

Trends and Determinants of Job Search Intensity of Unemployed Females: Empirical Evidence from Egypt

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Abstract *The present study examines trends in unemployed females' job search intensity in Egypt in an important era of transition away from public sector employment guarantee. It examines determinants of job search intensity of unemployed females, modeling search intensity as the total number of job search methods used by the unemployed. The empirical analysis is based on the Egyptian Labor Market Surveys of 1998 and 2006. A comparative descriptive approach is used to analyze the difference between males' and females' search intensity. The study uses logistic regression analysis to examine the determinants of unemployed females' search intensity. Empirical findings suggest that the unemployed tend to search more intensively. However, this increase hides gender differences in search intensity. The gender gap in search intensity widened between 1998 and 2006. This gap is wider among youth than among all unemployed workers. Examining determinants of females' search intensity reveals a significant effect of personal, household characteristics and labor market conditions. The relationship between age and search intensity is inverted U-shaped. Education, previous work experience, and household wealth have significant positive effects on search intensity. Females in labor markets where the unemployment rate is higher search more intensively.*

Keywords: *labor economics; job search; search intensity; gender; Egypt.*

1. Introduction

Job search intensity plays an influential role in determining the job seeker's future status in the labor market. In the market economy where job seekers can not depend on the public sector to provide work, the job seeker should be more active in job search and use multiple search methods rather than rely on a single method strategy. Raising job search intensity seems to be more important for females. The economic theory suggests that there is lot of possible explanations for the gender gap in unemployment rates. On the supply side, one of the main explanations is that females have lower job search intensity.

In Egypt, the unemployment rate for females is 2.5 times the unemployment rate for males. Females are more likely to suffer unemployment. The situation is much worse for youth females; the unemployment rate for females aged 15 and 29 is 40.2% (CAPMAS*, 2008). Females, especially educated females have been depending for decades on the public sector employment guarantee. This is now not possible due to the transition to a market-oriented economy. It is therefore more important to raise females' job search intensity if unemployment in Egypt is not to become more concentrated among them.

However, there is insufficient empirical information on job search behavior in Egypt. Different studies on job search have emerged in the last two decades. The majority of these studies analyzed job search behavior in developed countries (Holzer, 1988; Blau and Robins, 1990; Gregg and Wadsworth,

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1996; Böheim and Taylor, 2002; Osberg, 1993; Weber and Mahringer, 2006; Lindeboom, Van Ours & Renes, 1994; Eriksson, Lilja & Torp, 2002). Fewer studies analyzed job search behavior in developing countries and in economies in transition (Addison and Portugal, 2001; Woltermann, 2002; Masague, 2008). For CEECs*, search literature focuses on the effect of the unemployment benefits system on search duration (Lubyova and Van Ours, 1997; Hinnosaar, 2004; Smirnova, 2003). Nevertheless, there is little work in the Egyptian literature that explicitly analyzes job search behavior. Wahba and Zenou (2005) examined the impact of the size and the quality of social networks on the probability to find a job in Egypt using the 1998 Labor Market Survey.

This study responds to the gap in the empirical literature with respect to the in-depth study of females' job search behavior in Egypt. It aims to examine trends in unemployed females' job search intensity in an important era of transition. Moreover, it examines determinants of job search intensity of unemployed females.

The paper is divided into six parts. Section 1 is the introduction. Section 2 presents a literature review on job search intensity. Section 3 describes data and methodology. Section 4 traces changes in females' search intensity and the gender gap in search intensity in the Egyptian labor market. In section 5 determinants of females' search intensity are examined. Section 6 concludes.

2. Literature Review

Labor economics place great emphasis on job search as a vital activity in the labor market. The main purpose of this activity is to obtain employment while information about employment opportunities is imperfect and costly to acquire (Smith, 2003; McQuaid et al., 2005; Rones, 1983; Zaretsky and Coughlin, 1995; Marquez & Ruiz-Tagle, 2004). However, doing a job search is not enough; success in a job search depends on “the intensity with which the worker searches for a job” (Smirnova, 2003, p. 8).

2.1 Job Search Intensity, Concept and Measures

The decision how intensively to search is the job search intensity. The literature presents many alternatives to measure job search intensity. Most studies have measured job search intensity using the number of job search methods used (Boheim & Taylor, 2002; Smith, 2003; Smirnova, 2003; Masagué, 2008; Salas-Velasco, 2007). Other measures used include the number of job applications made during the reference period (Gautier, González & Wolthoff, 2007) and time spent in job search (Krueger & Mueller, 2008).

