# THE DETERMINANTS OF JOB SEARCH INTENSITY IN NORTH AFRICA:

# VARIATIONS IN SEARCH METHODS USED IN ALGERIA, EGYT AND TUNISIA

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**Abstract:**

The success of individuals in finding jobs requires a significant search effort. This article presents an empirical analysis of the determinants of job search intensity in three Middle Eastern countries: Algeria, Egypt, and Tunisia. Our current draft provides only the analysis of Algeria, which uses the national employment survey. We adopt different estimation techniques (discrete choice models, count regression models) to operationalize search intensity and find that age, sex, marital status, education level, characteristics of household, and characteristics of the area significantly influence the intensity of a job seeker's efforts. Our results show stronger gender specificities in strategies to seek jobs. Women not only use more methods in the search for employment, but also spend more time than men engaged in their job search; this trend has increased in recent years.

**Keywords:** research intensity, job search methods, labour market, discrete choice models, count model, Middle East and North Africa, Egypt, Tunisia, Algeria

**Classification JEL:** C25, J23, J64, O12.

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## 1. Introduction

Search theory suggests that the amount of effort an individual devotes to job hunting and the likelihood of receiving an offer are positively correlated (McCall, 1970). A higher search effort is anticipated to increase the seeker's knowledge on unfilled job vacancies and in turn, raise the probability of exiting unemployment. Boheim and Taylor (2001), among others, provide empirical evidence to corroborate the claim that a higher search effort increases the probability of entering employment.

The probability of receiving a job offer depends on many factors, but past studies indicate that the individual's search strategy is a pivotal one. By investing the time and effort into the job search, an individual gains more information about vacancies, which is likely to result in a higher probability of receiving an offer of employment. However, job search methods are not uniform: they differ depending on an individual's time, preferences, and competencies, the costs and constraints he faces, and the returns he anticipates. Moreover, different job search approaches generate different types of employment outcomes. Considering these variations, it's important to note that the individual choice of strategy reflects the perception of costs and benefits associated with each method for a particular unemployed jobseeker.

In some empirical work, the determinants of job search intensity are analysed using discrete choice models (ordered probit model) where job search intensity is measured by the number of methods used by an unemployed job seeker. Using cross-sectional data, other studies have sought to analyse the determinants of job search intensity, the relationship between intensity and duration of research, the effectiveness of strategies, and the impact of unemployment benefits on job search efforts. Others authors have worked on longitudinal data to analyse the influence of research intensity on transitions in the labour market and the dynamics of job search intensity over time.

The empirical work on search intensity primarily focuses on developed countries (Holzer 1987, 1988; Gregg and Wadsworth 1996; Blau and Robins 1990; Banerjee 1981; Munshi 2003; Mazumdar 1987; Ioannides and Loury 2004). The empirical work finds that job seekers in Britain use multiple search methods rather than relying on a single method. Gregg and Wadsworth (1996) find that unemployed people in Britain use on average three job-search methods, such as the number used by unemployed youth in the United States (Holzer, 1988), Addison, Portugal (1998) find similar results for the unemployed in Portugal.

Few studies have analysed the determinants of search intensity in the case of developing countries, particular for countries in the Middle East and North Africa (MENA) region. This represents a gap in the MENA labor market literature on the determinants to quality employment. This gap is particularly critical in light of the considerable underemployment (cite) and large informal private sector composition previously examined in numerous MENA labor markets, all of which most heavily affect young workers. Therefore, our examination of job search intensity is a critical first step towards a stronger empirical understanding of the mechanisms that enhance the likelihood of a successful transition to desired employment, particularly for young workers in the MENA.

The objective of this paper is to examine the variations in job search intensity in three North African countries: Algeria, Tunisia, and Egypt. We operationalize job search intensity by the number of methods a job seeker uses to find work. We examine how method type and quantity vary by human capital accumulation, experience, and demographic characteristics. As will be discussed in the next section, Algeria, Egypt, and Tunisia lend themselves well to comparison because of the similar labour market challenges they have faced in the aftermath of structural readjustment and the declining role of the public sector in the labour market. They are relatively similar along several other measures of labour market participation and composition, such as the growing role of the informal private sector.

After the introduction, the paper is outlined as follows: we share major labour market indicators of the three countries in Section 2 and demonstrate the similar characteristics of our three countries of interest and provide background on job placement mechanisms available to the unemployed. Section 3 discusses the methodology followed and the data used in the paper. Section 4 provides descriptive results, and in Section 5, we present and evaluate our empirical results.

## 2. Labour Market Compositions

While our three countries of interest are politically dissimilar, their economic and demographic experience in the past several decades has been notably aligned. Since the 1990's, structural readjustment schemes in all three nations have resulted in a decline in public sector job opportunities. This has represented a disruption of an earlier culture of human capital accumulation and job aspirations, in which labour force participants looked to the public sector for desirable employment opportunities, and higher levels of public education translated to socioeconomic mobility through public sector jobs. Parallel to this

decline in public sector opportunities has been the growth of informal private sector firms, characterized by their lack of formal registration with the national Ministry of Labour, small firm composition, local orientation, relatively low pay, and lack of job security (via contracts) and benefits for employees (social insurance). The growth of work informality is associated with higher underemployment and increasing unemployment among the higher educated.

The replacement of public sector opportunities with informal private sector jobs has been especially detrimental for female labour force participants, who often would choose unemployment and queuing for a public sector job over a job at an informal firm where they feel more vulnerable to harassment. Jobs at informal firms are also socially perceived as "inappropriate" for females, in contrast to public sector jobs, which are seen as culturally "appropriate" for single and married women alike.

Our completed paper will present key labour force indicators in the three countries of interest. For now we present the outcomes for Algeria. We observe a low labour force participation and employment rates and among women. Indeed, for women aged 15 and over, participation stands at 16.4%. While the employment rate is 37.1%. Despite the increase in the employment rate in recent years, this has not had enough impact to boost the labour force. Moreover, we see that young people aged 15-24 are the most affected by the aforementioned labour market transitions. Indeed, the youth unemployment rate is three times higher compared to adults. The unemployment rate of women is also 2.3 times higher than that of men.

Unemployment affects graduates more. The unemployment rate of graduates is 20.3%, which means that one in five graduates finds themselves unemployed after leaving university. Like in the overall figures, we find that a greater proportion of degree-holding women are unemployed as compared to degree-holding men: one in three university educated women find themselves unemployed after graduation against one boy in ten. Another more dramatic result is that 21.2% of young people aged 15-24 years old (one in four young people) who are neither in the labour force neither in school "NEET". This proportion is higher for girls, 32.1% of girls compared with 10.8% for boys.

