I Z A

IZA DP No. 8518

Testing the Importance of Search Frictions, Matching, and Reservation Prestige Through Randomized Experiments in Jordan

Matthew Groh
David McKenzie
Nour Shammout
Tara Vishwanath

October 2014

Forschungsinstitut
zur Zukunft der Arbeit
Institute for the Study
of Labor

Testing the Importance of Search Frictions, Matching, and Reservation Prestige Through Randomized Experiments in Jordan

Matthew Groh
World Bank

David McKenzie
World Bank, BREAD, CEPR and IZA

Nour Shammout
University of Michigan and World Bank

Tara Vishwanath
World Bank

ABSTRACT

Testing the Importance of Search Frictions, Matching, and Reservation Prestige Through Randomized Experiments in Jordan[*]

Unemployment rates for tertiary-educated youth in Jordan are high, as is the duration of unemployment. Two randomized experiments in Jordan were used to test different theories that may explain this phenomenon. The first experiment tests the role of search and matching frictions by providing firms and job candidates with an intensive screening and matching service based on educational backgrounds and psychometric assessments. Although over 1,000 matches were made, youth rejected the opportunity to even have an interview in 28 percent of cases, and when a job offer was received, rejected this offer or quickly quit the job 83 percent of the time. A second experiment builds on the first by examining the willingness of educated, unemployed, youth to apply for jobs of varying levels of prestige. We find youth apply to only a small proportion of the job openings they are told about, with application rates higher for higher prestige jobs than lower prestige. Youth fail to show up for the majority of interviews scheduled for low prestige jobs. The results suggest that reservation prestige is an important factor underlying the unemployment of educated Jordanian youth.

JEL Classification: O12, O15, J64, J08

Keywords: psychometrics, labor market matching, reservation prestige, youth unemployment, Jordan, randomized experiment

Corresponding author:

David McKenzie
The World Bank
1818 H Street N.W.
Washington, DC 20433
USA
E-mail: dmckenzie@worldbank.org

1. Introduction

In Jordan, recent university graduates face difficulties entering the labor market and firms seeking to fill entry-level positions complain that educated youth lack the appropriate interpersonal and technical skills required for the positions. In 2010, unemployment rates for men and women between the ages of 22 to 26 with a post-secondary degree were 19 percent and 47 percent, respectively. The mean duration of unemployment among this cohort was 10 months for males and 16 months for females (JLMPS 2010). The transition period from graduating university to stable employment for youth who do not immediately find a job is 33 months on average (Barcucci and Mryyan, 2014). In 2011, we surveyed 2000 firms in Amman, the capital city, that were looking to hire new employees. 60 percent of these firms said they experienced difficulty distinguishing between good and bad job candidates, and 64 percent said they experienced difficulty finding competent graduates in reasonably proximity to the firm.

Across the Middle East and North Africa, many countries face the same labor market issue for educated youth (Angel-Urdinola et al, 2010; Almeida et al, 2012). Youth unemployment across the Middle East and North Africa has been described as a "jobs shortage" and is currently a major policy issue (e.g. Reed, 2011; Sweis, 2014). But this raises the question of why the labor market doesn't clear. Theory offers at least three potential explanations. The first is that high minimum wages exceed the marginal product of workers. However, this seems less relevant for university graduates whose wages are well above the minimum wage. The second potential explanation is offered by search and matching theory, which explains persistent unemployment as the result of high search costs which prevent firms with vacancies linking with qualified job candidates. Search frictions may be particularly high for youth especially in Jordan where education may not be a good signaling mechanism for future work productivity. Finally, a third explanation is based on class consciousness and a trade-off between work and leisure; graduates refuse to work in jobs that they consider beneath them even at wages well above minimum wage due to *reservation prestige*. The notion of reservation prestige may interact with gender norms, which restrict the set of jobs considered suitable for women to work in.

Search frictions and reservation prestige both have intuitive appeal for helping to explain the high unemployment rates and duration among educated youth in the Middle East but only

anecdotal evidence to support either. This paper reports on the results of two randomized experiments in Jordan, which seek to explicitly examine these explanations for youth unemployment.

The first experiment involves developing and testing a labor market matching service in Amman. A sample of over 1,354 unemployed recent university and community college graduates was given a comprehensive set of tests to measure their quantitative, verbal, and spatial reasoning, English and Excel proficiency, soft skills, and personality type. 1,011 of this sample were then randomly assigned to a treatment group, which we attempted to match to available positions at hundreds of firms. The goals of this psychometric screening and matching process were to lower search costs and improve match quality for both job candidates and firms, and over 1,000 matches were made. However, young job candidates rejected the opportunity to even have an interview in 28 percent of cases, and when a job offer was received, rejected this offer or quickly quit the job 83 percent of the time. As a result only 9 individuals ended up in jobs that lasted longer than a month. Thus, lowering search costs through screening and matching did not result in any meaningful reduction in unemployment.

When we examine the reasons why youth turned down potential job openings, the main reason given is not that the salary is too low, but that the young job candidates considered the job unsuitable, or not on the right career path. Youth appear unwilling to take on certain types of jobs. Our second experiment explores this more systematically. We worked with 33 firms that had 178 job vacancies, for a mixture of higher and lower prestige jobs. We randomly sent announcements of these vacancies to recent graduates, sending a total of 9,820 announcements. However, graduates only applied to 3 percent of these announcements, being more likely to apply for high prestige jobs as low prestige. In the end, this second experiment resulted in 0 recorded job offers, with the majority of youth saying they turned down the position because they did not consider it suitable. Interviews with firms suggest that firms do not see taking a low prestige job as a negative signal for future work, suggesting that the unwillingness to consider low prestige positions reflects social costs associated with doing so.

Taken together these two experiments suggest that reservation prestige is an important factor underlying the unemployment of educated Jordanian youth. This contrasts with labor markets like the U.S. where it is much more common for recent graduates to take on a whole range of

less prestigious jobs such as being a waiter, working in sales, working in a coffee house, etc. while searching for a job that meets their qualifications. In addition to providing the first experimental evidence on the (in)effectiveness of matching programs in the developing world, the process of conducting these experiments and collecting rich data on the labor market transitions of educated youth offers a rare insight into the causes of prolonged youth unemployment in the Arab world.

This research builds on several strands of empirical literature. Most of the existing work has focused on interventions designed to affect the search part of search and matching theory. In developed countries, job search assistance and counseling of the unemployed is a common active labor market policy designed to get unemployment benefit recipients to begin working again. Typically this involves monitoring their job search efforts, providing basic search skills such as helping with C.V.s and interview techniques, and providing information about job openings. A number of evaluations of these programs have found positive effects on employment outcomes, including Blundell et al. (2004) in the U.K., Behagel et al. (2014) in France and the meta-analysis of Card et al. (2010), although displacement of other job seekers may occur (Crepón et al, 2013), and in some cases the policies may just cause a substitution from the unmonitored, informal, search activities to the monitored, more formal, search activities, with no resulting change in employment outcomes (van den Berg and van der Klaauw, 2006).

There is a much smaller literature examining such policies in developing countries. A couple of recent studies suggest the potential of reductions in search costs for job-seekers to increase employment. Jensen (2012) finds that providing information about jobs in the business process outsourcing sector and interview skills to young women in India increases their employment. Franklin (2014) finds transport subsidies that enable workers in Ethiopia to travel to an area where new jobs are posted has positive effects on the employment of those receiving the subsidies. In contrast, Beam (2014) finds no impact of information and job fairs on getting Filipino workers into overseas jobs. The one study which also attempts to lower search costs for employers is Beam et al. (2014), who provide information about international migration opportunities to Filipino workers, and also set up a jobs website for recruiters to recruit these job seekers. They find this leads to individuals taking more steps towards employment abroad, but no ultimate impact on international migration.

A third strand of the literature uses the o-Desk online labor market for several experiments. Pallais (2014) shows that revealing more information about the ability of inexperienced workers through detailed public feedback improves their subsequent employment outcomes. Agrawal et al. (2012) finds that verified work experience improves the likelihood of being hired, especially for individuals from developing countries. Taken together, these two studies are consistent with some of the ideas underlying our work – that young workers have difficulty signaling their quality, and that this may particularly be the case for individuals with qualifications from developing countries. Horton (2013) uses this platform to test the impact of using a computerized matching algorithm to supply employers with matches for their openings, finding that this improves their rate of filling technical jobs, but has no impact on their fill rates for non-technical jobs. These online experiments have the advantage of allowing detailed examination of each step of the search process, but are typically for short-term work and different types of firms than most labor markets.

