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Job Search Methods and Wages

Are Natives and Immigrants Different?

Job Search Methods and Wages: Are Natives and Immigrants Different?*

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Abstract

Differences in job search behaviour and access to high quality informal networks may be an important reason why immigrants fare worse than natives in many European labour markets. In this study, we design and conduct a survey of newly hired workers in the Swedish labour market to analyse if there are ethnic differences in the choice of search intensity/methods and in the successful search method for finding the job. We also investigate if the wage and other characteristics of the new job differ depending on the search method resulting in a job. Our data includes very detailed information about the workers' job search, their informal networks, and the characteristics of their new jobs. We find that immigrants use all search methods more than natives, but that they in particular rely more on informal search. Moreover, we show that, for immigrants, the search method resulting in a job is more likely to be informal search through their relatives and friends. However, we also find that jobs obtained through this search channel are associated with lower wages.

JEL classification: J24, J31, J64, J71

Keywords: Job search methods, Wage differentials, Immigrants, Labour market.

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1. Introduction

It is well-documented that in many European labour markets people born outside Europe are less successful than natives, e.g. by having lower wages, less secure employment, and lower worker/firm match quality (cf. OECD, 2013). Previous research on the reasons for these ethnic differences has mostly focused on differences in human capital (e.g. education, work experience, and language skills) and ethnic discrimination (Altonji & Blank, 1999, and Rodgers, 2006, survey the literature).

However, another potentially important explanation, that has received less attention, is ethnic differences in job search behaviour and access to the informal networks through which many jobs are filled.¹ Job search theory predicts that unemployed workers' should choose their search intensity and search methods (e.g. formal and informal search) by comparing the returns and costs of the available alternatives (cf. Holzer, 1988), and it is likely that there are ethnic differences in all these factors. Empirically, there are many studies of job search behaviour and access to informal networks for the general population,² but few studies have explicitly considered ethnic differences. Moreover, the studies that do consider ethnic differences tend to focus on differences between Whites, Blacks, and Hispanics in the US labour market.³ In a European context, there are only a few published studies that explicitly analyse ethnic differences in job search behaviour and access to informal networks.⁴ Frijters *et al.* (2005) find that job search is less

¹ Montgomery (1991) and Ioannides & Loury (2004) report evidence of the importance of informal search.

² Examples are Rees (1966), Holzer (1987, 1988), Blau & Robins (1990), Osberg (1993), Lindenboom *et al.* (1994), Granovetter (1995), Gregg & Wadsworth (1996), Addison & Portugal (2002), Wahba & Zenou (2003), Calvó-Armengol & Jackson (2004), Antonides (2006), Weber & Mahringer (2008), Bentolila *et al.* (2010), Pellizzari (2010), Hensvik & Nordström Skans (2013), and Kramarz & Nordström Skans (2014).

³ Examples are Holzer (1988), Falcón (1995), Falcón & Melendez (2001), Green *et al.* (1999), and Mouw (2002).

⁴ Behtoui (2008) and Olli Segendorf (2005) analyse the wage returns from using formal and informal search methods. Åslund *et al.* (2014) analyse how the ethnicity of the manager affects hiring.

successful for immigrant men, but that they are equally likely to find employment through informal and formal methods. Battu *et al.* (2011) find that ethnic minority men are more likely to use informal search methods, but that these methods are not necessarily the most effective methods for finding a job. Giulietti *et al.* (2013) show that immigrants are more likely than natives to use social networks as their main search method, but that immigrants are as likely as natives to find a job through their social networks.

All these studies use labour force survey data to analyse job search behaviour. The major advantages of using such data are the large sample sizes and that the surveys are designed to give a representative picture of the labour force. However, a major disadvantage is that such datasets do not contain information on the workers' wage in the new job or the exact details of their access to informal networks and job search methods. Moreover, all these studies analyse the UK labour market, which due to the country's colonial history has a rather different composition of ethnic minorities than other European countries.⁵ Finally, these studies only consider male searchers.

In contrast to these studies, we design and conduct our own survey to investigate whether there are ethnic differences in the choice of search intensity/methods and in the search method that resulted in a job (henceforth, the successful search method). We also investigate whether the wage and other characteristics of the new job differ depending on the successful search method. The fact that we design our own survey has several important advantages. First, we have access to much more detailed information than is typically found in labour force survey data. For example, we have detailed information on the characteristics of the jobs that the workers have found, such as the hourly wage, and information on the workers' informal job search. Most importantly, this means that we

⁵ The UK studies have mainly focused on Black, Indian, Pakistani, and Bangladeshi workers.

can analyze the link between the successful search method and the wage in the new job. Second, our sample includes many immigrants from the Middle East. This is a group whose job search behaviour and access to informal networks has not been thoroughly studied before, despite the fact that this group has grown substantially in many European countries in recent decades and has been the focus in much of the recent debate on immigration issues. Finally, we analyse these issues for both male and female job searchers. A limitation of our study is that the survey was only sent to successful job searchers. Hence, our results, in particular concerning search intensity, may not be informative of the situation for less successful searchers. Also, we cannot study ethnic differences in the job finding rate

We study the population of workers aged 25-45 who changed status from being unemployed to being employed during a four-month-period immediately before the survey, which was conducted in 2011. From this population, we drew a stratified random sample of 6,000 workers, where $\frac{1}{3}$ of the workers were natives and $\frac{2}{3}$ were immigrants, and around half of the latter group were born in the Middle East.