2.2 Job Search Intensity and Labor Market Outcomes

Job search behavior significantly affects job seeker's labor market outcomes in terms of employability, job quality, and returns. One of the main employability factors that are generally identified in literature factors is the intensity of job seekers' search (McQuaid, 2006; Kanfer, Wanberg & Kantrowitz, 2001, Van Hooft, Born, Taris & Filer, 2005). The positive relationship between job search intensity and the probability of receiving and accepting a job offer is a common finding in both theoretical and applied literature.

$$p_o = p_o(d, s)$$

Where p_o is the job offer probability, d is the level of demand in the labor market demand and s is the intensity of search activity undertaken by the job seeker, “ p_o is increasing in both d and s ” (Eriksson et al., 2002, p. 6).

The effect of search intensity on employability has been found to be positive and statistically significant (Barron & Gilley, 1981; Holzer, 1988; Marquez & Ruiz-Tagle, 2004; McQuaid, 2006; Boheim & Taylor, 2002; Smith, 2003; Addison & Portugal, 2001; Hinnosaar, 2004; Van Hooft et al., 2005; Salas-Velasco, 2007). This positive effect was more pronounced among the most vulnerable in the labor market, such as new entrants and job losers (Kanfer et al., 2001; Van Hooft et al., 2005).

Moreover, several studies indicated that job search intensity positively affects employment quality, because a more intense job search is likely to result in more job opportunities and more information on these opportunities allowing the job seeker to choose the best alternative (Saks & Ashforth, 2002; Van Hooft et al., 2005; Tasci, 2008).

* Central and Eastern European Countries.

Labor market search models imply that the more intensively a job seeker searches for a new job, the higher is his potential labor income. The positive relationship stems from the matching process; if the job search intensity is higher, the job seeker gets more job offers, which increases the probability of finding a job which is a good match to his labor market skills. Thus, persons who search more intensively will be more productive at their future jobs and earn higher salaries (Room, 2004; Bowen & Doyle, 2004; Boheim & Taylor, 2002).

In addition, more intensive job search results in lower unemployment duration. The duration of unemployment was found to negatively affect job seekers' future returns. It has been found that unemployment results in earnings some 10% lower than pre-unemployment earnings (Arulampalam, as cited in Boheim & Taylor, 2002). Thus, higher job search intensity is necessary for the unemployed so as to avoid earnings reductions through shortening unemployment duration.

2.3 Gender Gap in Job Search Intensity

The economic theory suggests that there is lot of possible explanations for gender gaps in the labor market. On the supply side, one of the main explanations is that females have lower job search intensity (Masagué, 2008).

Evidence gathered from empirical literature suggests that females have significantly lower search intensity than males (Tasci, 2008; Smirnova, 2003; Eriksson et al., 2002; Room, 2004). They use fewer search methods. However, some empirical literature suggests that the gender difference in search intensity do exist but is small (Van Hoof et al., 2005). There are different hypotheses explaining gender gaps in job search. These hypotheses may be divided into three main groups.

2.3.1 Social Roles Hypotheses

The household responsibility hypothesis (McQuaid, 2006) argues that given traditional family arrangements, females have more domestic responsibilities than males. This, in turn, results in having less time than males to search. The labor supply theory (Smirnova, 2003) suggests that female job search intensity might be disproportionately affected by the presence of young children. In addition, as females have more alternatives to devote their time to than men; they have an option that is largely unavailable to males, that is to be inactive, having zero search intensity (Kondylis & Manacorda, 2006).

2.3.2 Differences in Job Search Costs Hypotheses

Job search costs are argued to be higher for females. Females face more difficulties in job search. While it is easier for males to find a job through their social networks, females have fewer work contacts in their social networks. Thus, females find it more costly to get information about opportunities in the labor market and to get a job (McDonald & Elder, 2006). On the other hand, it is argued that as females have a larger share of household work including taking care of children, ill and disabled persons in the household, they have a higher opportunity cost of search than males (Room, 2004).

2.3.3 Differences in Job Search Benefits Hypotheses

One of the main determinants of job search activity is search benefits in terms of job finding prospects and expected returns which are lower for females than for males (Room, 2004). Females anticipate discriminatory treatment in the labor market.

