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JOB SEARCH METHODS IN TIMES OF CRISIS: NATIVE AND IMMIGRANT STRATEGIES IN SPAIN [*]

Javier Vázquez-Grenno

ABSTRACT: This paper uses Spanish Labor Force Survey data for the period 2005 to 2010 to examine the use of job search methods and the intensity of the job search strategies of unemployed natives and immigrants. We focus on the determinants of the job search methods and search effort. Additionally, we examine the impact of the methods selected and of the search intensity on the job-finding probabilities of native and immigrant groups in a period that covers the transition from economic growth to crisis. Our findings suggest that, irrespective of the job search methods adopted, the probability of employment is higher among immigrants than it is among natives. However, this gap is closed following the onset of the current crisis in 2008. We find that most job search methods have a positive impact on the probability of finding a job, with the exception of registration at a public employment office. Search effort (measured as the number of methods adopted) seems to matter in finding work.

JEL Codes: J15, J61, J64

Keywords: Job search methods, search intensity, unemployment, employment, immigration

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1 Introduction

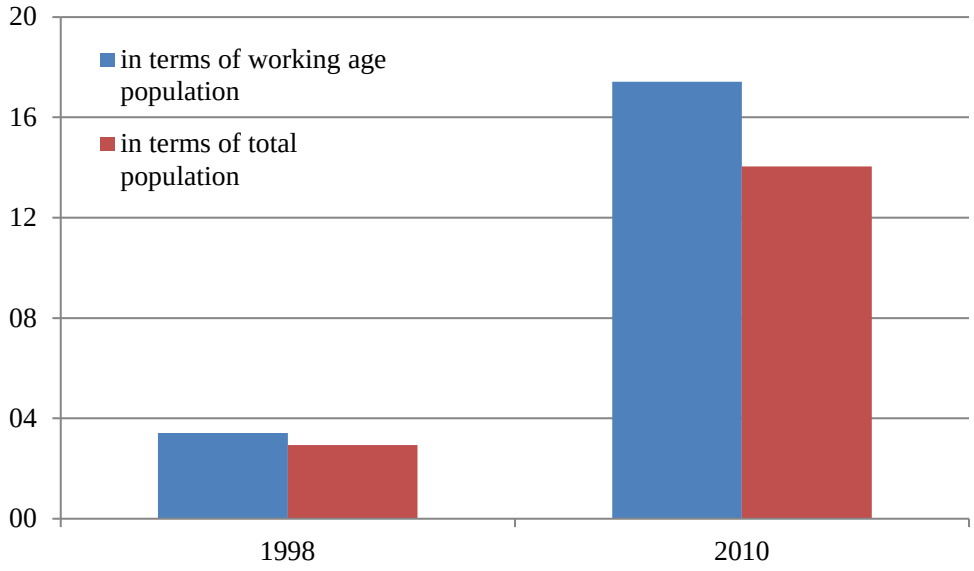
The labor market effects of immigration have been the subject of considerable debate among researchers, most of whose studies have tended to focus on the impact of immigration on wages and employment, with the definition of national and sub-national labor markets lying at the heart of these discussions.[1]. However, the strategies, in terms of the job search activities, that underpin native and immigrant performances in the labor market have received little attention in the labor literature. The articles by Frijters, Shields and Price (2005) and Daneshvary, Herzog, Hofler and Schlottmann (1992) are, however, two notable exceptions, while a number of papers have examined job search activities in the general population or in other defined groups (see, for example, Holzer (1988) for the US, Osberg (1993) for Canada and Addison and Portugal (2002) for Portugal).

Spain's immigration rate has grown substantially over the last twelve years. Figure 1 shows that its foreign-born population increased from 2.9% of the total population in 1998 (1.2 million) to 14.0% in 2010 (6.6 million), while the foreign-born, working age population (WAP) grew from 3.4% of the total WAP (0.9 million) to 17.4% (5.5 million) in the same period. Additionally, since the onset of the current global economic and financial crisis, Spain's labor market has suffered significantly. Thus, the unemployment rate has risen from 8.3% in 2007 to 20.1% in 2010. This increase has been particularly high among the immigrant population, where unemployment has risen from 12.2% in 2007 to 30.2% in 2010.

Here, we draw on data for Spain between 2005 and 2010 in order to analyze the interaction between job search activities (job search methods and job search effort) and the performance of natives and immigrants in the labor market (finding a job and type of job found). Spain provides a particularly appropriate framework for conducting this study for the following reasons:

[1] To follow this debate see, Borjas (2003) and Card (2005)

Figure 1: **Foreign-born population (in percentage terms)**



Source: Own calculations from the SLFS (INE).

1. The country experienced a massive influx of immigrants in a short period of time. This boom was the largest among developed countries and unlike its Europeans counterparts, Spain's immigration was predominantly labor immigration attracted by demand factors, like the economic boom between 1995 and 2007 and the small size of young cohorts.[2]

2. The current crisis has had a severe impact on the Spanish labor market. Above all, the rise in unemployment since 2007 has been, by far, the highest among developed countries.

3. Finally, the duality (permanent and fixed-term jobs) that characterizes the country's labor market provides an interesting opportunity to analyze the interaction between job search methods and their effectiveness in finding stable employment.

Thus, this article provides empirical evidence of the job search methods being employed (and of their relative success) by immigrants and natives in the Spanish labor market, with a

[2]The proportion of asylum seekers in the total inflow of immigrants was just 2.7% in Spain, compared to 79% in Sweden, 58% in France, 46% in Denmark and 38% in the UK (Source: OECD Dataset-International Migration Database).

particular emphasis on the effects of the change in the business cycle following the start of the current crisis. More specifically, drawing on a rotating panel data set drawn from the Spanish Labor Force Survey (SLFS, Encuesta de la Población Activa) for the period 2005:1-2010:2, we analyze for both natives and immigrants the determinants of the adoption of different job search methods; the effects of the chosen methods on the probability of finding a job; and, finally, the determinants of search intensity and the effects of search intensity on the probability of finding a job. In line with Holzer (1988) and Weber and Mahringer (2008) search effort, a measure of job search intensity, is defined as the number of methods used by the unemployed during the search process.

Our findings reveal a number of differences in the strategies employed by natives and immigrants during their job search process. However, no significant differences are found across the immigrants' regions of origin. In addition, and consistent with some previous studies (i.e.,González and Ortega (2011) and Silva and Vázquez-Grenno (2011)) we find that, regardless of the search method used, before the start of the current downturn, immigrants found employment more easily than their native counterparts. However, this advantage disappeared with the onset of the crisis. Finally, no significant differences are found in the search intensity of natives and immigrants; however, we do find that the job search effort seems to matter when it comes to finding a job.

