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Determinants of Job-Search Success for Recent University Graduates in the West Bank and Gaza Strip

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Tertiary Education Project

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The Birzeit University The Center for Development Studies (CDS) is the leading source of Palestinian development knowledge, reputed locally and internationally for the quality and relevance of it's work, valued as a resource by professionals, policy-makers, academics, and students.

The CDS was established in 1997 as a research programme specializing in development studies. CDS seeks to deepen and engage development concepts by offering theoretical and conceptual frameworks that place CDS at the center of development debates. CDS reinforces theory with practice through its various academic research, and community-oriented activities, that include seminars, workshops, survey research, evaluation studies, and needs assessments. Living under occupation for the past 40 years, Palestinian society's right to development remains severely restricted. However, the Center for Development Studies seeks to provide an institutional framework within which all development-related issues can be considered, researched and discussed with a view of providing practical guidance and assistance to the relevant decision makers.

The Centre coordinates a number of academic research projects in the area of development with local and international institutions. It is also involved in community based projects that seek to empower marginalized groups and integrate them in the development process. The Center's activities are supervised by a committee of academic and administrative staff members from Birzeit University who provide it with both technical and academic support.

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Abstract: The aim of this study is to shed light on the factors that determine job-search success for recent university graduates in the West Bank and Gaza Strip. To this end, a ten month duration longitudinal survey was conducted to track the job-search success of 495 recent graduates from 5 different universities. Descriptive statistics and time-to-event statistical techniques were used to analyze the data, develop relevant statistics and identify relationships between job-search success and potential determinants. Insights from the results were used to develop a nationwide strategy that addresses some of the main repercussions from high youth unemployment rates.

Forward

Finding the first job for a recent university graduate is difficult anywhere in the world, but it is particularly difficult in the West Bank and Gaza Strip (WBGS) where unemployment rates are at least 23.7% and 47.1%, respectively (PCBS 2009).[1] With this being the case, a greater effort needs to be made to assist recent graduates in their school-to-work transition. This effort should be invested on a national level and involve all relevant stakeholders including government, private sector, the NGO sector, universities, parents, and the students and recent graduates themselves.

With this in mind, Birzeit University's Center for Development Studies launched a project called YouthFutures, funded by the World Bank, which aims to improve the school-to-work transition of recent graduates by increasing the flow of information between universities, youth, and the labor market. Part of the YouthFutures project is the present longitudinal study which tracks the job-search experience of 495 recent graduates over a period of more than 12 months.

The study is conducted with three main goals in mind. The first goal is to improve our understanding of the job-search process of recent university graduates in the WBGS. This includes developing job-search-success estimates and identifying determinants of job-search success. The second goal is to suggest to relevant stakeholders proactive and transformative policy recommendations targeted at developing job-search capabilities of recent graduates.[2] The third and perhaps most important goal is to share this improved understanding with future graduates in order to empower them to better prepare themselves for the challenging task ahead. With this in mind, extra time is invested during this study to introduce relevant concepts and explain methodology to provide useful case study material in university classrooms.

This study could not have been completed without the participation of the recent graduates, to whom I am grateful. I am equally grateful to The World Bank for funding the research effort, and Al Quds University, An Najah University, Arab American University, Birzeit University, and Islamic University for cooperating.

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[1]   [A]t least" because PCBS considers as unemployed only those individuals who had searched for work within a week prior to the survey. This, however, is neither in line with international common practices, where one month is typically used, nor with local job search frequency practices. See Sotnik, 2008a.

[2]   Promotive and transformative measures are part of the social protection framework utilized in the West Bank and Gaza Strip to promote and maintain a dynamic, cohesive and stable poverty- and vulnerability- free society through increased equity and security (Sotnik 2008b).

Introduction

The dynamic nature of the labor market makes labor economics a fascinating field to study. It also makes it a challenging field to study. The labor market is a complex network of highly interdependent heterogeneous employers and employees operating in a context of uncertainty and with unequal access to valuable and costly job search related information. The goal is to appropriately match the right employer and employee. The likelihood of such a match depends on the attributes of the employer, those of the employee, and the market context.

On the demand side, jobs are constantly being created and eliminated either through regular turnover, layoffs, exploration of new/failure of old projects, or by introduction/retreat of entire companies from the market. On the supply side, people start searching for work as they come of age or graduate, after getting fired or laid off, after being out of the labor market for whatever reason, or in the belief that they could do better than their current job. They stop searching because of reasons such as child birth, temporary injury, or discouragement in their ability to find work.