2.4 Socio-Economic Determinants of Job Search Intensity

Apart from a number of rather descriptive analyses of job seekers' use of different channels of search, relatively few empirical studies attempt to explain differences in individuals' search effort. Few studies were conducted to analyze main determinants of job search intensity in developing countries, none in Egypt. The main determinants of job search intensity may be classified in three main groups; personal, household characteristics, and labor market conditions.

2.4.1 Personal Characteristics

The main personal characteristics that were found to have significant impact on job search intensity include age, education, unemployment duration and previous work experience.

Different empirical literature has shown that youth are usually more active in job search. The study of search behavior in three Nordic countries (Eriksson et al., 2002) shows that there is evidence that elderly workers are less likely to search and when they do, they use fewer methods. However, in Turkey, it was observed that there was an inverted U-shaped relation between age and job search intensity (Tasci, 2008).

The theoretical and empirical literature emphasizes the positive significant effect of education on job search. Higher education levels are expected to result in more intensive job search. Theory hypothesizes that the higher the educational attainment, the higher is the individual's expected lifetime earnings and thus the higher is the motivation to search for a job (Smirnova, 2003). The positive effect of education on job search intensity has been found to be more significant among females than among males (Van Hooft et al., 2005; Tasci, 2008).

The results about the effect of unemployment duration on job search are mixed (Hinnosaar, 2004; Masagué, 2008; Konle-Seidl, Eichhorst & Zingerle, 2007; Marquez & Ruiz-Tagle, 2004; Eriksson et al., 2002). It differs from one labor market to another. It may have a negative effect, leading unemployed job seekers to decrease their search intensity because of discouragement. Moreover, the longer the unemployment duration, the more difficult for the job seeker to find a job as employers take the duration of the unemployment as a negative signal about the unemployed job seeker's human capital and qualifications. On the contrary, the longer unemployment duration of job seekers may result in more intense search if the job seeker relies on receiving unemployment benefits for which his/her eligibility ends after a certain period of time.

2.4.2 Household Characteristics

Bigger households and a large number of children imply a high dependency ratio and thus put more pressure to search for work. However, the effect of the presence of children has been found to differ significantly between males and females. In the case of males, it raises job search intensity to support those children. In contrast, the presence of children has been found to reduce females' search intensity (Masagué, 2008). The marital status variable has been found to have a significant negative effect on females' job search (Bowen & Doyle, 2004).

Both search theory and empirical literature suggests that urban residents are more likely to search more intensively than rural residents. This difference reflects differences in search costs and benefits. On one hand, job search is more likely to pay off in urban areas, as there are more developed labor markets in which it is more likely that there are a lot of good high return jobs that are worth searching for, more than in rural areas. On the other hand, costs of search are lower in urban labor markets due to the high density of employers and lower transportation costs (Smirnova, 2003; Tasci, 2008).

2.4.3 Labor Market Conditions

Job search intensity has been found to be inversely related to the unemployment rate. It is lower in labor markets with very high unemployment rate and few job opportunities available which discourage the unemployed (Salas-Velasco, 2007; Hinnosaar, 2004; Marquez & Ruiz-Tagle, 2004; Boheim & Taylor, 2002; Barron & Gilley, 1981; Bowen & Doyle, 2004). However, one empirical study in Turkey found that increases in unemployment rate increase job search intensity (Tasci, 2008).

3. Data and Methodology

The empirical analysis is based on two data sets; the Egypt Labor Market Survey of 1998 (ELMS 98) and the Egypt Labor Market Panel Survey of 2006 (ELMPS 06). Both the ELMS 98 and the ELMPS 06 are nationally representative household surveys. They were carried out by the Economic Research Forum (ERF) in cooperation with the Egyptian Central Agency for Public Mobilization and Statistics

(CAPMAS)¹.

The questionnaires for the two surveys were designed to ensure comparability of the data over time. The two surveys collected information on individual characteristics, employment characteristics and unemployment. The two surveys provide information on job search activity of unemployed workers.

A comparative descriptive approach is used to analyze differences between males' and females' job search intensity in the Egyptian labor market in 1998 and 2006.

The effects of personal characteristics, household characteristics and labor market conditions on females' job search intensity are examined using ordinal logistic regression.