The novelty of the immigration phenomenon in Spain has generated a growing number of studies in recent years analyzing the economic effects of immigration. Several papers have studied the impact of immigration flows on labor market outcomes - specifically, on job opportunities and on the wages of the native population.[3]

However, the use that natives and immigrants make of job search methods remains unexplored in Spain. For these reasons, Spain seems an appropriate testing ground for examining whether immigrants behave differently to natives in terms of their respective job search meth-

[3]Carrasco, Jimeno and Ortega-Masagué (2008) and Amuedo-Dorantes and de la Rica (2011) are two of the first studies that examine the effects of the recent immigration wave on labor outcomes in Spain.

ods and their efficiency in finding employment. We hypothesize that if there are differences in their respective behaviors then these differences will help explain the unequal success in the labor market enjoyed by these two groups of workers.

The empirical evidence available to date refers primarily to the US and the UK. In an early study, Daneshvary et al. (1992) analyzed immigrant assimilation in terms of the job search methods adopted by immigrants as their length of residence in the US increased. They report evidence of an assimilation pattern; specifically, they observe that immigrants tend to use the same job search strategies as those employed by natives within twelve years of their arrival in the US. Frijters et al. (2005) provide empirical evidence of the job search methods used by immigrants and their efficiency in obtaining jobs in the UK. Specifically, they find that male immigrants have more trouble finding jobs than white UK born males and that the choice of search method explains "virtually none of the difference in job-finding probabilities" of natives and immigrants. A further branch of this literature explores job search activities by focusing on the behavior of ethnic minorities. Battu, Seaman and Zenou (2011) and Pellizzari (2010) are two examples of this approach conducted in the UK and the European Union, respectively. They analyze whether unemployed workers that belong to ethnic minorities are more likely to use personal contacts than other formal search methods and they also compare the relative efficiency of these workers in finding jobs. They find that personal networks are a popular method of finding a job among ethnic minorities, but that ultimately immigrants have greater trouble than natives in finding work.

This paper seeks to contribute to the literature by: i) providing empirical evidence of the interaction between search activities and the job finding probabilities of natives and immigrants in an economy in transition from a boom to a recession that has had grave effects on the labor market; ii) studying the differences in the determinants of the job search methods adopted by these two groups; iii) estimating the determinants of the search intensity, and the effects of this search effort on finding a job. Our paper is closely related to Frijters et al. (2005), in the sense that we also provide empirical evidence on the determinants of

the job search methods used by natives and immigrants, and their respective efficiency in obtaining jobs; and to Battu et al. (2011), as we draw on similar data and apply a similar methodological approach.

The remainder of the paper is organized as follows. In section two we introduce the database and the characteristics of our two samples. In the third section we present our descriptive analysis, while in section four we outline our empirical methodology. The econometric results are presented in section five and section six concludes.

2 Data and sample characteristics

Our analysis draws on data from the Spanish Labor Force Survey (SLFS) which is conducted every quarter with a sample of some 65,000 households (about 180,000 individuals). Since the second quarter of 1987, the SLFS has operated as a rotating panel in which each household is surveyed for a maximum of six consecutive quarters. Each quarter a new cohort of households is selected, and one sixth of existing households leave the sample. The SLFS is designed to be representative of the total Spanish population, and its main goal is to reveal the characteristics of that population with regard to the labor market. Labor force transitions can be studied by monitoring consecutive information for the same individuals, available for all cohorts selected since 1987:2.

Here, we consider twenty-two consecutive waves of the SLFS: the first wave corresponds to that of the first quarter of 2005 while the last corresponds to that of the second quarter of 2010.[4] Specifically, we consider all individuals of working age (20 to 64) that reported being unemployed for at least one period during their inclusion in the SLFS sample.[5] Further, we select individuals from the following regions: Latin America, Asia, Africa, European Union

[4]We have had to restrict our period of analysis because the database (flow statistics in the SLFS) only provides information by nationality since 2005.

[5]All individuals looking for job opportunities as an employee, in self-employment or both in the four weeks prior to interview.

(15) and the rest of Europe.[6] Finally, we do not include those unemployed individuals that did not report the use of at least one job search method. Natives comprise the majority of the sample, 59,079 individuals (90.6%), observed on average for a total of 4.5 periods. The remaining 9.4% of the sample are individuals without Spanish nationality (6,134), present on average for 4.0 periods.[7]

Our data concerning job search methods are derived from responses to the following questions in the SLFS: Are you registered at a public employment office?; Are you registered at a private employment office?; Have you contacted entrepreneurs?; Have you asked your family, friends or unions about a job?; Have you posted or answered an advertisement?; Have you taken an exam or an interview?; Have you looked into becoming self-employed?; Have you looked for funding to become self-employed?; Are you awaiting the results of a job application/s?; Are you preparing exams to become a civil servant?; Are you waiting for a call from the public employment office?; Have you looked at job advertisements in newspapers, on TV, radio, etc.? We then aggregated these job search methods in six groups: public employment office, private employment office, news (answering adverts, placing adverts and looking for media adverts), personal networks, direct (entrepreneurs, looked into permits required/financing available for becoming self-employed) and others.

3 Descriptive analysis

Table 1 shows the percentage adoption of the above job search activities by the different groups in our sample (in relation, that is, to their observed characteristics). The most common job search method among all the unemployed workers is that of personal networks (82%), followed by direct methods (71.1%)while the least frequently employed method is, by

[6]We exclude individuals from North America (except Mexico) and Oceania. Those originally from these continents represented just 0.75% of the foreign-born population in 2010.

[7]If this difference in the average number of periods reflects the fact that immigrants are more likely to change residence to take up a job than Spaniards, we will be underestimating the job finding probabilities.

some distance, the private agency (29.3%).The level of education attained by the unemployed seems to have an influence on the choice of job search method. Individuals with a university degree are more likely to use search methods that include registration at a private agency, seeking opportunities in the media, adopting direct and other methods, while they are less likely to register at a public employment office and turn to personal contacts. By contrast, unemployed individuals with lower levels of education make more use of public job offices and personal networks than the rest of the unemployed. A comparison of the methods used by natives and immigrants shows that the latter are more likely to use personal networks in seeking a job (89.7% vs. 81.9%). Overall, we observe an inverted U-shaped pattern in the use of all methods with increasing duration of unemployment. As the length of unemployment increases, the use of search methods also rises, but when an unemployed worker becomes a long-term unemployed, we notice a fall-off in the use of job search methods.