In the survey, the workers were asked detailed questions about the search methods they had used while unemployed, the successful search method, and the characteristics of their new job. To get additional details about the respondents' characteristics, we linked the survey data, at the individual level, to data from administrative records.

Our results show that immigrants use all job search methods more than natives, but that they in particular rely more on informal search methods. We also find that, for immigrants, the successful search method is more likely to be informal search through their relatives and friends. However, jobs obtained through this search channel are

associated with lower wages for both natives and immigrants. One interpretation of these results based on search theory is that immigrants may perceive their probability of finding a job through other search channels as so low that they are willing to accept low-paying jobs obtained through their relatives and friends.

The rest of the paper is organized as follows. In Section 2, we describe the data and present some descriptive results. Section 3 contains the empirical analysis, and Section 4 summarizes the results.

2. Data and descriptive results

The survey was conducted between March and May in 2011, and was sent to a sample consisting of people who, according to the Swedish Public Employment Service, had found a job between November 2010 and February 2011.⁶ We included men and women in the age category 25-45 (i.e. prime-aged workers) who were either born in Sweden (natives) or born outside Europe (immigrants).⁷ We used a stratified sampling procedure and randomly drew 2,000 natives and 4,000 immigrants (50 percent women in both cases) who were asked to answer the survey, 1,990 of them responded. The distribution and data collection of the survey were handled by Statistics Sweden.

The survey contained questions about the job search methods that the workers had used while unemployment (i.e. before they found the new job), the successful search method (i.e. the search method that resulted in the new job), the characteristics of the new

⁶ In Sweden, most unemployed workers are registered at the Public Employment Service since this is a requirement to get unemployment benefits and other types of social assistance.

⁷ We chose this age category to avoid issues related to education and retirement. We chose workers born outside Europe since such workers fare worst in the Swedish labour market (cf. Carlsson & Rooth, 2007).

job, and some other issues. When designing the survey, our objective was to collect information about the search process that could not be obtained from administrative data.

Concerning job search before finding the new job, the respondents were instructed to think of a typical week as unemployed. They were then asked about the number of hours that they had been engaged in job search activities during this week. This was followed by a question asking about the number of jobs that they had applied to during this week. Then, came a question about how many times in this week they had 1) replied to job advertisements in newspapers and magazines, 2) replied to job advertisements on the Internet, 3) contacted employers or staffing companies, 4) contacted friends, relatives or previous colleagues, and 5) used other methods.⁸ Moreover, they were asked how selective they were in their job search, meaning to what extent they searched for any job or mainly (only) jobs that fitted their education and work experience. Table 1 presents descriptive statistics for the answers to these questions. The first two rows show that immigrants search more. They invest about 24 percent more hours in job search and apply for more jobs than natives, sending about 82 percent more applications. The next four rows show that immigrants use all the specified search methods more than natives. The largest difference is in the number of times the workers had contacted people in their networks, immigrants do this around 135 percent more times than natives. Also, the answers indicate that immigrants are more likely to search for any job rather than only jobs that fit their education and work experience. The table also reports the search behaviour separately for men and women. In general, the ethnic differences are larger for men than for women.

⁸ It should be noted that we cannot include the search method “used the Employment Service” since all workers were registered as unemployed at the Public Employment Service. Very few respondents reported that they used other methods than the ones listed and, therefore, this information is not included in Table 1.

Concerning the successful search method, the main question asked through which search method the searchers had found their new job. The question had ten response options⁹, and we combined these into three main categories. *Formal methods* consist of advertisements (option 1: replied to an advertisement in a newspaper or magazine; option 2: replied to an advertisement on the Internet) and jobs obtained through the Employment Service (option 3: through the Employment Service). *Direct contact* is contacting an employer directly (option 4: contacted the employer or a staffing company). *Informal methods* are contacts either through previous employers/colleagues (options 5 and 6: the employer or a staffing company contacted me; option 9: contacts through previous colleagues) or through relatives and friends (option 7: contacts through family and other relatives; option 8: contacts through friends). We also consider some of the alternatives separately. Table 2 shows descriptive statistics for the answers to this question. In general, it appears that for natives the successful search method is more likely to be a formal search method (especially advertisements), while for immigrants the successful search method is more likely to be an informal method (especially contacts through relatives and friends). The differences are larger for women than for men.

The survey also included detailed questions about the characteristics of the new job. There were questions about the monthly wage, the average working time, the type of contract, the occupation, and the location (city) of the new job. There were also questions about how well the job fits the workers' education and previous work experience, and characteristics of the workplace (size, gender distribution, ethnicity of the manager etc.). Based on these questions, we could calculate the hourly wage as well as the other outcome variables that are used in the empirical analysis below.

⁹ Option 10 allowed for an open answer, but almost no respondents chose this alternative.

To get more information about the respondents, we linked the survey data, at the individual level, to administrative data from Statistics Sweden and the Swedish Public Employment Service. The administrative data include the region of birth, age, gender, marital status, education, work experience, and city of residence.

