

Linguistic immersion and labour market performance of migrants

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Received: 29 July 2025

Accepted: 19 February 2026

ABSTRACT:

We analyze the determinants of the internal and foreign migrants' decision regarding their employment status and examine the importance of second-language proficiency in bilingual economies. When arriving at a bilingual territory, migrants must decide if it is worth to learn the second official language. If one of the languages predominate in economic activity, there are less incentives for migrants to make the effort of learning the second language. However, if a local language contributes to build or strengthen a regional identity, learning it could help immigrants' immersion in the receiving region. We use the Spanish Census in 2001, which exceptionally asked all participants about their knowledge of the co-official language in the bilingual regions. Our results show that second-language proficiency reduces the probability of being unemployed and stimulates self-employment. The impact becomes stronger among foreign migrants without Spanish as a first language and migrants arriving after primary school and living in non-urban areas.

KEYWORDS: Migrant's assimilation; languages proficiency; labour market; self-employment; sequential logit.

JEL CLASSIFICATION: J21; J22; J61.

Inmersión lingüística y desempeño de los migrantes en el mercado de trabajo

RESUMEN:

Analizamos los determinantes de la decisión de los migrantes internos y extranjeros sobre su situación laboral y examinamos la importancia del dominio de una segunda lengua en regiones bilingües. Al establecerse en un territorio bilingüe, los migrantes deben decidir si les compensa aprender la segunda lengua oficial. Si una de las lenguas predomina en la actividad económica, los incentivos para realizar el esfuerzo de aprender la segunda lengua son menores. Sin embargo, cuando una lengua propia contribuye a construir o reforzar una identidad regional, su aprendizaje puede favorecer la integración de los inmigrantes en la región de acogida. Para ello utilizamos los datos del Censo de Población de España de 2001, que, de forma excepcional, preguntó a todos los participantes por su conocimiento de la lengua cooficial en las comunidades autónomas bilingües. Nuestros resultados muestran que el dominio de la segunda lengua reduce la probabilidad de estar desempleado y favorece el trabajo por cuenta propia. Este efecto es más intenso entre los migrantes extranjeros cuya lengua materna no es el español y entre los migrantes que llegaron después de la educación primaria y residen en zonas no urbanas.

PALABRAS CLAVE: Integración de los migrantes; dominio de idiomas; mercado laboral; autoempleo; modelo logit secuencial.

CLASIFICACIÓN JEL: J21; J22; J61.

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1. INTRODUCTION

The labour performance of migrants in the host country has been widely studied in social sciences. Empirical evidence has systematically shown that migrants perform worse than natives, although this situation tends to attenuate as migrants progressively integrate in the host country (Chiswick, 1978; Bisin et al., 2016). Among the elements that integrate into the social capital required for migrants' assimilation, the ability to communicate with natives is critical. The achievement of the necessary linguistic competences constitutes an investment in human capital, as it is productive in the labour market, costly and embodied in the person (Chiswick, 2008). Ginsburgh and Weber (2020) surveyed the empirical literature on the incentives that migrants have to learn the language of the host country. Migrants with better language skills experience higher social recognition and feel more trusted and less discriminated against by natives.

An interesting situation that has received little attention occurs when migrants arrive in a territory with two official languages (or where natives use a dialect). In bilingual economies, immigrants may be able to communicate with natives by learning just one of the languages, in detriment of their interest in learning the other language. As Chiswick and Miller (1994) state, if one of the languages predominates in the economic activity or is more "international" in the sense that there is a broader and deeper market outside the local economy for transactions, there are less incentives for migrants to make the additional effort of learning the local language. However, if the knowledge of a local language contributes to build and strengthen a regional identity, learning it will help immigrants for a deeper immersion in the host region. Sometimes, the integration of migrants requires the assimilation of cultural values and symbols of the host country, and knowledge of the local languages is a major facilitator.

In this paper, we analyse how the proficiency in the second language of migrants living in bilingual territories affects their performance on the local labour market. In particular, and for the case of Spain, we study the impact of the level of knowledge of the second language of Spanish-speaking internal and foreign migrants on their employment status: first, the probability of finding a job and, second, the probability of opting for self-employment.

Spain provides an excellent case of analysis because there are several bilingual regions where a second language is official and compulsory at school together with Spanish, which is official in all Spanish regions. These languages are Catalan (which is spoken in three regions: Catalonia, the Valencian Community, and the Balearic Islands), Basque (which is spoken in two regions: the Basque Country and part of Navarre) and Galician, which is spoken in Galicia. Thus, whereas the knowledge of Spanish helps migrants in all the regions, the second language is helpful only in bilingual regions. These linguistic areas have marked differences in terms of the level of knowledge and use of the regional language by natives.¹ In addition, the degree of identification of the regional language with a regional identity is different across bilingual territories. Aspachs-Bracons et al. (2008) showed that, for the case of Catalan and Basque languages in Spain, a "regional identity creation" effect exists.

There is scarcity of empirical papers in this research area because of the difficulty to access the adequate statistical information. Exceptionally, the Spanish Census of Population in 2001 asked all participants living in bilingual regions whether they know the second language and their degree of proficiency. The Census of Population also asked the individual's country of birth, previous and current country/province of residency in Spain, date of arrival if the person moved to a new province, personal detailed information (age, marital status, education), as well as the labour market status: unemployed, employee or self-employed.

This article builds on this information to analyse whether regional language acquisition affects migrants' likelihood of employment and the likelihood of becoming self-employed. We are primarily interested in the regional language as an indicator of the effort to achieve greater integration, so we focus on people who are already able to communicate in the host country. For this reason, we focus on domestic

¹ Galician is more dominant in rural areas, whereas Catalan also presents high levels of use in urban areas (at least in Catalonia, with lower levels in Valencian Community and the Balearic Islands). These differences still appear despite both Castilian and the second language are compulsory in the educational system in those regions since the early 1980s.

migrants or migrants from Spanish-speaking countries, who already know one of the two languages in each of the bilingual regions.

Our main finding is that Spanish-speaking immigrants, either from other Spanish regions or from abroad, that achieve a certain level of proficiency in the use of the second native language, exhibit lower probability of being unemployed and higher probability of opting for self-employment. The impact becomes stronger among migrants arriving after primary school and those living in non-urban areas. These outcomes mainly hold for the Catalan-speaking regions, while they are less clear in the rest of the bilingual regions.

We make two contributions to the role of language skills in the migration literature. First, we contribute to the scarce literature on the economic effects of language proficiency in bilingual regions, and hardly comparable due to the peculiarities of each territory examined. Empirically, authors seek to identify whether there are returns to having linguistic skills in more than one language in a bilingual economy. For the case of English-Welsh bilingualism in Wales, Henley and Jones (2005) find evidence of a wage premium for Welsh speakers in Wales, which is found to be associated with bilingualism offering better knowledge of the labour market opportunities in Wales. Aldashev and Danzer (2014), on the other hand, observe negative returns to bilingual speakers when they analyse the case of the Russian-Kazakh bilingualism in Kazakhstan. This negative effect appears only in rural areas, where Kazakh predominates, while in urban areas, where Russian is dominant, the negative effect vanishes. The negative effect in rural areas holds even after the official language changed from Russian to Kazakh, which is largely explained by quality teaching differences between Kazakh and Russian schools in the rural areas. Finally, for the case of China, Wei et al (2019) find that internal migrants with better skills in local dialects are more likely to become entrepreneurs. Our paper extends the paper of Wei et al (2019) in two directions. First, we consider both internal and foreign migrants. Second, we analyse multiple outcomes in the labour market: employee vs self-employed.

Second, we provide evidence that supports the positive impact of knowing the local languages on migrants in Spanish bilingual territories. In previous research for Catalonia, Randon (2007) observes an increase of the probability of being employed if residents in Catalonia are proficient in Catalan, while Quella and Randon (2012) finds that people with high proficiency in Catalan have higher probability of occupying white-collar positions or being own-account workers. Di Paolo and Raymond (2012) also observes that proficiency in the use of the Catalan has a positive return in earnings but only among highly educated workers. While these papers analyse the case of all residents, we focus the attention on internal and foreign migrants. Our results confirm that the knowledge of the native languages facilitates the integration of migrants in the labour market of the host communities.