An examination of the job search strategies adopted by immigrants from different regions of origin also reveals differences. For instance, unemployed individuals from Asia tend to make more use of personal networks and private agencies; those from the rest of Europe (non EU-15 countries) prefer to use more direct approaches and make less use of public employment offices than other immigrants. In the case of both natives and immigrants, unemployed individuals with no previous experience in the labor market make less use of all search methods than those with experience. We also observe differences in job search strategies by gender and age; however, we do find many differences when we examine immigrants according to number of years of residence in Spain (three and less than three, respectively).

In the last column of the Table 1, we report the average number of job search methods used by unemployed individuals classed according to their observable characteristics.

Table 2 presents, for natives and immigrants, the percentage use made of each job search method in each year and the average number of methods used by year for the whole period. For both natives and immigrants, we observe a U-shaped pattern with a decline in the use of all search methods until the end of the period of expansion (2007) with a trend break in 2008

Table 1: **Use of different job search methods of unemployed workers**

	Percentage of unemployed workers						Average
	public agency	private agency	news	personal networks	direct	other	Number Methods
All	67.09	29.28	57.34	82.67	71.14	63.13	4.38
Primary school	68.12	21.51	39.50	84.17	61.11	56.48	3.71
Secondary school	67.51	29.11	57.83	83.79	72.12	63.10	4.40
University degree	64.99	37.30	73.43	78.27	78.33	69.67	4.98
Short-term unemployed	65.97	29.79	56.86	81.59	73.29	63.58	4.40
Medium-term unemployed	67.41	30.35	60.26	84.19	74.43	63.97	4.53
Long-term unemployed	68.28	27.37	54.70	82.46	64.39	61.55	4.18
No job experience	53.90	26.44	54.26	76.19	65.10	56.96	3.91
Men	67.99	28.18	57.54	85.64	76.18	63.27	4.49
Women	66.36	30.18	57.18	80.26	67.04	63.01	4.29
Young	61.79	33.19	65.78	82.26	79.71	64.94	4.66
Old	69.73	27.34	53.14	82.88	66.87	62.23	4.24
Natives							
All	68.48	29.02	57.12	81.94	71.16	64.14	4.39
No job experience	56.39	26.82	54.75	74.39	66.34	59.74	3.99
Immigrants							
All	53.72	31.84	59.49	89.68	70.93	53.42	4.26
No job experience	33.16	23.23	50.18	91.13	54.79	33.87	3.26
Years of residence							
3 years or less	51.95	31.33	59.63	89.33	71.26	54.20	4.23
More than 3 years	54.63	32.10	59.41	89.86	70.76	53.02	4.28
Regions							
Non EU-15	52.62	32.12	59.51	90.61	72.16	53.00	4.28
Latin America	53.34	31.16	59.16	88.87	70.15	53.38	4.23
Africa	55.73	32.51	59.90	89.85	71.44	53.25	4.29
Asia	54.02	34.82	61.16	92.86	69.64	58.04	4.44

Source: Own elaboration using Spanish Labor Force Survey (INE).

coinciding with the start of the current economic crisis. The same pattern is observed for the average number of search methods used. In other words, a rapid response is detected in terms of the use of the different job search methods (i.e., intensity) to the sudden and huge increase in unemployment from the beginning of 2008.

Table 2: **Use of different job search methods by unemployed workers**

	Percentage of unemployed workers						Average
	public agency	private agency	news	friends family	direct	other	Number Methods
Natives							
2005	69.00	30.82	51.52	78.98	67.47	72.18	4.42
2006	66.59	29.87	54.73	79.82	68.32	68.14	4.39
2007	67.31	27.16	51.26	75.47	66.57	64.36	4.15
2008	66.85	28.05	55.66	80.92	70.54	62.66	4.28
2009	70.98	29.10	62.89	86.35	75.17	60.32	4.51
2010	68.02	28.69	64.80	88.33	77.61	57.39	4.54
Observations	40,456	17,144	33,745	48,411	42,039	37,891	59,079
Immigrants							
2005	45.91	33.83	55.39	87.92	65.99	55.76	4.16
2006	46.14	32.13	55.28	87.56	64.57	52.28	4.09
2007	45.07	28.54	53.51	86.09	64.21	51.61	3.90
2008	50.11	31.70	57.71	89.70	69.83	50.18	4.13
2009	60.56	32.22	63.89	91.77	76.77	55.71	4.50
2010	63.68	33.07	64.20	91.18	73.93	54.60	4.48
Observations	3,295	1,953	3,649	5,501	4,351	3,277	6,134

Source: Own elaboration using Spanish Labor Force Survey (INE).

4 Empirical methodology

We begin by analyzing the factors that lead an unemployed individual to adopt a specific job search method.[8] Our dependent variable is a binary variable that takes the value 1 if the individual reports using the job search method and 0 otherwise.

Specifically, we estimate the determinants of each one of the following five groups of

[8]Recall we consider five groups of job search methods.

methods (public employment office, private job agency, personal networks, news and direct search methods) using two econometric specifications. First, we estimate the determinants of each job search method group including a dummy for the individual's nationality and a set of explanatory variables that include age, age squared, gender, marital status, education, experience, unemployment benefit, duration of unemployment, years of residence and years of residence squared. Second, we use the same set of control variables but disaggregate the nationality dummy into four separate dummies to identify immigrants from other European (non EU-15) countries, Asia, Africa and Latin America. In both specifications we include dummy variables for the year in which the survey was conducted to capture time-varying effects such as the business cycle.

Then, we estimate the following specification:

$$sm_{i,j} = \beta_0 + \beta_1 f_i + \beta_2 X + \varepsilon_i, \tag{1}$$

where i indexes individuals and j the different groups of job search methods. sm_{ij} is a dummy variable indicating whether individual i uses search method j, f_i is also a dummy variable indicating whether the individual is a foreign national, X is a set of control variables and ε_i is the disturbance term. As described above, we also ran the regressions disaggregating the nationality dummy into dummies that capture the immigrants' regions of origin: European (non EU-15) countries, Latin America, Africa and Asia.

In the second step, we estimate job finding probabilities by considering those individuals that are observed as being unemployed during their six-wave sample period and examine whether or not they return to employment status before leaving the SLFS.[9] We construct the following dummy variable:

$y_i = 0$ if the individual did not find employment before they left the SLFS sample,

$y_i = 1$ if the individual did find employment before they left the SLFS sample.