Our work builds on this existing literature through combining several aspects and explicitly attempting to reduce matching frictions. It reduces search costs for both job-seekers and employers, validates the skills of the job-seekers, and attempts to improve match quality. Our results suggest that this match quality depends heavily on graduates' reservation prestige, and that simply reducing the general costs of search does not spur more employment when graduates remain resistant to considering any job outside of a narrow range.

The remainder of the paper is structured as follows. Section 2 briefly outlines different theories of why the labor market doesn't clear, and their implications for our experiments. Section 3 discusses the first experiment, which uses psychometric testing to match workers and firms. Section 4 discusses the second experiment, which investigates further the idea of reservation prestige. Section 5 concludes.

2. **Why does the labor market not clear? Theories of prolonged unemployment of the educated**

High levels of unemployment for educated workers in the Middle East has been the subject of a number of policy reports (e.g. World Bank, 2013), with a large number of factors identified as potential explanations. These include shrinking government sectors combined with a range of regulatory and market failures that inhibit private firms from growing, and inflexible labor regulations that raise the cost of hiring workers. These factors can affect the position of the labor demand curve, reducing the number of workers that firms are willing to hire at any given wage. However, they are less able to explain why labor markets don't clear through movements along the labor demand curve, with wages falling to a point where labor supply equals labor demand. We consider three possible explanations for this.

A first potential explanation is high minimum wages which exceed the marginal product of labor of workers, and which prevent wages falling to a level which will equate the supply and demand of labor. In previous work with female community college graduates in Jordan, we found some evidence for this channel, with the majority of those contracted with a wage subsidy receiving exactly the minimum wage, and losing these jobs when the subsidy ended (Groh et al, 2013). But this explanation seems less relevant for university graduates whose wages are above this level. Indeed in the experiments which follow, employed graduates are earning on average 1.8 times the minimum wage, with very few earning exactly the minimum wage.

A second explanation is offered by the search and matching theory of Diamond, Mortensen and Pissarides.[1] The reason for persistent unemployment in this model is that costly search frictions make it difficult for jobless workers to match with firms with vacancies. These search frictions can be larger for youth, who do not have previous job experience to signal their quality. Moreover, they may be particularly large in many developing countries in which employers are less confident with the signal obtained from grades and university than is the case in developed economies, and in which youth may be less likely to undertake internships or receive work

---

[1] See the summary of this work by the Royal Swedish Academy of Sciences background piece on the 2010 Nobel Prize: http://www.kva.se/documents/priser/ekonomi/2010/sciback_ek_10.pdf

experience while studying.[2] As a result, many workers and firms rely on a system of connections known by its name in Arabic, *wasta,* to fill job openings (Barnett et al, 2013), limiting the set of possible matches. Improvements in search and matching technology then offer the potential to lower unemployment through filling existing vacancies, and through inducing firms to create more vacancies as their hiring costs fall.

A third competing explanation is that graduates have a *reservation prestige* when considering jobs, and are unwilling to work in jobs that they consider beneath them, even at wages well above minimum wages. Just as the reservation wage is defined as the lowest wage a worker is willing to accept in order to take a particular job, we define reservation prestige as the lowest prestige level of job that a worker is willing to accept working in. There are several potential explanations for why the reservation prestige takes effect. First, a sub-optimal first job may incur two costs: the opportunity cost of a reduction in time to search for other jobs and a signal that future employers may interpret negatively (Scherer, 2004). Second, the trade-off of work and leisure is influenced by cultural institutions unique to Jordan. Over 75 percent of unemployed Jordanians live with their parents and a large proportion of these unemployed Jordanians are from the wealthiest families (Iqbal and Razzaz 2008). As a result of fulfilling cultural expectations and living with their parents until marriage, recent graduates have minimal expenses. A third alternative explanation of reservation prestige is that the costs of a low status job may be felt in the social domain, with graduates believing it brings shame to their families if they are working in a job for which they believe they are over-qualified. This may interact with gender norms, which restrict the set of jobs considered suitable for women to work in. The result may then be that graduates refuse available job openings, holding out for a job of the appropriate prestige. Thus, the labor market bifurcates with labor supply low and relatively inelastic for low prestige jobs.

These theories have different implications for the appropriate policy action to reduce the unemployment of educated youth. If the problem is minimum wages, then introducing a lower minimum wage for young workers can be a solution. If the problem is high search costs and difficulty matching workers with firms, then the policy response should be efforts to lower these

---

[2] Barducci and Mryyan (2014) report that among Jordanian youth no longer in education, 94 percent said that they had not combined work with their studies at all.

search costs and develop signaling mechanisms and matching services. Conversely, if the problem is high reservation prestige, the policy response is less clear, since this can reflect a structural mismatch between the types of jobs graduates are willing to work in, and the types of jobs firms are looking to fill.

3. Experiment 1: Matching Workers and Firms

Our first experiment consists of an employment pilot designed to manually match firms and job candidates based on survey data and psychometric assessments. The aim is to reduce search costs and other matching frictions, and thereby increase the employment rates of educated unemployed youth.

3.1 The Sample and Randomization Process

The study required matching unemployed graduates with firms looking to potentially hire workers. This required us to put together separate samples of job candidates and firms.

The *experimental job candidate sample* consists of 1,354 recent graduates of either community college or university in Jordan, who participated in the program between December 2011 and November 2012. We obtained this sample through advertising the program (called Jordan NOW 2.0) through advertisements in local newspapers, radio stations, cafes, and Facebook, along with a telephone campaign to recent graduates from 14 universities and community colleges in and around Amman. Youth were told this program would be free to participate in, and had the goal of helping match them to jobs. Eligibility was restricted to Jordanians who had graduated from community college or university since May 2009. In the first four months the program was restricted to females only, before also being opened up to males.

Candidates signed up and completed a screening process (described below) on a rolling basis throughout 2012. We then stratified by gender and screening batches (110 strata), and randomly assigned three-quarters of the candidates within each strata to a treatment group that would be attempted to be matched to jobs, and one-quarter to a control group that would not. This continued until Dec 2, 2012, resulting in 343 individuals being assigned to the control group, and

1011 to the treatment group. In order to avoid John Henry and Hawthorne effects, job candidates were not informed as to which group they were assigned.[3]

Table 1 summarizes some basic characteristics of the job candidates by treatment status. The average participant is 23.5 years old, and graduated three-quarters of a year before participating in our program. 59 percent are female, 81 percent are university graduates and 19 percent community college graduates. The most common majors are accounting and business, engineering, and computing and information technology. The last column shows randomization has succeeded in generating balance on background characteristics, on the tawjihi score (the end of high school exam), and on the different test measures to be described below. The only variable which shows imbalance is whether they are a university versus a community college graduate. Since this is one variable out of nineteen in the Table, it appears likely to be due to chance.

The *firm sample* consists of a primary, experimental sample, and a secondary, booster, sample. The experimental sample consists of 2,279 small and medium firms, who were selected via a listing survey that screened firms according to whether they planned on hiring a worker in the next six months, and whether they would consider young workers and female workers for these positions. Appendix 1 describes in more detail this listing process. Firms of this size typically do not have human resource departments, and have less experience hiring workers than large companies. As such, we might expect search and matching costs to be higher for such firms. Indeed, in our survey of these firms, 60 percent say they have difficulty distinguishing between good and bad candidates.

We stratified these firms by sector (commercial or industrial), whether or not the firm had recently hired a worker, whether or not the firm had previously hired a female fresh graduate, and by the number of female employees in the firm (0, 1 to 10, 10 or more). Within these 24 strata, we then randomly assigned half the firms to treatment, which would be attempted to be matched to job candidates, and half to control, which would not. This gave a treatment group of 1137 firms and control group of 1142 firms, with mean size of 17 workers, and a mean annual hiring rate of 1.6 workers per firm (appendix Table 1). After no hires occurred in a first phase, the control group was also offered the treatment, and a secondary booster sample of 175 larger

---

[3] An additional 213 youth who joined the program in December were automatically assigned to receive the intervention but only had December in which to be matched. We do not include this group in our analysis.

firms that were potentially interested in hiring workers through the program was added. Appendix 1 details how these were chosen. These larger firms would typically be viewed as more prestigious by graduates.

Table 2a provides the sector breakdown of these firms, and Table 2b a description of the positions they were trying to fill. Among the SMEs, the most common industries were retail, other services, manufacturing of textiles, food, and chemicals, IT, and marketing. Among the larger firms, IT, education, and other services were the most common. These employers were seeking a wide range of jobs, with the most common positions being administrative assistants, sales staff, accountants, marketing positions, and web development and IT.

3.2   The Intervention

The intervention was designed in collaboration with Dr Marwan Al-Zoubi, a professor in psychology at the University of Jordan specializing in organizational behavior and work psychology. It was implemented by Business Development Center (BDC), a leading training services firm in Jordan that is well-known for its soft skills training and job placement program known as Maharat.