The distribution of the respondents' country of birth is given in Table 3. The largest immigrant groups are those born in the Middle East (including Turkey), Asia, Africa, and South America. As a background, it is worth mentioning some details of Sweden's migration history. Until the early 1970s immigration mainly consisted of labour migrants from other European countries. Since the 1970s, immigration has mainly consisted of refugees and family migrants. South American migrants mainly immigrated to Sweden in the 1970s, while migrants from the Middle East, Africa, and Asia started to arrive in the period from the 1980s and onwards. Hence, the latter groups have the shortest average years since migration.

Table 4 shows descriptive statistics for other characteristics of the respondents. These characteristics will later be used as control variables in the empirical analysis. As expected from the sampling procedure, the gender and age distributions are very similar for natives and immigrants. Moreover, for immigrants, the average years since migration is around eleven years. Finally, immigrants are much more likely to be married, and are more likely to only have a primary education.¹⁰

To investigate if sample selection is a problem, we have compared the observable characteristics of respondents (33 percent) and non-respondents (67 percent). This comparison shows that respondents and non-respondents among both natives and immigrants are rather similar in most observable dimensions; the only major difference is

¹⁰ Among natives cohabitation is very common, but this information is not available in our data.

that women had a somewhat higher response rate than men (cf. Table A1 in the Appendix). Moreover, we have run wage regressions to analyse if the returns to important human capital characteristics – e.g. education and work experience¹¹ – differ between respondents to the survey and other workers in the Swedish labour market. This comparison shows that the wage returns are very similar for the two groups (cf. Table A2 in the Appendix). These results suggest that our sample should be rather representative of the Swedish labour market.

3 Estimation and results

The descriptive results indicate that immigrants use all search methods more than natives, in particular informal methods, and are more likely to have found the new job through an informal method. In this section, we first establish that these ethnic differences in job search behaviour remain when we control for other worker characteristics. Then, we estimate how the hourly wage and some other job characteristics (the type of job contract and how well the job fits the workers' education) differ depending on the successful search method, and if there are ethnic differences in these estimates.

3.1 Ethnic differences in job search behaviour

To ensure that the ethnic differences in job search behaviour are not explained by differences in other worker characteristics, we regress the measures of search intensity – hours of search per week, the number of applications per week and the number of times per week each of the listed search methods has been used – on an immigrant indicator

¹¹ Age and years since migration are used as proxies for work experience.

and a number of basic control variables. As control variables, we use age, age squared, gender, marital status, educational level (seven levels using the educational classification SUN (similar to ISCED)), educational field (ten fields of study using the educational classification SUN), work experience (no or some experience in the occupations that the worker search for a job in), occupation (using the three-digit occupational classification SSK (similar to ISCO)), and county of residence (using the 21 Swedish counties). These are all basic worker characteristics that are either exogenous (gender and age) or fixed in the short term (marital status, education, occupation, and county of residence). The estimation results for the different measures of search intensity in Table 5 confirm the descriptive results: Immigrants search more hours, apply for more jobs, and use each of the search methods more often than natives. Table A3 in the Appendix shows the corresponding results from regressions that include indicators for each of the immigrant groups. These results show that the differences relative to natives are largest among immigrants from the Middle East and Africa. Table A4 in the Appendix shows the results separately for men and women. For most measures, there are statistically significant differences between immigrants and natives for both men and women, but the estimates are larger for men (these gender differences are mostly statistically significant).¹²

The descriptive results show that the biggest difference in relative terms in the use of search methods between natives and immigrants are for informal methods. It is straightforward to verify that this result continue to hold when we take into account other differences in worker characteristics. For each search method, we can calculate the relative ethnic difference by dividing the estimate of the immigrant indicator with the

¹² This is confirmed by regressions including interaction terms between the immigrant indicator and the gender indicator.

predicted number of times the method is used by a native.¹³ The relative ethnic differences, corresponding to the estimates in columns 3-5 in Table 5, are 50, 75, and 84 percent, respectively.

Finally, we turn to the successful search method. Table 6 shows the results of regressing each of the successful search methods on the same set of worker characteristics as before. The results show clear evidence that immigrants are less likely to have obtained the new job through an advertisement or an informal contact with a previous employer or colleague, but more likely to have obtained it through the Employment Service or an informal contact with a relative or friend.¹⁴ Table A5 in the Appendix reports the results from repeating the same analysis with an indicator for each of the immigrant groups included in the regressions. The results show that immigrants from the Middle East are less likely to have obtained the job through an advertisement or through an informal contact with a previous employer or colleague, but more likely to have obtained the job through an informal contact with a relative or friend. The results for Asian immigrants are similar. For African immigrants, the first two results are similar, but they are more likely to have obtained the job through contacting an employer directly. This latter result also holds for South American immigrants. Table A6 in the Appendix contains an analysis for men and women separately. These results show that most of the effects are qualitatively similar for both men and women, except that only immigrant men are more likely to have obtained the job through the Employment Service.

¹³ The alternative to comparing the relative differences – i.e. directly comparing the numbers in Table 5 (the levels) – does not make much sense since some search methods by their nature are used more/less frequently. For example, it may be easy to find a lot of job advertisements on the Internet and this may be reflected in the figures in Table 5.

¹⁴ Similar results are obtained if we instead use the probit model.

