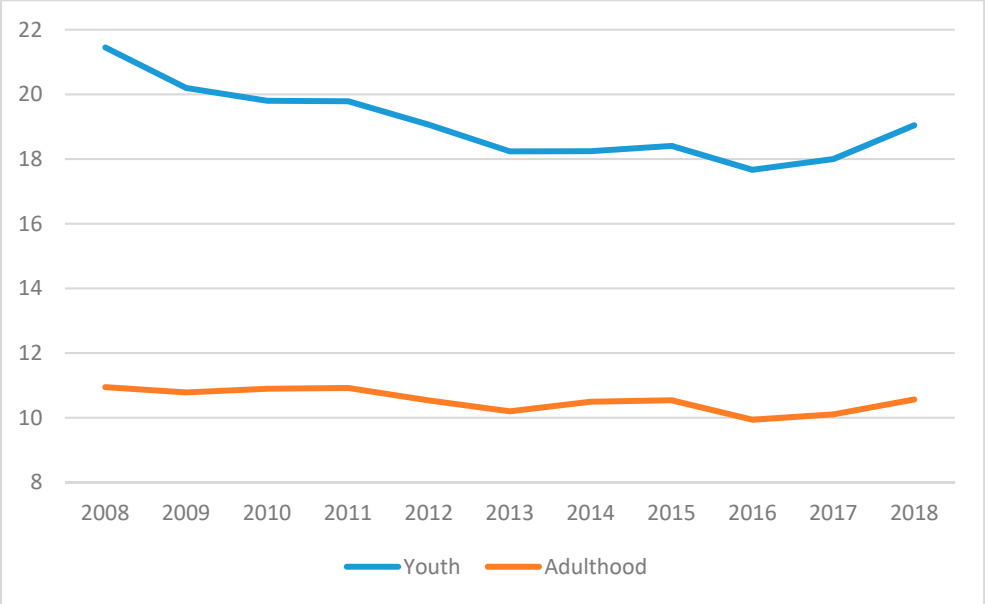

Figure A1. Inter-provincial gross migration rate in Spain for age cohorts. *Source:* Estadística de Variaciones Residenciales (INE) and own elaboration.

Appendix B

In this Appendix, I report (see below Table A1) the inter-provincial gross migration rates for each pair of provinces (see the definition in the main text) for the last year of our sample period, 2018. For your understanding, the provinces of origin are in rows and the destination provinces in columns. As, because of the reasons mentioned in the paper, I dropped the intra-provincial migration rates, the diagonal is blank. For the sake of clarity, and to reflect the importance of distance when explaining these movements, the cells of provinces belonging to the same region (we are referring, therefore, to multi-provincial regions) are shaded and form a single square. Finally, and because of the high role played by developed provinces such as Madrid and Barcelona as destination provinces, their columns are in bold.

Table A1. Inter-provincial gross migration rates. 2018.

Origin\Destin.	Almeria	Cádiz	Córdoba	Granada	Huelva	Jaen	Malaga	Sevilla	Huesca	Teruel	Zaragoza	Asturias
Almeria		0.28	0.21	2.32	0.25	0.45	0.91	0.40	0.12	0.03	0.26	0.10
Cádiz	0.18		0.29	0.41	0.28	0.12	1.80	2.02	0.02	0.03	0.15	0.11
Córdoba	0.26	0.52		0.65	0.26	0.59	2.17	1.46	0.04	0.03	0.24	0.08
Granada	1.88	0.45	0.44		0.19	0.84	2.25	0.70	0.09	0.03	0.17	0.09
Huelva	0.24	0.67	0.30	0.26		0.16	0.55	3.63	0.08	0.04	0.15	0.04
Jaen	0.77	0.37	0.84	2.02	0.19		1.55	0.70	0.05	0.04	0.16	0.06
Malaga	0.36	1.25	0.58	1.01	0.13	0.32		0.78	0.04	0.02	0.15	0.11
Sevilla	0.18	1.20	0.47	0.31	0.91	0.16	0.85		0.03	0.01	0.11	0.08
Huesca	0.17	0.12	0.10	0.19	0.12	0.05	0.11	0.14		0.32	5.63	0.10
Teruel	0.24	0.07	0.08	0.09	0.05	0.10	0.15	0.13	0.66		7.92	0.07
Zaragoza	0.13	0.17	0.11	0.10	0.07	0.07	0.19	0.19	1.11	0.75		0.12
Asturias	0.06	0.11	0.03	0.06	0.04	0.04	0.23	0.13	0.04	0.01	0.12	
Baleares	0.23	0.76	0.39	0.77	0.15	0.30	0.66	1.00	0.05	0.04	0.26	0.26
Palmas, Las	0.13	0.54	0.14	0.28	0.10	0.08	0.51	0.54	0.04	0.02	0.20	0.21
Tenerife	0.11	0.38	0.11	0.20	0.10	0.07	0.53	0.39	0.04	0.01	0.20	0.28
Cantabria	0.06	0.14	0.06	0.09	0.03	0.02	0.28	0.21	0.04	0.02	0.16	0.81
Ávila	0.11	0.12	0.03	0.11	0.06	0.11	0.34	0.19	0.07	0.01	0.26	0.24
Burgos	0.11	0.15	0.06	0.13	0.05	0.03	0.26	0.17	0.09	0.03	0.42	0.28
León	0.12	0.17	0.07	0.11	0.07	0.03	0.26	0.15	0.07	0.03	0.42	1.69
Palencia	0.09	0.17	0.02	0.09	0.06	0.06	0.15	0.15	0.02	0.03	0.20	0.54
Salamanca	0.08	0.16	0.06	0.11	0.10	0.04	0.37	0.20	0.04	0.02	0.22	0.37
Segovia	0.19	0.26	0.11	0.19	0.09	0.07	0.31	0.30	0.09	0.13	0.33	0.28
Soria	0.11	0.06	0.15	0.15	0.03	0.09	0.21	0.18	0.19	0.04	3.51	0.24
Valladolid	0.07	0.13	0.09	0.10	0.07	0.03	0.29	0.22	0.02	0.01	0.26	0.36
Zamora	0.13	0.06	0.06	0.10	0.07	0.05	0.23	0.12	0.07	0.01	0.15	0.61