We organize the rest of the paper as follows. Section 2 describes the data used in the empirical analysis. Section 3 presents the results. The last section concludes.

2. DATA

Our data come from the Spanish 2001 Census collected by the Spanish *Instituto Nacional de Estadística* (National Institute of Statistics, <https://www.ine.es/censo2001/censo2001.htm>). We focus on inhabitants living in Spanish regions with two official languages. Spanish (also called Castilian) is the official language in all 17 NUTS2 regions. In 6 of them a second language is official in the public administration and compulsory at the primary and secondary educational levels: Catalan in Catalonia, Balearic Islands and Valencian Community (the Catalan-spoken area); Basque in Basque Country and Navarre (the Basque-spoken area) and Galician in Galicia (Galician area).² For each of these 3 areas, we define a native as a person that was born and has lived in the same linguistic area and we define an immigrant as a person born outside the area. Our sample accounts for 90,691 Spanish-speaking, 16 years or older, immigrants living in the bilingual areas, 83% of whom come from other linguistic areas in Spain (internal immigrants), and the remaining 17% come from Latin-American countries (foreign

² Both Catalan and Galician are Romance languages, the same as Spanish (sharing strong similarities), whereas Basque is a very isolated language that does not even belong to the Indo-European family.

immigrants).³ Most of the immigrants were in the Catalan-speaking area (79%), another 15% in the Basque-spoken area and the remaining 6% in the Galician-spoken area. Figure 1 shows a map with the 3 bilingual language areas and the distribution of immigrants in 2001.

In the 2001 the Spanish Census asked the individuals about the knowledge of the second official language in the region, with six different levels:

1. Don't understand
2. Only understands
3. Only understands and knows how to read
4. Only understand and knows how to speak
5. Understands and knows how to speak and read, but not write
6. Understands and knows how to speak, read, and write

FIGURE 1.
Linguistic areas and migrant population shares in 2001

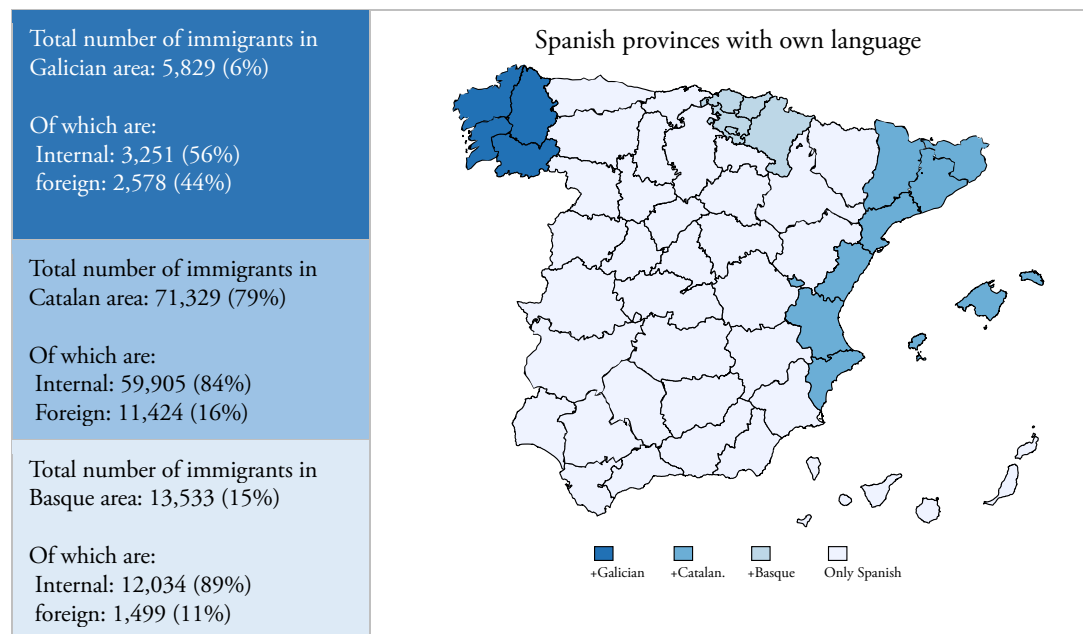


Figure 2 shows the distribution of natives and internal and foreign immigrants by language area and by their knowledge of regional language. The inclusion of the linguistic patterns of natives in the three linguistic areas permits to identify the incentives that migrants have to acquire skills in the regional language. In this regard, as it is expected, the most important group of native individuals in the three linguistic areas is the ones with all understanding, speaking, and writing skills (group 6). However, there are important differences in the second relevant group: in the Catalan language area, it is the group that speak and read but do not write (group 5), in the Galician language area those with only oral skill (group 4) and, those that do not understand at all (group 1) in the Basque language area.

If migrants consider the acquisition of skills in the regional language as a means to better integrate in their regions of residence, their distribution across the different skill categories should mirror the

³ As we study labour market participation, we consider 16 years or older migrants and exclude foreign migrants whose first language is not Spanish, so all migrants in our sample know, at least, Spanish.

patterns observed in each region for native individuals. However, in the case of Spain, we observe clear differences across the three language areas. The Catalan case does not mirror straightforwardly the patterns of native individuals and, at the same time, shows the highest differences between internal and foreign migrants: whereas most internal migrants admit passive oral skill (they understand Catalan), the strongest group of foreign migrants correspond to those who do not understand it. In the Galician linguistic region, however, the most important group for all migrants is the one with full linguistic integration (group 6). Most of those who do not have acquired complete skills show, at least, they understand it (group 2) or have complete oral skills (group 4). Finally, most migrants in the Basque linguistic region admit they do not understand Basque (group 1).

FIGURE 2.
Distribution of individuals by origin, language area and knowledge of regional language