3.2.1. Testing Job Candidates

The first step in the intervention consisted of testing job candidates. Job candidates came to the BDC offices and were given a series of tests that lasted four hours. This consisted of two hours of computerized tests to measure quantitative, verbal, and spatial reasoning, proficiency in English and Excel, and personality type, and two hours of live, interactive sessions to measure soft skills. The tests included the following:

1. *Mental Reasoning:* a timed test consisting of 45 questions, equally divided between verbal, quantitative, and spatial reasoning. We form a principal component to aggregate scores from these categories into a single ability index.
2. *English Proficiency:* a timed test consisting of 15 vocabulary and grammar questions, 15 reading comprehension questions, and 20 listening based questions. The scores are then normalized to a score out of 100 based on comparisons to the performance of University of Jordan students on the same test prior to the launch of the pilot.

3. *Excel Proficiency:* a timed test which measures the participants' ability to write text in cells, add and delete rows and columns, sum variables, and calculate the mean of a group of scores. The score is calculated based on the participants' ability to complete 17 Excel tasks correctly, and the score normalized to a score out of 100 based on comparisons to the performance of University of Jordan students on the same test prior to the launch of the project.

4. *Soft Skills:* soft skills were measured by three interactive exercises. The first was based on a group exercise, in which five to eight participants were put in a group and tasked to redesign a failing amusement park in Jordan. They were each given a pre-defined role, and evaluated on how they work in groups. The second exercise was a role-playing game designed to test the participant under pressure. The participant plays the role of a customer service associate, and the evaluator, an angry customer who had purchased a computer that broke down. The participant's goal is to calm the customer and come up with a solution within the framework of the company's rules. The final assessment was a skills-based interview where the soft skills specialist asks questions to elicit examples of leadership, teamwork and overcoming obstacles. We form a principal component analysis of scores in the 10 soft skill categories to form a single soft skills index.

5. *Big-5 personality traits:* personality traits were measured through a series of 300 questions assessing the following five characteristics and their sub-characteristics: analytics (complexity, breadth of interest, innovation, tolerance), extraversion (sociability, social confidence, energy level), emotions (anxiety, cooperativeness, empathy), opportunism (social astuteness, risk taking), and dependability (organization, traditional values, and responsibility) (Paunonem and Jackson 1996). We calculated the Big-5 personality traits as the mean of their sub-characteristics, and we normalized the Big-5 personality traits for ease of interpretation. In preparation of the launch of this pilot, Dr. Marwan Al-Zoubi translated the Jackson Personality Inventory Revised into Arabic and validated the Arabic version through a sample of students at University of Jordan (Al-Zoubi 2014).

In addition to these test measures, we also collected basic information that would be typically included on a C.V., such as previous work experience, college or university, and field of study. At the end of the assessment all participants were given a seven-page report of their results

detailing their scores on each component of the assessment, their relative rank on this component, and a summary paragraph describing what the score meant.

3.2.2 Matching Job Candidates with Firms

The second step involved using this information collected on candidates to match them with firms that may potentially want to hire them. The matching process proceeded as follows:

i)   BDC staff called the firms in our sample and explained the concept of psychometric testing and its use for job matching, giving examples of how the tested concepts could help them better find a good fit for different types of jobs. For example, extroversion is likely to be important for sales positions, and organizational personality types for administrative positions, while some positions may require analytic ability, and others depend more on English ability. They then asked the firm manager or HR manager what their current needs for workers were, whether they currently had or would soon have any open positions, and what kind of traits they were looking for in each position.

ii) BDC staff would then filter our job candidate database for the top three to five candidates that would be considered a good fit for the position. Marwan Al-Zoubi prepared an instruction manual in Arabic which helped in this process, giving examples of the types of personality and ability characteristics that would be ideal for different positions.

iii) These staff would then call these candidates and explain the job description and likely salary range, as well as location of the job, and check the candidate was interested in being considered for this position. If they were not interested, a replacement match would be drawn from the next best fit in the database.

iv) The firm would then be sent a list of the three to five job candidates matched to the position, along with the resumes of these candidates, and a description of why these candidates would be a good fit for the job. Steps ii) through iv) normally took 2 to 3 business days from the initial discussion with the firm in step i).

v)   Firms would then contact the job candidates they were interested in to arrange an interview, and following this interview, potentially make a job offer. BDC staff followed up with the job candidates and firms on a weekly basis to record the

outcome of the matching process, and to offer the firm alternative resumes if the initial set of candidates did not work out.

3.2.3 Theory of Change: How might this intervention increase employment?

The intention of this intervention is to lower search costs for both job candidates and for firms. On the worker side, this may connect job candidates to job opportunities that they would have otherwise been unaware of, and additionally provide more information about the potential match quality of a job since we would be telling them that this is a job that fits their personality and ability traits. This could in principle lead to more youth in the treated group finding jobs, and to the jobs they find being of higher match quality.

On the firm side, the intervention can potentially lower the costs of filling job openings that the firm already had by giving them access to a wider pool of job candidates, and by saving them many of the costs of screening these workers. The candidates chosen may also be better matches for the positions, saving them on rehiring costs. In addition, with access to this service lowering search costs, there may be some positions that firms would not have otherwise filled that they now hire workers for, resulting in an increase in total hiring.

3.3 Results

The matching attempts began in January 2012 with the 1000 treatment firms from the experimental sample. Initial take-up from these firms was low, and so we also included the experimental control sample of firms and the booster sample of firms as possible candidates for matching, and began matching on this full sample in June 2012, ending in December 2012. We have two main sources of data that allow us to see the results of this process. The first are detailed administrative data on the matching process. The second are two rounds of follow-up surveys with the job candidates: a midline follow-up survey in October 2012 that measures short-term impacts midway through the matching period, and an endline survey conducted in May 2013 that measures impacts five months after the conclusion of the matching services. The attrition rates were 8 and 18 percent respectively for these two surveys.

Table 3 provides a summary of the outcomes at different stages of the matching process, while Appendix Figure 1 provides a schematic flowchart of the results. Only 134 out of the 2454 firms

we contacted had one or more job openings they were interested in having us help fill (5.5%). Some firms had multiple positions to fill.

Of the 1011 individuals in the treatment group, 56 percent (564 individuals) were matched to at least one job opening. Conditional on being matched at all, 55 percent of candidates were matched to more than one job opening, with a total of 1,143 initial matches being made. However, only 10 percent (115 matches) of these matches resulted in a job interview, resulting in 58 job candidates being interviewed. In 28 percent of matches, job candidates said they were not interested, and in 55 percent of matches, firms did not invite candidates for an interview. Of the 115 matches leading to job interviews, job offers were extended by the firm in almost half the cases (54). However, job candidates refused 30 out of the 54 job offers extended, resulting in only 24 individuals getting hired. This represents only 4.3 percent of the job candidates who were matched at least once, and only 2.1 percent of the matches made. Furthermore, out of these placements, 15 individuals quit within the first month. As a result, only 9 jobs were directly generated through this matching: 6 to female candidates and 3 to male candidates. Conditional on receiving a job offer, only 22 percent of females and 38 percent of males took up this job offer and stayed in the job for at least a month.

If we had found a large number of job matches arising from this matching process, treatment regressions would then be useful to see whether they represent a net gain in employment, versus merely providing jobs to individuals who would have found a job anyway. In our case, given the incredibly low rate of direct placement into jobs, it seems unlikely that we would find a treatment effect. Nevertheless, one could hypothesize that the process of being asked about a potential match (which occurred for 55 percent of the treatment group), might cause youth to either consider a wider range of jobs than they had otherwise done, or perhaps to exert more effort in search to avoid the alternative of being matched to jobs they consider less desirable. It is therefore worth checking whether any such channels result in higher employment outcomes or higher salaries conditional on finding a job.

To test this, we run intention-to-treat (ITT) regressions for youth *I* of the form:

$$Employment_i = \alpha + \beta Treat_i + \gamma Male_i + \delta' S_i + \varepsilon_i$$

Where *Treat* is an indicator for being assigned to the group that will be matched, *Male* is a dummy variable indicating the youth is male, and S_i are the randomization strata dummies. Robust standard errors are then reported. We likewise run a similar regression for salary conditional on being employed. This is a potentially endogenous outcome, so should be viewed as providing a descriptive statement of whether employed treated individuals are earning more or less on average than employed control individuals.

Table 4 reports the resulting ITT estimates. We find small and statistically insignificant impacts on both the likelihood of being employed, and on the monthly salaries graduates earn conditional on being employed. This is consistent with the lack of direct effect from the matching, and suggests that there are no strong effects occurring through these other channels. Note that 44 percent of the control group are employed by the October 2012 survey, and 56 percent by the May 2013 survey, so the lack of effect on employment is not because nobody is able to find a job – youth are finding jobs, just not through the matching process.