Table A1. *Cont.*

Origin\Destin.	Almeria	Cádiz	Córdoba	Granada	Huelva	Jaen	Malaga	Sevilla	Huesca	Teruel	Zaragoza	Asturias
Albacete	0.22	0.14	0.16	0.17	0.11	0.23	0.18	0.23	0.06	0.04	0.21	0.11
Ciudad Real	0.30	0.25	0.46	0.43	0.12	0.38	0.61	0.35	0.06	0.03	0.22	0.09
Cuenca	0.20	0.14	0.26	0.19	0.12	0.26	0.16	0.21	0.07	0.13	0.28	0.10
Guadalajara	0.20	0.23	0.12	0.23	0.13	0.12	0.47	0.28	0.13	0.19	0.69	0.22
Toledo	0.20	0.24	0.19	0.19	0.10	0.17	0.38	0.26	0.09	0.05	0.18	0.28
Barcelona	0.16	0.14	0.11	0.22	0.05	0.09	0.28	0.23	0.13	0.07	0.26	0.10
Girona	0.15	0.16	0.14	0.29	0.06	0.17	0.30	0.18	0.10	0.05	0.22	0.10
Lleida	0.22	0.10	0.08	0.16	0.16	0.11	0.24	0.19	1.15	0.12	0.97	0.10
Tarragona	0.17	0.18	0.10	0.18	0.08	0.18	0.23	0.23	0.18	0.18	0.47	0.14
Alicante	0.29	0.14	0.08	0.27	0.04	0.14	0.33	0.23	0.05	0.03	0.19	0.16
Castellon	0.14	0.20	0.13	0.13	0.05	0.09	0.20	0.14	0.12	0.39	0.33	0.10
Valencia	0.11	0.09	0.07	0.12	0.05	0.07	0.19	0.14	0.06	0.18	0.28	0.10
Badajoz	0.10	0.39	0.32	0.16	0.37	0.06	0.43	1.10	0.03	0.04	0.19	0.11
Caceres	0.11	0.22	0.09	0.16	0.21	0.06	0.31	0.45	0.07	0.03	0.18	0.19
Coruña	0.06	0.33	0.03	0.06	0.03	0.02	0.15	0.10	0.02	0.01	0.14	0.28
Lugo	0.09	0.07	0.02	0.05	0.03	0.01	0.11	0.10	0.02	0.03	0.19	1.10
Ourense	0.07	0.09	0.03	0.06	0.05	0.02	0.24	0.14	0.02	0.02	0.13	0.27
Pontevedra	0.05	0.13	0.03	0.06	0.05	0.01	0.14	0.09	0.04	0.01	0.08	0.19
Madrid	0.17	0.29	0.14	0.19	0.06	0.11	0.54	0.33	0.05	0.02	0.24	0.27
Murcia	0.72	0.27	0.09	0.38	0.08	0.16	0.29	0.19	0.06	0.04	0.22	0.09
Navarra	0.10	0.15	0.07	0.14	0.03	0.10	0.26	0.14	0.16	0.04	1.02	0.19
Alava	0.08	0.15	0.06	0.07	0.02	0.05	0.22	0.13	0.07	0.02	0.40	0.17
Vizcaya	0.06	0.11	0.04	0.07	0.03	0.02	0.20	0.11	0.04	0.01	0.16	0.17
Guipuzcoa	0.06	0.13	0.02	0.11	0.02	0.04	0.17	0.13	0.07	0.01	0.27	0.19
La Rioja	0.05	0.19	0.10	0.11	0.06	0.08	0.20	0.15	0.09	0.05	0.98	0.39