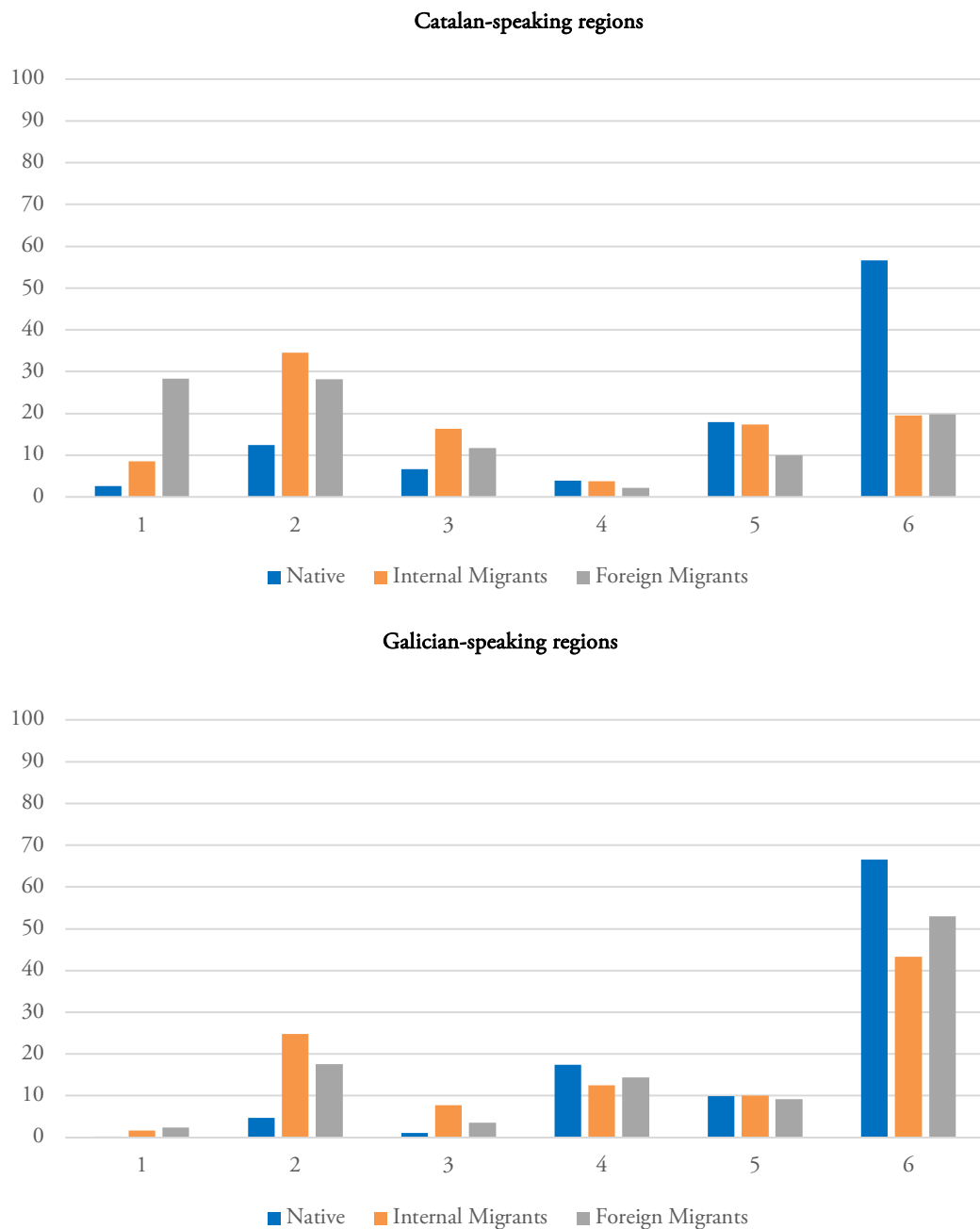
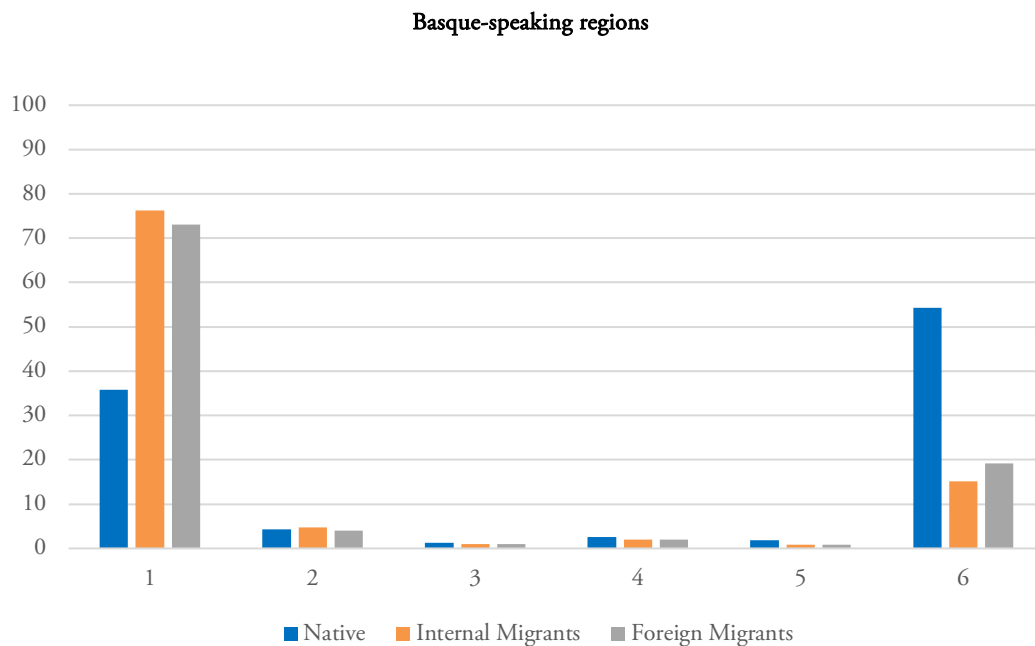


FIGURE 2. CONT.
Distribution of individuals by origin, language area and knowledge of regional language



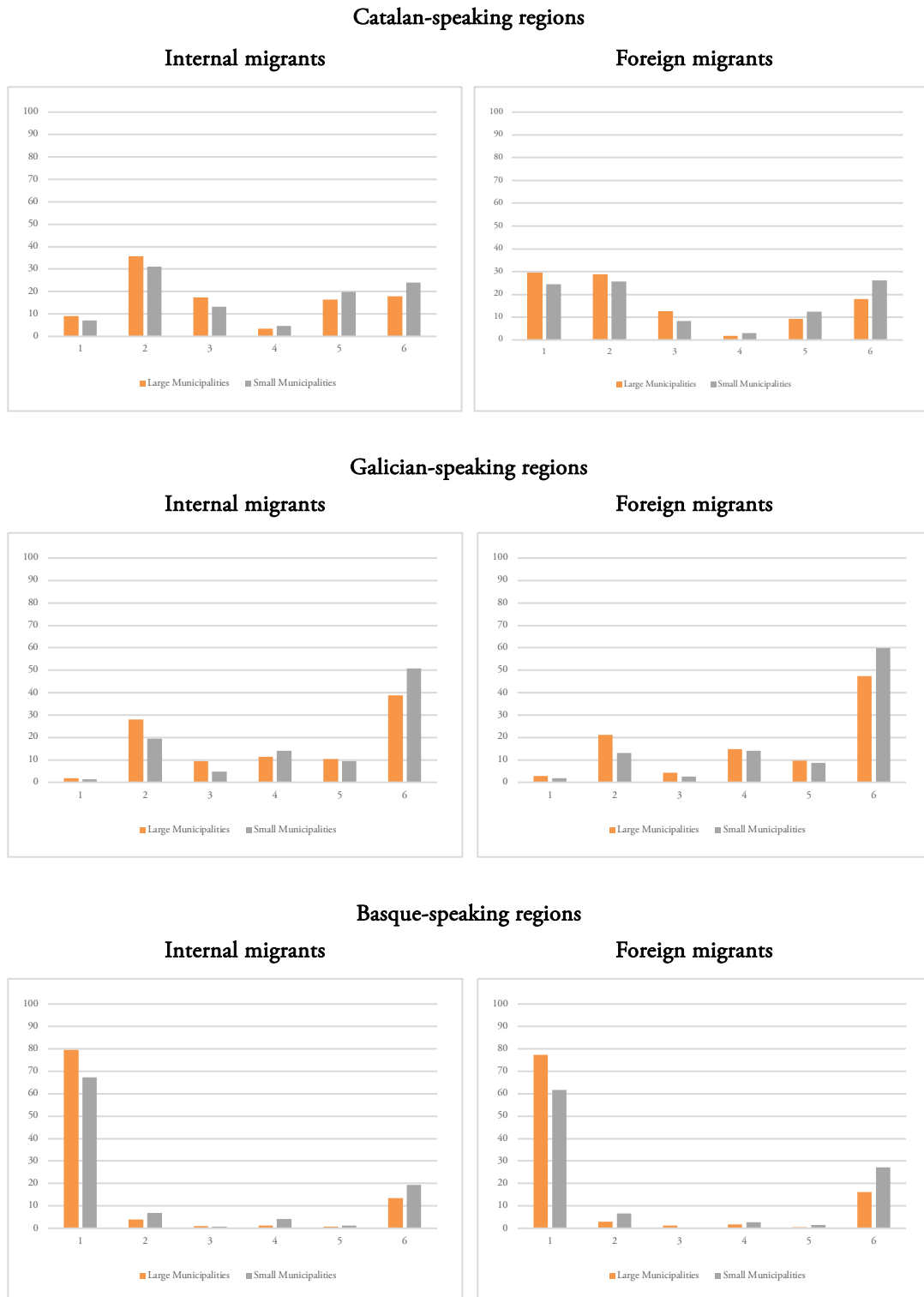
Note: Own elaboration from Spanish 2001 census, INE. Levels of knowledge of regional languages: 1: Don't understand; 2: Only understands; 3: Only understands and knows how to read; 4: Only understand and knows how to speak; 5: Understands and knows how to speak and read, but not write; 6: Understands and knows how to speak, read, and write.