[9]In these estimations we exclude those individuals who became unemployed in the sixth wave of the SLFS

Then, we run a probit regression with different empirical specifications:

$$y_i = \beta_0 + \beta_1 sm_{i,j} + \beta_2 f_i + \beta_3 sm_{i,j} * f_i + \beta_4 X + \varepsilon_i, \tag{2}$$

In addition to the set of control variables described above, in these regressions we also include multiplicative variables that interact the type of search methods with an individual's foreign status and then separately with each of the region of origin dummies. We also expect to find some differences in relation to the duration of unemployment and so we include two dummy variables for the short-term (less than three months) and medium-term (between three and less than twelve months) unemployed. Finally, to capture the effect of the business cycle, we examine how the probability of finding a job evolves over time.

Additionally, we examine the relationship between the job search intensity presented by the unemployed workers and their region of origin and certain individual characteristics. We also analyze the impact of their search efforts on the probability of finding employment. Finally, we monitor job search intensity throughout the period of study to determine whether there has been a shift in the trend since the beginning of the current economic crisis.

5 Econometric Results

5.1 Determinants of the search methods

Table 3 shows the results for the specification that analyzes the determinants of the different job search methods, focusing specifically on any differences between natives and immigrants.

We find a number of differences in their respective preferred job search methods. Specifically, accounting for certain observable characteristics, we find that natives are more likely to use public employment offices than immigrants; however, the former tend to use personal networks and news less than immigrants. However, we find no statistically significant differences between natives and immigrants with respect to their use of private employment agencies and direct methods for finding employment. When we examine immigrant heterogeneity in

terms of region of origin (bottom panel in Table 3), we find that unemployed workers from all regions are less likely to use public employment offices and more likely to use personal networks than natives. We also find that immigrants from other European (non EU-15) countries, Africa and, in particular, from Latin America use news sources more frequently than natives to look for work. No significant differences were found with respect to the use of private agencies and direct methods. Our results are, therefore, in line with those reported by Frijters et al. (2005) and Battu et al. (2011).

The above results might be interpreted as follows: i) the less frequent use of public agencies could be a consequence of the fact that members of most immigrant communities are more likely to be employed in informal sectors (i.e., domestic service and restaurants); ii) the fact that only unemployed individuals of Asian origin show no significant differences with their native counterparts in their respective uses of news sources for finding employment could be indicative of the low level of immigrant integration in Spain's labor market. (It might, for instance, be evidence of the relatively low level of language skills among this group, hampering their ability to respond to job advertisements in the press); iii) the marked differences in the frequency of use of personal networks between all groups of immigrants and natives provides evidence of the importance within immigrant communities of helping fellow countrymen to integrate in the country of destination.

The estimated parameters for the control variables show that unemployed individuals without any previous work experience and unemployed workers that are married make less use of all the methods than those with work experience and those that are single, respectively. Similarly, those in receipt of unemployment benefit while forming part of the SLFS sample report making greater use of all the job search methods than those that do not receive any benefit. Individuals that have only recently been made unemployed are less likely than the long-term unemployed to use all the methods (with the exception of the direct strategies), while those that have been unemployed between three and twelve months are less likely to use a public employment agency and more likely to adopt direct methods than the long-term

unemployed. Men are more likely than women to use personal networks and direct methods yet less likely to use employment offices and news sources. We find no evidence in favor of assimilation (i.e., the number of years' residence does not play any role as a determinant of the use of the job search methods) with the exception of turning to a private employment agency (where we find that the use of such agencies does increase with the number of years' residence). We find that job seekers with a university degree (or who have at least completed their secondary education) make more use of private employment offices, news sources and direct methods, and less use of personal networks, than unemployed individuals that have only completed their primary education. These results are also in line with some of the findings reported in Frijters et al. (2005) and Battu et al. (2011) to the effect that personal networks are important search mechanisms among immigrant communities and the poorly educated unemployed.

5.2 Employment

This section examines the impact of the job search methods on the probability of finding a job. We focus specifically on the relationship between the job search methods, the job seeker's country of origin and the probability of finding a job. More specifically, we analyze the probability of finding any type of job and the probability of finding a permanent job.

5.2.1 Total employment

Table 4 presents the main results for two different specifications that include a dummy for immigrant status. The main difference between the two models is that in the second we include interactions between the immigrant dummy and the different job search methods. For the sake of simplicity, the results for a third specification that disaggregates the immigrant dummy into four separate dummies for immigrants from European (non EU-15) countries, Asia, Africa and Latin America, and the complete results with the estimated control parameters were deferred to the Annex (see Table A.1).

Table 3: **Determinants of the job search methods (marginal effects)**

	Determinants of the job search method (single dummy)				
	public agency	private agency	personal networks	news	direct
Immigrant	-0.100***	0.015	0.072***	0.037***	-0.002
	(0.010)	(0.010)	(0.010)	(0.011)	(0.010)
Age	0.008***	0.002	0.002**	-0.003***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age sq.	-0.000***	-0.000***	-0.000***	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Unemployment benefit	0.211***	0.033***	0.019***	0.049***	0.047***
	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)
No experience	-0.054***	-0.061***	-0.043***	-0.083***	-0.083***
	(0.006)	(0.007)	(0.005)	(0.007)	(0.006)
Secondary education	0.008	0.056***	-0.009**	0.130***	0.044***
	(0.005)	(0.005)	(0.004)	(0.005)	(0.004)
University education	0.001	0.127***	-0.053***	0.286***	0.102***
	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)
Men	-0.008**	-0.024***	0.041***	-0.008**	0.072***
	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)
Married	-0.008*	-0.030***	-0.016***	-0.068***	-0.038***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Short-term unemployed	-0.031***	-0.005	-0.024***	-0.038***	0.021***
	(0.005)	(0.005)	(0.004)	(0.005)	(0.004)
Medium-term unemployed	-0.034***	0.006	-0.001	0.003	0.042***
	(0.005)	(0.005)	(0.004)	(0.005)	(0.004)
Years of residence	-0.002	0.004**	0.002	0.000	-0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Years of residence sq.	-0.000	-0.000	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Europe non EU15	-0.112***	0.012	0.090***	0.038**	0.010
	(0.013)	(0.015)	(0.015)	(0.015)	(0.014)
Asia	-0.092***	0.023	0.119***	0.047	-0.018
	(0.029)	(0.034)	(0.038)	(0.033)	(0.030)
Africa	-0.074***	0.009	0.062***	0.039**	-0.007
	(0.015)	(0.017)	(0.016)	(0.017)	(0.016)
Latin America	-0.102***	0.007	0.064***	0.035***	-0.006
	(0.011)	(0.013)	(0.012)	(0.012)	(0.011)
Observations	65,213	65,213	65,213	65,213	65,213

Notes: These specifications include year dummies and a variable that indicates the specific SLFS wave. Significant at the 0.10 (*); 0.05 (**); and 0.01 levels (***). Reference categories: natives, Year 2005, female, primary education, unemployed with previous experience, single, long-term unemployed (more than twelve months) and unemployed not receiving unemployment benefit. Robust standard errors are in parentheses.