Table A1. *Cont.*

Origin\Destin.	Baleares	Palmas	Tenerife	Cantabria	Ávila	Burgos	León	Palencia	Salamanca	Segovia	Soria	Valladolid	Zamora
Almeria	0.54	0.26	0.15	0.05	0.01	0.07	0.08	0.03	0.04	0.03	0.03	0.06	0.03
Cádiz	1.10	0.63	0.30	0.08	0.01	0.05	0.05	0.02	0.05	0.03	0.01	0.06	0.01
Córdoba	0.76	0.30	0.15	0.05	0.01	0.04	0.04	0.01	0.02	0.03	0.01	0.05	0.01
Granada	1.24	0.32	0.25	0.07	0.03	0.05	0.04	0.00	0.03	0.01	0.01	0.04	0.01
Huelva	0.43	0.30	0.21	0.06	0.03	0.02	0.04	0.01	0.05	0.05	0.02	0.06	0.01
Jaen	0.78	0.19	0.10	0.06	0.02	0.05	0.02	0.01	0.03	0.03	0.02	0.07	0.00
Malaga	0.43	0.36	0.26	0.07	0.03	0.04	0.04	0.01	0.04	0.02	0.02	0.07	0.02
Sevilla	0.97	0.40	0.25	0.06	0.03	0.03	0.04	0.02	0.04	0.01	0.02	0.06	0.01
Huesca	0.34	0.20	0.28	0.10	0.04	0.17	0.14	0.00	0.03	0.04	0.07	0.06	0.02
Teruel	0.31	0.22	0.13	0.14	0.01	0.07	0.11	0.02	0.04	0.04	0.16	0.03	0.00
Zaragoza	0.30	0.22	0.24	0.11	0.03	0.15	0.13	0.03	0.05	0.04	0.22	0.10	0.02
Asturias	0.40	0.32	0.28	0.50	0.02	0.10	0.74	0.06	0.08	0.02	0.02	0.25	0.08
Baleares		0.56	0.47	0.12	0.03	0.08	0.13	0.03	0.11	0.03	0.02	0.12	0.05
Palmas, Las	0.73		2.10	0.16	0.03	0.04	0.09	0.02	0.08	0.03	0.01	0.07	0.02
Tenerife	0.67	2.32		0.13	0.03	0.05	0.07	0.03	0.06	0.04	0.01	0.09	0.02
Cantabria	0.26	0.30	0.28		0.03	0.47	0.23	0.33	0.15	0.04	0.02	0.37	0.07
Ávila	0.29	0.30	0.20	0.21		0.39	0.30	0.12	1.34	0.83	0.12	1.24	0.11
Burgos	0.35	0.15	0.17	0.85	0.05		0.41	0.44	0.36	0.31	0.35	1.00	0.12
León	0.43	0.27	0.23	0.47	0.09	0.34		0.41	0.35	0.11	0.07	0.94	0.44
Palencia	0.24	0.17	0.25	1.38	0.07	1.36	1.16		0.32	0.20	0.10	2.86	0.28
Salamanca	0.42	0.28	0.36	0.33	0.45	0.37	0.42	0.19		0.18	0.07	1.15	0.70
Segovia	0.21	0.35	0.21	0.23	0.81	0.80	0.42	0.17	0.27		0.14	2.26	0.13
Soria	0.29	0.24	0.20	0.27	0.02	1.61	0.33	0.18	0.37	0.27		0.80	0.15
Valladolid	0.31	0.23	0.16	0.48	0.26	0.58	0.70	0.72	0.47	0.45	0.12		0.66
Zamora	0.34	0.19	0.10	0.38	0.18	0.32	1.47	0.35	1.94	0.17	0.06	2.54	
Albacete	0.84	0.28	0.22	0.07	0.04	0.06	0.08	0.02	0.10	0.04	0.03	0.05	0.02

Table A1. *Cont.*

Origin\Destin.	Baleares	Palmas	Tenerife	Cantabria	Ávila	Burgos	León	Palencia	Salamanca	Segovia	Soria	Valladolid	Zamora
Ciudad Real	0.58	0.18	0.16	0.12	0.06	0.06	0.09	0.03	0.07	0.03	0.03	0.10	0.02
Cuenca	0.35	0.14	0.12	0.13	0.05	0.09	0.14	0.05	0.09	0.06	0.04	0.15	0.04
Guadalajara	0.29	0.36	0.36	0.18	0.16	0.09	0.13	0.04	0.14	0.16	0.25	0.23	0.06
Toledo	0.38	0.36	0.25	0.12	0.28	0.08	0.12	0.03	0.15	0.07	0.04	0.11	0.05
Barcelona	0.67	0.20	0.21	0.07	0.01	0.04	0.07	0.02	0.04	0.01	0.03	0.05	0.02
Girona	0.48	0.25	0.20	0.06	0.02	0.02	0.04	0.02	0.06	0.02	0.02	0.04	0.03
Lleida	0.45	0.19	0.16	0.09	0.03	0.05	0.04	0.04	0.05	0.09	0.03	0.07	0.01
Tarragona	0.54	0.24	0.14	0.06	0.02	0.07	0.07	0.02	0.05	0.01	0.02	0.05	0.02
Alicante	0.68	0.22	0.18	0.10	0.03	0.08	0.09	0.02	0.06	0.03	0.01	0.11	0.02
Castellon	0.53	0.16	0.11	0.08	0.01	0.05	0.06	0.02	0.03	0.02	0.02	0.06	0.01
Valencia	0.72	0.16	0.19	0.06	0.02	0.05	0.05	0.01	0.04	0.02	0.02	0.05	0.01
Badajoz	0.89	0.36	0.20	0.07	0.03	0.07	0.05	0.01	0.15	0.03	0.02	0.13	0.02
Caceres	0.52	0.23	0.17	0.13	0.17	0.15	0.10	0.04	0.94	0.04	0.07	0.36	0.05
Coruña	0.35	0.47	0.36	0.13	0.01	0.06	0.18	0.02	0.05	0.03	0.01	0.07	0.03
Lugo	0.28	0.33	0.22	0.13	0.06	0.08	0.41	0.04	0.07	0.05	0.03	0.14	0.03
Ourense	0.31	0.39	0.24	0.18	0.02	0.13	0.46	0.02	0.12	0.03	0.02	0.13	0.14
Pontevedra	0.44	0.68	0.36	0.10	0.03	0.05	0.18	0.01	0.04	0.03	0.01	0.09	0.04
Madrid	0.52	0.44	0.37	0.19	0.29	0.13	0.17	0.05	0.15	0.23	0.07	0.19	0.08
Murcia	0.54	0.20	0.19	0.06	0.02	0.07	0.06	0.03	0.04	0.03	0.02	0.06	0.02
Navarra	0.24	0.18	0.18	0.20	0.03	0.13	0.10	0.03	0.09	0.03	0.12	0.08	0.03
Alava	0.19	0.26	0.19	0.36	0.02	1.48	0.14	0.07	0.09	0.02	0.02	0.27	0.06
Vizcaya	0.25	0.20	0.12	1.47	0.02	0.61	0.13	0.10	0.09	0.02	0.03	0.10	0.07
Guipuzcoa	0.24	0.18	0.12	0.23	0.01	0.20	0.06	0.08	0.10	0.03	0.03	0.11	0.04
La Rioja	0.25	0.16	0.12	0.39	0.02	0.54	0.11	0.08	0.12	0.04	0.26	0.15	0.04