Two dimensions may affect migrant's acquisition of the regional language knowledge: the place of residence and the age of arrival to the bilingual region. In relation to the first dimension, native individuals living in large cities have traditionally been more prone to switch towards Castilian, to the detriment of the regional language. Besides, both internal and foreign migrants have traditionally chosen large cities to live in, as urban environments provide more opportunities for newcomers. Taken together, both trends lead us to consider that the use of regional languages should be more intense in smaller municipalities. However, public policies aimed to promote the use of the regional language that have been in place since the last century's middle 80s could compensate, at least partially, for these effects.⁴ Figure 3 shows the distribution of both internal and foreign migrants divided according to whether they live in municipalities with more than 20,000 inhabitants or not. According to the graphs, the distributions of linguistic skills across types of municipalities does not reveal great differences for both, internal and foreign migrants.

In relation to the second dimension, the age of arrival of the immigrant is crucial, as those who arrive to the bilingual area young enough will have more opportunities to become proficient through their participation in the education system. Any individual arriving at any bilingual region below this age has studied the second language. The regional parliaments in the Basque Country in 1982 and in Navarre in 1987 approved specific laws to promote the use of the Basque. Galician was introduced in the educational system in 1983. In the case of Catalan, Catalonia approved the first law also in 1983, followed by the Valencian Community and the Balearic Islands in 1984 and 1986, respectively.

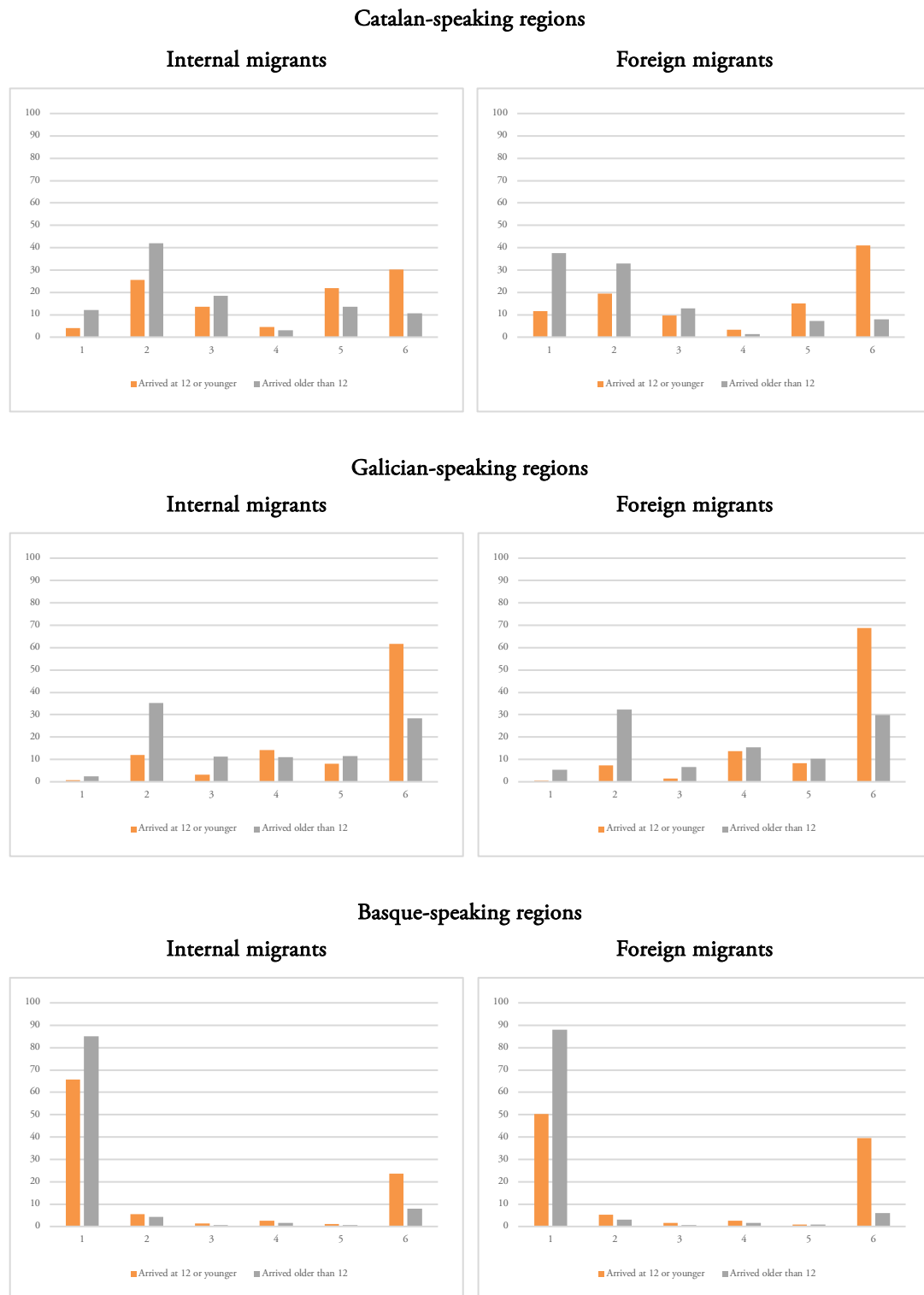
⁴ Hannum (2020) compares the situation of Galician with respect to Catalan. Whereas policies of the Catalan regional government have allowed for a social prestige of the language, Galician, due to its historic use among rural populations, is seen as the language of the lower class. On the contrary, Spanish enjoys higher prestige in urban settings in Galicia. Therefore, Galician-speakers will often abandon it to gain social status and avoid discrimination.

FIGURE 3.
Distribution of migrants by origin, language area, size of municipality and knowledge of regional language



Note: Own elaboration from Spanish 2001 census, INE. Levels of knowledge of regional languages: 1: Don't understand; 2: Only understands; 3: Only understands and knows how to read; 4: Only understand and knows how to speak; 5: Understands and knows how to speak and read, but not write; 6: Understands and knows how to speak, read, and write

FIGURE 4.
Distribution of migrants by origin, language area, age of arrival and knowledge of regional language



Note: Own elaboration from Spanish 2001 census, INE. Levels of knowledge of regional languages: 1: Don't understand; 2: Only understands; 3: Only understands and knows how to read; 4: Only understand and knows how to speak; 5: Understands and knows how to speak and read, but not write; 6: Understands and knows how to speak, read, and write.

Spanish primary (compulsory) education ends at 12 years old. In bilingual regions, compulsory education includes teaching the second official language. Thus, we separate individuals arriving at the bilingual region at an age of 12 years old or less to allow for deeper knowledge of the second language.

As Figure 4 shows, individuals that have gone through the education system in the bilingual regions display quite similar patterns on their language proficiency regardless of their ancestry. The share of individuals with high language skills is higher for individuals arriving younger than 12 years old for both Spanish and foreign migrants, whereas the share of individuals who do not understand the second language is much higher for individuals arriving at ages older than 12 years.

Regarding the labour market, the 2001 Census allows us to classify individuals according to their professional situation. We select only individuals under the unemployed and employed/occupied labels. The categories considered for occupied individuals are: (a) Entrepreneur or professional employing staff (*Employer*); (b) Entrepreneur or professional who does not employ staff (*own-account worker*); (c) Employed person on a fixed or indefinite basis; (d) Employed on an eventual, temporary basis. We aggregate categories *a* and *b* under the label *Self-employed*, and categories *c* and *d* under the label *Employee*.

Table 1 provides the distribution of migrants in the census by job situation. Internal migrants make up about three-quarters of all migrants, and this share holds in almost all job situations except in the case of unemployment, where foreign migrants are close to one third of the total number of unemployed migrants. Within each migrant population, the share of employees ranges between 72% in the case of foreign migrants and 75% for internal migrants. The rate of self-employment is slightly higher for internal migrants (15% compared to 11%, adding both own-account workers and employers).