To summarize, the results show that immigrants use all search methods more than natives, but that they in particular rely more on informal search methods. In addition, for immigrants, the successful search method is more likely to be an informal contact through a relative or friend. Next, we turn to the consequences of these differences.

3.2 The successful search method and the wage outcome

We now turn to the analysis of whether the successful search method is associated with the wage in the new job, and if these effects are different for natives and immigrants. The dependent variable in this analysis of the return to different search methods is log hourly wages, and the explanatory variables are dummy indicators for the different successful search methods and, later on, interactions between these dummy indicators and the immigrant indicator.

In Table 7, are the results of the analysis of the link between the hourly wage and the successful search method; the reference category is getting the new job through an advertisement. In column 1, are the estimates for the return to different search methods when we do not include any control variables for other worker characteristics. The most striking result is that the lowest wages are found among workers who have obtained their new job through contacts with their relatives and friends, around 17 percent lower. The results also show that the return to getting the job through the Employment Service or by contacting an employer directly is associated with around 11-12 percent lower hourly wages. The return to getting the job through contacts with previous employers or colleagues is similar to getting the job through an advertisement. A potential problem with these estimates is that they may be affected by the fact that workers with

characteristics associated with low wages may have obtained jobs through certain methods. To take this issue into account, we therefore add control variables for a number of basic worker characteristics (using the same control variables as in the analysis in the previous section). The results in column 2 show that a substantial part of the wage gap between different search methods is eliminated when control variables are included. However, all the differences that existed in the regression without control variables remain statistically significant. Getting the job through contacts with relatives and friends is now associated with a wage that is 11 percent lower. Hence, especially informal search methods seem to be associated with lower wages. To further illustrate the effects, we have also calculated the predicted log wage for each of the successful search methods (based on the estimates in Table 7). Table A7 in the Appendix shows that the ranking in log wage terms of the different successful search methods (in the regression with control variables included) is (i) contacts with previous employers or colleagues, (ii) an advertisement, (iii) directly contacting the employer, (iv) the Employment Service, and (v) contacts with relatives or friends.

Next, we turn to the question of whether there are ethnic differences in the return to the successful search method. To analyse the importance of ethnic differences, we add interaction effects between the indicators for the search methods and the immigrant indicator to the same specification as before. Column 3 presents the estimates without control variables, while column 4 presents the corresponding estimates with control variables. The results in column 4 show that immigrants who get a job through the Employment Service get a seven percent lower wage. A potential explanation for this result is that some immigrants may get subsidized jobs with low wages mediated by the

Employment Service. None of the other interaction terms is statistically significant, but the point estimates suggest that getting a job through informal contacts with relatives and friends may be associated with a lower wage for immigrants than for natives. We have also calculated the predicted log wage for the different search methods for natives and immigrants separately. The results in Table A7 in the Appendix show that the ranking of the search methods is very similar for both groups. Table 8 repeats the analysis in Table 7, but for various subgroups, defined by gender, years since migration (<10 years and >10 years), region of birth (Middle East and other non-European), and geographical area (Stockholm County and the rest of Sweden).¹⁵ The results are very similar; no additional interaction effects become statistically significant. However, in the regression excluding Stockholm County, the interaction between the immigrant indicator and getting the job through an informal contact with a relative or friend is very close to being statistically significant. This may be interpreted as an indication that immigrants living outside the major cities have even less access to high-quality networks.

To summarize, the results indicate that jobs obtained through informal methods are associated with lower wages for both natives and immigrants.

3.3 The successful search method and other job characteristics

This section continues the analysis of the return to different search methods, but now with other job characteristics as the dependent variable. Specifically, we analyse how the type of job contract (temporary or permanent contract) and job quality (whether the job fits the worker's education) is associated with the successful search method. The results in the

¹⁵ We have also run separate regression by age and education level, but find no statistically significant differences. These results are available upon request.

previous section showed that it is important to control for other worker characteristics, and therefore we include such characteristics in all regressions.

In column 1 in Table 9, are the estimates for the link between the successful search method and the type of job contract.¹⁶ The dependent variable is the probability that the job is a short-term temporary job, defined as “hourly employment”. The results show that jobs obtained through all search methods, except through a previous employer or colleague, are associated with a higher probability that the job is temporary than jobs obtained through advertisements (the reference category).

Next, we turn to the question of whether there are ethnic differences in the link between the successful search method and the type of job contract. Again, we analyse this question by adding interaction effects between the search method indicators and the immigrant indicator. Column 2 shows that none of the interactions effects are statistically significant.

Getting a job through a particular search method may also be associated with the quality of the new job. To investigate this, we use a dummy variable that is equal to one if, according to the worker, the job fits the worker’s education and equal to zero otherwise.¹⁷ We estimate a similar model as before, but now with the job quality indicator as the dependent variable. The results in column 3 show that getting the job by contacting the employer directly or through contacts with a relative or friend is associated with a lower job quality compared to advertisements, while getting the job through the Employment Service or a previous employer or colleague is not associated with any significant differences compared to advertisements. Finally, we include interaction effects

¹⁶ We get similar results if we instead use the probit model.

¹⁷ We get similar results if we instead use the probit model. Also, we get similar results if we instead use a question asking the worker if the job fits his or her previous work experience.

between the successful search methods and the immigrant indicator, but find no statistically significant interaction effects (column 4).