Table A1. *Cont.*

Origin\Destin.	Albacete	C. Real	Cuenca	Guadalajara	Toledo	Barcelona	Girona	Lleida	Tarragona	Alicante	Castellon	Valencia
Almeria	0.10	0.12	0.05	0.05	0.12	**1.23**	0.21	0.18	0.21	0.76	0.15	0.54
Cádiz	0.04	0.05	0.03	0.08	0.13	**0.74**	0.10	0.05	0.10	0.21	0.11	0.25
Córdoba	0.07	0.27	0.07	0.04	0.14	**0.77**	0.13	0.07	0.18	0.33	0.11	0.27
Granada	0.05	0.17	0.05	0.06	0.16	**1.12**	0.18	0.09	0.17	0.52	0.11	0.35
Huelva	0.07	0.09	0.03	0.05	0.11	**0.65**	0.14	0.19	0.11	0.19	0.10	0.28
Jaen	0.17	0.32	0.07	0.12	0.21	**0.85**	0.24	0.12	0.20	0.56	0.11	0.45
Malaga	0.04	0.08	0.03	0.06	0.15	**0.92**	0.11	0.06	0.13	0.40	0.06	0.34
Sevilla	0.02	0.08	0.01	0.04	0.10	**0.66**	0.09	0.06	0.08	0.20	0.06	0.22
Huesca	0.05	0.05	0.06	0.09	0.12	**2.50**	0.36	2.54	0.64	0.36	0.29	0.84
Teruel	0.09	0.04	0.17	0.20	0.13	**1.91**	0.15	0.40	0.84	0.52	1.90	3.26
Zaragoza	0.05	0.07	0.05	0.15	0.13	**1.24**	0.15	0.31	0.38	0.34	0.31	0.70
Asturias	0.02	0.03	0.01	0.06	0.08	**0.59**	0.08	0.06	0.13	0.27	0.08	0.24
Baleares	0.21	0.16	0.05	0.06	0.20	**2.69**	0.30	0.14	0.28	1.04	0.29	1.49
Palmas, Las	0.07	0.05	0.01	0.06	0.19	**0.95**	0.15	0.05	0.14	0.42	0.10	0.50
Tenerife	0.05	0.05	0.02	0.08	0.13	**0.97**	0.14	0.05	0.14	0.45	0.09	0.50
Cantabria	0.04	0.04	0.03	0.06	0.13	**0.62**	0.09	0.06	0.11	0.31	0.11	0.27
Ávila	0.04	0.10	0.07	0.21	1.47	**0.51**	0.06	0.07	0.17	0.78	0.10	0.57
Burgos	0.10	0.11	0.06	0.08	0.15	**0.65**	0.08	0.11	0.18	0.35	0.11	0.55
León	0.09	0.05	0.05	0.08	0.13	**0.80**	0.11	0.12	0.13	0.37	0.11	0.36
Palencia	0.05	0.05	0.03	0.05	0.18	**0.80**	0.10	0.04	0.08	0.47	0.09	0.30
Salamanca	0.07	0.10	0.02	0.12	0.22	**0.79**	0.13	0.10	0.10	0.43	0.10	0.46
Segovia	0.10	0.08	0.06	0.28	0.45	**0.51**	0.08	0.16	0.07	0.54	0.09	0.63
Soria	0.06	0.06	0.04	0.55	0.33	**1.23**	0.13	0.15	0.22	0.37	0.29	0.57
Valladolid	0.09	0.05	0.02	0.09	0.17	**0.58**	0.06	0.04	0.15	0.40	0.10	0.39