Work can be formal or informal, temporary or permanent, and part- or full- time. The duration of the position determines how soon a person would start searching for work again; as does whether or not the employee and employer meet each others' expectations and whether or not the company in question maintains a demand for this worker. Work differs by sector, position, wage, hiring method, work environment, and many other factors that affect a worker's decision to take the job such as, for example, its proximity to her/his home. Some employers expect employees not only to meet a minimum qualifications level, but to perform at a maximum qualifications level in order to avoid disturbance of the overall work environment (Granovetter 1981:13). Other jobs, especially those outside a bureaucratic structure, greatly value positive personal characteristics.

It must be noted that both employers and employees engage in search. Some employees get matched without ever searching, either because they were approached by the employer while being employed at another location or because they were connected by someone they know. Most job-seekers, however, search for various periods of time before they get matched, and some give up searching discouraged for lack of having landed a job and with their hopes of finding a job exhausted. Luck certainly plays a key role, and being at the right place at the right time often makes a difference.

The duration of the search greatly depends on the wage rate anticipated and that offered, as well s the opportunity cost of searching. An optional search strategy for individuals with perceived unacceptable employment opportunities and high costs of searching may be to stop searching before finding work. Some of the costs associated with finding work include transportation, getting hold of information, opportunity cost, and the anxiety of looking for a job. Expected wage rates could be overestimated or underestimated, leading to disappointment or a pleasant surprise.

This study focuses on recent university graduates. It excludes entirely non-university graduates, whose job-search experience is likely to be considerably different. In the case of recent university graduates, a lack of work experience and experience in searching for work translates into high rates of joblessness (Clark 1982). This is particularly true in the West Bank and Gaza Strip (WBGS), where demand for workers in general is weak.
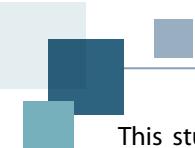
This study aims to improve the current understanding of the main determinants of job-search success of recent university graduates in the WBGS. Section 1 reviews contemporary quantitative models of search and matching in the labor market and is followed by Section 2 which identifies five different categories of mostly qualitative determinants of job-search success and reviews prominent theories within each category. Section 3 describes the survey methodology utilized in this study while Section 4 utilizes statistics and time-to-event analysis to explain the survey results. Section 5 utilizes the study's findings to develop a strategy for building job-search capabilities of recent university graduates, and finally, Section 6 summarizes the entire study.

Section 1

Quantitative Models of Search and Matching in the Labor Market

Section 1: Quantitative Models of Search and Matching in the Labor Market[3]

Modern models of search and matching are attempts to quantitatively portray labor market activity in order to improve our understanding of labor market dynamics. It is commonly accepted that qualitative factors (i.e. factors that until now have not been quantified) play a leading role in the search and matching process. Complications in dealing with qualitative data, however, discourage its use leading to an overreliance on quantifiable factors, which often prove to be equally as unreliable, although for different reasons.[4]

Up until recently, limitations in model building and computing abilities led to most economists assuming market perfection. In the perfect labor market, aggregate labor supply and demand set market wage and quantity. Models that emerged over the last two to three decades started incorporating the presence of market friction; that is anything that prevents/delays job seekers from finding jobs and employers from finding workers. Economists view unemployment and unfilled job positions as the result of this delay. The models also started incorporating the reality that such friction is costly; time and other resources are needed to find an acceptable job or worker.

Although improvements in computational abilities and modeling techniques continue to move this field toward greater insight, recent advances in modeling still fail to accurately portray economic activity in the labor market. Contemporary search models are rooted in decision theory, which is concerned with the generalized optimal stopping problem, with the stop being the point when the job-seeker accepts a satisfactory wage. Economists interpret imperfect information in the market as referring to the information about the different possible wages that a job seeker may receive. The job seeker, therefore, surveys the market in an effort to find the highest paying job. The job seeker keeps on looking as long as s/he expects to benefit from the search. Duration of the search depends on the seeker's characteristics and labor market conditions.

Most economists model the wage-setting process as the employer setting the terms of employment offers and job seeker choosing from among these offers, with an employer's market power constrained by competition with other employers who are looking to hire same workers. In competitive search models, job seekers can also suggest their wage offers and direct their search efforts towards more attractive options.

The job seeker in these search models explores optimal stopping strategies that maximize the expected present value of future utility from the job, excluding the accrued costs of the job search. Since utility is a theoretic and un-comparable quantity, economists substitute it with income.[5] Consequently, this section will use income (wage). This switch, while being extremely convenient, is highly misleading and disguises one of the main limitations of the models which is that for each period[6], the unemployed (or the

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[3]   This section, except when otherwise cited, relies on the literature reviews conducted by Devine and Kiefer, 1991; Pissarides and Mortensen, 1999; and Rogerson, Shimer, and Wright, 2005.