Our results indicate that unemployed immigrants are more likely to find work than job seekers with Spanish nationality (model one and model two). This result contradicts previous findings for the UK (see Frijters et al. (2005) and Battu et al. (2011));however, it is in line with the recent findings reported by González and Ortega (2011) for Spain which shows that the large inflows of immigrants have covered most of the low-skill vacancies generated in such sectors as those of construction and domestic services. This somewhat surprising result can be explained by the fact that during the period of economic growth (the early years - 2005 to 2007 - in our study period) the number of jobs increased by almost two million and fifty percent of these vacancies were covered by immigrants (primarily unskilled jobs concentrated in the services and construction sector).[10] Thus, although the labor market performance of immigrants is worse than that of natives in the period studied here, immigrants found jobs more easily than those with Spanish nationality.

We observe that unemployed workers who, at the very least, report registering at a public employment office are less likely to find jobs. By contrast, those who report using at least private employment offices, personal networks, news and direct approaches are more successful in finding employment. When we interact the job search methods with the nationality dummy, we find that direct methods (which on their own have a positive effect) have a strong negative effect on the probability of gaining employment. In other words, unemployed immigrants who report using direct methods are less successful in finding work than native and immigrant workers who report not using these methods.

One of the main objectives of this paper is to analyze the effects of the current economic crisis on the labor market performance of natives and immigrants in Spain. We seek a response to the following question: How is the current downturn impacting on native and immigrant probabilities of finding a job? To address this question, Figure 2 shows the evolution in the predicted probability of natives and immigrants finding work during our

[10]From the beginning of 2005 until the second quarter of 2010 total employment in effect remained largely unchanged (the two-million job increase to the end of 2007 was followed by the destruction of two million net jobs). However, native employment fell 0.2 per cent while employment among immigrants rose 1.5 per cent.

Table 4: **Determinants of finding a job (marginal effects)**

	Model one		Model two
Immigrant	0.035**	Immigrant	0.087***
	(0.015)		(0.026)
Public agency	-0.015***	Public agency	-0.014***
	(0.004)		(0.004)
Private agency	0.020***	Private agency	0.020***
	(0.004)		(0.004)
Personal networks	0.026***	Personal networks	0.026***
	(0.005)		(0.005)
News	0.012***	News	0.011***
	(0.004)		(0.004)
Direct	0.087***	Direct	0.092***
	(0.004)		(0.005)
		Pub.ag.*imm.	-0.003
			(0.013)
		Pr.ag.*imm.	-0.001
			(0.014)
		P.net.*imm.	-0.018
			(0.021)
		News*imm.	0.006
			(0.013)
		Direct*imm.	-0.052***
			(0.014)
Obs.	59,856		59,856

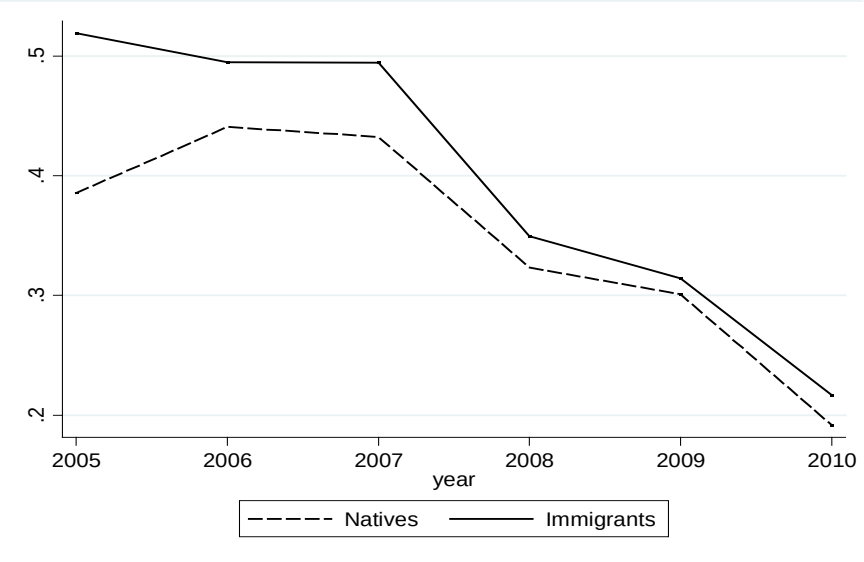
Notes: Significant at the 0.10 (*); 0.05 (**); and 0.01 levels (***). These specifications include all the control variables used in Table 3. Reference categories: natives, Year 2005, female, primary education, unemployed with previous experience, single, long-term unemployed (more than twelve months) and unemployed not receiving unemployment benefit. Robust standard errors are in parentheses.

period of study. Higher probabilities are observed for immigrants across the period; however, the gap that existed at the beginning of the period is closed with the onset of the current economic downturn at the end of 2007. As such, this result provides statistical support for claims that the current economic crisis has affected immigrants more severely than it has natives.

The estimated parameters of the control variables (presented in Table A.1) are, in general, statistically significant and present the expected signs. Thus, finding a job among young people is not easy; the short- and medium-term unemployed are more likely to find work

than those who are long-term unemployed. Unemployed individuals with secondary and university education find jobs more easily than those who only complete primary education. Job seekers without previous experience face greater difficulties in making the transition from unemployment to employment compared to those with labor market experience. We also find that the probability of finding a job is higher for men than it is for women. The number of years' residence in Spain and marital status do not seem to have any impact on the probability of finding work.

Figure 2: **Predicted job finding probabilities for natives and immigrants**



Note: These are the predictions from a probit estimation of model one in Table4.

When we allow for immigrant heterogeneity in terms of region of (model three Table A.1), we observe that this advantage is more specifically presented by immigrants from Africa and Latin America. In the case of the unemployed from Latin America, this might reflect language proficiency (most immigrants from the continent have Spanish as their mother tongue), while for immigrants from Africa, it might reflect their knowledge of the Spanish labor market given that among this group the Moroccans were among the first immigrant communities to establish themselves in Spain.

5.2.2 Permanent employment

We are also interested in determining whether nationality and the choice of job search methods might affect the type of employment contract that job seekers find. Given the duality (permanent and fixed-term jobs) that characterizes the country's labor market, we aim to shed some light on this question by analyzing the interaction between job search methods, nationality and the probability of finding a permanent job.