**Table 1:** Key labour market indicators in 2015

| | Male | Female | Total |
|---|---|---|---|
| **Labour force participation rate** | | | |
| 15 years and more | 66.8 | 16.4 | 41.8 |
| 15-24 years | **41** | **8.8** | **25.2** |
| **Employment rate** | | | |
| 15 years and more | 60.2 | 13.6 | 37.1 |
| 15-24 years | **30.1** | **4.8** | **17.7** |
| 25 years and more | 69.9 | 16.4 | 43.3 |
| **Status in the profession** | | | |
| Self-employment | 30.9 | 19 | 28.7 |
| Permanent employees | 40.7 | 52.6 | 42.9 |
| Non-permanent employees | 27.1 | 26.3 | 26.9 |
| Others | 1.3 | 2.1 | 1.5 |
| **Legal sector** | | | |
| Public | 37.1 | 64.1 | 42 |
| Private | 62.9 | 35.9 | 58 |
| **Unemployment rate** | | | |
| Total | 9.9 | 16.6 | 11.2 |
| Youth (16-24 years) | **26.7** | **45.3** | **29.9** |
| Adults (25 years and more) | 7 | 12.3 | 8 |
| **Unemployment rate by level of education** | | | |
| Without instruction | 3.9 | 1.4 | 3.6 |
| Primary | 7.9 | 5.5 | 7.7 |
| Intermediate | 12.9 | 17.8 | 13.4 |
| Secondary | 8.8 | 14.8 | 10.1 |
| University | **8.5** | **20.5** | **14.1** |
| **Unemployment rate by diploma** | | | |
| No diploma | 9.6 | 11.7 | 9.8 |
| Graduate of vocational training | 12.3 | 16.9 | 13.4 |
| Graduate of higher education | **8.2** | **20.2** | **14.1** |
| **% of young people aged 15-24 years Neither in the workforce Neither in school** | **10.8** | **32.1** | **21.2** |

**Source:** Official labour force survey – 2015 - (ONS).

The main mechanisms for wage employment depend on two ministerial departments: Ministry of Employment and Social Security (MTESS) and Ministry of National Solidarity and Family (MSNF). These two ministries oversee five agencies: the National Agency for Employment (ANEM), the National Agency for the Support of Youth Employment (ANSEJ), the National Unemployment Insurance Fund (CNAC), the Social Development Agency (ADS), and the National Agency for Microcredit Management (ANGEM).

Expenditures on national employment programmes is rather low: Algeria spends only 14 billion Algerian Dinar (approximately 130,000 dollars) annually - which represents 0.3 per cent of GDP - plus 4.5 billion DA Programs, or about 0.1 per cent of GDP. In sum, active labor market programs represent 0.4 per cent of annual GDP. However, these figures correspond to the expenditure of the programs and do not include the operating costs of the

structures that implement them or those of other institutions such as ANEM. If the estimated amount of training expenditure is added, it is not unreasonable to place the total amount of active expenditure at around 0.5 per cent of GDP. The passive expenditure between the payment of unemployment benefits in the amount of 2.5 billion DA and the solidarity allowance in the amount of 1 billion DA is 3.5 billion DA, or just under 0.1 per cent of GDP. The total expenditure on labour market policies can therefore be estimated at around 0.6 per cent of GDP.

## 3. Description of the data

For Algeria, we use household surveys conducted by the National Statistics Office in 1997, 2007 and 2010.

Along with other questions about job and demographic characteristics, durations of unemployment, etc., the unemployed responded to questions about their main method of job search. For Algeria, the unemployed could choose more than one answer among four: 1) registration with a labour office, 2) direct contact with companies, 3) through personal relationships and 4) other approaches, For each job search method, the unemployed could answer yes or no. Using this information, we operationalize the concept of job search intensity through the number of different methods used by a job seeker.

**Table 2:** Search methods used by job seekers

| | 1997 | | | 2007 | | |
|---|---|---|---|---|---|---|
| | **Total** | **Male** | **Female** | **Total** | **Male** | **Female** |
| Government employment offices | 63.7 | 63.5 | 64.6 | 41.1 | 35.5 | 60.3 |
| Asking at the work place | 69.5 | 70.4 | 63.9 | 62.2 | 61.6 | 64.1 |
| **Friends and relatives** | 57.3 | 57.1 | 58.1 | 85.9 | 86.5 | 84 |
| Others | 32.6 | 33.7 | 26.4 | 61.5 | 60.9 | 63.8 |
| **Number of unemployed (thousands)** | **1735** | **1481** | **253** | **1255** | **969** | **286** |

NB: Unemployed could choose more than one answer.
**Source:** Computed by author from the official labour force survey.

The table shows that in 2007, the main method of research used by the unemployed is personal or family relationships for men (86.5%) or for women (84%). This proportion increased sharply between 1997 and 2007 as the use of public intermediation agencies declined by 22.6 percentage points overall. This appears to illustrate the drop in public sector job opportunities following structural readjustment. Interestingly, we still find that the

majority of unemployed females register with government employment offices in the hope of job placement, an outcome that corresponds to evidence that women in the labour force have maintained their aspirations of public sector opportunities.

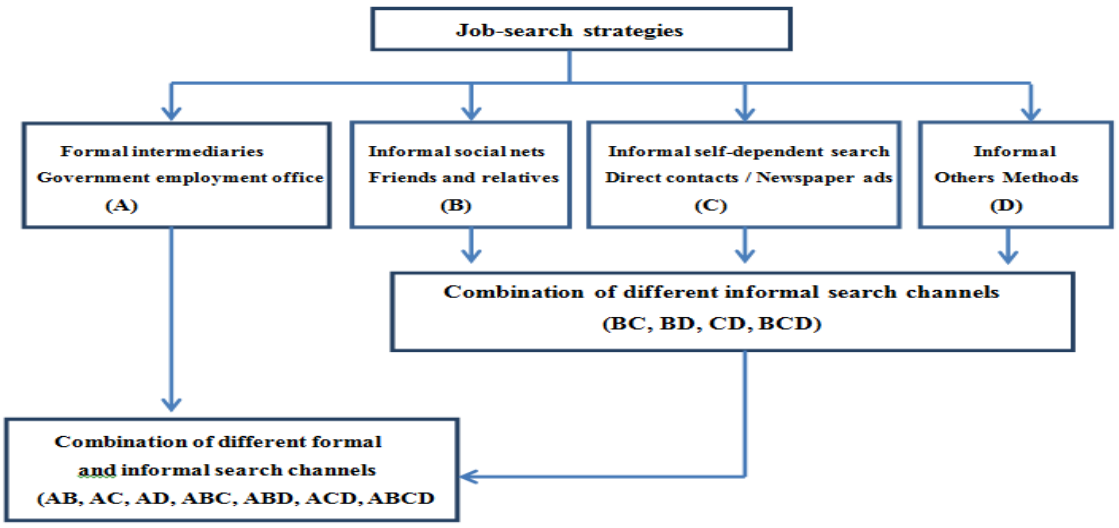
From these results we observe how personal relationships have become the primary method used by the unemployed in their quest for a job. These results also show that men and women have completely different strategies in their job search and that these strategies may change over time.