[4]   Problems with qualitative factors are… . Problems with quantitative factors are … .

[5]   Why is utility un-comparable? It is loaded with qualitative factors. One would need to make an assumption that all is purchasable and available. Why is income comparable?

[6]   Search of each period can be specified by the modeler, with common possibilities being: continuous,

employed, if searching while still employed) job seeker has a (predetermined) likelihood to receive a job offer. Each job offer is characterized by a particular wage rate that is independently and randomly drawn by the job seeker from a known distribution of wage rates.

Upon each receipt of a job offer, the job seeker decides whether to accept or reject it, depending on whether it is equal to or higher than the job seeker's reservation wage. The job-seeker's reservation wage is the key threat point, below which s/he will not accept the said position. The reservation wage is determined by many qualitative and quantitative factors, including the job seeker's opportunity costs and transaction costs of working.[7] Reservation wages may vary for each individual over time (Salop 1973).

The job seeker is trying to maximize the expected present value of her/his future utility (income) by comparing the income from taking a job with the income from continuing to search. Whether the job is taken or not depends on whether the income from taking the job is higher than the job seeker's reservation wage. Often, in these models, the job seeker can intensify her/his search, which will affect the arrival rate of offers, although at a higher cost. Income from a particular job can change, potentially encouraging the job seekers to look for a better opportunity. S/he can start by first quitting or by searching maintaining his/her current job.

The job seeker stops searching whenever s/he comes across a job offer, the expected present value of which exceeds or equals the present value of her/his income from continuing to search. In this way, the current job-search model satisfies the reservation-wage property. Two-sided search models also exist and focus on matching job seeker with employer. In these models, the employer also has a threat point, which is similar to the job seeker's reservation wage. The match is made whenever the employer and job seeker come across a deal the combined expected present value of which exceeds the present value of both of their incomes in the case they do not accept this deal and continue to search.

Other models use matching functions between heterogeneous[8] agents to determine the meetings, with the flow of contacts provided by a matching technology, and with the generalized Nash bargaining solution utilized to determine the wage. These models assume a number of heterogeneous job seekers and employers. Designed in line with the production function, the matching function maps searches made by both job seekers and employers into meetings. Intensity of the search can be changed for either the job seeker or the employer. When job seekers and employers meet to agree on a wage, they both consider their threat points. The job seeker's minimum threat point for the wage is her/his reservation wage, while for the employer it is her/his discounted profit as it relates to the discussed wage. If there is no agreement, both the job seeker and the employer return to searching.

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daily, and weekly.

[7] Examples of opportunity costs are: quality time spent with children, cost of childcare, or general value of leisure. Examples of transaction costs are: to and from work transportation expenses, high income tax, or risk of bodily or psychological harm in transit to/from or at work.

[8] The heterogeneity is relatively simple. For example, Dolado, Jansen, and Jimeno (2003) separate workers into those with either high or low education and employers with either skilled or unskilled job types. Workers with a high education are given an advantage because they can also work in an unskilled job and are allowed to engage in on-the-job searching.

In summary, modern models of search and matching are attempts to quantitatively portray labor market activity in an effort to improve our understanding of labor market dynamics. Models that emerged over the last two to three decades started incorporating the presence of market friction, which is anything that prevents/delays job seekers from finding jobs and employers from finding workers. Although improvements in computational abilities and modeling techniques continue to advance the field toward greater insight, recent advances in modeling still fail to accurately portray economic activity in the labor market. This is mainly because the models focus on wage as the primary determinant of a match, excluding many other job-seeker, employer, and contextual (mostly qualitative) attributes that decisively affect the matching process.

Section 2

Determinants of Job-Search Success

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A recent graduate's job-search success depends on a multitude of factors that increase or decrease her/his chances of finding work. These factors include unique attributes of each recent graduate, such as her/his intellectual, psychological, physical and social capabilities, attributes of the labor market in general and each employer in particular, and, as often is the case, some amount of luck, i.e. random chance.

This section reviews the above-mentioned factors thought to determine job-search success. Section 4 of this study sheds some light on which factors determine job-search success, particularly for recent university graduates in the West Bank and Gaza Strip and to what extent.