Designing, validating, and computerizing the psychometrics assessments cost $28,800. The management and implementation cost of enrolling and testing the job candidates, and matching them to firms cost $146,000 over 14 months. This excludes the cost of the firm listing exercise and survey of 2000 firms, which was used to generate a list of firms to match with, but which was also used to ask more detailed questions on the firms. An approximate cost for the listing itself would be $30,000. The total implementation cost is thus approximately $204,800. If we consider just the 9 jobs in which graduates lasted beyond one month, the cost per job directly matched is $22,755, or $19,556 if we ignore set-up costs and consider only the steady-state variable costs. This is approximately 39-45 months of income for a youth earning the average of 350 JD ($500). Matching therefore seems very expensive in terms of cost effectiveness.[4]

3.4   Explaining the Lack of Results

The matching intervention had very little success in helping job candidates find jobs. We examine several possible explanations for this lack of effect.

3.4.1. Did the testing process not reveal any new information about the graduates?

---

[4] Note that we can't rule out that these youth would have found jobs in the absence of the treatment, in which case the cost effectiveness is even worse.

A first explanation for the lack of impact is that the various tests we employed did not reveal any new information about the employability of graduates. Groh et al. (2014) provides evidence against this explanation, showing that our test measures do have predictive power for subsequent employment and earnings conditional on employment, even after conditioning on field of study, university, and other control variables that might be easily observed from curriculum vitae. Several of the measures have both statistically significant and economically meaningful correlations with future employment outcomes. Therefore these test measures do appear to contain new information, which therefore offers the possibility of lowering search and matching costs by reducing information asymmetries.

3.4.2. Was the matching just not done very well?

With any new program that does not find effects, the question which always then arises is whether the lack of effect is due to the program not being implemented effectively, or due to the program itself not having an effect even when correctly implemented. The implementing agency, BDC, has a strong reputation in Jordan, and was well known for its existing training and job placement program Maharat. Nevertheless, since our new intervention was a new program, we undertook several efforts to assess the quality of the service provided.

First, we hired an independent human resources expert, who was tasked with assessing the matching process. She sat in on a sample of the matching attempts. Her assessment was that the process was communicated clearly and managed efficiently. She wrote that the matchers "spoke clearly and passionately" with firms and job candidates to explain the pilot project, listened intently to firms' needs, and asked good probing questions to understand the specifics of many job types. She confirmed that the matches were usually completed within 48 hours, and CVs sent to firms within this timeframe.

Second, we conducted a mystery shopping exercise. We hired 10 firms to apply for matching and assess the matching process from a customer perspective. The mystery shopping reports confirmed that the matchers asked detailed questions about the firm, and sent CVs within 2 days. They reported that direct questions about the process were answered well, and did the basic duties faithfully, but suggested that the matchers could have done a better job in marketing the added value of using psychometric measures for matching.

Taken together, we view this evidence as suggesting that, while not perfect, the matching was competently done, and lack of an effect is not simply a result of poor implementation.

3.4.3 Binding minimum wages?

In a previous experiment with female community college graduates, Groh et al (2013) find that one reason these individuals had difficulty finding jobs was that the minimum wage of 150 JD per month appeared to be binding, with 85 percent of those employed through a wage subsidy program receiving exactly this minimum wage. Jordan subsequently raised the minimum wage to 190 JD per month, beginning 1 February 2012. This raises the possibility that one reason for the lack of hiring is that firms would like to hire workers for lower wages, but find the minimum wage binding.

The minimum wage appears to be much less of an issue for our current sample, of mainly university graduates. Only 1.7 percent of those employed in the May 2013 follow-up survey are earning 190 JD[5], with a median monthly salary of 300 JD for females and 350 JD for males in our sample. Moreover, the job offers that candidates received and turned down typically had salaries above the minimum wage. It therefore does not appear that the main reason for a lack of impact is binding minimum wages.

3.4.4 Perhaps search costs are not the main reason firms are not hiring more workers

Our experiment was premised on the assumption that one reason firms do not hire more workers is that the search and matching costs are high for them, especially for small and medium firms. Survey results from the baseline survey of firms find many firms giving responses that make it seem like they have difficulty matching: 60 percent say they find it difficult to distinguish between good and bad workers; 35 percent say hiring a new young worker is more a question of chance than skill; and 39 percent agree or strongly agree that it is difficult to find qualified employees. Nevertheless, it is unclear how costly this is for them in practice. Only 6.5 percent of firms surveyed at baseline say they would be willing to pay a reasonable price to learn more about the quality of job candidates. Moreover, we saw only a minority of firms responded to the opportunity offered by our matching service to lower search costs. In a follow-up survey of firms which had participated in the matching services, 25 percent said they can usually fill a position

---

[5] 4.4 percent are earning less than 190 JD, which could reflect part-time work, or informal employment.

for a fresh graduate within a week, and 94 percent within four weeks. Thus firms do not appear to be spending large amounts of time with unfilled vacancies.

In order to provide further evidence on how firms in Jordan fill positions, we conducted a 4 round panel survey based off of the United States Bureau of Labor Statistics Job Openings Labor Turnovers Survey (JOLTS) on 350 firms in Amman that employ recent graduates. During the non-holiday months, 26 percent of firms hired new employees who were under the age of 26. On average, 245 new youth employees were hired, 105 youth employees quit, and 8 youth employees were laid off. Given the high level of churn among these 350 firms; many firms are constantly looking to fill positions. On average, 51 percent of positions that firms seek to fill are perennially available. The other 49 percent of positions that firms seek to fill are unique to the firm's circumstances and timing. Firms are able to fill 88 percent of these positions within 4 weeks, which means only 6 percent of positions overall require greater than 4 weeks to hire a new employee. Different types of jobs are filled at different rates. 57 percent of low prestige positions are perennially available in contrast to 43 percent of high prestige jobs and 37 percent of technical jobs. Figure 1 below reveals the cumulative proportion of the number of weeks open by position type; 75 percent of high prestige positions are filled within 4 weeks and low prestige jobs and technical jobs fill positions even quicker.

Therefore for many firms it appears that they are able to fill positions reasonably easily and lowering search costs may not generate a lot of new employment. This might explain the firm response to the matching intervention, but the question then remains as to why many youth turned down the opportunity to be matched, and turned down actual job offers.

3.4.5 Reservation wages and reservation prestige

Recall that job candidates turned down 28 percent of the match opportunities they were given, and turned down or quickly quit 83 percent of the job offers given. The main reasons given for rejecting the opportunity for a potential interview were that the graduate was not interested in the company or type of job. When we asked those who had turned down job offers the reason for doing so, only 8 percent said that the wage was too low, whereas 41 percent said that it was not in their career path, 8 percent said they didn't want to work outside, and 8 percent said it was not a culturally appropriate job. It therefore appears that job candidates have a "reservation prestige",

and are unwilling to work in jobs that they consider beneath them or that are not in their line of training.

To explore this in more detail, the follow-up surveys asked about willingness to work in different types of jobs. In the October 2012 survey, 84 percent of job candidates said that the type of work mattered more to them than the salary paid. The median reservation wage for those who were unemployed was 250 JD, below the median wage of those who were employed. This suggests high reservation wages are not the main constraint. In contrast, youth do appear to be unwilling to work in certain types of jobs. Table 5 reports the results from the May 2013 survey, which asked unemployed youth their willingness to work temporarily in a range of different jobs. We see that the majority are prepared to work in jobs such as human resource management, data entry, public sector jobs, and being a bank teller. However, only 3 percent of unemployed youth say they are willing to work as a waiter, only 10 percent in outdoor sales, and only 25 percent in telemarketing. Most youth therefore appear to prefer to stay unemployed than work in jobs that they consider low prestige.

4. Experiment 2: Testing Reservation Prestige and Willingness of Workers to Apply to Job Openings

Our second experiment is motivated by the results of the first experiment that educated youth appear unwilling to work in certain types of jobs. We explicitly measure their willingness to apply for jobs in occupations which are considered more or less prestigious.

4.1 The Sample

The *job candidate sample* for our second experiment consists of 2,002 recent graduates from community colleges and universities. We marketed our new program as *Yalla Watheefa* (Let's Go Get a Job) and advertised it through flyers, brochures, Facebook, and Yalla Watheefa ambassadors who would recruit candidates on university campuses around Amman. The program was advertised as a free program for fresh graduates to inform them of job openings. Recruitment took place in April and May 2013, just before graduation. Both males and females were eligible to participate, with eligibility limited to individuals graduating between May 2012 and May 2013. Individuals who were already employed, who were not seeking a job, or who were older than 26 were excluded from the sample. To enroll individuals filled out an application

form that serves as a baseline survey, providing demographic information, field of study, university, prior work experience, job type preferences, and reservation wage.