## 4. Determinants of search intensity

### 4.1. Job Search Strategies

We identify three types of job search strategies. First, the unemployed use a single method in the search for a job, be it formal or informal. Overall 19% of the unemployed are the single-method type. Next, the unemployed combine several formal methods in their search: 42% of the unemployed are the formal methods type. The third strategy requires combining formal and informal methods: 39% of the unemployed have adopted this strategy. Our conceptual framework regarding formal and informal methods is illustrated below:

**Figure 1:** Possible job-search strategies available for unemployed (grouped into four categories)

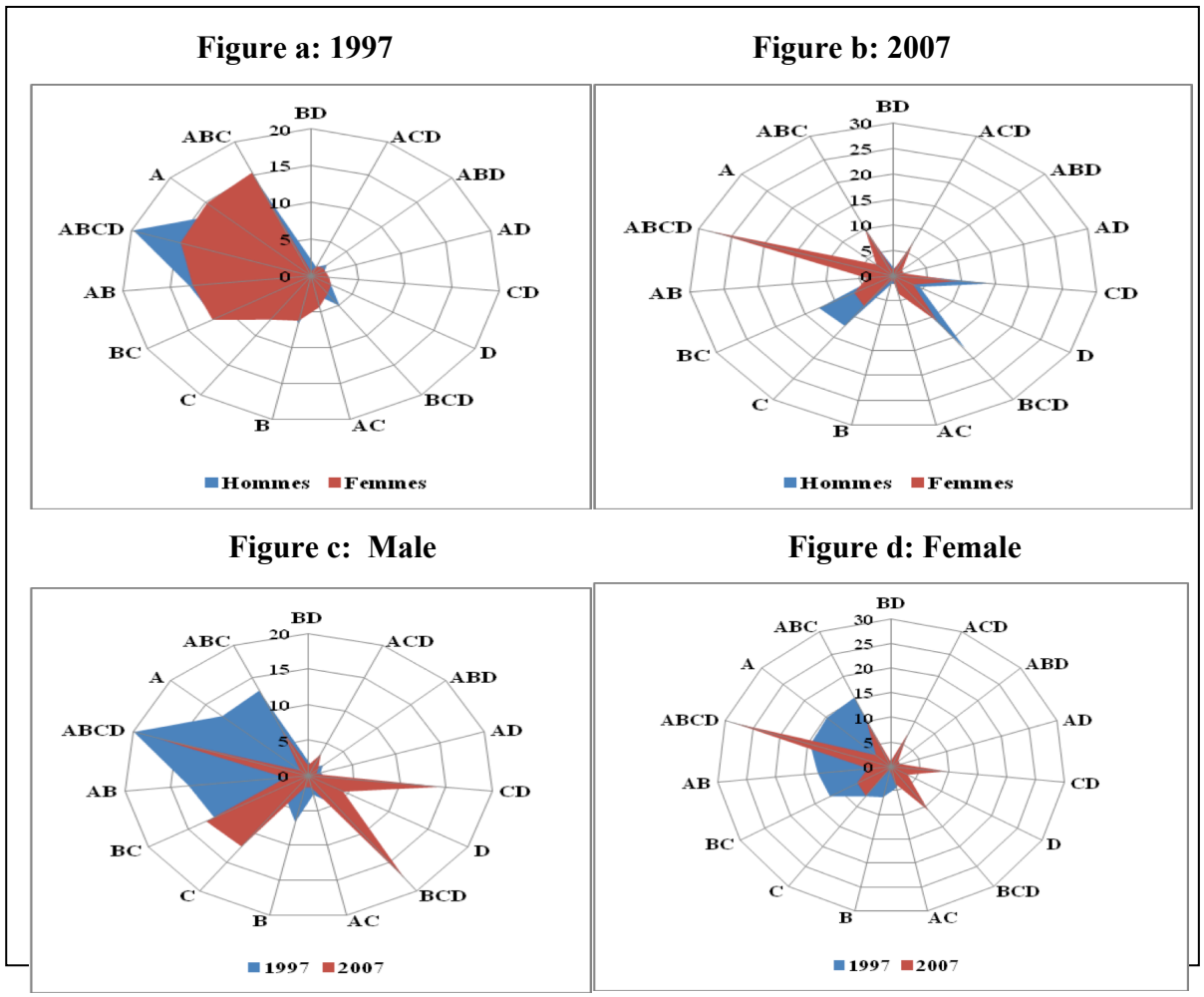



**Source:** Prepared by the author.

From the analysis of job search strategies (Figure 2), it appears that women use more methods as compared to men. Indeed, 28% of women reported using all methods in the job search, as opposed to 17% for men. This may be due to the fact that women find more

difficulty entering the labour market, which explains why they use all possible methods in research to hope to find an acceptable job. Women are increasingly soliciting public agencies for job search intermediation, unlike men who are demand more of their social networks. Another result is that women are more likely to combine formal and informal methods at the same time, whereas men tend to combine several informal methods.

**Figure 2:** Job Search Strategies




**Source:** Computed by author from the official labour force survey 1997-2007.

Over the period between 1997-2007, we see an increase in the number of search methods used by the unemployed. This first result is due to a women's effect, in fact, it is more women who use more and more methods in research over time. Three possible explanations: women find more difficult to enter the labour market. The second is probably due to the fact that there are more and more educated women entering the labour market, they are more motivated to find a job and to value their diploma. The third possible explanation is a cultural one, woman in Algeria but also in the Arab countries, have more pressure from their family, if the woman

decides to work and if the family accepts this decision, it is in the interest of women to find quickly jobs. In these countries, there is less tolerance for women to leave all the time for job search. This phenomenon is observed more in rural areas. These three points explain in part the use of women in several ways in the search for a job. Individual choice of job search strategy also depends on employers' recruitment policies, which vary according to business characteristics and economic conditions (Gregg and Wadsworth, 1996, Manning, 2000).

### 4.2. Determinants of Job Search Intensity

We measured job search intensity by the number of methods used in the job search. We estimated several models for men and women, according to the likelihood-ratio test of alpha. For both men and women the most suitable model is the standard Poisson model.

The model is written as follows: $P(Y = K) = e^{-\lambda}(\lambda^k / k!)\ k = 1, 2, 3, 4$