The results of these estimations are presented in Table 5. When accounting for job search methods and observable individual characteristics (model one), we do not find any differences between natives and immigrants in terms of their probabilities of finding a permanent job.

The importance of job search methods in the probability of finding a permanent job differs somewhat to the probability of finding any type of job, but our results are robust in both specifications (see Table 5). We find that those who report, at the very least, using news sources are more successful in finding permanent employment. By contrast, unemployed workers who, at the very least, use the public employment office are less likely to find permanent jobs than those who do not opt for this search method. We also find that immigrants who report using direct methods are less likely to find permanent employment. These effects are statistically significant for the unemployed from Latin American countries, while the latter effect is also evident among Europeans (non EU-15) (see Table A.2 in the Annex).

The estimated parameters of the control variables are presented in Table A.2. We find statistically significant estimates that are qualitatively the same as those discussed in the previous sub-section 5.2.1: thus, age, experience, short- and medium-term unemployment, medium- and high-levels of education positively affect the probability of finding a permanent job.

Table 5: **Determinants of finding a permanent job (marginal effects)**

	Model one		Model two
Immigrant	0.004	Immigrant	0.020**
	(0.005)		(0.008)
Public agency	-0.009***	Public agency	-0.007***
	(0.002)		(0.002)
Private agency	0.002	Private agency	0.002
	(0.002)		(0.002)
Personal networks	-0.003*	Personal networks	-0.003
	(0.002)		(0.002)
News	0.007***	News	0.007***
	(0.002)		(0.002)
Direct	0.001	Direct	0.003
	(0.002)		(0.002)
		Pub.ag.*imm.	-0.010**
			(0.005)
		Pr.ag.*imm.	0.004
			(0.005)
		P.net.*imm.	-0.007
			(0.006)
		News*imm.	0.005
			(0.005)
		Direct*imm.	-0.014***
			(0.005)
Obs.	59,856		59,856

Notes: Significant at the 0.10 (*); 0.05 (**); and 0.01 levels (***). These specifications include all the control variables used in Table 3. Reference categories: natives, Year 2005, female, primary education, unemployed with previous experience, single, long-term unemployed (more than twelve months) and unemployed not receiving unemployment benefit. Robust standard errors are in parentheses.

5.3 Search intensity

Finally, in this subsection we investigate which factors determine job search intensity (understood as the number of different job search methods used by the unemployed), the evolution in this intensity during the period of study and the impact of this search effort on the probability of finding a job. Most job seekers report using several search methods (see last column of Table 1 for average number of job search methods per group). The unemployed, on average, use 4.38 methods, with a higher search intensity being reported among natives than among immigrants (4.39 and 4.26 methods, respectively).

In order to analyze the determinants of job search intensity we run Poisson regressions with two different specifications: first, considering a dummy for immigrants and, second, four individual dummies for the immigrants' regions of origin (the complete results are in Table A.3 in the Annex).[11]

Our results suggest that there are some differences in the job search intensity of natives and immigrants (regardless of their region of origin). To determine whether the economic crisis is affecting the search intensity, Figure 3plots the evolution throughout the period of the predicted average number of job search methods by natives and immigrants. As can be seen, there was a fall in the number of methods used up to 2007, but with the onset of the economic crisis, the search intensity of both groups (natives and immigrants) rose to peak at the end of the period. There are two possible interpretations for this increase in search intensity after 2007. First, those that have been made unemployed recently tend to have more family responsibilities than those who were unemployed during the economic boom, which means they look for work more intensively (composition). Second, the increase in the number of people looking for work creates more competition for a more limited number of job vacancies. The unemployed tend to react to this increased competition by increasing their job search intensity.

Regarding control variables (see Table A.3), our results reveal that the number of methods

[11] We find the same qualitative results when we estimate these specifications with OLS.

used varies across age groups, with older unemployed workers being less intense in their job searches. In addition, our results show that unemployed workers that receive unemployment benefit, those with higher levels of education and men search for jobs with greater intensity than their respective counterparts. However, those that have been made unemployed recently (less than 3 months), those without any previous experience and married job seekers, search with less intensity than their respective counterparts. In general, these results are in line with the findings of Weber and Mahringer (2008) and they are also consistent with economic theory predictions whereby individuals for whom search activities are likely to be less costly, or more productive, show a higher search effort.

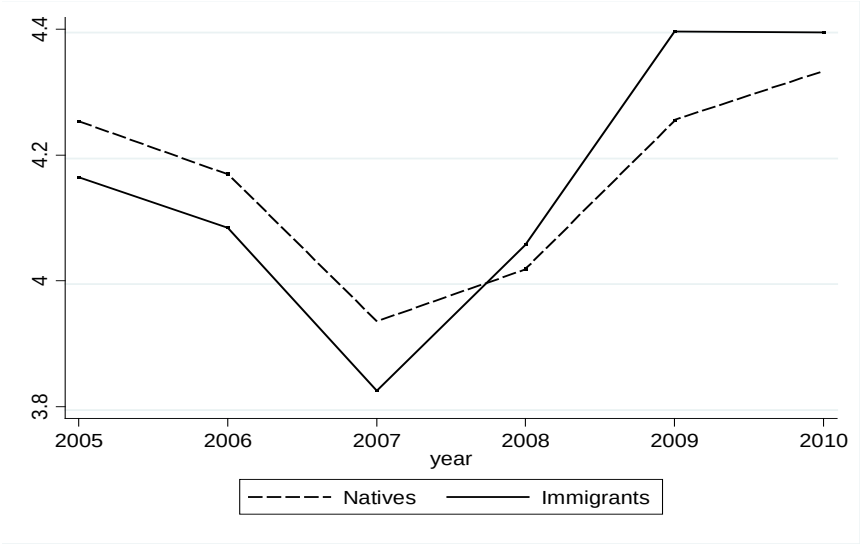
Table 6: **Determinants of search intensity (Poisson estimations)**

	Model one	Model two
Immigrant	-0.002	
	(0.014)	
Europe non EU15		0.004
		(0.017)
Asia		0.030
		(0.035)
Africa		-0.001
		(0.020)
Latin America		-0.006
		(0.016)
Observations	65,213	65,213

Notes: Significant at the 0.10 (*); 0.05 (**); and 0.01 levels (***). Incidence rate ratios. Both specifications include dummy variables for the year of the survey. Robust standard errors are in parentheses.

Finally, Table 7 shows two different specifications that evaluate the effects of the individual's search effort on the probability of their finding a job. With both specifications (without and accounting for observable characteristics of individuals), we find that search intensity has a positive and statistically significant effect on job finding probability. In other words, job seekers who employ more search methods find jobs more easily.