Table A1. *Cont.*

Origin\Destin.	Albacete	C. Real	Cuenca	Guadalajara	Toledo	Barcelona	Girona	Lleida	Tarragona	Alicante	Castellon	Valencia
Zamora	0.01	0.05	0.08	0.15	0.17	**0.74**	0.15	0.09	0.06	0.31	0.12	0.34
Albacete		0.80	0.96	0.19	0.38	**0.71**	0.08	0.07	0.13	2.44	0.30	2.18
Ciudad Real	0.65		0.39	0.27	1.48	**0.75**	0.09	0.08	0.24	0.90	0.22	0.85
Cuenca	2.54	1.04		0.59	1.21	**0.90**	0.19	0.20	0.19	0.96	0.37	4.43
Guadalajara	0.19	0.35	0.40		0.79	**0.69**	0.10	0.10	0.18	0.79	0.15	0.64
Toledo	0.25	0.92	0.36	0.33		**0.63**	0.11	0.09	0.12	0.65	0.16	0.58
Barcelona	0.04	0.06	0.03	0.04	0.08		1.44	0.53	1.67	0.31	0.21	0.47
Girona	0.04	0.05	0.03	0.05	0.08	**9.17**		0.49	0.52	0.36	0.17	0.39
Lleida	0.05	0.05	0.03	0.06	0.25	**6.31**	0.98		2.00	0.29	0.33	0.58
Tarragona	0.06	0.10	0.03	0.05	0.11	**8.68**	0.44	0.97		0.40	0.87	0.57
Alicante	0.37	0.16	0.10	0.08	0.20	**1.00**	0.16	0.08	0.16		0.22	2.19
Castellon	0.17	0.11	0.07	0.06	0.12	**1.50**	0.17	0.25	0.98	0.61		3.96
Valencia	0.32	0.10	0.26	0.07	0.11	**0.95**	0.13	0.11	0.20	1.35	0.93	
Badajoz	0.06	0.21	0.06	0.11	0.36	**0.83**	0.16	0.04	0.12	0.25	0.09	0.26
Caceres	0.05	0.11	0.04	0.17	1.08	**0.74**	0.10	0.04	0.15	0.37	0.11	0.31
Coruña	0.03	0.03	0.01	0.04	0.08	**0.70**	0.07	0.04	0.06	0.24	0.07	0.23
Lugo	0.01	0.02	0.02	0.04	0.08	**0.85**	0.06	0.04	0.17	0.21	0.05	0.19
Ourense	0.02	0.04	0.03	0.06	0.08	**0.91**	0.08	0.11	0.13	0.27	0.07	0.31
Pontevedra	0.02	0.01	0.01	0.04	0.07	**0.67**	0.05	0.04	0.06	0.18	0.04	0.20
Madrid	0.09	0.28	0.19	0.97	2.38	**0.86**	0.08	0.05	0.09	0.64	0.14	0.61
Murcia	0.43	0.11	0.10	0.06	0.15	**0.81**	0.18	0.09	0.13	2.49	0.12	0.71
Navarra	0.03	0.04	0.02	0.04	0.08	**0.83**	0.08	0.10	0.13	0.31	0.13	0.32
Alava	0.03	0.05	0.01	0.06	0.13	**0.72**	0.06	0.08	0.09	0.30	0.09	0.30
Vizcaya	0.03	0.03	0.01	0.03	0.06	**0.59**	0.07	0.03	0.07	0.22	0.06	0.18
Guipuzcoa	0.02	0.03	0.02	0.03	0.06	**0.73**	0.09	0.05	0.10	0.23	0.06	0.26
La Rioja	0.07	0.03	0.01	0.02	0.10	**0.90**	0.11	0.15	0.20	0.35	0.15	0.46