2.1 Intellectual Capability

One of the leading factors thought to determine job-search success is the job-seeker's intellectual capability. Adam Smith (1776) in his "An Inquiry into the Nature and Causes of the Wealth of Nations" wrote:

> When any expensive machine is erected, the extraordinary work to be performed by it before it is worn out, it must be expected, will replace the capital laid out upon it, with at least the ordinary profits. A man educated at the expense of much labor and time to any of those employments which require extraordinary dexterity and skill, may be compared to one of those expensive machines. The work which he learns to perform, it must be expected, over and above the usual wages of common labor, will replace to him the whole expense of his education, with at least the ordinary profits of an equally valuable capital. It must do this, too, in a reasonable time, regard being had to the very uncertain duration of human life, in the same manner as to the more certain duration of the machine.

Above, Smith distinguishes between skilled labor, which requires education, and common labor, which does not, and argues that formal education or training is an investment that is expected to generate a profit from future income as a way of compensation for the costs of education.

Smith continues by further separating an individual's assets into two sorts: those for consumption and those for investment. He then categorizes talents acquired through education, study, and apprenticeship within the latter sort and refers to it as capital, clarifying that such talents are the individual's fixed capital as opposed to circulating capital. Smith saw education as a necessary component of the division of labor which was not only an outcome of economic development, but also a catalyst.

Treatment of intellectual capability as capital continued among economists throughout the 19th Century, most notably by John Stuart Mill (1844) and Alfred Marshall (1890), but it was not until 1958 that the concept was formally defined as human capital by Jacob Mincer. In 1960, during a presidential address delivered at the 73rd annual meeting of the American Economic Association, Theodore W. Schultz broadened the definition of investment into human capital to include any effort that improves the quality of human productivity.

Schultz argued that these efforts, be they during leisure or work, or by the individual or employer, include expenditures on education, on-the-job training, health, and even internal migration in search of better job opportunities. Shortly after, the concept was transformed into an entire theory.

2.1.1 Human Capital Theory

The human capital theory was articulated by Gary S. Becker (1964) who, following Adam Smith's footsteps, saw job seekers pursuing education to increase their capability to produce and, in turn, receive higher profits. It was argued that employers used duration and quality of formal education of job seekers as a proxy for their capability to produce and paid them accordingly. Therefore, it was argued, income differences among workers were a direct outcome of differences in investment into their human capital, while profits were calculated by adjusting future income for the (sunk) opportunity cost of studying instead of working.

Emphasis was placed on formal education out of quantitative convenience since, for most people, its cost and duration could be calculated relatively easily. Formal education was also emphasized out of the belief that higher education may be used as a proxy for improvements in other aspects of a person's life, such as, for example, health (Schultz, 1963).

A number of weaknesses have been identified in human capital theory. For example, its claim that job-search success depends solely on the quantity and quality of education suggests that job-seekers are otherwise homogeneous beings. Another weakness noticed by Mark S. Granovetter (1981: 25) is that the theory ignores the fact that education is usually used only as a base during the candidate selection process, with employers often using recommendations and other credentials to make their final selection. Granovetter (1981: 18) further points out that the theory ignores the fact that investment into education paying off also depends on actual demand for whatever enhanced skill the individual has achieved through furthering her/his education and whether or not the job seeker will have a chance to be matched to this demand.

Other critics also noted that education does not always provide knowledge and skills immediately applicable to work and, therefore, that there must be other attributes that employers look for. In response to this criticism, human capital theorists argued that education developed capacity for abstract thought, which in turn improved productivity. Many academics remained unconvinced.

2.1.2 Signaling Theory

Michael Spence (1973) was among those academics unconvinced by the human capital theorist's claim that education increased productivity. Instead, Spence saw education as a formally-verifiable test of a job seeker's intrinsic intellectual capability, and believed that job-seekers' pursuit of education was an effort to signal to employers this intrinsic capability, and not increase their productivity.

Spence (1973) explained that employers make hiring decisions in an atmosphere of uncertainty. The employer has a collection of personal information about the job seeker based on which the employer is to determine whether s/he should hire the

candidate and for what wage. A portion of the personal information is fixed (age, race, sex, etc.), and a portion is flexible (education, work experience, etc.). Spence referred to the flexible information as signals and pointed out that they were open for manipulation.

Both theories have little to say about the matching process and about the fact that knowing how to search for work is a key component of intellectual capability.

2.2 Psychological Capability

Something that Smith and human capital theorists have overlooked is the importance of psychological capital. According to Fred Luthans, Carolyn Youssef, and Bruce Avolio (2007: 3), psychological factors contributing to a person's productivity include: 1) self-efficacy/confidence, which is the willingness and ability to take on challenging tasks; 2) optimism, which is useful for motivation and a positive environment; 3) hope, which is persevering toward goals; and 4) resilience, which is pulling through tough times to attain success. Luthans, Youssef, and Avolio believe that the presence of the four above attributes as a whole is greater than the sum of each as a part.