**Table 3:** Determinants of job search intensity

| | Male | | | Female | | |
|---|---|---|---|---|---|---|
| | **Coef.** | **P>\|z\|** | **%[3]** | **Coef.** | **P>\|z\|** | **%** |
| **Social network** | | | | | | |
| Density | -0.00971 | 0.497 | [-1] | -0.0269 | 0.291 | [-2.7] |
| | (0.0143) | | | (0.0254) | | |
| Density Squared | 0.000169 | 0.637 | [0] | 0.000621 | 0.330 | [0.1] |
| | (0.000358) | | | (0.000637) | | |
| **Demographic characteristics** | | | | | | |
| Marital status | | | | | | |
| Married | -0.0370 | 0.436 | [-3.6] | -0.0784 | 0.329 | [-7.5] |
| Other (ref) | (0.0474) | | | (0.0802) | | |
| Age 25- 34 years | 0.102*** | 0.001 | [10.8] | 0.129** | 0.016 | [13.8] |
| | (0.0309) | | | (0.0534) | | |
| Age 35 – 44 years | 0.135*** | 0.007 | [14.5] | 0.152* | 0.082 | [16.4] |
| | (0.0505) | | | (0.0875) | | |
| **Human capital** (ref university) | | | | | | |
| Without education | -0.248*** | 0.005 | [-22] [[4.9]] | -0.0840 | 0.704 | [-8.1] [[-11.8]] |
| | (0.0880) | | | (0.221) | | |
| Primary | -0.201*** | 0.000 | [-18.2] [[9.6]] | -0.210* | 0.061 | [-18.9] [[-11.6]] |
| | (0.0522) | | | (0.112) | | |
| Intermediate | -0.157*** | 0.001 | [-14.5] [[9.7]] | -0.207*** | 0.006 | [-18.7] [[-8.5]] |
| | (0.0458) | | | (0.0748) | | |
| Secondary | -0.155*** | 0.001 | [-14.4] [[28.2]] | -0.172*** | 0.007 | [-15.8] [[8.8]] |
| | (0.0487) | | | (0.0644) | | |
| Vocational training | | | | | | |
| Yes (ref) | -0.0942*** | 0.004 | [-9] | -0.0167 | 0.764 | [-1.7] |
| No | (0.0326) | | | (0.0557) | | |
| **Experience** | | | | | | |
| Unemployed who have already worked (ref) | | | | | | |
| Unemployed who have never worked | | | | | | |
| | 0.0241 | 0.402 | [2.4] | 0.0246 | 0.642 | [2.5] |
| | (0.0287) | | | (0.0530) | | |

[3] Percentage Change in Expected Count.

**Table 3 (continued):** Determinants of job search intensity

| | Male | | | Female | | |
|---|---|---|---|---|---|---|
| | **Coef.** | **P>\|z\|** | **%** | **Coef.** | **P>\|z\|** | **%[4]** |
| **Household Characteristics** | | | | | | |
| Children under 5 years in the household | -0.000353 | 0.986 | [-0] | 0.00657 | 0.867 | [0.7] |
| | (0.0205) | | | (0.0392) | | |
| Number of people 5 – 14 years in the household | -0.00701 | 0.582 | [-0.7] | -0.0534** | 0.046 | [-5.2] |
| | (0.0127) | | | (0.0268) | | |
| Number of people 15 – 64 years in the household | -0.00338 | 0.662 | [-0.3] | 0.0172 | 0.261 | [1.7] |
| | (0.00773) | | | (0.0154) | | |
| Number of people 65 years and more in the household | -0.00419 | 0.836 | [-0.4] | -0.0130 | 0.725 | [-1.3] |
| | (0.0202) | | | (0.0369) | | |
| Number of unemployed in the household | 0.0149** | 0.403 | [1.5] | -0.0116 | 0.729 | [-1.2] |
| | (0.0179) | | | (0.0335) | | |
| Number of employers in the household | 0.0148 | 0.830 | [1.5] | -0.0842 | 0.441 | [-8.1] |
| | (0.0688) | | | (0.109) | | |
| Number of Independents in the household | -0.00702 | 0.783 | [-0.7] | -0.0224 | 0.639 | [-2.2] |
| | (0.0256) | | | (0.0478) | | |
| Number of employees in public sector | 0.0199 | 0.286 | [2] | 0.0109 | 0.727 | [1.1] |
| | (0.0186) | | | (0.0313) | | |
| Number of employees in private sector | -0.0239 | 0.248 | [-2.4] | -0.0288 | 0.447 | [-2.8] |
| | (0.0207) | | | (0.0379) | | |
| **Characteristics of area Region (Ref: North)** | | | | | | |
| Middle | -0.0904** | 0.042 | [-8.6] | -0.102 | 0.207 | [-9.7] |
| | (0.0445) | | | (0.0804) | | |
| South | -0.248*** | 0.001 | [-22] | -0.170 | 0.186 | [-15.6] |
| | (0.0753) | | | (0.128) | | |
| Great South | -0.152 | 0.230 | [-14.1] | -0.0246 | 0.912 | [-2.4] |
| | (0.126) | | | (0.223) | | |
| Unemployment rate at district level | -0.850*** | 0.000 | [-57.2] | -0.401 | 0.239 | [-33] |
| | (0.180) | | | (0.340) | | |
| Stratum | | | | | | |
| Urban (ref) | 0.0388 | 0.295 | [4] | -0.0374 | 0.597 | [-3.7] |
| Rural | (0.0371) | | | (0.0708) | | |
| Informal rate in the district level | -0.459 | 0.156 | [-36.8] | -0.457 | 0.417 | [-36.7] |
| | (0.324) | | | (0.563) | | |
| Industry rate in the district level | 0.714*** | 0.009 | [104.2] | -0.0438 | 0.926 | [-4.3] |
| | (0.274) | | | (0.471) | | |
| Construction rate in the district level | 0.345 | 0.122 | [41.2] | -0.0380 | 0.934 | [-3.7] |
| | (0.223) | | | (0.462) | | |
| Trade rate in the district level | 0.613*** | 0.005 | [84.6] | 0.420 | 0.256 | [52.2] |
| | (0.221) | | | (0.370) | | |
| Services rates in the district level | 0.636*** | 0.001 | [89] | -0.0236 | 0.948 | [-2.3] |
| | (0.188) | | | (0.364) | | |
| Non-salary rate in the district level | 0.434* | 0.065 | [54.3] | -0.222 | 0.637 | [-19.9] |
| | (0.235) | | | (0.471) | | |
| Constant | 0.714*** | | | 1.275*** | | |
| | (0.228) | | | (0.433) | | |
| **Sample size** | **2536** | **2536** | **2536** | **739** | **739** | **739** |

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
**Source:** Computed by author from the official labour force survey 2007.