TABLE 1.
Job situation of migrants over the age of 16

	Total	Unemployed	Employees	Self-employed
Internal migrants (1)	75,190	7,866	56,195	11,129
Foreign migrants (2)	27,084	4,386	19,529	3,169
Spanish-speaking foreign migrants (3)	15,501	2,429	11,342	1,730
All migrants (1) + (2)	102,274	12,252	75,724	14,398
Our sample (1) + (3)	90,691	10,295	67,537	12,859

Note: Self-employed persons include own-account workers and employers. Own elaboration from Spanish 2001 census, INE

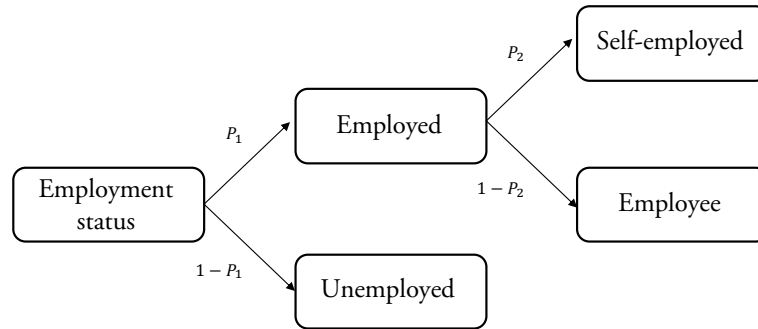
3. EMPIRICAL MODEL AND ECONOMETRIC SPECIFICATION

We estimate a model where the probability of different alternatives for a migrant's job status depends on several individual's characteristics, including the level of knowledge of the second language in the region of residence. Let us consider a Spanish-speaker immigrant i , belonging to the ethnic (other province or other country) group k , living in the area j , who faces a choice m among different employment status: *unemployment*, *employee*, *self-employment*. We are interested in the determinants affecting the probability that individual ijk chooses a particular alternative m . Considering that choices are not entirely independent because the choice of one of the employment categories implies a previous choice to be made, we use a sequential logit specification (Tutz, 1991) to model the transitions between binary decisions.⁵ More specifically, we consider two stages (or transitions) in the decision: in the first stage, immigrants consider unemployment and employment status as substitutive alternatives, regardless of the employment status. In the second stage, they choose between being employee or being self-employed (see Figure 5). The reason underlying this pattern of decisions is that at the first stage, an individual does not know the values of the utilities of the second stage alternatives, as such knowledge is costly or simply not available at

⁵ Nagakura and Kobayashi (2009) show that the sequential logit model is a limiting case of the nested logit model, in which the values of the utilities of the second-stage alternatives do not affect the decisions at the first stage.

the first stage. Thus, the values of the utilities of the second-stage alternative do not determine the choice at the first stage.⁶

FIGURE 5.
Sequential model for migrant's employment status



The sequential logit model allows the analysis of how covariates (that could be different) determine these two transitions probabilities by estimating a logistic regression for the sample of migrants that are subject to the risk of transition. All the individuals in the sample face transition 1:

$$P_{1,ijk} = Pr(Y_{ijk} \in \{employed\ vs\ unemployed\})$$

$$P_{1,ijk} = \Lambda\left(\beta_{01} + \sum_h \beta_{h1}X_{hi} + \alpha_{j1} + \gamma_{k1}\right) \quad (1)$$

The vector X_i includes a set of personal characteristics of individual i , and fixed effects are included for immigrant's area of residence, α_j , and region of origin, γ_k . If passing transition 1, individuals face a new decision:

$$P_{2,ijk} = Pr(Y_{ijk} \in \{employee\ vs\ self - employed\} | Y_{ijk} \in \{employed\})$$

$$P_{2,ijk} = \Lambda\left(\beta_{02} + \sum_h \beta_{h2}X_{hi} + \alpha_{j2} + \gamma_{k2}\right) \quad (2)$$

The likelihood function for an individual i , group k and area j can be written as:

$$L_{ijk} = \begin{cases} (1 - P_{(1,ijk)}) & \text{if } Y_{ijk} = Unemployed \\ P_{(1,ijk)}(1 - P_{(2,ijk)}) & \text{if } Y_{ijk} = Employee \\ (P_{(1,ijk)})(P_{(2,ijk)}) & \text{if } Y_{ijk} = Self - Employed \end{cases}$$

Where $P_{1,ijk}$ and $P_{2,ijk}$ are replaced by the corresponding equations (1) and (2). Maximizing this function with respect to the parameters provides the maximum likelihood estimator.

To define our variable of interest, we aggregate the raw indicator of second language's knowledge to a more sizeable number of categories, although keeping in mind that not all skills have the same relevance for social and economic performance in the host region: while the economic assimilation is at least as

⁶ We discard the assumption of independence of choices on the employment status using a Hausman test. The results are available upon request.

strongly affected by writing proficiency as language fluency, writing abilities are unimportant for social assimilation (Dustmann, 1996). Thus, we define three categories⁷:

- Level 1. Don't understand.
- Level 2. Passive skills, where we combine categories 2 and 3.
- Level 3. Active skills, where we combine categories 4, 5 and 6.

The empirical literature has also identified different individual characteristics as determinants in the personal decisions in the labour market (Yuegert, 1995; Le, 2000; Hammarstedt, 2004; Andersson and Hammarstedt, 2015; Toussaint-Comeau, 2012, Simoes et al, 2016). Following this literature, we include a battery of personal characteristics such as gender, marital status, age, years of arrival to the bilingual region of residence and educational attainment. Living in small municipalities may imply having access to a more limited set of jobs compared to that in large cities, affecting the possibilities of leaving unemployment and/or the type of job position migrants are able to reach. For instance, self-employment appears as one of the possibilities for immigrants to leave unemployment in these small towns. Thus, to account for this effect, we include the size of the municipality of residence through a dummy variable *Small municipality*. Table 2 provides a basic description of these covariates

TABLE 2.
Control variables. Personal characteristics

Name of the variable	Definition
Age	Logarithm of the age of each individual
Age of arrival	Logarithm of the age of arrival at the bilingual area of residence
Female	Dummy that takes value 1 if the individual is a woman and zero otherwise
Married	Dummy that takes value 1 if the individual is married and zero otherwise
Small municipality	Dummy that takes value 1 if the individual lives in a municipality with less than 20,000 inhabitants
Primary education	Dummy that takes value 1 if the individual did not complete secondary education and zero otherwise
Secondary education	Dummy that takes value 1 if the individual completed secondary education and zero otherwise
High education	Dummy that takes value 1 if the individual completed university or upper studies and zero otherwise

In the specifications for foreign migrants, we also consider the role of concentration of migrants from the same origin-country in the host economy and the existence of ethnic networks in the employment decision (Martin-Montaner et al., 2018).⁸ Thus, our econometric model includes a network indicator measuring the relative size of the population of co-nationals proposed by Bertrand et al (2000):

⁷ We used alternative definitions for the language skills categories and the results remain unaltered.

⁸ Lazear (1999) models how the probability of learning the host country language decreases for individuals living in migrant concentrations from the same origin. Laliberté (2019) observes this effect in Australia. Bauer, Epstein and Gang (2005) show that ethnic networks attract migrants with low proficiency in the language of the host country (language ability is endogenous for the location decision).

$$Network_{jk} = \left(\frac{\frac{N_{jk}}{N_j}}{\frac{N_k}{N}} \right) \times (\overline{employment\ status_k}) \quad (3)$$

where N is the number of foreign migrants in the corresponding group k and area j of reference and employment status refers to employed, or self-employed or employer. The first term (enclave) measures the relative agglomeration of group k in the area j and the second term is the likeness of those individuals that are sharing information and/or resources associated with the different employment status. Regarding the origin of the foreign migrants k , we use their country of birth of foreign migrants. To obtain the corresponding number of total immigrants in each group k and area of destination j , we use INE's 2001 elevation factors.

4. RESULTS

Our first set of results is presented in Table 3, taking into account the origin of the migrant (internal or foreign) but not distinguishing the linguistic area of destination of the migrants. We run the regression model separately for internal (columns 1-2) and foreign migrants (columns 3-4). All the reported coefficients are odds-ratio, that is, the exponentiated estimated coefficient.⁹

In transition I, for both internal and foreign migrants, the odds-ratios of active and passive skills on the regional language are above 1 and statistically significant, so knowledge of the regional language, whatever the degree of proficiency, helps migrants to transit from unemployment to employment. In addition, the more proficient in the regional language the migrant is, the more is the likelihood to find a job or become self-employed. When we move to Transition II, the odds-ratios for active skills are above 1 and statistically significant for internal migrants, while the odds-ratios for passive skills are above 1 and statistically significant for foreign migrants. Again, some knowledge of the regional language helps migrants to opt for self-employment rather than stay as employees. However, the skills that help to become self-employment are different for internal and foreign migrants. For internal migrants, passive skills are not enough while it is the case for foreign migrants.