Table A1. *Cont.*

Origin\Destin.	Badajoz	Caceres	Coruña	Lugo	Ourense	Pontevedra	Madrid	Murcia	Navarra	Alava	Vizcaya	Guipuzcoa	Rioja
Almeria	0.07	0.04	0.10	0.04	0.02	0.08	**1.65**	1.71	0.17	0.06	0.12	0.13	0.09
Cádiz	0.16	0.07	0.35	0.02	0.02	0.11	**1.95**	0.35	0.11	0.07	0.13	0.08	0.05
Córdoba	0.27	0.07	0.05	0.02	0.01	0.03	**1.76**	0.24	0.08	0.05	0.08	0.06	0.04
Granada	0.09	0.05	0.08	0.02	0.01	0.07	**1.84**	0.82	0.14	0.06	0.10	0.08	0.05
Huelva	0.42	0.13	0.07	0.02	0.03	0.09	**1.28**	0.20	0.08	0.03	0.08	0.07	0.08
Jaen	0.11	0.05	0.05	0.01	0.01	0.03	**2.09**	0.54	0.19	0.04	0.06	0.09	0.05
Malaga	0.12	0.05	0.11	0.02	0.02	0.09	**1.97**	0.26	0.10	0.05	0.14	0.09	0.04
Sevilla	0.30	0.06	0.05	0.01	0.02	0.05	**1.49**	0.15	0.07	0.04	0.08	0.06	0.04
Huesca	0.04	0.08	0.12	0.04	0.07	0.10	**1.43**	0.28	0.58	0.13	0.25	0.25	0.15
Teruel	0.12	0.04	0.07	0.05	0.03	0.10	**1.10**	0.21	0.39	0.08	0.12	0.07	0.16
Zaragoza	0.09	0.04	0.12	0.03	0.04	0.12	**2.12**	0.31	0.69	0.12	0.20	0.14	0.28
Asturias	0.06	0.05	0.42	0.40	0.08	0.20	**2.08**	0.13	0.11	0.07	0.23	0.14	0.09
Baleares	0.34	0.09	0.27	0.07	0.08	0.27	**2.26**	0.48	0.10	0.08	0.20	0.13	0.07
Palmas, Las	0.11	0.06	0.46	0.07	0.09	0.48	**2.03**	0.29	0.11	0.07	0.18	0.14	0.07
Tenerife	0.11	0.06	0.37	0.07	0.08	0.34	**2.11**	0.26	0.09	0.07	0.16	0.08	0.05
Cantabria	0.06	0.05	0.22	0.11	0.04	0.14	**2.34**	0.17	0.22	0.30	2.81	0.28	0.20
Ávila	0.19	0.48	0.12	0.10	0.06	0.04	**13.14**	0.21	0.43	0.12	0.16	0.12	0.16
Burgos	0.06	0.10	0.18	0.07	0.08	0.15	**3.12**	0.15	0.35	1.46	1.73	0.29	0.57
León	0.06	0.05	0.67	0.28	0.38	0.42	**3.32**	0.21	0.20	0.20	0.25	0.15	0.10
Palencia	0.10	0.09	0.09	0.06	0.09	0.13	**2.25**	0.21	0.18	0.29	0.67	0.27	0.24
Salamanca	0.22	0.81	0.20	0.05	0.07	0.19	**4.33**	0.17	0.24	0.14	0.34	0.29	0.14
Segovia	0.23	0.05	0.14	0.08	0.05	0.18	**10.09**	0.28	0.10	0.05	0.15	0.21	0.16
Soria	0.06	0.07	0.12	0.17	0.07	0.07	**4.52**	0.25	1.03	0.22	0.31	0.20	0.71
Valladolid	0.09	0.10	0.15	0.09	0.06	0.19	**2.95**	0.19	0.18	0.19	0.27	0.14	0.10
Zamora	0.11	0.15	0.35	0.12	0.26	0.34	**3.90**	0.12	0.16	0.25	0.38	0.19	0.10
Albacete	0.11	0.06	0.09	0.01	0.02	0.09	**2.29**	2.07	0.12	0.05	0.12	0.06	0.04

Table A1. *Cont.*

Origin\Destin.	Badajoz	Caceres	Coruña	Lugo	Ourense	Pontevedra	Madrid	Murcia	Navarra	Alava	Vizcaya	Guipuzcoa	Rioja
Ciudad Real	0.23	0.11	0.11	0.02	0.03	0.05	**5.25**	0.55	0.20	0.06	0.11	0.06	0.05
Cuenca	0.14	0.05	0.04	0.06	0.01	0.06	**6.87**	0.64	0.17	0.08	0.09	0.10	0.06
Guadalajara	0.22	0.17	0.18	0.07	0.03	0.10	**18.93**	0.36	0.20	0.14	0.25	0.07	0.09
Toledo	0.33	0.39	0.13	0.04	0.07	0.12	**17.06**	0.43	0.11	0.10	0.10	0.11	0.08
Barcelona	0.12	0.06	0.12	0.08	0.06	0.11	**1.13**	0.21	0.11	0.04	0.12	0.08	0.05
Girona	0.17	0.05	0.10	0.03	0.04	**0.07**	0.70	0.26	0.11	0.06	0.09	0.10	0.03
Lleida	0.08	0.06	0.13	0.03	0.06	0.08	**0.85**	0.21	0.18	0.02	0.12	0.08	0.14
Tarragona	0.10	0.09	0.14	0.07	0.04	0.07	**0.83**	0.26	0.16	0.04	0.12	0.10	0.10
Alicante	0.06	0.07	0.11	0.03	0.05	0.09	**2.18**	2.08	0.14	0.08	0.17	0.10	0.07
Castellon	0.07	0.04	0.07	0.03	0.04	0.06	**1.09**	0.27	0.17	0.04	0.11	0.11	0.04
Valencia	0.05	0.04	0.09	0.02	0.03	0.06	**1.41**	0.37	0.10	0.05	0.10	0.08	0.05
Badajoz		1.29	0.09	0.01	0.02	0.08	**2.97**	0.10	0.10	0.06	0.14	0.11	0.04
Caceres	2.20		0.18	0.05	0.03	0.09	**5.14**	0.25	0.15	0.18	0.31	0.28	0.12
Coruña	0.03	0.03		1.06	0.51	2.03	**1.73**	0.20	0.09	0.04	0.15	0.10	0.05
Lugo	0.05	0.04	4.38		1.28	1.76	**1.46**	0.14	0.11	0.05	0.19	0.07	0.05
Ourense	0.06	0.03	2.43	1.06		4.02	**1.88**	0.12	0.10	0.15	0.29	0.15	0.04
Pontevedra	0.06	0.02	2.45	0.50	1.13		**1.57**	0.12	0.09	0.06	0.12	0.10	0.05
Madrid	0.22	0.24	0.25	0.07	0.07	0.21		0.33	0.14	0.06	0.19	0.13	0.08
Murcia	0.04	0.04	0.17	0.04	0.02	0.06	**1.67**		0.31	0.09	0.12	0.11	0.09
Navarra	0.06	0.05	0.14	0.04	0.04	0.08	**1.78**	0.24		0.45	0.58	1.28	1.21
Alava	0.05	0.10	0.10	0.03	0.10	0.11	**1.45**	0.10	0.72		3.22	1.50	1.18
Vizcaya	0.06	0.06	0.17	0.06	0.07	0.12	**1.23**	0.12	0.34	0.94		1.10	0.25
Guipuzcoa	0.10	0.12	0.16	0.04	0.08	0.13	**1.18**	0.15	1.20	0.86	1.83		0.23
La Rioja	0.10	0.07	0.16	0.05	0.04	0.12	**2.03**	0.24	2.66	1.22	0.94	0.45	