4. Unemployed Females' Job Search Intensity in Egypt

Job search intensity (N) is measured as the total number of job search methods used by the unemployed worker, following different empirical job search literature (Holzer, 1988; Smirnova, 2003; Masagué, 2008; Salas-Velasco, 2007; Brown & Taylor, 2008). Most empirical studies have measured job search intensity as the number of job search methods used. In addition, the two surveys used here provide data on the number of search methods used, while they do not provide data on number of job applications made during the reference period nor on time spent in job search.

Therefore, job search (N) intensity is measured as follows:

$$N = d_1 + d_2 + \dots + d_{14} \dots (1)$$

Where: d_i is propensity to use job search method i , $i=1\dots14$, d_i equals 1 if this method is used and zero otherwise.

4.1 Gender Gap in Job Search Intensity (1998-2006)

Table (1) shows job search intensity among job searchers, for both males and females. It shows job search intensity for all males and females and for youth males and females.

Table 1. Job Search Intensity (N) 1998-2006

	1998	2006	2006/1998
Males 15+	2.8671	4.1138	1.43
Females 15+	2.3385	3.4173	1.46
Male/female relative gap	1.23	1.20	(-)
Total 15+	2.5839	3.7066	1.43
Males 15-29	2.7914	4.1337	1.48
Females 15-29	2.3084	3.3601	1.46
Male/female relative gap	1.21	1.23	(+)
Total 15-29	2.5271	3.6828	1.46

Notes: Differences between males and females, and also between 1998 and 2006 are statistically significant $p < 0.01$.

Between 1998 and 2006, search intensity increased. Unemployed job searchers whether males or females, youth unemployed or all the unemployed workers, tend to exert more efforts in job search. Search intensity increased at a higher rate among unemployed youth than among all unemployed workers.

While search intensity for job searchers in 1998 ranges from one method to nine methods, the maximum job search intensity value increased in 2006 by 33.3% to 12 methods. This is due to the transformation in the Egyptian labor market which forces job seekers to depend on themselves in getting jobs rather than depending on the public sector employment guarantee. Unemployed workers are forced now to use more job search methods to find work. The unemployed worker searches now more intensively to get a job. However, this increase hides gender differences in search intensity. Unemployed males search more intensively than unemployed females in both 1998 and 2006. When unemployed males and unemployed females search for jobs, unemployed females are obviously less active in their search

¹ For more details about the two surveys, refer to Assaad (2007).

than males. The gender gap in search intensity is wider among youth. Youth females are the least active in job search; they have the lowest job search intensity. In contrast to males, youth females are less active than all unemployed females. Youth females' search intensity is lower than females' average search intensity.

Between 1998 and 2006, the gender gap in search intensity decreased slightly among all unemployed workers. However, it increased slightly among unemployed youth.

Table (2) reports job search intensity for both unemployed males and females, excluding registering at public employment office from job search methods used ($N_{non-reg}$).

Table 2. Job Search Intensity ($N_{non-reg}$) -1998-2006

	1998	2006	2006/1998
Males 15+	2.5885	3.5799	1.38
Females 15+	1.9105	2.7690	1.45
Male/female relative gap	1.35	1.29	(-)
Total 15+	2.2252	3.1058	1.40
Males 15-29	2.5201	3.5830	1.42
Females 15-29	1.9100	2.7332	1.43
Male/female relative gap	1.32	1.31	(-)
Total 15-29	2.1862	3.0877	1.41

Notes: Differences between males and females, and also between 1998 and 2006 are statistically significant $p < 0.01$.

Data in table (2) shows that female unemployed job searchers do obviously a less active search compared with male unemployed job searchers if registering at public employment office is excluded from search methods used. Job search intensity excluding registering at public employment office tended to increase at a relatively lower rate than job search intensity without excluding registering at public employment office. It increased among both males and females and among youth males and females.

However, unemployed males are still more likely to search more intensively for work than unemployed females. The gender gap in search intensity widens when registering at public employment office is excluded from search methods used. This gap is wider among unemployed youth than among all unemployed workers in 2006. While the rate of increase in search intensity was higher among youth males than among all males, it was lower among youth females than among all females.

Depending on search intensity excluding registering at public employment office from search methods used, the same conclusion is reached. Females are less active than males in job search, youth females are the least active job searchers.

4.2. Socio-Economic Characteristics and Differences in Unemployed Females' Job Search Intensity (1998-2006)

The literature review shows that the main socio-economic characteristics that affect job search intensity may be classified into three groups; personal characteristics, household characteristics, and labor market conditions.