The rest of variables exhibit the expected coefficient. Older individuals are more likely to be employed (Transition I) and to opt for self-employment (Transition II). The age of arrival to the bilingual region of residence or being female also reduces the two probabilities. In addition, being married and having acquired a higher level of education increase the likelihood of being employed and becoming self-employment (besides, having reached tertiary education has a stronger impact than having achieved only secondary grades). Living in small municipalities increases the probability of leaving unemployment and becoming self-employed among internal migrants, while increases the probability of becoming self-employed among foreign migrants. As stated before, we include the network indicators only for those migrants born abroad. The network indicator is above 1 and statistically significant in the second transition, indicating that foreign migrants rely on co-nationals to start their own business.

As a robustness check, we eliminate all the migrants employed in the public sector. The sample becomes smaller for internal migrants, but the number of foreign migrants remains almost the same, revealing that it is a kind of job where local population has advantage due to the knowledge of the official regional language. After considering only individuals working in the private sector, the findings hold (see Appendix).

⁹ An odds-ratio of 1 indicates no association between the dependent variable and our variable of interest (the chances of occurrence are the same regardless of the control condition); an odds-ratio above 1 indicates a positive association and an odds-ratio below 1 indicates a negative association.

TABLE 3.
Sequential logit specification

Trans I reference category: unemployed				
Trans II reference category: employee				
	Internal migrants		Foreign migrants	
	All individuals		All individuals	
	Trans I (1)	Trans II (2)	Trans I (3)	Trans II (4)
Active language skills	1.445***	1.123***	1.508***	1.063
	(0.0667)	(0.0446)	(0.120)	(0.108)
Passive language skills	1.179***	1.051	1.330***	1.204**
	(0.0497)	(0.0387)	(0.0821)	(0.104)
Age	1.016***	1.027***	1.018***	1.045***
	(0.0013)	(0.0012)	(0.00299)	(0.00295)
Age of arrival	0.996***	0.993***	0.987***	0.994***
	(0.0011)	(0.0010)	(0.00216)	(0.00225)
Female	0.436***	0.727***	0.714***	0.625***
	(0.0109)	(0.0169)	(0.0327)	(0.0346)
Married	1.537***	1.345***	1.235***	1.200***
	(0.0411)	(0.0359)	(0.0584)	(0.0669)
Small municipality	1.094***	1.233***	1.016	1.291***
	(0.0320)	(0.030)	(0.0547)	(0.0783)
High education	2.560***	0.852***	1.494***	1.452***
	(0.124)	(0.0332)	(0.118)	(0.132)
Secondary education	1.379***	1.067***	1.137**	1.224**
	(0.039)	(0.026)	(0.0668)	(0.0971)
Network 1			0.994	
			(0.0562)	
Network 2				1.316***
				(0.0854)
Constant	3.375**	0.024***	2.612***	0.00903***
	(1.935)	(0.0177)	(0.885)	(0.00354)
Number obs.	75,190		15,501	
AIC	106963		22657	

Notes: Robust errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1. All regressions include province-of-destination fixed effect; regressions with internal migrants include province-of-origin effects and the regression with foreign migrants include country-of-origin effects.

In Table 4, we repeat the analysis by regional language to evaluate whether there is heterogeneity across bilingual territories. Results for skills in Catalan for internal and foreign migrants replicate the main results: both passive and active skills are above 1 and statistically significant in Transitions I and II. This coincidence is not surprising since most migrants in our sample are located in Catalan-speaking areas.

Results for Galician and Basque cases are different to the Catalan one. The odds-ratios of passive and active skills are not statistically different from 1 in Transition I. Therefore, having certain knowledge of the Galician or Basque language does not help migrants to leave unemployment in the Galician and Basque speaking areas. The odds-ratios of passive and active skills are below 1 and statistically different in Transition II, indicating that certain knowledge of Galician and Basque does not stimulate self-employment against paid employment among migrants.

In the case of internal migrants, for Transition I, both passive and active language skills in Catalan help to leave unemployment, while having skills in Galician or Basque does not help migrants to leave unemployment. For Transition II, having skills in Catalan appears to have a positive and significant effect on the probability to become self-employed, while having active skills in Galician or both active and passive skills in Basque reduces the probability to become self-employed versus becoming an employee.

In the case of foreign migrants, the results are slightly different. In Transition II, having skills in Catalan appears to have a positive and significant impact on the probability to become self-employed, while having skills in Galician and only active skills in Basque reduces the probability to become self-employed.

We observe that sharing the same linguistic background does not necessarily lead to the same patterns observed among internal migrants in relation to the second language. In Transition I, skills in the second language increase the probability of leaving unemployment (both skills in the case of Catalan and only active skills in the case of Galician are significant). However, in Transition II, such skills hardly affect the likelihood of being self-employed.

TABLE 4.
Sequential logit specification taking account the regional language

Trans I reference category: unemployed				
Trans II reference category: employee				
	Internal migrants		Foreign migrants	
	Trans I (1)	Trans II (2)	Trans I (3)	Trans II (4)
Catalan Active Skills	1.573*** (0.080)	1.356*** (0.071)	1.464*** (0.127)	1.239* (0.137)
Catalan Passive Skills	1.255*** (0.057)	1.184*** (0.058)	1.368*** (0.0891)	1.273** (0.120)
Galician Active Skills	1.113 (0.486)	0.544* (0.188)	1.697* (0.498)	0.497* (0.210)
Galician Passive Skills	0.956 (0.422)	0.678 (0.237)	1.235 (0.372)	0.750 (0.325)
Basque Active Skills	1.106 (0.010)	0.827** (0.064)	1.384 (0.281)	0.695 (0.182)
Basque Passive Skills	1.052 (0.160)	0.749** (0.093)	1.083 (0.375)	0.867 (0.380)
Age	1.016*** (0.001)	1.026*** (0.0012)	1.018*** (0.00300)	1.045*** (0.00295)
Age arrival	0.996*** (0.001)	0.994*** (0.001)	0.987*** (0.00216)	0.994** (0.00226)
Female	0.436*** (0.011)	0.729*** (0.017)	0.715*** (0.0327)	0.625*** (0.0346)

TABLE 4. CONT.
Sequential logit specification taking account the regional language

Married	1.534***	1.338***	1.234***	1.200***
	(0.041)	(0.036)	(0.0584)	(0.0670)
Small municipality	1.094***	1.235***	1.016	1.292***
	(0.0320)	(0.0297)	(0.0546)	(0.0783)
High education	2.557***	0.847***	1.503***	1.434***
	(0.124)	(0.033)	(0.119)	(0.131)
Secondary education	1.374***	1.059**	1.139**	1.216**
	(0.039)	(0.026)	(0.0670)	(0.0966)
Network 1			0.985	
			(0.0559)	
Network 2				1.330***
				(0.0854)
Constant	3.677**	0.027***	2.760***	0.00982***
	(2.107)	(0.020)	(0.937)	(0.00383)
Number Obs	75,190		15,501	
AIC	106921		22656	

Robust errors in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. All regressions include province-of-destination fixed effect; regressions with internal migrants include province-of-origin effects and the regression with foreign migrants include country-of-origin effects.

TYPE OF MUNICIPALITY

Next, we examine whether the area of residence affects the impact of having language skills on the employment decision of migrants. Whereas Catalan speakers are distributed evenly across all the territory, Galician and Basque speakers are more concentrated in rural areas. Therefore, incentives for migrants to learn a second language may be affected by their place of residence. Thus, we split our sample between those individuals living in small municipalities (less than 20,000 inhabitants) and large municipalities (more than 20,000 inhabitants).