Notes. The cells of provinces belonging to the same region are shaded and form a single square. Gross migration rates for Madrid and Barcelona as destination provinces in bold. *Source:* Estadística de Variaciones Residenciales (INE) and own elaboration.

References

Álvarez, Maximiliano, and Vicente Royuela. 2020. *The Effect of Labour-Market Differentials on Inter-Regional Migration in Spain: A Meta-Regression Analysis*. New York: Mimeo.

Antolín, Pablo, and Olympia Bover. 1997. Regional migration in Spain: The effect of personal characteristics and of unemployment, wage and house price differentials using pooled cross-sections. *Oxford Bulletin of Economics and Statistics* 59: 215–35. [CrossRef]

Artís, Manuel, Javier Romaní, and Jordi Suriñach. 2000. Determinants of individual commuting in Catalonia, 1986–91: Theory and empirical evidence. *Urban Studies* 37: 1431–50. [CrossRef]

Bande, Roberto, Melchor Fernández, and Victor Montuenga. 2008. Regional unemployment in Spain: Disparities, business cycle and wage setting. *Labour Economics* 15: 885–914. [CrossRef]

Bande, Roberto, Melchor Fernández, and Victor Montuenga. 2012. Wage flexibility and local labour markets: A test on the homogeneity of the wage curve in Spain. *Investigaciones Regionales-Journal of Regional Research* 24: 175–98.

Bande, Roberto, Marika Karanassou, and Héctor Sala. 2019. Employment in Spanish regions: Cost-control or growth-enhancing policies? *Annals of Regional Science* 62: 601–35. [CrossRef]

Bentolila, Samuel, and Juan J. Dolado. 1991. Mismatch and Internal Migration in Spain, 1962–1986. In *Mismatch and Labour Mobility*. Edited by Fiorella Padoa Sebioppa and La Sapienza. Cambridge: Cambridge University Press, pp. 182–234.

Bruna, Fernando, Jesús López-Rodríguez, and Andrés Faíña. 2016. Market potential, spatial dependences and spillovers in European regions. *Regional Studies* 50: 1551–63. [CrossRef]

Clemente, Jesús, Gemma Larramona, and Lorena Olmos. 2016. Interregional migration and thresholds: Evidence from Spain. *Spatial Economic Analysis* 11: 276–93. [CrossRef]

Crescenzi, Riccardo, Marco Di Cataldo, and Alessandra Faggian. 2018. Internationalized at work and localistic at home: The 'split' Europeanization behind Brexit. *Papers in Regional Science* 97: 117–32. [CrossRef]

Cushing, Brian, and Jacques Poot. 2003. Crossing boundaries and borders: Regional science advances in migration modelling. *Papers in Regional Science* 83: 317–38. [CrossRef]

Devillanova, Carlo, and Walter García Fontes. 2004. Migration across Spanish provinces: Evidence from the social security records (1978–1992). *Investigationes Económicas* 23: 461–87. [CrossRef]

Ghatak, Subrata, Paul Levine, and Stephen Wheatley Price. 1996. Migration theories and evidence: An assessment. *Journal of Economic Surveys* 10: 159–98. [CrossRef]

Greenwood, Michael J. 1975. Research on internal migration in the United States: A survey. *Journal of Economic Literature* 13: 397–433.

Greenwood, Michael J. 1997. Internal Migration in Developed Countries. In *Handbook of Population and Family Economics, Volume 1B*. Edited by Mark R. Rosenzweig and Oded Stark. Amsterdam: Elsevier, pp. 647–720.

Gutiérrez-Portilla, María, Adolfo Maza, and María Hierro. 2018. Foreigners versus natives in Spain: Different migration patterns? Any changes in the aftermath of the crisis? *Annals of Regional Science* 61: 139–59. [CrossRef]

Harris, John N., and Michael P. Todaro. 1970. Migration, unemployment and development: A two-sector analysis. *The American Economic Review* 60: 126–42.

Hierro, María, Adolfo Maza, and José Villaverde. 2019. Internal migration dynamics in Spain: Winners and losers from the recent economic recession. *Population, Space and Place* 25: e2176. [CrossRef]

Juarez, Juan P. 2000. Analysis of interregional labor migration in Spain using gross flows. *Journal of Regional Science* 40: 377–99. [CrossRef]

King, Russell, and Ronald Skeldon. 2010. 'Mind the gap!' Integrating approaches to internal and international migration. *Journal of Ethnic and Migration Studies* 36: 1619–46. [CrossRef]

Lee, Everett S. 1966. A theory of migration. *Demography* 3: 45–57. [CrossRef]

Liu, Lucy Qian. 2018. *Regional Labor Mobility in Spain (No. 18/282)*. Washington, DC: International Monetary Fund.