## 1) Network "Social network"

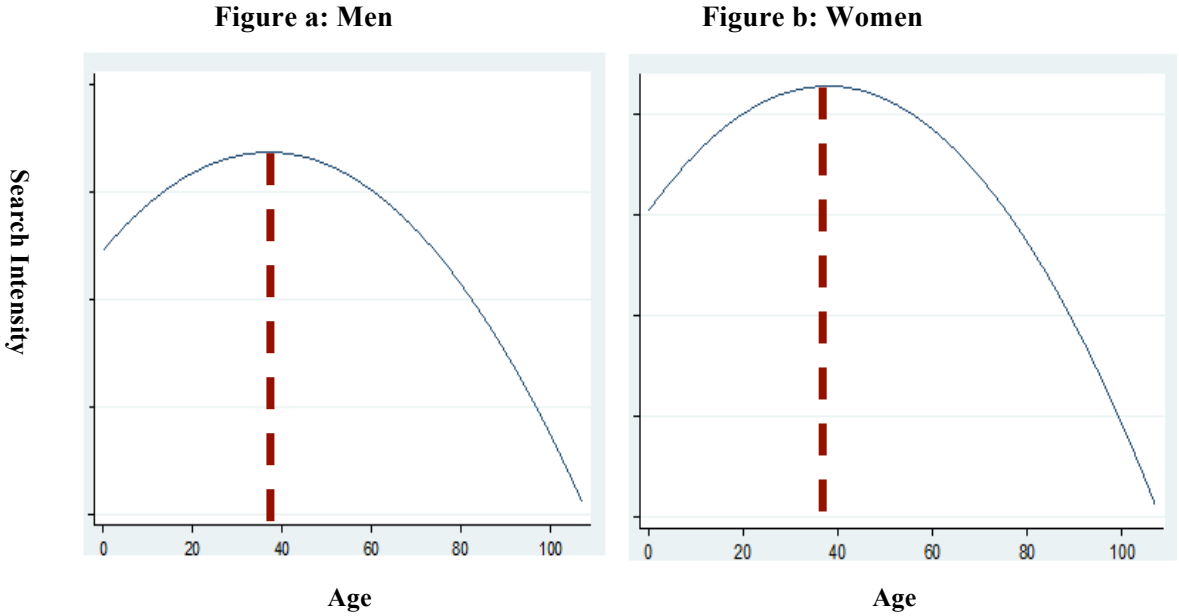
The density of population is not significant for both sexes but the sign of the coefficients is negative, which means that the intensity of research is less important in the big cities. This can be explained by the fact that in larger cities there is more competition, demand for employment is greater than supply, which may discourage some unemployed people to increasing their efforts to find a job.

[4] Percentage Change in Expected Count.

**2) Demographic Characteristics**

The model shows that age is significant for both sexes with an inverted U-shape. The intensity of job search increases with age until a certain threshold point, at which intensity decreases with age. It is on the declining side of this U-shape that there we can evoke the concept of discouraged unemployed. For men, the intensity decreases after 39 years and for women after 35 years. For women, this result can be explained by the fact that the average age at marriage is 30 years. At the age of 35, married women will likely have children, which prevents them from engaging in multiple job search methods. The effect of age is more important for women. Indeed, for men aged between 25 and 34 years old we measure an increase in research intensity by 1.7 per cent as compared to those aged between 15 and 24. This proportion is 13.8 per cent for women in the same category of age. For men, being between the ages of 35 and 44 years increases the job search intensity by 9.2 per cent as compared to the younger cohort (25-34). Likewise, this proportion rises to 16.4% for women.

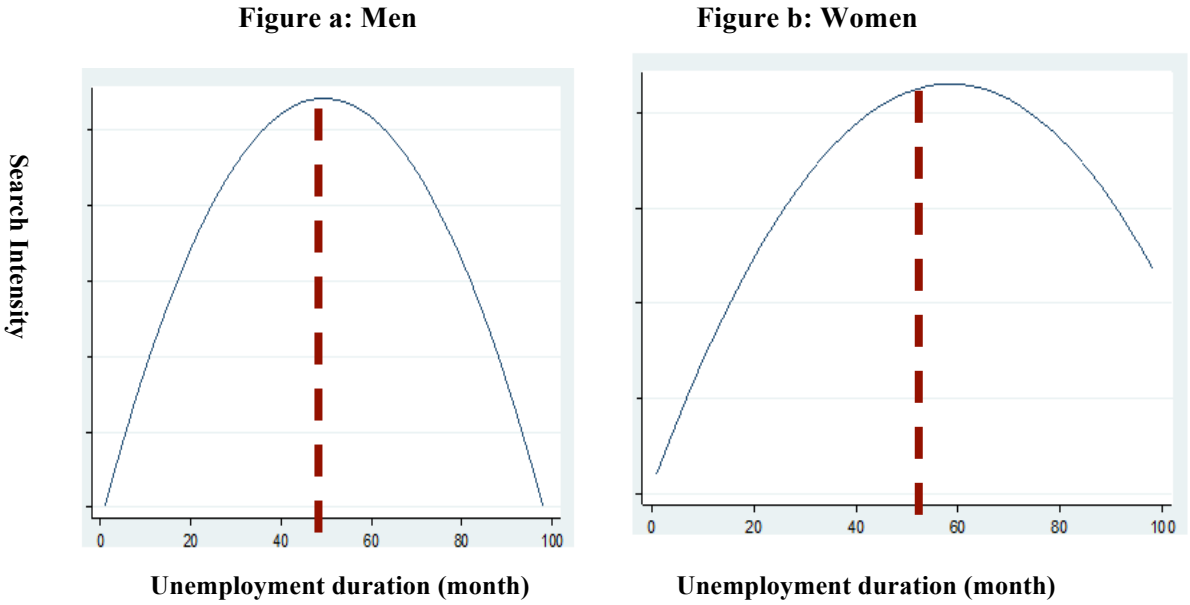
**Figure 3:** Simulation Search Intensity by Age




**Source:** Computed by author from the official labour force survey 2007.

As far as research time is concerned, it appears for men that research intensity decreases from the fourth year of research, while for women it decreases from the seventh year of research. This means that women continue to seek with the same intensity, on average three years more compared to men. This may be due to the fact that women find more difficult to enter the labour market compared to men.

**Figure 4:** Simulation Search Intensity by Unemployment Duration




**Source:** Computed by author from the official labour force survey 2007.

The marital status is not significant for both sexes but the sign is negative for those who are married. This suggests that marriage diminishes the capacity of individuals to engage in a more intensive job search, especially for women who are more concerned with the education of children and the family home.

### 3) Human capital and experience

The intensity of job search increases with the level of education for both sexes. Blan and Robins (1990), Wanberg et al (1999) for the United States, Schmitt and Wadsworth (1993) for England and Sabatier (2000) for France find similar results. Education is positive correlated with search intensity, educated people are more motivated to find a job so they use the maximum of channels in their job search. One possible explanation is that educated people find more difficult to enter the labour market (unemployment rate is 14.1% (20.5% for women and 8.5% for men – ONS -2015)), which forces them to take greater efforts in the search for jobs. This greater effort is a potential effect of the decline in skilled job opportunities.

Also, unemployment deprives skilled individuals of their high salaries (potential wages) and can also depreciate their human capital. Therefore, educated people are more incited to quit unemployment quickly and provide more effort in job search than less educated ones. The effect of this variable is more important for men. Indeed, having a higher education level increases the research intensity by 28% for men compared to 8.8% for women.

Vocational training has a positive effect on research intensity for men. Indeed, research intensity increases by 10% for men who have undergone vocational training.

Arulampalam et al. (2000) and Gregg (2001) find that in England, the previous experience in unemployment for men has repercussions on their future behaviour in the labour market. This variable is not significant in our model but the coefficient of this variable is positive for men and women, suggests means that the unemployed who have never worked in the past multiply more efforts in the search for a job.

**4) Household Characteristics**

The presence of children aged 5-14 years in the household has a negative effect on the intensity of job search for women. Women invest more in the education of children compared to men, which prevents them from increasing their efforts in the search for employment. We also find that among men, the more unemployed members of the household, the higher the job search intensity is for other unemployed members of the household. Schmitt and Wadsworth (1993) find similar results for men unemployed in Britain in the 1980s.