Table 6 provides some summary characteristics of the candidates. 94 percent are university students, although only 68 percent are completing bachelor's degrees, with the rest typically obtaining 2-year diplomas. Average age is 22.5, and 53 percent of the sample is male. The most common major is accounting and business (44%), following by engineering (12%), and computing and IT (9%). The mean self-reported reservation monthly wage of 346 JD for males and 287 JD for females are in line with the earnings of graduates in Table 4. However, the expected time to find a job is only 5.2 months, which suggests overconfidence as this is much lower than the averages for educated youth reported in the introduction. Almost all students say they are interested in being matched to both jobs in their field of study, as well as to general jobs. However, when we asked them specifically about a list of 9 less prestigious jobs (listed in Appendix 2), the mean individual was only willing to work in 2.6 of them. In particular, only 3 percent said they were willing to work as waiters, 13 percent in retail, and 14 percent in outdoor sales, with fewer females than males saying they are willing to work in these jobs.

Our goal in recruiting firms for this second experiment was to work with firms that had a range of entry-level positions, including both high and low prestige jobs. We wanted to work with a range of firms with actual job openings. Firms were identified from databases of larger firms, as well as from firms that had participated in previous interventions or surveys. They were screened as being likely to hire fresh graduates in the next few months. Each firm was met with individually, and given a short packet of information that would explain Yalla Watheefa to them. They were told this was a pilot program to help match firms with entry-level job openings to fresh graduates, and that we were using it to help understand the difficulties firms face in finding the right candidates, as well as understanding how graduates decide which jobs to work in.

The resulting sample consists of 33 firms with 51 job vacancies. Some vacancies were for more than one worker in that job, so in total these firms were seeking to fill 178 positions. Appendix Table 3 details the industry breakdown of these firms, with the firms being distributed among 12 different sectors, with no one industry dominating. The sample consists of 14 small firms, 9 medium-sized firms, and 10 large firms. Appendix Table 4 details the job openings, and whether or not we define them as low prestige for experimental purposes. High prestige job openings

include openings for accountants, credit officers, IT staff, nurses, engineers, and managers. Low prestige job openings include sales jobs, waiters, data entry, receptionist, and bagging groceries and are jobs that do not require a specific academic major and can typically be done by individuals without a college degree.

4.2 The Intervention and Randomization Process

We classified job candidates as willing to consider low prestige jobs if they said they would be willing to work in 3 or more of the 9 positions listed in Appendix Table 2. This threshold was chosen to approximately split the sample in half, resulting in 958 individuals who say they are willing to work in low prestige jobs, and 1,047 who say they are only willing to work in high prestige jobs. The last two columns of Table 6 compare the characteristics of the two groups. Accounting and business majors, those who have spent more time since graduation, and males, appear more willing to consider low prestige jobs.

For each job vacancy, firms provided information on the position, any qualifications required, and a salary range. We then use information on gender, academic major, and job type prestige to classify candidates as a "good fit", "bad fit", or "no fit" for each job. Good fits would meet the firm's criteria, and also be potentially willing to work in the job. Bad fits would possibly be able to work in the job, but maybe would be less willing, or otherwise have a degree in a related subject. No fits would not always apply, but would be cases where the firm would not consider the individual at all. For example, a company which requested male graduates for a waiter position would have all males willing to take low prestige jobs classified as good fits, males who say they are not willing to take low prestige jobs classified as bad fits, and females classified as no fits. As a second example, a company looking for graduates to work in indoor sales would have all individuals willing to work in low prestige jobs classified as good fits, and the rest as bad fits. As a final example, a hospital looking for a nurse would have all nursing graduates classified as good fits, graduates in medical services classified as bad fits, and all other graduates classified as no fits.

Then for each job opening we sent[6] the job announcement to an average of 205 randomly chosen candidates, stratifying this randomization so that two-thirds of those receiving the announcement would be deemed good-fits, and one-third bad-fits. The number of announcements and this mix was done to ensure firms were not overwhelmed with too many applications, and that the applications they received would be largely relevant to them. However, we also wanted to see the willingness of graduates to apply to positions that they considered less prestigious or a little more removed from their field of study, which was the reason for including the bad fits. The random selection was intended to enable us to determine whether providing access to these job offers increased employment.

A week after the job announcement was sent, we followed up with a random sample (typically 100) of the candidates who had received job announcements to monitor their self-reported application rates and the reasons for not applying if they didn't apply. We also followed up with the firms to monitor how many applications they received, and at the end of the hiring process, how many interviews the firms scheduled, and whether job hiring took place.

4.3 Results

In total we sent 9,820 job announcements to the job candidates, of which 6,295 were to candidates deemed a good fit for the jobs. For the 15 firms we received reliable follow-up data on, we had 3,213 job announcements sent, resulting in in 0 candidates actually getting hired.

Table 7 provides details on the results of each stage. In the majority of cases employers just provided us with details on the number of applications received from our candidates, and the number of interviews that took place, without identifying the specific individuals which applied. We therefore focus on the subset of 10 jobs (5 higher prestige, 5 lower prestige) for which we have accurate data from firms on who applied and who was interviewed. 1,413 of our 2,002 applicants were selected to receive the announcement for at least one of these jobs, with the average candidate who was selected receiving information on 1.6 jobs.

---

[6] For the first two jobs we piloted both phone calls and SMS messages and had identical response rates. As a result, we used SMS to inform candidates about the remainder of the jobs for convenience and costs purposes.

In total 2,269 announcements were sent for these jobs. In our follow-up surveys over the phone with job candidates, applicants claimed to have applied for 33.5 percent of the announcements (298/890). However, according to the firm records, only 76 applications were received from all of the announcements (3.5%). This was particularly notable for a waiter position at a restaurant run by the family of one of the research team: zero applications were received, yet more than 10 percent of those in the survey claimed to have applied for the job. We therefore view the firm records as much more accurate. 25 out of the 76 applications were invited to be interviewed, of which 21 interviews took place. In the end none of these 21 interviews resulted in a job offer being made.

Comparing the high and low prestige jobs in Table 7, the rate of application according to the firm data was 3.8 percent for the high prestige jobs, and 2.7 percent for the low prestige jobs. So youth are less likely to apply for the low prestige jobs. If we consider their self-reported (over-inflated) application rates, 12.4 percent of those who said they were willing to work in 3 or more low prestige jobs applied reported having applied for a low prestige job we announced to them, compared to 14.3 percent of those who said they were not willing to work in many such jobs. So we do not see much difference in reported behavior according to this initial measure of willingness to work in less prestigious jobs.

The phone survey asked those candidates who hadn't applied for a job what the main reason for not applying was. Only 0.15 percent said that they thought the salary was too low, and only 2.8 percent said the job was too far away. 19.4 percent said they had already found work, but the modal answer, given by 51.4 percent of non-applicants, was that "I think this is a job that doesn't suit me", while 12.7 percent answered simply that they were not interested. Hence educated unemployed youth are largely not applying for jobs because they don't consider them suitable.

Given that this second experiment did not result in any jobs, we did not conduct a follow-up survey to measure the treatment-control difference in employment outcomes.

4.4 Discussion

Our results show that unemployed educated youth turn down many opportunities for jobs that they consider low prestige or undesirable. High levels of reservation prestige may be rationale if there is an economic or social cost of taking low prestige jobs. Our data allow us to provide some insights on what these costs may be.

An economic cost of taking a low prestige job may be that it entails a cost in terms of reducing the chances of getting a better job later.[7] A direct channel for this would be if it reduces the time available for job search. However, the median time that unemployed educated youth report looking for a job in our surveys is only 4 hours per week, and so it seems unlikely that taking on a low prestige job would not leave enough time for this level of job search. A less direct channel is if employers view work in a low prestige job as a negative signal when considering candidates for higher prestige jobs. We asked employers in our survey whether finding out that a job candidate had worked as a waiter, outdoor salesperson, or telemarketer after graduation would affect their willingness to hire this person. Only 3.9% of firms said it would make them less likely to hire the person, 52.9% say it would make them more likely to hire the person, and 43.1% say it would make no difference. However, there may be a mismatch between what employers think, and what graduates think – 29.4% of employers thought that youth were reluctant to take on such jobs because the youth would view this as negatively affecting their employment prospects.

It thus does not appear that the economic costs are the main reason for not taking on low prestige jobs – after all, in a large city it seems likely that youth would be able to simply not tell future employers that they had previously worked in such positions. This suggests the main reason for high reservation prestige may be the social costs of working in low prestige jobs. Our surveys have less evidence on this aspect, although in our firm survey, 48.7% of firms who agree that Jordanian youth are less willing to take low paid, less skilled jobs than youth in other countries think that it is because doing so would have negative effects on the way they and their family is perceived in terms of prestige.