Table 5 presents the results. In general, immigrants with skills in a regional language exhibit higher probability of leaving unemployment and being self-employed (Transitions I and II). Once again, we observe heterogeneity in the importance of active and passive skills across regional languages. Skills in Catalan seem to contribute to migrants' labour market status in similar fashion in both small and large municipalities, which is consistent with the socially and geographically transversal use of the language. In the case of Galician and Basque, our results vary by size of municipality depending on the origin of migrants. For internal migrants, skills in Galician are only significant for those living in small municipalities (affecting only the probability of becoming employee); skills in Basque also seem to be more relevant in small municipalities, where both passive and active skills increase the probability of leaving unemployment and the probability of becoming self-employed. Surprisingly, in the case of the Basque language, the probability to opt for self-employment among internal migrants is lower if they have active skills in Basque.

In the case of foreign migrants, skills in Galician mostly matter in large municipalities, where they increase the probability of becoming employees (Transition II).

TABLE 5.
Sequential logit specification. By the size of the place of residence

Trans I reference category: unemployed								
Trans II reference category: employee								
	Internal migrants				Spanish-speaking foreign migrants			
	Big Municip.		Small Municip.		Big Municip.		Small Municip.	
	Trans I	Tran II	Trans I	Tran II	Trans I	Tran II	Trans I	Tran II
Catalan AS	1.500***	1.274***	1.849***	1.634***	1.506***	1.118	1.362*	1.896***
	(0.087)	(0.076)	(0.197)	(0.179)	(0.151)	(0.143)	(0.240)	(0.446)
Catalan PS	1.246***	1.162***	1.321***	1.294**	1.422***	1.157	1.214	1.879***
	(0.064)	(0.065)	(0.130)	(0.139)	(0.104)	(0.122)	(0.174)	(0.396)
Galician AS	1.200	1.149	0.846	0.197***	2.124**	0.456	0.890	0.488
	(0.632)	(0.651)	(0.702)	(0.102)	(0.731)	(0.257)	(0.527)	(0.308)
Galician PS	1.139	1.580	0.601	0.213***	1.490	0.673	0.798	0.794
	(0.606)	(0.898)	(0.504)	(0.113)	(0.526)	(0.388)	(0.483)	(0.511)
Basque AS	1.030	0.762***	1.275	1.041	1.335	0.729	1.312	0.704
	(0.110)	(0.077)	(0.221)	(0.130)	(0.309)	(0.228)	(0.537)	(0.346)
Basque PS	0.755*	0.776	3.803***	0.803	1.989	1.238	0.366**	0.246
	(0.124)	(0.124)	(1.753)	(0.160)	(1.049)	(0.611)	(0.182)	(0.286)
Age	1.014***	1.025***	1.019***	1.030***	1.016***	1.045***	1.025***	1.046***
	(0.002)	(0.001)	(0.003)	(0.002)	(0.00345)	(0.00349)	(0.00612)	(0.00566)
Age arrival	0.996***	0.994***	0.996*	0.993***	0.990***	0.995*	0.979***	0.992*
	(0.001)	(0.001)	(0.002)	(0.002)	(0.00249)	(0.00269)	(0.00429)	(0.00427)
Female	0.463***	0.728***	0.364***	0.730***	0.779***	0.557***	0.564***	0.760***
	(0.013)	(0.020)	(0.018)	(0.032)	(0.0420)	(0.0378)	(0.0491)	(0.0739)
Married	1.538***	1.314***	1.541***	1.393***	1.229***	1.130*	1.237**	1.305***
	(0.048)	(0.041)	(0.083)	(0.070)	(0.0684)	(0.0765)	(0.113)	(0.131)
High educ	2.519***	0.863***	2.772***	0.795***	1.568***	1.438***	1.343*	1.340*
	(0.138)	(0.039)	(0.302)	(0.062)	(0.144)	(0.161)	(0.209)	(0.216)
Sec. educ	1.367***	1.031	1.383***	1.133***	1.177**	1.163	1.048	1.265*
	(0.045)	(0.031)	(0.076)	(0.051)	(0.0821)	(0.115)	(0.115)	(0.170)
Network 1					0.990		0.940	
					(0.0651)		(0.106)	
Network 2						1.327***		1.397***
						(0.1000)		(0.179)
Constant	4.801***	0.0462***	3.310***	0.0593***	2.573***	0.0172***	5.017***	0.00683***
	(0.880)	(0.008)	(1.187)	(0.017)	(0.882)	(0.00566)	(3.010)	(0.00409)
Number Obs	54,992	54,992	20,198	20,198	11,190	11,190	4,311	4,311
AIC	77794	77794	29076	29076	16006	16006	6628	6628

Robust errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1. All regressions include province fixed effect; regressions with internal migrants include province of origin effects and regression with foreign migrants include world-region of origin effects.

AGE OF ARRIVAL

Finally, we analyse the effect of going through the compulsory education system in the bilingual region has on the nexus between migrant's language skills in the second language and their position in the labour market. As mentioned, the study of the co-official language has been compulsory at the primary level in all bilingual regions since the early 1980s. This implies that those migrants in the Census arriving to the host regions at school age should be as proficient as the natives in the regional language. Therefore, we should expect that any skills in a regional language is more important for migrants that arrive as adults compared to those migrants that arrive at early age. The reason is that for the first group of migrants, being proficient in the second language is an explicit investment in social capital.

To evaluate this circumstance, in Table 6 we split our sample into groups depending on the age of arrival to the host regions. Since arriving at an age below 12 implies at least one year studying the second language at primary school -and four at secondary school, we consider twelve years of age as the breaking point of the sample.¹⁰

We observe that most of the effect of language skills concentrates in the subsamples of internal and foreign migrants who arrived at the region of residence older than 12. In the case of internal migrants, any skills in Catalan and active skills in Basque are significant in Transition I for those arriving at the region younger than 12, and the impact is positive on the probability to leave unemployment. In contrast, skills in Basque are also relevant in Transition II but they reduce the probability of becoming self-employed against being an employee. In the case of internal migrants that arrived older than 12, active and passive skills in Catalan have a positive and significant impact on the probability of employment (Transition I) and of becoming self-employed (Transition II).

Similarly, in the case of foreign migrants, active and passive skills in Catalan have a positive and significant impact on the probability of leaving unemployment and of being self-employed (Transition I and Transition II, respectively) for those that arrived older than 12 years old, while skills in Galician reduce the likelihood of being self-employed relative to becoming an employee. The results are consistent with our hypothesis about the acquisition of skills in the regional language as an indicator of migrants' integration efforts.

TABLE 6.
Sequential logit specification. Migrants by age of arrival

Trans I reference category: unemployed								
Trans II reference category: employee								
	Internal migrants				Spanish-speaking foreign migrants			
	Age of arrival <=12		Age of arrival >12		Age of arrival <=12		Age of arrival >12	
	Trans I	Tran II	Trans I	Tran II	Trans I	Tran II	Trans I	Tran II
Catalan AS	1.660***	1.079	1.534***	1.526***	1.080	1.161	1.465***	1.398**
	(0.156)	(0.105)	(0.100)	(0.097)	(0.189)	(0.240)	(0.168)	(0.195)
Catalan PS	1.247**	0.973	1.274***	1.280***	0.812	1.266	1.594***	1.268**
	(0.114)	(0.094)	(0.068)	(0.074)	(0.137)	(0.255)	(0.116)	(0.138)
Galician AS	1.640	0.781	1.009	0.519*	1.004	0.500	1.580	0.424*
	(1.384)	(0.680)	(0.519)	(0.195)	(1.134)	(0.618)	(0.497)	(0.195)
Galician PS	1.368	1.187	0.870	0.592	0.822	0.453	1.257	0.777
	(1.179)	(1.052)	(0.447)	(0.223)	(0.946)	(0.572)	(0.396)	(0.358)

¹⁰ We considered other breakpoints for the age of arrival: 14 years, migrants arrived at this age still learn the regional language for at least two years at school; those arrived at 16 years, study the second language one year at school. In all cases, our results remain unaltered. Results are available upon request.