To summarize, we find that the results concerning other job characteristics are rather similar to the results on wages.

4. Concluding remarks

It is well-documented that in many European labour markets, workers born outside Europe fare worse than natives. Previous research has mainly tried to explain this by analysing differences in human capital and ethnic discrimination. However, another factor that may be important, but has received less attention, is ethnic differences in job search behaviour and access to the informal networks through which many jobs are filled.

The purpose of this study is twofold. First, we investigate whether there are ethnic differences in the choice of search intensity/methods and in the successful search method, and, second, we study whether the wage and other characteristics of the new job differ depending on the successful search method. By conducting our own survey, we have access to detailed information about both the characteristics of the new job and the workers' search behaviour. The survey was sent to prime-aged native and non-European born workers who recently had obtained a new job. The survey data was combined with administrative data on other important worker characteristics.

Our results show that immigrants use all search methods more than natives, but that they in particular rely more on informal search methods. Moreover, for immigrants, informal methods are the most successful search method for finding a job. However, at

the same time, our results show that informal methods are associated with lower wages than jobs obtained through other search methods.

When interpreting these results, a natural question is why immigrants use informal methods to a larger extent than natives even though these methods are associated with lower wages. Job search theory offers some potential explanations. For example, Holzer (1988) emphasizes that the returns and costs associated with different search methods vary, and workers choose the search method with the highest returns relative to the costs. For some ethnic groups, searching for a job by contacting relatives and friends may be both less costly and yield higher expected returns by increasing the probability of getting a job than using formal search methods. Hence, immigrants may decide that the higher probability of getting a job through informal search methods offsets the lower expected wages associated with these jobs. Other search methods, which are associated with higher wages, may not be accessible to the same extent to immigrants for a number of reasons, such as employers' inability to assess the value of qualifications obtained abroad and ethnic discrimination.¹⁸ Such employer behaviour may be reinforced by the fact that immigrants, according to our survey, are less selective in their job search. Less selective search among immigrants may convince some employers that immigrant searchers are less likely to be a good worker/firm match. Also, some immigrants, especially those newly arrived, may not have access to proper information about the consequences of using different search methods. These results highlight the importance of policy interventions to both give immigrants advice about how to best conduct job search and to help them get access to high-quality informal networks.

¹⁸ Bentolila *et al.* (2006) formulate a model where workers may find it optimal to search for work in occupations where they have access to informal networks rather than in occupations where they have a productive advantage. Hence, jobs found through informal networks may be associated with lower wages.

When interpreting our results, it is important to keep in mind that we only analyse successful job searchers – i.e. workers who have obtained a job. Hence, our results may not be informative of the situation for less successful searchers. In reality, there are many workers, especially immigrants, who are less successful in their job search. It may very well be the case that these workers have even less access to high-quality informal networks than the workers we consider, and hence fare even worse.

In summary, our results show that there are important ethnic differences in job search behaviour. In general, immigrants search more than natives, but fare worse, in part because they get their jobs through informal contacts with relatives and friends rather than through more formal methods or higher-quality informal networks, methods they may not have equal access to as natives.

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Table 1. Job search methods used while unemployment.

	Men		Women		All	
	Natives	Immi-grants	Natives	Immi-grants	Natives	Immi-grants
<i>Search intensity:</i>						
Mean hours per week	10.9	15.9	12.2	13.3	11.7	14.5
Number of applications per week	5.2	10.7	5.0	8.1	5.1	9.3
<i>Methods used (number of times per week):</i>						
Answered advertisements in newspapers	0.80	1.87	0.77	1.08	0.78	1.42
Answered advertisements on the internet	3.21	7.09	3.79	5.00	3.56	5.93
Contacted employers/staffing companies	1.71	3.13	1.08	1.90	1.33	2.44
Contacted relatives/friends/colleagues	0.95	3.23	1.29	2.29	1.15	2.70
<i>Type of jobs:</i>						
All jobs	23%	47%	20%	30%	21%	38%
Mainly jobs that fitted education/experience	28%	29%	28%	37%	28%	33%
Only jobs that fitted education/experience	44%	22%	49%	29%	47%	26%
Other	5%	2%	3%	4%	4%	3%

Table 2. Successful search method.

	Men		Women		All	
	Natives	Immi-grants	Natives	Immi-grants	Natives	Immi-grants
<i>Formal search method:</i>						
Advertisement	43%	43%	61%	47%	53%	45%
Employment Service	24%	10%	25%	14%	24%	12%
	19%	33%	36%	33%	29%	33%
<i>Direct contact:</i>						
Contacted an employer directly	18%	18%	16%	19%	17%	18%
	18%	18%	16%	19%	17%	18%
<i>Informal method:</i>						
Previous employer or colleague	40%	40%	23%	34%	30%	37%
Relatives and friends	18%	9%	11%	7%	14%	8%
	22%	31%	12%	27%	16%	29%

Table 3. Descriptive statistics, country of birth.

	Number	Fraction
All	1,990	100%
Natives	784	39%
Immigrants	1,206	61%
Middle East (including Turkey)	612	31%
Asia	327	16%
Africa	129	6%
South America	99	5%
North America	39	2%

Table 4. Descriptive statistics, worker characteristics.