**5) Characteristics of area**

All the variables relating to geographic and area characteristics are significant only for men. For men, research intensity is lower in the middle regions and in the southern regions compared to the northern regions. This is probably due to the fact that the unemployed in these regions know that the opportunities to find a job are limited, resulting in discouragement and protracted unemployment. This result has important implications for labour policy: policy makers need to invest more in these regions and encourage the private sector to settle in these neglected areas of the country.

The results show a negative relationship between the local unemployment rate and the intensity of job search. Böheim and Taylor (2002), Jones (1989) and Wadsworth (1991) find a similar result for Britain. Here we find evidence of discouraged unemployment driven by location. The higher the unemployment rate in a region, the fewer opportunities to find a job and the less the unemployed intensify their search. We find in the analysis of job search modes that in regions where unemployment is high, the unemployed are more likely to use networks of relationships that judge more effective in these conditions.

The intensity of job search is less important in regions where the dominant activity is agriculture. Because young workers disfavour the low wages and harsher conditions in the agricultural sector, we observe a lower intensity of job search in these regions. In other words,

we believe the unemployed youth in agricultural areas are expressing a preference for non-agricultural jobs by restricting their job searches. On the other hand, we find that job search intensity is higher in regions where the most dominant form of employment is independent activities: that is, in regions where economic activity is more important.

## 5. Conclusion

In this article, we investigated the determinants of job search intensity using search strategies to measure the degree of effort put into an unemployed person's job pursuit. The analysis shows that women use different strategies in their job search compared to men. Women mainly use formal methods in research especially through public agencies, when men used more informal methods especially relationship networks. Women not only use more methods in job search but also look for longer a longer duration as compared to men, a trend has become more pronounced in recent years. This is due to the fact that because of the decline in public sector opportunities and the undesirable nature of labour in informal firms, women are finding it increasingly difficult for them to enter the labour market. More efforts are expended to find a job because of the growing infrequency of "culturally appropriate" work. The intensity of job search increases with the level of education for both sexes. Educated people find it increasingly difficult for them to enter the labour market, which forces them to make more efforts in the search for employment. The results of the estimates also show that household characteristics and regional specificities play a very important role in the strategies and intensity of job search, at least for men.

## References


- Banerjee, B., 1981. Rural–urban migration and family ties: an analysis of family considerations in migration behavior in India. Oxford Bulletin of Economics and Statistics 43, 321– 355.
- Blau, D.M. and P.K. Robins (1990), "Job search outcomes for the employed and unemployed", Journal of Political Economy, 98, pp. 637-655.
- Gregg, P., Wadsworth, J., 1996. How effective are state employment agencies? Jobcentre use and job matching in Britain. Oxford Bulletin of Economics and Statistics 58, 43– 67.
- Holzer, H., 1987a. Job search by employed and unemployed youth. Industrial and Labor Relations Review 40, 601– 611.
- Holzer, H. 1987b. "Job Search by Employed and Unemployed Youth," *Ind. Lab. Relat. Rev*. 40:4, pp. 601–11.
- Holzer, H., 1988. Search method used by unemployed youth. Journal of Labor Economics 6, 1 – 20.
- Ioannides, Y.M., Linda Datcher Loury, L.D., 2004. Job Information Networks, Neighborhood Effects, and Inequality. Journal of Economic Literature, Vol. 42, No. 4, pp. 1056-1093.
- Jones, S. (1989), "Job search methods, intensity and effects", Oxford Bulletin of Economics and Statistics, Vol. 51, pp. 277-296.
- Mazumdar, D., 1987. Rural–urban migration in developing countries. In: Mills, E. (Ed.), Handbook of Regional and Urban Economics, vol. 2. North-Holland, Amsterdam, pp. 1097– 1128.
- Munshi, K., 2003. Networks in the modern economy: Mexican migrants in the US labor market. Quarterly Journal of Economics 118, 549–599.
- Sabatier, M. (2000), "Job search model with endogenous search methods: An application on young unemployment spells in France", Paper presented at the 15th Annual congress of the European Economic Association, Bozen-Bolzano, 30th August – 2nd September 2000.
- Schmitt, J. and Wadsworth, J. (1993), "Unemployment benefit levels and search activity", Oxford Bulletin of Economics and Statistics, Vol., pp. 1-20.
- Wanberg, C.R., R. Kanfer and M. Rotundo (1999), "Unemployed individuals: Motives, job search competencies, and job search constraints as predictors of job seeking and reemployment", Journal of Applied Psychology, 84 (6), pp.987-910.

## ANNEX I

**Table 1:** Characteristics of the Unemployed by the Research Methods Used (1997 - 2007)

| | 1997 | | | | 2007 | | | |
|---|---|---|---|---|---|---|---|---|
| | **Personal or Family Relationships** | **Asking at the work place** | **Government employment offices** | **Others** | **Personal or Family Relationships** | **Asking at the work place** | **Government employment offices** | **Others** |
| **Genre** | | | | | | | | |
| Male | **57,1** | 70,4 | 63,5 | 33,7 | **86,5** | 61,6 | 35,5 | 60,9 |
| Female | **58,1** | 63,9 | 64,6 | 26,4 | **84** | 64,1 | 60,3 | 63,8 |
| **Marital status** | | | | | | | | |
| Married | **61,3** | 70,3 | 64,6 | 41,9 | **86,5** | 62,8 | 34,1 | 59,5 |
| Other (ref) | **56,2** | 69,2 | 63,4 | 30,2 | **85,9** | 62,1 | 42,4 | 61,9 |
| **Household relationship** | | | | | | | | |
| Head of household | **61,1** | 67,8 | 64,8 | 42,8 | **88,3** | 63,8 | 29 | 56,2 |
| Other | **56,4** | 69,8 | 63,4 | 30,5 | **85,7** | 62 | 42,4 | 62,1 |
| **Age** | | | | | | | | |
| 16-24 | **54** | 67,5 | 65,3 | 29,4 | **84,8** | 55,4 | 33,6 | 58,4 |
| 25-34 | **59,9** | 71,7 | 60,8 | 34,6 | **86,2** | 68 | 49,2 | 65,6 |
| 35-44 | **65,2** | 76,4 | 64,4 | 40,5 | **89,2** | 67,4 | 43,4 | 61 |
| 45-54 | **61,7** | 65 | 61,9 | 36,2 | **87,8** | 60,8 | 31,8 | 55,3 |
| 55-59 | **57,5** | 67,2 | 65,6 | 50,1 | **85,9** | 40,4 | 9,3 | 40,2 |
| **Human capital** | | | | | | | | |
| Without education | **60,1** | 64,6 | 68,3 | 44,1 | **82,3** | 48,4 | 25,3 | 52,8 |
| Primary | **56** | 66,1 | 64,3 | 33,6 | **88,2** | 54,3 | 27,4 | 54 |
| Intermediate | **52,7** | 67,3 | 65,3 | 29,3 | **86,7** | 59,6 | 32,6 | 62,7 |
| Secondary | **60,5** | 75,1 | 61,9 | 30,5 | **85,8** | 63,1 | 43,6 | 60,9 |
| University | **72,1** | 83,3 | 46,6 | 35,7 | **82,8** | 77,7 | 74,9 | 69 |
| **Stratum** | | | | | | | | |
| Urban (ref) | **58,5** | 72,7 | 59,2 | 30,8 | **85,2** | 65,1 | 46,1 | 63,2 |
| Rural | **55,9** | 66,1 | 68,3 | 34,6 | **87,2** | 56,9 | 32,4 | 58,7 |
| **Region** | | | | | | | | |
| North | **62,8** | 72,9 | 64,2 | 38,4 | **87,8** | 64,6 | 43,8 | 65,4 |
| Middle | **47,8** | 65,4 | 64,8 | 19,9 | **84,5** | 60,2 | 35,6 | 66,6 |
| South | **50,4** | 58,9 | 56,8 | 30,6 | **82,8** | 60,6 | 51,7 | 18,1 |
| Great South | **37,6** | 76,6 | 75,3 | 39,2 | **82,5** | 47,7 | 47,5 | 41,7 |
| **Sample size (in thousand)** | **993** | **1205** | **1105** | **566** | **1078** | **780** | **516** | **772** |