4.2.1 Personal Characteristics

Table 3. Personal Characteristics and Differences in Unemployed Females' Job Search Intensity 2006

A. Age, Education, and Unemployment Duration

Age	N	Education	N	Unemployment duration	N
12-14	0.00	No School Certificate	0.60	1	1.90
15-19	1.82	Basic Education	1.52	2	2.55
20-29	2.96	Secondary Education	2.77	3	3

Age	N	Education	N	Unemployment duration	N
30-39	3.24	Post Secondary Education and Above	3.13	4	3.22
40-49	2.69			5	3.42
50-59	0.00				

B. Previous Work Experience

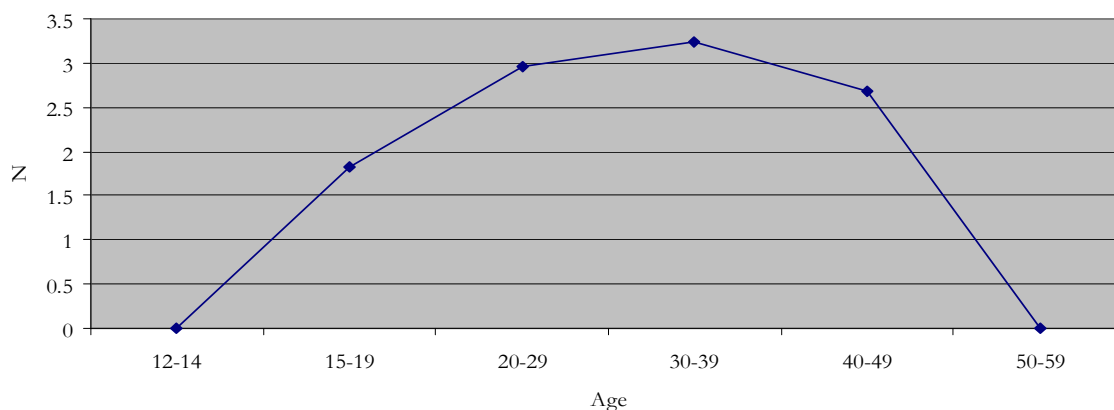
Existence of previous work experience	N	Length of work experience	N	Type of work experience (Formal/Informal)	N
Worked Before	3.2	1	3.3	With Contract	2.6
		2	2.9		
Did Not Work Before	2.8	3	2.9	Without Contract	2.4
		4	0.445		
		5	0.000		

Notes: Differences between different groups are statistically significant $p < 0.01$.

Table (3) illustrates differences in unemployed females' search intensity by age, education, unemployment duration and previous work experience.

There is an inverted U-shaped relation between age and females' job search intensity (figure 1). Up until age 40, unemployed females' search intensity increases with age. After that, unemployed females become less active as they get older. Unemployed females (50+) are not active in job search.

Figure 1. Age and unemployed females' job search intensity



Analyzing differences in unemployed females' search intensity by educational level reveals that more educated unemployed females are more active job searchers than less educated unemployed females. Unemployed females' search intensity is higher, the higher the educational attainment. On one hand, more educated females have higher incentive to find work; they have better labor market opportunities. Thus, job search is expected to pay more educated females off more than less educated females. The expected returns of more educated females are higher; earnings of females (15+) with post secondary education and above are 3.5, 28.2, 68.4 times higher than earnings of females with secondary education, basic education and no school certificate respectively². On the other hand, more educated females are more able to do job search using a variety of methods.

With respect to unemployment duration, it is found that longer unemployment duration puts more pressure on unemployed workers to search more intensively. According to the unemployment duration (measured in months), unemployed females are classified in five quintiles. Those in the first quintile have been unemployed for ten months or less, while those in the fifth quintile have been unemployed for more than 96 months (8 years). The longer the unemployment duration, the higher is the job search intensity.

² Author's calculations from the Egypt Labor Market Panel Survey 2006.