---

[7] The disutility of work may be much higher for these low prestige jobs than for higher prestige jobs. Indeed the individuals in our sample who quit low prestige jobs within days of accepting them complained that the jobs were tiring, hard work, and monotonous. However, in theory this should be able to be compensated for through wage adjustments in order to clear the market. As discussed above, employers appear to be able to fill these jobs relatively quickly, so the main question is why wages don't fall further given the excess supply of educated labor.

5. Conclusions

Educated unemployment is a major policy issue in Jordan and many other countries in the Middle East and North Africa. In a review of active labor market programs in the region, the number one recommendation of Angel-Urdinola et al. (2010, p. 31) is to "increase the number of programs focusing on employment services and job search assistance (job fairs, job clubs, CV/interview training, and matching services)". We test two programs that aim to do this. The first used psychometric testing to match graduates to firms with job openings, while the second send job seekers announcements about different types of jobs. We find neither intervention had any sizeable effect on employment, with unemployed graduates turning down many opportunities for interviews and jobs because they did not consider the jobs suitable. Our evidence suggests that a key constraint which prevents the labor market clearing is reservation prestige, whereby graduates are reluctant to take jobs which they consider low prestige.

This conclusion suggests that the necessary policy response is more difficult and complicated than if the problem were simply high minimum wages or high search costs. We view our findings as suggesting two promising directions for future policy actions. The first consist of interventions on the firm side to spur the development of a vibrant private sector that provides more skilled jobs. The second, complementary, area is efforts to try to lower the resistance of educated youth to take jobs which they consider less prestigious.

On the firm side, much of the Middle East suffers from a lack of entrepreneurship and private sector competition, with a combination of unequally applied regulations and other barriers to entry limiting the entry of new firms and dynamism of the private sector (World Bank, 2009). As a result, relatively few firms are creating the high-skilled jobs desired by graduates. Reforms which increase the availability of such jobs can then help alleviate high unemployment from the labor demand side.

However, we also think there is a need for complementary efforts on the labor supply side. One reason for this is that historically public sector jobs have been seen as higher prestige than private sector jobs or entrepreneurship in much of the region.[8] Public sector reforms which make

---

[8] Groh et al. (2013) report that 81 percent of Jordanian community college graduates in their sample say they would prefer a public sector job to a private sector job.

such jobs more comparable to the private sector in terms of accountability, work hours, and other conditions may help, as well as efforts to promote and celebrate the private sector. Universities may be able to play a better role here in promoting different career options for graduates- typically Jordanian universities provide limited support to graduates in the form of job fairs, career development offices, and internship opportunities to help broaden their horizons as to the range of potential jobs. More work is also needed to better examine the long-term impacts of taking lower prestige jobs in the short-term on future job prospects, in order to help dispel beliefs that this is economically costly. It is less clear whether there are policy actions that can help reduce the social costs of taking a less prestigious job, although this process may occur slowly as a response to some of the other changes proposed.

References

Agrawal, Ajay, Nicola Lacetera, and Elizabeth Lyons (2013) "Does information help or hinder job applicants from less developed countries in online markets", *NBER Working Paper* no. 18720.

Almeida, Rita, Behrman, Jere, and Robalino, David (2012) "The Right Skills for the Job? Rethinking Training Policies for Workers". Mimeo. The World Bank.

Al-Zoubi, Marwan (forthcoming). "Developing the differential norms for Jackson personality test using a large Jordanian employee sample." (in Arabic) *Jordanian Journal of Social Sciences*.

Angel-Urdinola, Diego, Amina Semlali, and Stefanie Brodmann (2010) "Non-Public Provision of Active Labor Market Programs in Arab-Mediterranean Countries: An Inventory of Youth Programs", Mimeo. The World Bank

Barcucci, Valentina and Nader Mryyan (2014) "Labour market transitions of young women and men in Jordan", ILO Work4Youth Publication Series No. 14.

Barnett, Andy, Bruce Yandle and George Naufal (2013) "Regulation, Trust, and Cronyism in Middle Eastern Societies: The Simple Economics of 'Wasta'" *The Journal of Socio-Economics*, 44: 41-46.

Beam, Emily (2014) "Incomplete Information and Migration Decisions: Do Job Fairs and Information Work?" Mimeo. National University of Singapore.

Beam, Emily, David McKenzie and Dean Yang (2014) ""Unilateral Facilitation Does Not Raise International Labor Migration from the Philippines", Mimeo. World Bank.

Behaghel, Luc, Bruno Crépon and Marc Gurgand (2014) "Private and Public Provision of Counseling to Job-Seekers: Evidence from a Large Controlled Experiment", *American Economic Journal: Applied Economics*, forthcoming.

Blundell, Richard, Monica Costas Dias, Costas Meghir, and John van Reenen (2004), "Evaluating the Employment Impact of a Mandatory Job Search Program", *Journal of the European Economic Association* 2(4), 569-606.

Card, David, Jochen Kluve, and Andrea Weber (2010) "Active labour market policy evaluations: A metaanalysis," *Economic Journal*, 120 (548), F452–F477

Crepon, Bruno, Esther Duflo, Marc Gurgand, Roland Rathelot, and Philippe Zamora (2013) "Do Labor Market Policies have Displacement Effects? Evidence from a Clustered Randomized Experiment," *Quarterly Journal of Economics*, 128 (2), 531–580.

Franklin, Simon (2014) "Search frictions and Urban Youth Unemployment: Evidence from an Experiment in Subsidized Transport", Mimeo. Oxford University.

Groh, Matthew, Krishnan, Nandini, McKenzie, David, and Vishwanath, Tara (2013) "Soft Skills or Hard Cash: The Impact of Training and Wage Subsidy Programs on Female Youth Employment in Jordan" *Bread Working Paper* No. 377.

Groh, Matthew, David McKenzie and Tara Vishwanath (2014) "Reducing Information Asymmetries in the Youth Labor Market of Jordan with Psychometrics and Skill Based Tests", *World Bank Economic Review Papers & Proceedings*, forthcoming.

Horton, John (2013) "The Effects of Subsidizing Employer Search", Mimeo. NYU Stern School of Business.

Iqbal, Farrukj, and Susan Razzaz (2008). Job Growth without Unemployment Reduction: The Experience of Jordan. World Bank.

Jensen, Robert (2012) "Do Labor Market Opportunities Affect Young Women's Work and Family Decisions? Experimental Evidence from India," *Quarterly Journal of Economics, ,*127 (2), 753–792

JLMPS (2010) Jordan Labor Market Panel Survey 2010. Economic Research Forum, Cairo, Egypt (www.erfdataportl.com).

Pallais, Amanda (2014). "Inefficient Hiring in Entry-Level Labor Markets." Forthcoming, *American Economic Review*.

Paunonen, Sampo and Jackson, Douglas (1996). "The Jackson Personality Inventory and the Five-Factor Model of Personality." *Journal of Research in Personality*. 30(1): 42-59

Reed, Stanley (2011) "Tunisia's Dangerous Jobs Shortage", *Business Week*, January 20, http://www.businessweek.com/magazine/content/11_05/b4213013748688.htm

Scherer, Stefani (2004) "Stepping-Stones or Traps? The Consequences of Labour Market Entry Positions on Future Careers in West Germany, Great Britain and Italy", *Work, Employment and Society* 18(2): 369-94.

Sweis, Rana (2014) "In Jordan, Educated Women Face Shortage of Jobs", *New York Times*, May 4, http://www.nytimes.com/2014/05/05/world/middleeast/in-jordan-educated-women-face-shortage-of-jobs.html?_r=0

van den Berg, Gerald and Bas van der Klaauw (2006), "Counseling and Monitoring of Unemployed Workers: Theory and Evidence from a Controlled Social Experiment", *International Economic Review* 47(3), 895936.

World Bank (2009) *From Privilege to Competition: Unlocking Private-Led Growth in the Middle East and North Africa.* World Bank, Washington D.C.

World Bank (2013) *Jobs for Shared Prosperity: Time for Action in the Middle East and North Africa*. World Bank, Washington, D.C.