Martí, Mónica, and Carmen Ródenas. 2020. Measurement errors in geographical labour mobility using data linkage: The Spanish case. *International Journal of Social Research Methodology*. Forthcoming.

Massey, Douglas S., Joaquin Arango, Graeme Hugo, Ali Kouaouci, Adela Pellegrino, and J. Edward Taylor. 1993. Theories of international migration: A review and appraisal. *Population and Development Review* 19: 431–66. [CrossRef]

Mayda, Ana M. 2010. International migration: A panel data analysis of the determinants of bilateral flows. *Journal of Population Economics* 23: 1249–74. [CrossRef]
Maza, Adolfo. 2006. Migrations and regional convergence: The case of Spain. *Jahrbuch Fur Regionalwissenschaft/ Review of Regional Research* 26: 191–202. [CrossRef]
Maza, Adolfo, and Ignacio Moral-Arce. 2006. An analysis of wage flexibility: Evidence from the Spanish regions. *Annals of Regional Science* 40: 621–37. [CrossRef]
Maza, Adolfo, and José Villaverde. 2004a. Determinantes de la migración interregional en España: Nuevas técnicas de análisis. *Investigaciones Regionales-Journal of Regional Research* 4: 133–42.
Maza, Adolfo, and José Villaverde. 2004b. Interregional migration in Spain: A semiparametric analysis. *Review of Regional Studies* 34: 156–71.
Maza, Adolfo, and José Villaverde. 2008. A note on the need to account for spatial dependence: A case of migratory flows in Spain. *Review of Regional Studies* 38: 105–11.
Maza, Adolfo, and José Villaverde. 2009. Provincial wages in Spain: Convergence and flexibility. *Urban Studies* 46: 1969–93. [CrossRef]
Maza, Adolfo, José Villaverde, and María Hierro. 2013. Explaining the settlement patterns of foreigners in Spain. *Applied Geography* 40: 11–20. [CrossRef]
Maza, Adolfo, María Gutiérrez-Portilla, María Hierro, and José Villaverde. 2019. Internal migration in Spain: Dealing with multilateral resistance and nonlinearities. *International Migration* 57: 75–93. [CrossRef]
Melguizo, Celia, and Vicente Royuela. 2020. What drives migration moves to urban areas in Spain? Evidence from the Great Recession. *Regional Studies*. Forthcoming. [CrossRef]
Mulhern, Alan, and John G. Watson. 2009. Spanish internal migration: Is there anything new to say? *Spatial Economic Analysis* 4: 103–20. [CrossRef]
Palomares-Linares, Isabel, and Maarten van Ham. 2020. Understanding the effects of homeownership and regional unemployment levels on internal migration during the economic crisis in Spain. *Regional Studies* 54: 515–26. [CrossRef]
Partridge, Mark D., and Dan S. Rickman. 2003. The waxing and waning of US regional economies: The chicken-egg of jobs versus people. *Journal of Urban Economics* 53: 76–97. [CrossRef]
Petersen, William. 1969. *Population*, 2nd ed. New York: Macmillan.
Plane, David A., and Christopher Bitter. 2005. The role of migration research in regional science. *Papers in Regional Science* 76: 133–53. [CrossRef]
Ramos, Raúl. 2016. Gravity models: A tool for migration analysis. *IZA World of Labor* 2016: 239. [CrossRef]
Ramos, Raúl, and Jordi Suriñach. 2017. A gravity model of migration between ENC and EU. *Tijdschrift Voor Economische en Sociale Geografie/Journal of Economic and Social Geography* 108: 21–35. [CrossRef]
Ravenstein, Ernst G. 1885. The laws of migration. *Journal of the Statistical Society* 46: 167–235. [CrossRef]
Ravenstein, Ernst G. 1889. The laws of migration: Second paper. *Journal of the Royal Statistical Society* 52: 241–305. [CrossRef]
Redding, Stephen, and Anthony J. Venables. 2004. Economic geography and international inequality. *Journal of International Economics* 62: 53–82. [CrossRef]
Ródenas, Carmen. 1994. Migraciones interregionales en España (1960–1989): Cambios y barreras. *Revista de Economía Aplicada* 64: 361–75.
Ródenas, Carmen, and Mónica Martí. 2009. Estimating false migrations in Spain. *Population* 4: 5–36.
Royuela, Vicente, and Jessica Ordóñez. 2018. Internal migration in a developing country: A panel data analysis of Ecuador (1982–2010). *Papers in Regional Science* 87: 345–67. [CrossRef]
Sjaastad, Larry A. 1962. The costs and returns of human migration. *Journal of Political Economy* 70: 80–93. [CrossRef]
Todaro, Michael P. 1969. A model of labor migration and urban unemployment in less developed countries. *The American Economic Review* 59: 138–48.
Todaro, Michael P. 1980. Internal Migration in Developing Countries: A Survey. In *Population and Economic Change in Developing Countries*. Edited by Richard A. Easterlin. Chicago: University of Chicago Press, pp. 361–402.
Wolpert, Julian. 1965. Behavioral aspects of the decision to migrate. *Journal of Regional Science* 15: 159–69. [CrossRef]