	Natives	Immigrants
<i>Gender:</i>		
Men	40%	44%
Women	60%	56%
<i>Age:</i>		
Mean	34.3	35.3
<i>Years since migration:</i>		
Mean	-	10.9
<i>Marital status:</i>		
Married	32%	73%
Not-married	68%	27%
<i>Education:</i>		
Primary	4%	21%
Secondary	42%	32%
Postsecondary	54%	47%

Table 5. Search behaviour.

	Hours per week	Applications per week	Advertisements per week	Direct contacts per week	Informal contacts per week
Immigrant	2.357*** (0.663)	3.153*** (0.534)	2.385*** (0.489)	1.033*** (0.214)	1.162*** (0.340)
Number of obs.	1,865	1,845	1,818	1,818	1,818

Notes: The dependent variable is hours of job search per week, number of applications per week, the number of answered advertisements per week, the number of direct contacts with employers per week, and the number of informal contacts per week, respectively. The model is estimated using ordinary least squares. The control variables include age, age squared, gender, marital status, educational level, education field, work experience, occupation and county. Robust standard errors are in parenthesis. ***, **, * denote statistical significance at the 1, 5 and 10 percent levels, respectively.

Table 6. Successful search method.

	Advertisement	Employment Service	Contacted an employer directly	Informal contact employer/coll.	Informal contact relatives/friends
Immigrant	-0.110*** (0.026)	0.019 (0.028)	0.053* (0.029)	-0.054** (0.021)	0.092** (0.026)
Number of obs.	1,376	1,376	1,376	1,376	1,376

Notes: The dependent variable is the successful search method. The model is estimated using ordinary least squares. The control variables include age, age squared, gender, marital status, educational level, education field, work experience, occupation and county. Robust standard errors are in parenthesis. ***, **, * denote statistical significance at the 1, 5 and 10 percent levels, respectively.

Table 7. Wage outcome of different successful search methods.

	(1)	(2)	(3)	(4)
Employment Service	-0.117*** (0.021)	-0.065*** (0.022)	-0.068** (0.027)	-0.028 (0.026)
Contacted an employer directly	-0.109*** (0.025)	-0.042 (0.026)	-0.105*** (0.031)	-0.046 (0.032)
Previous employer or colleague	-0.008 (0.031)	0.031 (0.030)	0.021 (0.040)	0.049 (0.037)
Relatives and friends	-0.171*** (0.024)	-0.110*** (0.024)	-0.129*** (0.030)	-0.079*** (0.029)
Immigrant	-0.124*** (0.014)	-0.119*** (0.016)	-0.062 (0.038)	-0.077** (0.038)
Employment Service*immigrant	-	-	-0.101** (0.044)	-0.074* (0.045)
Contacted an employer directly*immigrant	-	-	-0.027 (0.051)	-0.007 (0.050)
Previous employer or colleague*immigrant	-	-	-0.071 (0.063)	-0.045 (0.063)
Relatives and friends*immigrant	-	-	-0.086* (0.048)	-0.063 (0.047)
Controls for other characteristics	No	Yes	No	Yes
Number of observations	1,302	1,302	1,302	1,302

Notes: The dependent variable is the log of the hourly wage. The model is estimated using ordinary least squares. The reference category is advertisement. The control variables include age, age squared, gender, marital status, educational level, education field, work experience, occupation and county. Robust standard errors are in parenthesis. ***, **, * denote statistical significance at the 1, 5 and 10 percent levels, respectively.

Table 8. Wage outcome of different successful search methods, heterogeneity.

	Gender		Years since migration		Region of birth		Area	
	Men	Women	< 10 years	> 10 years	Middle East	Other	Urban	Rural
Employment Service	-0.041 (0.056)	-0.021 (0.031)	-0.027 (0.027)	-0.012 (0.026)	-0.023 (0.026)	-0.020 (0.026)	-0.086 (0.082)	-0.008 (0.028)
Contacted an employer directly	-0.084 (0.056)	-0.044 (0.043)	-0.050 (0.033)	-0.027 (0.033)	-0.033 (0.033)	-0.042 (0.033)	-0.061 (0.083)	na
Previous employer or colleague	0.006 (0.057)	0.041 (0.053)	0.047 (0.038)	0.060 (0.037)	0.054 (0.038)	0.044 (0.037)	0.054 (0.085)	0.023 (0.044)
Relatives and friends	-0.148*** (0.052)	-0.043 (0.035)	-0.085*** (0.030)	-0.058** (0.029)	-0.078*** (0.029)	-0.067** (0.030)	-0.093 (0.084)	-0.064* (0.034)
Immigrant	-0.174*** (0.056)	-0.061 (0.046)	-0.150*** (0.058)	-0.026 (0.044)	-0.138*** (0.052)	0.050 (0.048)	-0.151** (0.075)	-0.031 (0.045)
Employment Service*immigrant	-0.034 (0.073)	-0.064 (0.053)	-0.070 (0.063)	-0.092* (0.051)	-0.037 (0.057)	-0.094* (0.056)	-0.004 (0.109)	-0.105** (0.051)
Contacted an employer directly*immigrant	-0.015 (0.080)	0.046 (0.062)	-0.002 (0.065)	-0.016 (0.065)	0.012 (0.065)	-0.016 (0.064)	0.060 (0.106)	-0.059 (0.058)
Previous employer or colleague*immigrant	0.046 (0.096)	-0.048 (0.081)	0.018 (0.090)	-0.126* (0.070)	-0.025 (0.087)	-0.049 (0.074)	0.013 (0.124)	-0.069 (0.076)
Relatives and friends*immigrant	0.013 (0.072)	-0.060 (0.059)	-0.038 (0.066)	-0.058 (0.058)	-0.031 (0.059)	-0.079 (0.061)	-0.038 (0.107)	-0.084 (0.054)
Number of observations	550	752	974	868	918	924	410	892