Figure 1: Firms are able to fill most jobs within four weeks

Weeks Open by Position
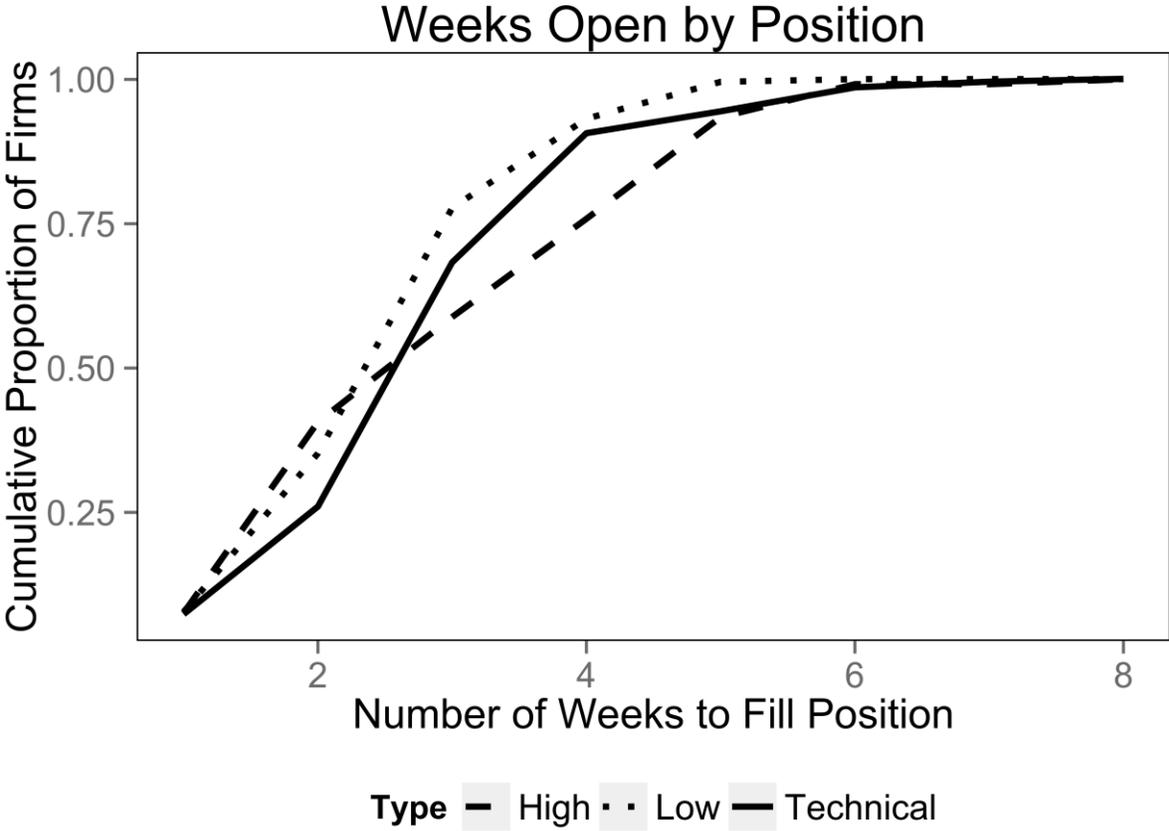
Table 1: Summary Statistics on Job Candidates in First Experiment

	Control Mean	Control SD	Treat Mean	Treat SD	P-value
Male	0.43	0.50	0.40	0.49	0.120
Age	23.6	2.3	23.5	2.0	0.377
Years since Graduation	0.73	0.91	0.75	1.03	0.496
University	0.84	0.37	0.80	0.40	0.021
Ever Worked	0.60	0.49	0.65	0.48	0.211
Single	0.91	0.29	0.93	0.26	0.197
Tawjihi Score	72.3	11.7	73.0	11.1	0.636
Accounting or Business	0.33	0.47	0.36	0.48	0.406
Engineering	0.10	0.31	0.10	0.30	0.791
Computing or IT	0.13	0.34	0.10	0.31	0.597
Ability Score	0.01	1.30	-0.04	1.31	0.469
Soft Skills Score	-0.26	2.21	-0.15	2.37	0.696
Excel Test	62.6	21.8	63.3	21.9	0.571
English Test	56.1	19.4	57.2	20.1	0.730
Analytical Personality	6.78	2.84	6.80	2.94	0.995
Emotional Personality	3.49	3.16	3.68	3.34	0.321
Extroverted Personality	3.73	2.84	3.57	2.80	0.363
Opportunistic Personalit	4.90	3.69	4.97	3.72	0.773
Dependable Personality	4.27	2.66	4.43	2.58	0.290
Sample Size	343		1011		

Note: P-value is for a test of no difference in means by treatment group after controlling for randomization strata.

Table 2a. Firm Sector Distribution by Firm Sample

	Control	Treat	Booster Sample
Retail	420	407	0
Other	286	263	7
Other Services	97	75	27
Electronics Manufacturing	21	53	0
Wholesale	56	49	11
Textile Manufacturing	26	45	1
Food Manufacturing	40	42	0
Chemical Manufacturing	48	36	0
IT	22	34	35
Marketing/Advertising	23	29	14
Construction	25	24	7
Health	17	19	2
Hotel Restaurant	23	16	1
Financial	14	12	9
Agriculture	8	12	0
Education	9	8	25
Entertainment	2	8	0
Transport	5	5	2
Total	1142	1137	141

Table 2b. All Positions Available

Position Available	# of Firms with Listed Position
Administrative Assistant	23
Sales	23
Accounting	18
Marketing	18
Telemarketing	10
Web Development	10
IT	8
Admin Assistant	7
Customer Service	7
Sales -- Indoor	7
Sales -- Outdoor	7
Data Entry	5
Graphic design	4
Human Resources	4
Software Development	4
Engineer	3
MIS	3
Outdoor sales	3
Cashier	2
Computer Engineer	2
Engineer -- Computer	2
Engineer -- Industrial	2
Mechanical Engineer	2
Accouting	1
Artist	1
Bank Teller	1
Business Development	1
Civil Engineer	1
Consultant	1
Credit Officer	1
Data entry	1
Designer	1
Editor	1
Engineer -- Civil	1
Engineer -- Electrical	1
Event Coordinator	1

HR	1
Hostess	1
Housekeeping	1
Indoor Sales	1
Insurance Agent	1
Interior Design	1
Museum Guide	1
Public Relations	1
Social Media	1
Technical Writer	1
Trainer	1

Table 3. Matching Results

Stage	Outcome	All			Female			Male		
		Matches*	Job Candidates**	Firms***	Matches*	Job Candidates**	Firms***	Matches*	Job Candidates**	Firms***
Treatment Group	Unmatched	-	447	-	-	296	-	-	150	-
Treatment Group	Matched	1143	564	134	592	312	101	552	253	102
Matched	Unable to Contact Job Candidate	82	45	11	39	25	5	43	20	6
Matched	Job Candidate Not Interested	319	191	35	177	107	30	142	84	31
Matched	Firm Not Interested	627	270	74	307	143	58	320	127	59
Matched	Interview	115	58	14	69	37	8	47	22	6
Interviewed	Job Candidate Refused Job Offer	30	11	2	22	10	0	8	1	1
Interviewed	No Job Offer	58	33	10	31	17	5	28	17	3
Interviewed	Hired	24	24	17	17	17	11	7	7	7
Hired	Quit Within First Month	15	15	8	11	11	5	4	4	4
Hired	Continued Past First Month	9	9	9	6	6	6	3	3	3

*Administrative records on job seekers **Administrative records on unique job seekers ***Administrative records on firms **** If a job candidate or firm gets two "results" from a corresponding firm or job candidate in the same stage, then we record the lowest level result i.e. one firm hired two candidates and one candidate quit within the first month and one continued past the first month, so we record this firm as "continued past first month" NOT both

Table 4: ITT Results of Impact of Job Matching on Job Candidates

	Employment		Salary conditional on being employed	
	Oct 2012	May 2013	Oct 2012	May 2013
Assigned to treatment (getting matched)	0.00713	0.0235	-9.360	0.173
	(0.0378)	(0.0360)	(20.38)	(12.29)
Control Group Mean	0.43	0.57	313	350
Observations	984	1,097	428	605

Notes:

Sample size for October 2012 is smaller since some job candidates joined study after this date.

Salary is a monthly salary, expressed in terms of Jordanian Dinar (JD)

Robust standard errors in parentheses, *, **, and *** indicate significance at the 10, 5, and 1 percent levels.

Table 5: Willingness of Unemployed to Work Temporarily in Different Positions

	All Unemployed	Males	Females
Human Resource Management	0.78	0.84	0.75
Public Sector Employee	0.77	0.86	0.72
Administrative Assistant	0.71	0.75	0.70
Data Entry	0.70	0.62	0.74
Bank Teller	0.68	0.75	0.65
Teacher	0.61	0.46	0.68
Customer Service	0.54	0.66	0.48
Indoor Sales	0.29	0.46	0.21
Telemarketing	0.25	0.16	0.30
Outdoor Sales	0.10	0.20	0.05
Waiter	0.03	0.08	0.00

Source: May 2013 endline survey of matching experiment participants.