**Source:** Computed by author from the official labour force survey 2003-2007.

# ANNEX II

## **Table 1:** Determinants of job search intensity

| | **Probit ordonnée** | | **Logit ordonné (**odds ratio) | |
|---|---|---|---|---|
| | **Male** | **Female** | **Male** | **Female** |
| **Social network** | | | | |
| Density | -0.0272 | -0.0904* | 0.951 | 0.867* |
| | (0.0244) | (0.0466) | (0.0397) | (0.0694) |
| Density square | 0.000466 | 0.00208* | 1.001 | 1.003 |
| | (0.000612) | (0.00117) | (0.00105) | (0.00201) |
| **Demographic characteristics** | | | | |
| Marital status | | | | |
| Married | -0.104 | -0.243* | 0.845 | 0.639* |
| Other (ref) | (0.0800) | (0.143) | (0.114) | (0.153) |
| Age 25- 34 years | 0.286*** | 0.409*** | 1.655*** | 1.958*** |
| | (0.0520) | (0.0961) | (0.147) | (0.322) |
| Age 35 – 44 years | 0.376*** | 0.447*** | 1.871*** | 2.089*** |
| | (0.0860) | (0.155) | (0.274) | (0.542) |
| **Human capital** (ref university) | | | | |
| Without education | -0.758*** | -0.276 | 0.286*** | 0.608 |
| | (0.145) | (0.385) | (0.0702) | (0.396) |
| Primary | -0.646*** | -0.629*** | 0.335*** | 0.342*** |
| | (0.0936) | (0.187) | (0.0545) | (0.108) |
| Intermediate | -0.535*** | -0.641*** | 0.397*** | 0.335*** |
| | (0.0846) | (0.131) | (0.0588) | (0.0744) |
| Secondary | -0.527*** | -0.553*** | 0.394*** | 0.383*** |
| | (0.0896) | (0.117) | (0.0616) | (0.0761) |
| Vocational training | | | | |
| Yes (ref) | -0.272*** | -0.0390 | 0.625*** | 0.952 |
| No | (0.0565) | (0.0990) | (0.0600) | (0.159) |
| **Experience** | | | | |
| Unemployed who have already worked (ref) | | | | |
| Unemployed who have never worked | 0.0678 | 0.0777 | 1.110 | 1.167 |
| | (0.0482) | (0.0953) | (0.0911) | (0.188) |
| **Household Characteristics** | | | | |
| Children under 5 years in the household | 0.00108 | 0.0175 | 1.006 | 1.020 |
| | (0.0341) | (0.0704) | (0.0582) | (0.120) |
| Number of people 5 – 14 years in the household | -0.0148 | -0.144*** | 0.974 | 0.782*** |
| | (0.0209) | (0.0454) | (0.0342) | (0.0604) |
| Number of people 15 – 64 years in the household | -0.0113 | 0.0568** | 0.983 | 1.112** |
| | (0.0129) | (0.0281) | (0.0214) | (0.0524) |
| Number of people 65 years and more in the household | -0.00762 | -0.0503 | 0.983 | 0.939 |
| | (0.0343) | (0.0664) | (0.0572) | (0.106) |
| Number of unemployed in the household | 0.0427 | -0.0455 | 1.071 | 0.911 |
| | (0.0300) | (0.0601) | (0.0541) | (0.0954) |
| Number of employers in the household | 0.0246 | -0.278 | 1.071 | 0.623 |
| | (0.119) | (0.190) | (0.220) | (0.193) |
| Number of Independents in the household | -0.0202 | -0.0892 | 0.956 | 0.836 |
| | (0.0429) | (0.0852) | (0.0696) | (0.118) |
| Number of employees in public sector | 0.0614* | 0.0436 | 1.097* | 1.067 |
| | (0.0320) | (0.0578) | (0.0597) | (0.105) |
| Number of employees in private sector | -0.0682** | -0.0913 | 0.886** | 0.861 |
| | (0.0343) | (0.0674) | (0.0521) | (0.0972) |
| **Characteristics of area** | | | | |
| **Region (Ref: North)** | | | | |
| Middle | -0.268*** | -0.357** | 0.631*** | 0.545** |
| | (0.0765) | (0.149) | (0.0826) | (0.138) |
| South | -0.701*** | -0.487** | 0.304*** | 0.434** |
| | (0.126) | (0.229) | (0.0662) | (0.172) |
| Great South | -0.452** | -0.157 | 0.446** | 0.795 |
| | (0.204) | (0.380) | (0.156) | (0.511) |
| Unemployment rate at district level | -2.394*** | -1.358** | 0.0187*** | 0.105** |
| | (0.299) | (0.599) | (0.00954) | (0.108) |
| Stratum | | | | |
| Urban (ref) | 0.130** | -0.127 | 1.251** | 0.824 |
| Rural | (0.0629) | (0.129) | (0.134) | (0.184) |
| Informal rate in the district level | -1.307** | -1.649 | 0.110** | 0.0944 |
| | (0.550) | (1.026) | (0.104) | (0.165) |
| Industry Rate in the district level | 2.010*** | -0.0303 | 34.89*** | 1.476 |
| | (0.465) | (0.879) | (27.38) | (2.200) |
| Construction rate in the district level | 1.010*** | -0.183 | 6.087*** | 0.588 |
| | (0.361) | (0.850) | (3.728) | (0.838) |
| Trade rate in the district level | 1.818*** | 1.377** | 24.91*** | 9.082* |
| | (0.380) | (0.678) | (16.37) | (10.50) |
| Services Rates in the district level | 1.874*** | -0.211 | 26.80*** | 0.785 |
| | (0.312) | (0.688) | (14.32) | (0.920) |
| Non-salary rate in the district level | 1.345*** | -0.637 | 10.51*** | 0.335 |
| | (0.389) | (0.862) | (6.953) | (0.492) |
| cut1 | | | | |
| Constant | -0.441 | -2.167*** | 0.525 | 0.0315** |
| | (0.379) | (0.809) | (0.341) | (0.0435) |
| cut2 | | | | |
| Constant | 0.581 | -1.232 | 2.893 | 0.157 |
| | (0.380) | (0.808) | (1.881) | (0.216) |
| cut3 | | | | |
| Constant | 1.535*** | -0.322 | 14.39*** | 0.714 |
| | (0.380) | (0.807) | (9.367) | (0.981) |
| **Sample size** | **2536** | **739** | **2536** | **739** |