Notes: The dependent variable is the log of the hourly wage. The model is estimated using ordinary least squares. Middle East includes native searchers and immigrants born in the Middle East, while other includes natives and immigrants born in Africa, Asia, South America, and North America. Urban area is Stockholm County, while rural area is the rest of Sweden. The reference category is advertisement. The control variables include age, age squared, gender, marital status, educational level, education field, work experience, occupation and county. Robust standard errors are in parenthesis. ***, **, * denote statistical significance at the 1, 5 and 10 percent levels, respectively.

Table 9. Other outcomes of different successful search methods.

	Temporary job		Job Quality	
	(1)	(2)	(1)	(2)
Employment Service	0.054** (0.022)	0.048** (0.023)	-0.066 (0.044)	-0.047 (0.061)
Contacted an employer directly	0.092*** (0.028)	0.100** (0.033)	-0.078 (0.048)	0.002 (0.069)
Previous employer or colleague	0.008 (0.023)	0.013 (0.021)	-0.010 (0.056)	0.009 (0.074)
Relatives and friends	0.085*** (0.027)	0.070** (0.035)	-0.245*** (0.0460)	-0.187*** (0.070)
Immigrant	0.077*** (0.019)	0.072** (0.031)	-0.028 (0.033)	0.042 (0.071)
Employment Service*immigrant	-	0.012 (0.044)	-	-0.054 (0.088)
Contacted an employer directly*immigrant	-	-0.013 (0.053)	-	0.153 (0.095)
Previous employer or colleague*immigrant	-	-0.010 (0.054)	-	-0.044 (0.111)
Relatives and friends*immigrant	-	0.024 (0.054)	-	-0.109 (0.094)
Controls for other characteristics	Yes	Yes	Yes	Yes
Number of observations	1,191	1,191	1,288	1,288

Notes: The dependent variables are dummy indicators of whether the job is a short-term temporary job ("hourly employment") or not and whether the job fits with the worker's education (according to the worker) or not. The model is estimated using ordinary least squares. The reference category is advertisement. The control variables include age, age squared, gender, marital status, educational level, education field, work experience, occupation and county. Robust standard errors are in parenthesis. ***, **, * denote statistical significance at the 1, 5 and 10 percent levels, respectively.

Appendix: Additional results

Table A1. Comparison of respondents and non-respondents to the survey.

	Natives		Immigrants		Difference
	Respondents	Non-respondents	Respondents	Non-respondents	(1)-(2) - (3)-(4)
	(1)	(2)	(3)	(4)	
All	39	61	30	70	-
<i>Gender:</i>					
Men	40	56	44	54	-6
Women	60	44	56	46	+6
<i>Age:</i>					
Mean	34	34	35	34	-1
<i>Ethnicity:</i>					
Mean ysm	-	-	11	11	-
Middle East	-	-	52	54	-
<i>Education:</i>					
Primary	7	14	32	39	0
Secondary	54	60	32	35	-3
Postsecondary	39	26	36	27	+4

Note: Ysm donotes years since migration.

Table A2. Wage return to human capital variables.

	(1)	(2)
Secondary education	0.093*** (0.029)	0.077*** (0.002)
Postsecondary education	0.216*** (0.033)	0.292*** (0.003)
Age	0.054*** (0.016)	0.046*** (0.001)
Age squared / 100	-0.069*** (0.022)	-0.048*** (0.002)
Years since migration	0.008*** (0.003)	0.005*** (0.000)
Years since migration squared / 100	-0.006 (0.008)	-0.003*** (0.001)
Number of observations	1,432	1,545,077

Notes: In column 1, are the results from a wage regression using the survey sample. In column 2, are the results from a similar wage regression using the whole Swedish population, where we apply the same restrictions on age and immigrant status as in the survey sample. The data is from LISA 2005, Statistics Sweden, and we weight the sample to take into account the stratified sampling procedure used in the survey. The wage variable is annual income instead of hourly wages. However, the variation in annual income from work above a certain threshold is likely to mimic the variation in hourly wages since people with higher annual income often have similar working time (hours). Antelius and Björklund (2000) show that for Sweden, if a threshold of SEK 100,000 is used, the return to education is similar using annual income and hourly wages. Therefore, we only include people who have an income from work above SEK 100,000 per year in the regression (this group constitutes more than 85 percent of the population). The reference category in the regressions is primary education. The regressions also contain dummy indicators for women, immigrants, and their interaction. Robust standard errors are in parenthesis. ***, **, * denote statistical significance at the 1, 5 and 10 percent levels, respectively.

Table A3. Search behaviour, by ethnic subgroup.