Table (3b) illustrates differences in job search intensity of unemployed females with different characteristics of previous work experience. These characteristics include existence of previous work experience, length of work experience and type of previous work experience; formal or informal. Unemployed females with previous work experience are significantly more active in job search than female new entrants. The length of work experience (L) is measured as follows:

$$L = 2006 - \text{year of entering the labor market} \dots (2)$$

According to the length of work experience, females are grouped into 5 quintiles. The length of experience is less than 7 years for the first quintile; it ranges from 8-13 years for second quintile; 14-22 years for third quintile; 23-36 years for fourth quintile and 37+ years for fifth quintile. Comparing search intensity across these five quintiles, it is found that the higher the length of work experience, the less intensive is job search. This is more obvious for the fourth and fifth quintiles (23+ years). Unemployed females who previously were working informally search more intensively than those who previously were working formally. The first group belongs usually to poor households. Unemployment is unaffordable to them, especially as they are not covered by the social security system. It is worth mentioning that even in the new social insurance law 135/2010 that has recently been approved, the self employed, casual and informal workers are excluded according to article 47 from the benefits of the unemployment insurance.

4.2.2 Household Characteristics

Household characteristics that affect job search intensity include household economic conditions; dependency ratio; marital status; and presence of children.

Table 4. Household Characteristics and Differences in Unemployed Females' Job Search Intensity 2006

Wealth quintiles	N	Dependency ratio	N	Presence of Children*	N	Marital Status and Presence of Children*	N
1	2.2	High	3	No children (in HH)	2.8	Not married, no children	2.8
2	2.5					Married, no children	2.9
3	2.9					Not married, with children	3.3
4	3	Low	2.6	Children (in HH)	2.9	Married with children	2.2
5	3.2						

Notes: Differences between different groups are statistically significant $p < 0.01$.

* Questions about presence of children in the household are asked only to all ever-married females between 16 and 49 years old.

Table (4) reports the difference in unemployed females' job search intensity by household economic conditions. The wealth index is a composite index constructed of several indicators to measure the household economic status. The individuals surveyed were grouped into five quintiles according to the wealth index. It is found that the higher the household economic status, the higher is unemployed females' job search intensity.

However, comparing reasons for not being active among unemployed females in the lowest two quintiles with reasons for not being active among the highest three quintiles may explain part of this difference. Expecting that there are no jobs is the main reason. It is more important among the lowest two quintiles; 58% and 42% of unemployed females in the lowest two quintiles respectively. This is simply because they are less educated; thus they do not expect to find jobs easily. Low level of education is the main reason for 2.7% of unemployed females in the lowest two quintiles compared with 1.5% of unemployed females in the highest three quintiles. Besides, due to their low level of education, they are more likely to work at jobs for which males are preferred. In addition, they are more likely to work inside the household and not to be allowed to work outside the household.

Households surveyed were divided into two main groups according to the dependency ratio. The first group has a dependency ratio greater than the average dependency ratio for all households surveyed; the second has a dependency ratio lower than average household dependency ratio. Comparing females'

search intensity between the two groups shows that unemployed females living in households where the dependency ratio is higher search more intensively as high dependency ratio puts more pressure on them.

Unemployed females with children have generally less job search propensity than those who do not have children in the household; 0.85 vis-à-vis 0.88³. However, while unemployed females who have children in the household are less likely than unemployed females with no children in the household to search for jobs, when they search for jobs, they search more intensively. When they search for jobs, they are usually under stronger economic pressure than those with no children, thus they search more intensively. This is obvious comparing search intensity among females according to both their marital status and presence of children. Females are classified into four groups according to both marital status and presence of children in the household (table 4). Evaluating differences in search intensity between these four groups, it is found that females who are not married and have children in the household are the most active in job search, followed by married females with no children. The first group needs to work to support their children while the second has no children to take care of and have enough time to search for work. The other two groups are less active in job search. Married women with children have other responsibilities which are time consuming and their husbands traditionally are expected to work and support their own families. The other group; females who are unmarried with no children, are usually supported by their families.

4.2.3 Labor Market Conditions

Table 5. Labor Market Conditions and Differences in Unemployed Females' Job Search Intensity 2006

Unemployment Rate	N	Region	N
lower than average	2.76	Greater Cairo	2.4
		Alex and Suez Canal	4.6
		Urban Lower Egypt	3.3
higher than average	2.9	Urban Upper Egypt	2.5
		Rural Lower Egypt	2.8
		Rural Upper Egypt	2.2

Notes: Differences between different groups are statistically significant $p < 0.01$.