TABLE 6. CONT.
Sequential logit specification. Migrants by age of arrival

Basque AS	1.241*	0.719***	0.913	0.960	1.548	0.541*	1.104	1.083
	(0.143)	(0.0725)	(0.139)	(0.122)	(0.438)	(0.193)	(0.368)	(0.485)
Basque PS	1.047	0.672**	1.106	0.817	0.669	0.652	2.196	1.085
	(0.214)	(0.119)	(0.259)	(0.143)	(0.283)	(0.406)	(1.364)	(0.701)
Age	1.017***	1.026***	1.014***	1.026***	1.016***	1.042***	1.021***	1.048***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.00482)	(0.00430)	(0.00486)	(0.00456)
Age arrival	0.990**	0.993*	0.988***	0.995***	0.986	0.999	0.984***	0.984***
	(0.005)	(0.004)	(0.002)	(0.002)	(0.0103)	(0.0114)	(0.00499)	(0.00471)
Female	0.472***	0.677***	0.402***	0.770***	0.566***	0.598***	0.789***	0.653***
	(0.017)	(0.023)	(0.014)	(0.024)	(0.0446)	(0.0508)	(0.0446)	(0.0482)
Married	1.648***	1.443***	1.403***	1.246***	1.681***	1.382***	1.077	1.059
	(0.065)	(0.055)	(0.053)	(0.045)	(0.144)	(0.117)	(0.0626)	(0.0802)
Small mun.	1.159***	1.276***	1.044	1.197***	1.123	1.451***	0.940	1.199**
	(0.050)	(0.045)	(0.041)	(0.040)	(0.100)	(0.127)	(0.0635)	(0.103)
High educ	2.580***	0.922	2.589***	0.790***	1.896***	1.257	1.344***	1.520***
	(0.184)	(0.054)	(0.174)	(0.042)	(0.259)	(0.179)	(0.131)	(0.185)
Sec. educ	1.497***	1.063	1.287***	1.053	1.332***	1.218	1.048	1.185
	(0.062)	(0.040)	(0.050)	(0.035)	(0.139)	(0.146)	(0.0748)	(0.127)
Network 1					0.822		0.974	
					(0.125)		(0.0614)	
Network 2						0.930		1.484***
						(0.138)		(0.108)
Constant	4.969***	0.056***	4.949***	0.041***	4.833**	0.0409***	3.958***	0.0125***
	(1.228)	(0.012)	(1.058)	(0.008)	(3.522)	(0.0218)	(1.366)	(0.00455)
Number Obs	33,801	33,801	41,389	41,389	6,196	6,196	9,305	9,305
AIC	48214	48214	58774	58774	8864	8864	13742	13742

Robust errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1. All regressions include province fixed effect; regressions with internal migrants include province of origin effects and regression with foreign migrants include country of origin effects.

5. CONCLUSIONS

In this paper, we study how the proficiency in the second language of migrants living in bilingual territories affects the probability of these migrants reaching different positions in the local labour market: employment vs unemployment; self-employment vs employee. We use Census data for the Spanish migrant population and examine both internal and foreign migrants living in areas where Catalan, Basque or Galician are official languages together with Spanish, the official language in all Spanish regions.

The knowledge of the regional language is associated with a rise in the probability of migrants leaving unemployment. Active communicating skills usually are more important than passive ones. Besides, when we consider the age of arrival to the bilingual region, we observe that participation in the regional education system makes the knowledge of the second language irrelevant in most of the labour market decisions of foreign migrants, whereas they are still relevant for internal migrants. Living in small municipalities makes

the knowledge of the regional language more relevant for migrants when the regional language is more used by natives in rural environments. These effects are mainly focused on the Catalan-speaking regions.

Getting a job and becoming self-employed requires migrants establishing strong links within the host community. Our results are consistent with the knowledge of the second language being an instrument to enhance the assimilation of migrants in the host regions. This outcome highlights the interest of the promotion of regional languages among migrants, mostly if it is addressed to grown-up individuals who will not be able to learn it through the standard educational system.

ACKNOWLEDGMENTS

The authors would like to thank Customs and Excise Department of the Spanish Tax Agency (AEAT-Aduanas) for providing access to the data. The authors thankfully acknowledge financial support from Ministerio de Ciencia, Innovación y Universidades and Generalitat Valenciana.

FUNDING

The authors thankfully acknowledge financial support from Ministerio de Ciencia, Innovación y Universidades (Project PID2021-122133NB-I00 financed by MCIN/ AEI / 10.13039/501100011033 / FEDER, EU and Generalitat Valenciana, Programa Prometeo (CIPROM/2022/50).

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APPENDIX

TABLE A.1.
Sequential logit specification. Sample after eliminating option of a job in the public sector

Trans I reference category: unemployed								
Trans II reference category: employee								
	Internal migrants				Foreign migrants			
	Trans I	Tran II	Trans I	Tran II	Trans I	Tran II	Trans I	Tran II
Active skills	1.434***	1.130***			1.499***	1.068		
	(0.0662)	(0.0449)			(0.119)	(0.108)		
Passive skills	1.174***	1.017			1.330***	1.190**		
	(0.0495)	(0.0388)			(0.0822)	(0.103)		
Catalan AS			1.558***	1.372***			1.454***	1.249**
			(0.080)	(0.072)			(0.126)	(0.139)
Catalan PS			1.248***	1.190***			1.370***	1.258**
			(0.057)	(0.059)			(0.0893)	(0.118)
Galician AS			1.113	0.551*			1.673*	0.509
			(0.487)	(0.193)			(0.492)	(0.217)
Galician PS			0.945	0.702			1.212	0.761
			(0.418)	(0.249)			(0.366)	(0.332)
Basque AS			1.104	0.823**			1.371	0.689
			(0.100)	(0.064)			(0.279)	(0.182)
Basque PS			1.049	0.749**			1.071	0.842
			(0.160)	(0.093)			(0.371)	(0.375)
Age	1.016***	1.027***	1.015***	1.027***	1.017***	1.047***	1.017***	1.046***
	(0.00133)	(0.00115)	(0.001)	(0.001)	(0.00300)	(0.00300)	(0.00300)	(0.00300)
Age of arrival	0.995***	0.993***	0.996***	0.994***	0.987***	0.994***	0.987***	0.994***
	(0.00114)	(0.000962)	(0.001)	(0.001)	(0.00217)	(0.00227)	(0.00217)	(0.00228)
Female	0.441***	0.711***	0.441***	0.712***	0.719***	0.608***	0.720***	0.609***
	(0.0110)	(0.0165)	(0.011)	(0.017)	(0.0329)	(0.0338)	(0.0330)	(0.0339)
Married	1.526***	1.365***	1.524***	1.357***	1.230***	1.206***	1.229***	1.207***
	(0.0409)	(0.0365)	(0.041)	(0.036)	(0.0582)	(0.0676)	(0.0582)	(0.0677)

TABLE A.1.CONT.
Sequential logit specification. Sample after eliminating option of a job in the public sector

Small mun.	1.097***	1.230***	1.097***	1.232***	1.019	1.295***	1.019	1.296***
	(0.0321)	(0.0297)	(0.032)	(0.030)	(0.0549)	(0.0790)	(0.0548)	(0.0790)
High educ	2.351***	0.971	2.348***	0.965	1.422***	1.596***	1.431***	1.577***
	(0.115)	(0.0382)	(0.115)	(0.038)	(0.112)	(0.147)	(0.113)	(0.145)
Sec. educ	1.357***	1.096***	1.353***	1.088***	1.122**	1.262***	1.124**	1.254***
	(0.0381)	(0.0272)	(0.038)	(0.027)	(0.0659)	(0.101)	(0.0661)	(0.100)
Network 1					0.999		0.989	
					(0.0565)		(0.0562)	
Network 2						1.311***		1.326***
						(0.0854)		(0.0853)
Constant	3.507**	0.022***	3.814**	0.025***	2.579***	0.00878***	2.729***	0.00953***
	(2.007)	(0.017)	(2.181)	(0.019)	(0.874)	(0.00346)	(0.927)	(0.00373)
Number obs.	73,319		73,319		15.157		15.157	
AIC	105976		105931		22424		22423	

Robust errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1. All regressions include province fixed effect; regressions with internal migrants include province of origin effects and regression with foreign migrants include country of origin effects.