	Hours per week	Applications per week	Advertisements per week	Direct contacts per week	Informal contacts per week
Middle East	3.731*** (0.843)	3.352*** (0.667)	2.659*** (0.661)	1.256*** (0.257)	1.633*** (0.394)
Asia	0.301 (0.948)	2.078** (0.878)	2.327** (0.923)	0.634** (0.273)	0.528 (0.525)
Africa	4.019*** (1.465)	6.693*** (1.484)	3.729*** (1.378)	1.462** (0.608)	2.363*** (0.866)
South America	2.244* (1.351)	3.684** (1.491)	1.269 (0.959)	1.037*** (0.371)	0.424 (0.466)
North America	-0.598 (1.673)	-0.021 (1.395)	0.232 (1.450)	0.631 (0.963)	0.314 (0.900)
Number of obs.	1,865	1,845	1,818	1,818	1,818

Notes: The dependent variable is hours of job search per week, number of applications per week, the number of answered advertisements per week, the number of direct contacts with employers per week, and the number of informal contacts per week, respectively. The model is estimated using ordinary least squares. The control variables include age, age squared, gender, marital status, educational level, education field, work experience, occupation and county. Robust standard errors are in parenthesis. ***, **, * denote statistical significance at the 1, 5 and 10 percent levels, respectively.

Table A4. Search behaviour, by gender.

	Hours		Applications		Advertisements		Direct contact		Informal contacts	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Immigrant	4.296*** (1.152)	1.182 (0.855)	4.535*** (1.116)	2.233*** (0.522)	4.035*** (0.982)	1.406 (0.550)	1.328*** (0.440)	0.791*** (0.249)	2.035*** (0.549)	0.782* (0.466)
No of obs.	799	1,066	784	1,061	766	1,052	766	1,052	766	1,052

Notes: The dependent variable is hours of job search per week, number of applications per week, the number of answered advertisements per week, the number of direct contacts with employers per week, and the number of informal contacts per week, respectively. The model is estimated using ordinary least squares. The control variables include age, age squared, gender, marital status, educational level, education field, work experience, occupation and county. Robust standard errors are in parenthesis. ***, **, * denote statistical significance at the 1, 5 and 10 percent levels, respectively.

Table A5. Successful search method, by ethnic subgroup.

	Advertisement	Employment Service	Contacted an employer directly	Informal contact employer/coll.	Informal contact relatives/friends
Middle East	-0.134*** (0.030)	0.055 (0.035)	0.010 (0.033)	-0.071*** (0.025)	0.140*** (0.034)
Asia	-0.116*** (0.033)	-0.005 (0.041)	0.041 (0.039)	-0.045* (0.026)	0.125*** (0.138)
Africa	-0.098** (0.046)	-0.001 (0.052)	0.170*** (0.061)	-0.062* (0.035)	-0.010 (0.052)
South America	-0.064 (0.056)	-0.055 (0.052)	0.175*** (0.068)	-0.050 (0.045)	-0.006 (0.053)
North America	0.002 (0.086)	0.039 (0.088)	0.040 (0.078)	0.044 (0.068)	-0.126** (0.056)
Number of obs.	1,376	1,376	1,376	1,376	1,376

Notes: The dependent variable is the successful search method. The model is estimated using ordinary least squares. The control variables include age, age squared, gender, marital status, educational level, education field, work experience, occupation and county. Robust standard errors are in parenthesis.

***, **, * denote statistical significance at the 1, 5 and 10 percent levels, respectively.

Table A6. Successful search method, by gender.

	Advertisement		Employment Service		Contacted an employer directly		Informal contact employer/coll.		Informal contact relatives/friends	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Immigrant	-0.160*** (0.043)	-0.078** (0.036)	0.081* (0.047)	-0.016 (0.039)	0.064 (0.049)	0.033 (0.038)	-0.047 (0.039)	-0.041 (0.025)	0.061 (0.052)	0.102*** (0.032)
No of obs.	574	802	574	802	574	802	574	802	574	802

Notes: The dependent variable is the successful search method. The model is estimated using ordinary least squares. The reference category is advertisement. The control variables include age, age squared, gender, marital status, educational level, education field, work experience, occupation and county. Robust standard errors are in parenthesis. ***, **, * denote statistical significance at the 1, 5 and 10 percent levels, respectively.

Table A7. The predicted log wage for different search methods

	All	Natives		Immigrants	
Advertisement	4.932 (0.018)	4.885 (0.018)	4.979 (0.019)	4.938 (0.019)	4.917 (0.03)
Employment Service	4.815 (0.011)	4.821 (0.011)	4.911 (0.017)	4.910 (0.018)	4.748 (0.014)
Contacted an employer directly	4.823 (0.017)	4.843 (0.017)	4.874 (0.02)	4.893 (0.026)	4.785 (0.024)
Previous employer or colleague	4.924 (0.025)	4.917 (0.024)	5.000 (0.035)	4.988 (0.032)	4.878 (0.037)
Relatives and friends	4.761 (0.014)	4.775 (0.014)	4.850 (0.023)	4.860 (0.023)	4.703 (0.018)
Controls for other characteristics	No	Yes	No	Yes	No

Notes: The predicted values are calculated from the models estimated in columns 1 and 2 in Table 7. For example, the hourly log wage of 4.932 in the first row of the first column corresponds to approximately SEK 139. For additional details, see the notes to Table 7.