The surveyed individuals are divided into two groups according to labor market conditions. The first group lives in areas where the unemployment rate is lower than average unemployment rate in Egypt, and the other group lives in areas where unemployment rate is higher than average unemployment rate. Females living in areas where unemployment rate is higher than the national average rate are more active in job search than those living in areas, where unemployment rate is lower than the national average rate. Comparing females' search intensity by region, we reach the same conclusion that the higher the unemployment rate; the higher is the job search intensity. Unemployed females in regions with highest overall unemployment rate and female unemployment rate; Alex and Suez Canal, Urban Lower Egypt in urban areas, Rural Lower Egypt in rural areas⁴, have the highest search intensity.

5. Determinants of Unemployed Females' Job Search Intensity in Egypt

5.1 Economic Model to Estimate Determinants of Unemployed Females' Job Search Intensity

The model used here to estimate determinants of unemployed females' job search intensity in Egypt follows the methodology adopted in job search literature (Eriksson et al., 2002; Boheim & Taylor, 2002; Smirnova, 2003).

The job search intensity decision; deciding how intensively to search, is described as follows:

$$N_{it} = N(P_{it}, H_{it}, L_{it}) \dots (3)$$

$$N_{it} = \alpha_0 + \alpha_1 P_{it} + \alpha_2 H_{it} + \alpha_3 L_{it} + \alpha_{it} \dots (4)$$

³ Author's calculations from the Egypt Labor Market Panel Survey 2006, where job search propensity is measured as the percentage of the unemployed who did a job search using any method.

⁴ Overall unemployment rates are: 10.2%, 13.1% and 9.3%, female unemployment rates are: 19.1%, 31.1%, and 25.6% respectively (Assaad 2009).

N_{it} is job search intensity of the i^{th} individual. It is an ordinal qualitative variable. P_{it} is a set of personal characteristics, H_{it} is a set of characteristics of individual's household, and L_{it} is labor market conditions.

P_{it} is a vector of personal characteristics that include age, education, and existence of previous work experience. H_{it} is a vector of individual's household characteristics that include economic status measured by the wealth index, household size, dependency ratio, being head of the household, and marital status. L_{it} is a vector of labor market characteristics that differ by region.

However, in the ELMPS06, questions related to job search are asked only to unemployed individuals. Thus, there is a sample selection problem. Since the estimations based only on unemployment criterion, i.e. ignoring the selection bias, may lead to biased and inconsistent results, there is a need to tackle this problem. The most common approach used in the literature to solve this issue is Heckman's (1979) two-step procedure, in which, we jointly model selection into the sample, i.e. unemployment, and the final outcome, i.e. job-search intensity. Hence, the effects of individual characteristics, household characteristics and labor market conditions on job search intensity are estimated by employing selectivity corrected logistic model.

There are two stages in this approach. In the first stage of the model we estimate the unemployment choice of the survey respondents, where the independent variable is "unemployed"; it is a dummy variable taking the value of 1 if the respondent is unemployed, and zero otherwise. In the second stage, the determinants of job search intensity are estimated. This approach follows the methodology of other job search literature (Eriksson et al., 2002; Tasci, 2008).

The Heckman model requires that the selection equation; unemployment choice equation here, "contains at least one variable that is not related to the dependent variable in the substantial equation" (Smits, 2003, p. 4); the job search intensity equation here. This variable affects unemployment but does not directly affect the outcome studied; which is job search intensity, except through its effect on unemployment.

Macroeconomic conditions as shown in different literature significantly affect unemployment (Tasci, 2008; Tansel, 2002; Baker, Glyn, Howell & Schmitt, 2004; Berument, Dogan & Tansel, 2006). Economic development measured by GDP per capita in the province/state level have been used as a determinant of the probability of being unemployed as shown in different economic literature (Tasci, 2008; Tansel 2002; Berument et al., 2006). Focusing on females, a higher per capita GDP is generally accompanied by a higher female participation and employment rates (Perugini & Signorelli, 2007).

5.2 Results and Discussion

As N_{it} is an ordinal qualitative variable; higher values of N_{it} are associated with higher search intensity; equation (4) is estimated using ordinal logistic regression.

Table (6) shows the results of ordinal logistic regression. The likelihood ratio chi-square shows that the overall model fit is good. All coefficient estimates are significant at the 1% level, except for living in Greater Cairo.