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

**Source:** Computed by author from the official labour force survey 2007.

# ANNEX III

## **Table 1:** Determinants of job search intensity

| | Male<br>Nbreg | P>\|z\| | % | Female<br>nbreg | P>\|z\| | % |
|---|---|---|---|---|---|---|
| **Social network** | | | | | | |
| Density | -0.00971 | 0.497 | [-1] | -0.0269 | 0.291 | [-2.7] |
| | (0.0143) | | | (0.0254) | | |
| Density square | 0.000169 | 0.637 | [0] | 0.000621 | 0.330 | [0.1] |
| | (0.000358) | | | (0.000637) | | |
| **Demographic characteristics** | | | | | | |
| Marital status | | | | | | |
| Married | -0.0370 | 0.436 | [-3.6] | -0.0784 | 0.329 | [-7.5] |
| Others (ref) | (0.0474) | | | (0.0802) | | |
| Age 25- 34 years | 0.102*** | 0.001 | [10.8] | 0.129** | 0.016 | [13.8] |
| | (0.0309) | | | (0.0534) | | |
| Age 35 – 44 years | 0.135*** | 0.007 | [14.5] | 0.152* | 0.082 | [16.4] |
| | (0.0505) | | | (0.0875) | | |
| **Human Capital (Ref: University)** | | | | | | |
| Without instruction | -0.248*** | 0.005 | [-22] | -0.0840 | 0.704 | [-8.1] |
| | (0.0880) | | | (0.221) | | |
| Primary | -0.201*** | 0.000 | [-18.2] | -0.210* | 0.061 | [-18.9] |
| | (0.0522) | | | (0.112) | | |
| Intermediate | -0.157*** | 0.001 | [-14.5] | -0.207*** | 0.006 | [-18.7] |
| | (0.0458) | | | (0.0748) | | |
| Secondary | -0.155*** | 0.001 | [-14.4] | -0.172*** | 0.007 | [-15.8] |
| | (0.0487) | | | (0.0644) | | |
| Vocational training | | | | | | |
| Yes (ref) | -0.0942*** | 0.004 | [-9] | -0.0167 | 0.764 | [-1.7] |
| No | (0.0326) | | | (0.0557) | | |
| **Experience** | | | | | | |
| Unemployed who have already worked (ref) | | | | | | |
| Unemployed who have never worked | 0.0241 | 0.402 | [2.4] | 0.0246 | 0.642 | [2.5] |
| | (0.0287) | | | (0.0530) | | |
| **Household Characteristics** | | | | | | |
| Children under 5 years in the household | -0.000353 | 0.986 | [-0] | 0.00657 | 0.867 | [0.7] |
| | (0.0205) | | | (0.0392) | | |
| Number of people 5 – 14 years in the household | -0.00701 | 0.582 | [-0.7] | -0.0534** | 0.046 | [-5.2] |
| | (0.0127) | | | (0.0268) | | |
| Number of people 15 – 64 years in the household | -0.00338 | 0.662 | [-0.3] | 0.0172 | 0.261 | [1.7] |
| | (0.00773) | | | (0.0154) | | |
| Number of people 65 years and more in the household | -0.00419 | 0.836 | [-0.4] | -0.0130 | 0.725 | [-1.3] |
| | (0.0202) | | | (0.0369) | | |
| Number of unemployed in the household | 0.0149 | 0.403 | [1.5] | -0.0116 | 0.729 | [-1.2] |
| | (0.0179) | | | (0.0335) | | |
| Number of employers in the household | 0.0148 | 0.830 | [1.5] | -0.0842 | 0.441 | [-8.1] |
| | (0.0688) | | | (0.109) | | |
| Number of Independents in the household | -0.00702 | 0.783 | [-0.7] | -0.0224 | 0.639 | [-2.2] |
| | (0.0256) | | | (0.0478) | | |
| Number of employees in public sector | 0.0199 | 0.286 | [2] | 0.0109 | 0.727 | [1.1] |
| | (0.0186) | | | (0.0313) | | |
| Number of employees in private sector | -0.0239 | 0.248 | [-2.4] | -0.0288 | 0.447 | [-2.8] |
| | (0.0207) | | | (0.0379) | | |
| **Characteristics of area** | | | | | | |
| **Region (Ref: North)** | | | | | | |
| Middle | -0.0904** | 0.042 | [-8.6] | -0.102 | 0.207 | [-9.7] |
| | (0.0445) | | | (0.0804) | | |
| South | -0.248*** | 0.001 | [-22] | -0.170 | 0.186 | [-15.6] |
| | (0.0753) | | | (0.128) | | |
| Great South | -0.152 | 0.230 | [-14.1] | -0.0246 | 0.912 | [-2.4] |
| | (0.126) | | | (0.223) | | |
| Unemployment rate at district level | -0.850*** | 0.000 | [-57.2] | -0.401 | 0.239 | [-33] |
| | (0.180) | | | (0.340) | | |
| Stratum | | | | | | |
| Urban (ref) | 0.0388 | 0.295 | [4] | -0.0374 | 0.597 | [-3.7] |
| Rural | (0.0371) | | | (0.0708) | | |
| Informal rate in the district level | -0.459 | 0.156 | [-36.8] | -0.457 | 0.417 | [-36.7] |
| | (0.324) | | | (0.563) | | |
| Industry Rate in the district level | 0.714*** | 0.009 | [104.2] | -0.0438 | 0.926 | [-4.3] |
| | (0.274) | | | (0.471) | | |
| Construction rate in the district level | 0.345 | 0.122 | [41.2] | -0.0380 | 0.934 | [-3.7] |
| | (0.223) | | | (0.462) | | |
| Trade rate in the district level | 0.613*** | 0.005 | [84.6] | 0.420 | 0.256 | [52.2] |
| | (0.221) | | | (0.370) | | |
| Services Rates in the district level | 0.636*** | 0.001 | [89] | -0.0236 | 0.948 | [-2.3] |
| | (0.188) | | | (0.364) | | |
| Non-salary rate in the district level | 0.434* | 0.065 | [54.3] | -0.222 | 0.637 | [-19.9] |
| | (0.235) | | | (0.471) | | |
| Lnalpha | -32.45 | | | -34.26 | | |
| | (0) | | | (0) | | |
| Constant | 0.714*** | | | 1.275*** | | |
| | (0.228) | | | (0.433) | | |
| **Sample size** | **2536** | **2536** | **2536** | **739** | **739** | **739** |

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

**Source:** Computed by author from the official labour force survey 2007.