Sample restricted to 472 unemployed, educated, youth.

Table 6: Summary Statistics for Job Candidates in Second Experiment

	N	Mean	SD	Male Mean	Female Mean	Candidates willing to take low prestige jobs Mean	Candidates only willing to take high prestige jobs Mean
Male	2002	0.53	0.50	1.00	0.00	0.55	0.51
Age	1506	22.49	1.46	22.73	22.13	22.51	22.47
Years since Graduation	2002	0.74	1.85	0.47	1.04	1.02	0.47
University	2002	0.94	0.24	0.96	0.91	0.95	0.93
Ever Worked	1506	0.59	0.49	0.77	0.33	0.64	0.56
Accounting or Business	2002	0.44	0.50	0.49	0.37	0.53	0.36
Engineering	2002	0.12	0.32	0.18	0.05	0.09	0.15
Computing or IT	2002	0.09	0.28	0.09	0.08	0.09	0.08
Other Majors	2002	0.36	0.48	0.24	0.49	0.29	0.42
Prestige score*	2002	2.60	2.24	2.77	2.40	4.58	0.79
Lived in Amman for the past five years or longer	1506	0.73	0.44	0.73	0.74	0.74	0.73
Interested in being matched to jobs in their field of study	1506	0.96	0.20	0.97	0.94	0.99	0.94
Interested in being matched to general jobs	1506	0.97	0.17	0.97	0.97	0.98	0.96
Bachelor's degree	1506	0.68	0.47	0.66	0.71	0.66	0.70
Mean expected number of months to find jobs	1506	5.17	4.52	4.87	5.61	4.82	5.42
Mean self-reported reservation wage (JD per month)	2002	318	95	346	287	312	323

* How many low prestige jobs are you willing to work in ? (list jobs we considered low prestige)

Table 7: Results from Second Experiment

Stage	Result	Aggregate Statistics from 15 firms	Jobs (10)			high prestige jobs (5)			low prestige jobs (5)		
			Candidates (2002)	WLP Candidates (957)	Non WLP candidates (1045)	Candidates (2002)	WLP Candidates (957)	Non WLP candidates	Candidates (2002)	WLP Candidates (957)	Non WLP candidates
Treatment	Matched		1413	790	623	1094	633	461	708	408	300
	Unmatched (to these ten jobs)		589	167	422	908	324	584	1294	549	745
matches	Matches	3213	2269	1358	911	1406	849	557	863	509	354
	Average number of times a candidate was matched		1.61	1.72	1.46	1.29	1.34	1.21	1.22	1.25	1.18
	Number of candidates who were surveyed by us	1335	890	493	397	562	327	235	324	166	162
applications	Number of applications according to follow-up surveys	366	298	168	130	**196**	107	89	102	61	41
	Number of applications according to firms surveys	94	76	51	25	53	19	34	23	17	6
Interviews	Number of interviews scheduled	26	25	12	13	14	4	10	11	8	3
Job offers	Number of interviews that took place	22	21	9	12	13	4	9	8	5	3
	Job offers	0	0	0	0	0	0	0	0	0	0
Salary offered	average monthly salary offered JD		349			329			379		

Note: WLP denotes candidates say they are willing to take low prestige jobs

Appendix 1: Putting together the firm sample for Experiment 1

From September 2011 through January 2012 we put together a database of firms in Amman that could serve as potential clients for the program. We identified 41,497 legally registered firms through the Chamber of Commerce, and 10,025 legally registered firms through the Chamber of Industry. We excluded firms in the construction, oil, and automobile industries, and only sampled meat, tobacco, and alcohol oriented firms at half of the rate of other firms due to their low hiring rates for women. After making these exceptions, we drew a representative sample of 6,611 commercial enterprises, and a sample of 1,744 industrial firms (1,267 firms with more than 10 employees, and 477 with four to nine employees). We listed over 5000 firms from these two samples and screened on whether they were looking to hire a worker in the next six months, and would consider hiring recent graduates and females for these positions. This was used to arrive at the sample of 1,600 commercial firms and 400 industrial firms used as the experimental sample for this study. In March, we added an additional set of 277 firms stratified and randomized as above to the experimental sample to make up for businesses whose contact information was no longer valid. Appendix Table 1 provides summary statistics on this sample.

Appendix Table 1: Summary Statistics of Firms					
	Control Firms (N=1142)		Treatment Firms (N=1137)		T Test
	Mean	SD	Mean	SD	P Value
# of Male Full Time Employees	15.6	58.3	14.7	44.9	0.67
# of Female Full Time Employees	2.8	10.3	2.8	8.9	1.00
# of New Employees in 2011	1.6	4.6	1.6	4.4	0.83
# of New Employees in 2010	1.3	7.3	1.4	5.4	0.70
# of Terminated Employees in 2011	1.2	4.5	1.2	4.3	0.90
# of Terminated Employees in 2010	0.9	7.1	0.9	4.7	0.98
Proportion that Say It is Difficult to Distinguish between Good and Bad (	0.6	0.5	0.6	0.5	0.31

In May 2012 we opened the matching eligibility to any firm in Amman, and lifted restrictions on matching for firms previously assigned to the control group. Through a series of television, radio, newspaper, job fair, and Facebook advertisements, we contacted nearly 1000 additional firms, of which 175 were looking to hire. These 175 firms were larger and more prestigious, and typically had human resource departments.

Appendix 2: Experiment 2 low-prestige occupations and firms

Appendix Table 2 shows the occupations we considered as potentially low prestige, and the percentage of individuals who said on their baseline survey that they were willing to work in these occupations.

Appendix Table 2: Jobs Used to Classify Individuals as Willing to Work in Low Prestige Jobs

	% of candidates who say they are willing to work in this job		
Job type	Full Sample	Male	Female
Admin assistant	57.8	54.5	61.6
Data Entry	51.2	45.6	57.6
Customer Care	41.3	45.8	36.2
Indoor Sales	29.2	37.1	20.3
Telemarketing	25.7	24.4	27.2
Copy Editor	25.1	24.0	26.3
Outdoor Sales	13.5	20.7	5.3
Retail	12.6	19.8	4.5
Waiter	3.4	5.4	1.1
Sample size	2002	1066	936

Appendix Table 3 shows the characteristics of the 31 firms in our second experiment by industry.

Appendix Table 3: Experiment 2 firms by industry

no. of firms	industry
5	Retail
4	Marketing and Advertising
4	Healthcare
4	Financial services
3	Manufacturing
3	IT
3	Food and beverage
1	Shipping
1	Public sector
1	Media
1	Hospitality
1	Conglomerate

Appendix Table 4 details the job openings used in the second experiment.

Appendix Table 4: Job Openings in Second Experiment

Job Title	Considered Low prestige (1= Yes)	Number of Jobs
Accountant	0	4
Communication officer	0	1
Credit officer	0	1
Developer	0	2
Editor	0	1
Human resources	0	1
IT maintenance	0	1
Marketing	0	2
Mechanical engineering	0	1
Medical Rep	0	1
Nurse	0	1
Pharmacy	0	1
Quality Assurance Officer	0	1
Sales Executive	0	1
Social Media Analyst	0	1
Administrative assistant	1	1
Cashier	1	2
Customer service	1	3
Data Entry	1	1
Factory worker	1	3
Indoor Sales	1	3
Outdoor sales	1	2
Receptionist	1	1
Sacker at grocery store	1	1
Secretary	1	5
Software Sales	1	1
Store Manager	1	1
Telemarketing	1	4
Waiter	1	3
Total	**31**	**51**

Jordan NOW 2.0: Screening and Matching

pilot to fix the broken link between educated youth and local firms by gathering the right information to connect the right people to the right firms.

Supply Side

Unemployed, educated youth in Jordan

—Broken—

Demand Side

Jordanian firms

BDC's Network

Kinz Database

2011 Firm Survey

Direct Marketing Campaign

Psychometric and Real World Skills Assessment
1354 individuals

Control

Treatment

Job Seeker Database
403 males
608 females

Firm Database
2000+ firms

Job Openings
198 positions at 142 firms

Control
147 males
196 females

Already employed
153 individuals

Matching (Individual Side)
564 individuals attempts to be matched at least 1 time
278, 2
140, 3
75, 4
40, 5
25, 6
14, 7
7, 8
to 134 firms

Matching (Firm Side)
60 firms matched to 1-5 individuals
59, 6-15
12 16-30
3, 30-70

Not offered a single interview
447 individuals

Did not receive any job offers
33 individuals

Sustained Matches
9 individuals still employed after 1 month

Reject at least 1 job offer
11 individuals

Quit within 1 month
15 individuals

Interview
58 individuals interviewed at least once

Job Offers
35 individuals received at least one offer

Employment Matches
24 individuals in 17 firms