With respect to personal characteristics, the results assert again that females (15-39) are the most active in job search. The parameter estimates for females younger than 40 is positive, except for those younger than 15. Again, the relationship between age and job search intensity is inverted U-shaped. The odds ratio for females (30-39) is higher than females (15-29). This raises concerns about youth females' future labor market prospects. Females' education positively affects job search intensity. Unemployed females who have completed at least secondary education tend to search for work more intensively than unemployed females without such education. Unemployed females with previous work experience search more intensively than those with no work experience. Those who have worked before need to find jobs more than others, so as to compensate for the decrease in their incomes to keep their incomes and their standard of living from deteriorating. They have more incentive to find work. In addition, they usually are well informed about the labor market and search methods.

Household characteristics significantly affect job search intensity. Unemployed females from wealthier households do a more intensive job search. They are usually more educated and have higher aspirations. Although females in larger households are less likely to search for work due to their domestic responsibilities, when they search they tend to search intensively. When they search, they are usually under more economic pressures. Thus, higher independency ratio and being married also result in more intensive job search. Females who are heads of their households have lower job search intensity.

With respect to labor market characteristics that differ by region; it is found that females in labor markets where the unemployment rate is higher have to search more intensively to find work.

Table 6. *Determinants of Unemployed Females' Job Search Intensity (N)*
(Ordinal logistic estimation, probabilities modeled are of higher search intensity)

Explanatory Variable	N		
	Estimate (B)	S.E.	Odds Ratio
Age (reference category: 40+)			
Age (1) <15	-24.9	0.000	1.5E-11
Age (2) 15-29	0.513	0.013	1.67
Age (3) 30-39	0.837	0.014	2.31
Education (reference category: secondary and above)			
Educational Level: below secondary	-0.06	0.012	0.94
Ever Worked Before (reference category: never worked before)	0.286	0.006	1.33
Wealth	0.178	0.002	1.19
Household Size	0.02	0.001	1.02
1/dependency ratio	-1.31	0.011	0.27
Head (reference category: head)			
Not head	0.480	0.008	1.6
Region: Reference Category (Rural Upper Egypt)			
Region (1)-Greater Cairo	0.001*	0.006	1.001
Region (2) – Alex. and Suez Canal	1.91	0.008	6.8
Region (3) – Urban Lower Egypt	0.60	0.006	1.82
Region (4) –Urban Upper Egypt	0.02	0.007	1.02
Region (5) – Rural Lower Egypt	0.4	0.005	1.49
Marriage (reference category: married)			
Not married	-0.360	0.004	0.698
Selection term	-0.938	0.005	0.39
N	725		
Likelihood Ratio Chi-square	209558.1		
DF	16		
Pr>Chi-square	<0.0001		

Notes: All estimates are significant at the 1% significance level, except for *.

6. Conclusion

Job search is a vital activity in the labor market. It is more important now than ever to raise females' job search intensity if unemployment in Egypt is not to become more concentrated among females. However, there is insufficient empirical information on job search behavior in Egypt. This study evaluates the gender gap in search intensity in the Egyptian labor market, and the changes in this gap between 1998 and 2006, to examine what effect the transition towards a market-oriented economy away from the public sector employment guarantee is having on females' job search intensity, and examines determinants of unemployed females' search intensity.

The results show that between 1998 and 2006, the unemployed tended to search more intensively. However, this increase hides a gender gap. Females search less intensively than males in both 1998 and 2006. Moreover, the gender gap is wider and tends to increase among unemployed youth than among all unemployed workers. This gap is even wider excluding registering at public employment office from job search methods used. Females are not only less active in job search, but they are also still more dependent on the government to find work. Youth females are the least active in job search. This is due to the transformation of the Egyptian labor market which results in lack of job opportunities in the public sector, where females especially educated females used for decades to find what they consider relatively good quality jobs. This raises concerns about females' labor market prospects and increases the need to focus on increasing females' search intensity. Raising job quality in the private sector, ensuring enforcement of the labor law, forcing contracts and strong supervision is needed to make females, especially youth females, more optimistic about private sector jobs and hence to search more intensively outside the public sector.

There is an urgent need to support females' job search through providing more information on job search methods, other than registering at public employment office. Providing such support through

schools and colleges might be helpful for educated females.

Examining determinants of females' search intensity reveals significant effects of personal, household characteristics and labor market conditions. There is an inverted U-shaped relation between age and females' search intensity. Females aged 15-39 are more active in job search than younger and older females. Among females aged 15-39, youth females (15-29) are less active than those aged 30-39. Education and existence of previous work experience positively affect females' search intensity. Females living in larger households with high dependency ratio are more active in job search. Females in labor markets with high unemployment are obliged to search more intensively to find work.

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