Figure 3: **Predicted average number of job search methods used by natives and immigrants**



Note: Predictions from a Poisson estimation of model one in 6.

Table 7: **Finding a job and search intensity (marginal effects)**

	Model one	Model two
Immigrant	0.063***	0.040***
	(0.006)	(0.015)
search int.	0.024***	
	(0.001)	
low search int.		-0.107***
		(0.011)
medium low search int.		-0.078***
		(0.011)
medium high search int.		-0.034***
		(0.011)
Observations	59,856	59,856

Notes: Significant at the 0.10 (*); 0.05 (**); and 0.01 levels (***). Both specifications include dummy variables for the year of the survey. Reference category (model two) are those unemployed with high level of search intensity. Robust standard errors are in parentheses.

6 Final Remarks

In this paper, by drawing on individual data from the SLFS, we have analyzed evidence to determine whether natives and immigrants differ in their job search strategies and how this choice of strategies impacts on their probability of finding a job. We have also focused on the determinants of the job search methods adopted and on the determinants of job search intensity and how these choices affected the probability of finding a job before the current economic crisis and how they continue to affect the probability of finding work during the ongoing crisis.

The main findings can be summarized as follows:

1. Immigrants tend to make more use of personal networks and news media sources than natives and to register at public employment offices less. Individual characteristics, moreover, play an important role in determining the use of the different job search methods.

2. Immigrants tend to find jobs more easily than natives; however, the gap between the two groups observed at the beginning of the period virtually disappeared with the onset of the current economic crisis.

3. With the exception of registration at a public employment office, all the other search methods positively affect job finding probabilities. However, when we allow for interactions between immigrant condition and the job search methods, we find certain disadvantages for immigrants who report using direct methods during their job search.

4. When it comes to finding a permanent job, individuals that register at a public employment office suffer a disadvantage that is outweighed by the use of more formal channels such as the news media.

5. Job search intensity presents a counter-cyclical pattern: native and immigrants alike dedicate less effort to finding work during booms and more effort during recessions.

6. Job search intensity matters in finding a job and immigrants tend to dedicate greater efforts to job search than is the case of natives.

Our findings regarding the ineffectiveness of the public employment office are disquieting. From the perspective of policy makers, improving the effectiveness of these offices through the implementation of active labor market policies that can help counter the difficulties of the current crisis represents something of a challenge. However, the evidence we present indicating that job search intensity positively affects the probability of finding a job suggests another line of action for the public authorities: namely, that the provision of support and control of the activities during the job search process of the unemployed should be an essential measure in fighting unemployment.

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Annex

Table A.1: **Determinants of finding a job (marginal effects)**

	Model one		Model two		Model three
Imm.	0.035**	Imm.	0.087***	Eu-n-EU15	0.060
	(0.015)		(0.026)		(0.048)
Years res.	0.001			Asia	0.144
	(0.003)				(0.123)
Years res. sq.	-0.000			Africa	0.112**
	(0.000)				(0.050)
				L.Am.	0.084**
					(0.033)
Years res.	0.001	Years res.	0.001	Years res.	0.001
	(0.003)		(0.003)		(0.003)
Years res. sq.	-0.000	Years res. sq.	-0.000	Years res. sq.	-0.000
	(0.000)		(0.000)		(0.000)
Pub.ag.	-0.015***	Pub.ag.	-0.014***	Pub.ag.	-0.014***
	(0.004)		(0.004)		(0.004)
Pr.ag.	0.020***	Pr.ag.	0.020***	Pr.ag.	0.020***
	(0.004)		(0.004)		(0.004)
P.net.	0.026***	P.net.	0.026***	P.net.	0.026***
	(0.005)		(0.005)		(0.005)
News	0.012***	News	0.011***	News	0.011***
	(0.004)		(0.004)		(0.004)
Direct	0.087***	Direct	0.092***	Direct	0.092***
	(0.004)		(0.005)		(0.005)
Age	0.003***	Pub.ag.*imm.	-0.003	Pub.ag.*Eu-n-EU15	0.035
	(0.001)		(0.013)		(0.025)
Age sq.	-0.000***	Pr.ag.*imm.	-0.001	Pr.ag.*Eu-n-EU15	-0.032
	(0.000)		(0.014)		(0.028)
Sr-unemp.	0.063***	P.net.*imm.	-0.018	P.net.*Eu-n-EU15	-0.000
	(0.005)		(0.021)		(0.042)
Mt-unemp.	0.093***	News*imm.	0.006	News*Eu-n-EU17	0.007
	(0.005)		(0.013)		(0.026)
Un-benef.	0.002	Direct*imm.	-0.052***	Direct.*Eu-n-EU19	-0.069**
	(0.004)		(0.014)		(0.028)
No-exp.	-0.117***			Pub.ag.*Asia	-0.031
	(0.007)				(0.067)
Secondary	0.018***			Pr.ag.*Asia	0.041
	(0.005)				(0.071)
University	0.023***			P.net.*Asia	0.005
	(0.006)				(0.114)
Men	0.056***			News*Asia	-0.003
	(0.004)				(0.067)
Married	-0.007			Direct.*Asia	-0.118*
	(0.004)				(0.068)
du-2006	0.045***			Pub.ag.*Af.	-0.005

Table A.1 – Continued

	(0.007)		(0.027)
du-2007	0.039***	Pr.ag.*Af.	-0.036
	(0.007)		(0.029)
du-2008	-0.066***	P.net.*Af.	-0.034
	(0.006)		(0.043)
du-2009	-0.090***	News*Af.	-0.019
	(0.006)		(0.027)
du-2010	-0.210***	Direct.*Af.	-0.044
	(0.008)		(0.029)
		Pub.ag.*L.Am.	-0.021
			(0.019)
		Pr.ag.*L.Am.	0.029
			(0.020)
		P.net.*L.Am.	-0.021
			(0.028)
		News*L.Am.	0.018
			(0.019)
		Direct.*L.Am.	-0.039**
			(0.020)
Obs.	59,856	59,856	59,856

Notes: Significant at the 0.10 (*); 0.05 (**); and 0.01 levels (***). Reference categories: natives, Year 2005, female, primary education, unemployed with previous experience, single, long-term unemployed (more than twelve months) and unemployed not receiving unemployment benefit. Robust standard errors are in parentheses.

Table A.2: **Determinants of finding a permanent job (marginal effects)**

	Model one		Model two		Model three
Imm.	0.004	Imm.	0.020**	Eu-n-EU15	0.030**
	(0.005)		(0.008)		(0.012)
				Asia	0.029
					(0.037)
				Africa	-0.002
					(0.016)
				L.Am.	0.021**
					(0.010)
Years res.	0.002*	Years res.	0.002*	Years res.	0.002*
	(0.001)		(0.001)		(0.001)
Pub.ag.	-0.009***	Pub.ag.	-0.007***	Pub.ag.	-0.007***
	(0.002)		(0.002)		(0.002)
Pr.ag.	0.002	Pr.ag.	0.002	Pr.ag.	0.002
	(0.002)		(0.002)		(0.002)
P.net.	-0.003*	P.net.	-0.003	P.net.	-0.003
	(0.002)		(0.002)		(0.002)
News	0.007***	News	0.007***	News	0.007***
	(0.002)		(0.002)		(0.002)
Direct	0.001	Direct	0.003	Direct	0.003
	(0.002)		(0.002)		(0.002)
Age	0.002***	Pub.ag.*imm.	-0.010**	Pub.ag.*Eu-n-EU15	-0.010
	(0.000)		(0.005)		(0.009)
Sr-unemp.	0.004**	Pr.ag.*imm.	0.004	Pr.ag.*Eu-n-EU15	-0.001
	(0.002)		(0.005)		(0.010)
Mt-unemp.	0.006***	P.net.*imm.	-0.007	P.net.*Eu-n-EU15	-0.017
	(0.002)		(0.006)		(0.012)
Un-benef.	0.002	News*imm.	0.005	News*Eu-n-EU15	0.002
	(0.002)		(0.005)		(0.010)
No-exp.	-0.015***	Direct*imm.	-0.014***	Direct*Eu-n-EU15	-0.017*
	(0.003)		(0.005)		(0.009)
Secondary	0.011***			Pub.ag.*Asia	0.032
	(0.002)				(0.022)
University	0.013***			Pr.ag.*Asia	0.005
	(0.003)				(0.023)
Men	0.002			P.net.*Asia	-0.033
	(0.001)				(0.034)
Married	0.000			News*Asia	-0.017
	(0.002)				(0.022)
du-2006	0.006**			Direct*Asia	-0.008
	(0.003)				(0.024)
du-2007	0.010***			Pub.ag.*Af.	-0.008
	(0.003)				(0.010)
du-2008	0.001			Pr.ag.*Af.	-0.008
	(0.002)				(0.011)
du-2009	-0.004*			P.net.*Af.	0.024

Table A.2 – Continued

	(0.002)			(0.015)
du-2010	-0.013***		News*Af.	-0.007
	(0.003)			(0.010)
			Direct*Af.	-0.012
				(0.010)
			Pub.ag.*L.Am.	-0.014**
				(0.007)
			Pr.ag.*L.Am.	0.010
				(0.007)
			P.net.*L.Am.	-0.012
				(0.009)
			News*L.Am.	0.013*
				(0.007)
			Direct*L.Am.	-0.015**
				(0.007)
Obs.	59,856	59,856		59,856

Notes: Significant at the 0.10 (*); 0.05 (**); and 0.01 levels (***). Reference categories: natives, Year 2005, female, primary education, unemployed with previous experience, single, long-term unemployed (more than twelve months) and unemployed not receiving unemployment benefit. Robust standard errors are in parentheses.

Table A.3: **Determinants of search intensity (Poisson estimations)**

	Model one	Model two
Immigrant	-0.002	
	(0.014)	
Europe non EU15		0.004
		(0.017)
Asia		0.030
		(0.035)
Africa		-0.001
		(0.020)
Latin America		-0.006
		(0.016)
years of residence	-0.001	-0.001
	(0.003)	(0.003)
years of residence sq.	0.000	0.000
	(0.000)	(0.000)
young	0.120***	0.120***
	(0.006)	(0.006)
medium-age	0.070***	0.070***
	(0.006)	(0.006)
short-term unemployed	-0.020***	-0.020***
	(0.005)	(0.005)
medium-term unemployed	0.015***	0.015***
	(0.005)	(0.005)
unemp. benefit	0.134***	0.134***
	(0.004)	(0.004)
no experience	-0.135***	-0.135***
	(0.007)	(0.007)
secondary ed.	0.132***	0.132***
	(0.005)	(0.005)
university ed.	0.254***	0.254***
	(0.006)	(0.006)
men	0.025***	0.025***
	(0.004)	(0.004)
married	-0.066***	-0.066***
	(0.004)	(0.004)
dummy 2006	-0.012*	-0.012*
	(0.007)	(0.007)
dummy 2007	-0.061***	-0.061***
	(0.007)	(0.007)
dummy 2008	-0.036***	-0.036***
	(0.006)	(0.006)
dummy 2009	0.001	0.001
	(0.005)	(0.005)
dummy 2010	0.001	0.001
	(0.007)	(0.007)
Observations	65,213	65,213

Notes: Significant at the 0.10 (*); 0.05 (**); and 0.01 levels (***). Incidence rate ratios. Robust standard errors are in parentheses.

Table A.4: **Finding a job and search intensity (marginal effects)**

	Model one	Model two
Immigrant	0.063***	0.040***
	(0.006)	(0.015)
search int.	0.024***	
	(0.001)	
low search int.		-0.107***
		(0.011)
medium low search int.		-0.078***
		(0.011)
medium high search int.		-0.034***
		(0.011)
years of residence		0.001
		(0.003)
years of residence sq.		-0.000
		(0.000)
age		0.003**
		(0.001)
age square		-0.000***
		(0.000)
short-term unemployed		0.066***
		(0.005)
medium-term unemployed		0.097***
		(0.005)
unemployment benefit		-0.004
		(0.004)
no experience		-0.118***
		(0.007)
secondary ed.		0.017***
		(0.005)
university ed.		0.021***
		(0.006)
men		0.061***
		(0.004)
married		-0.008*
		(0.005)
dummy 2006	0.051***	0.048***
	(0.007)	(0.007)
dummy 2007	0.046***	0.041***
	(0.007)	(0.007)
dummy 2008	-0.050***	-0.061***
	(0.006)	(0.006)
dummy 2009	-0.071***	-0.082***
	(0.006)	(0.006)
dummy 2010	-0.195***	-0.199***
	(0.008)	(0.008)
Observations	59,856	59,856

Notes: Significant at the 0.10 (*); 0.05 (**); and 0.01 levels (***). Incidence rate ratios. Robust standard errors are in parentheses.

2010

2010/1, De Borger, B., Pauwels, W.: "A Nash bargaining solution to models of tax and investment competition: tolls and investment in serial transport corridors"
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