These attributes are as important in the job search as they are in work. Studies conducted internationally have identified a tendency among many unemployed to feel disheartened which, in turn, adversely affects their chances to find work (Vansteenkiste et al. 2005). A healthy psychological outlook is clearly a valuable asset at work or during the job search.

A number of theories in psychology try to explain what is behind an individual's psychological state. The ones that can be applied to the job search include: expectancy-value theory, self-efficacy theory, learned helplessness theory, and attribution theory (Vansteenkiste et al. 2005). Below is a review of two of these theories that underscore Luthans, Youssef, and Avolio's list above.

2.2.1 Expectancy-Value Theory

The expectancy-value theory argues that one of the key determinants of a person's success in an endeavor is the level of her/his motivation. The theory claims that a person's level of motivation is determined by how valuable the achievement of this endeavor is for the person. For example, in the context of job seeking, receipt of an allowance or unemployment benefits may lower the motivation of finding work and discourage intense job seeking because it improves the person's unemployed situation. On the other hand, the more the job seeker values finding a satisfactory job, the more vulnerable s/he may become to psychological trauma from not finding one, in turn adversely affecting her/his job search.

In the job-search context, expectancy-value theory links the level of a job seeker's optimism about finding a job to the likelihood of the search resulting in satisfactory employment (Vansteenkiste et al. 2005). Expectancy has two aspects: efficacy- and outcome- expectancy. The efficacy-expectancy aspect refers to a job seeker's expectation of successfully conducting the job search. The outcome-expectancy aspect refers to a job seeker's expectation of the job search leading to employment. The expectancy-value theory argues that an unemployed person with higher

(lower) expectations of finding employment will be more (less) motivated to search and will search with a higher (lower) intensity than a person with lower (higher) expectations of finding a job.

2.2.2 Self-Determination Theory[9]

Self-determination theory is in agreement with expectancy-value theory that one of the key determinants of finding work is motivation, but it lays more emphasis on the type of motivation that inspires the activity than on the level of motivation. Self-determination theory identifies two main different types of motivation: autonomous and controlled.

Autonomous motivation emerges from volition and choice. There are two types of autonomous motivation: intrinsic and extrinsic. Intrinsic motivation emerges from an inherent interest and even enjoyment in the activity itself. Extrinsic (or identified) motivation emerges from associating the activity with another activity or a goal that the person has intrinsic motivation toward. Extrinsic motivation is often internalized. For example, the desire to relate to or feel oneself part of a group may result in acceptance of values, beliefs, and behaviors of others. In this sense, individuals can even fully identify themselves with the activity.

Controlled motivation, on the other hand, emerges as result of coercion and pressure and can be external or introjected. External motivation stems from the following of rules or avoidance of punishment and includes force or reward (carrot and the stick mechanisms) from an outside agent or agency, like hunger, parents or spouse. External motivation stems from seeking approval and/or avoidance of disapproval and is typically not internalized but rather experienced as coercion. Introjected motivation is driven by feelings of guilt, shame, or self-derogation. Avoidance of being perceived as a lazy person is an example. In this sense, the person acts out of compliance with internal pressure.

Studies have shown that autonomous motivation leads to task effectiveness, greater persistence and a more positive sense of well-being.

2.3 Physical Capability

In recent years, an increasing number of jobs have emerged that do not require extensive physical ability. In fact, many jobs calling for university education do not require intense physical activity. Office jobs, for instance, do not necessitate much beyond thinking, communication and typing abilities, capabilities that many physically-able employees have difficulties with. This should not be confused with the stigma that is associated with disability. Discrimination based on physical attributes is addressed under subsection 2.5 entitled "Context."

2.4 Social Capability

Another factor playing a role in a job-seeker's job search success is her/his social connectedness. Job-related information often travels by word of mouth and knowing the right people may not only gain a job seeker access to privy job-related information, but may get her/him an interview as well. In other words, the labor market is a complex

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[9]   This subsection relies entirely on Vansteenkiste, 2005, and Vansteenkiste, Lens & Deci, 2006.

network of employees and employers with unequal access to valuable information. Geography and socio-economic attributes segment this network into overlapping clusters of variable quality/quantity of different resources. Job-search success depends to a great extent on access to relevant clusters, as well as how effectively this access is utilized.

Diverse clusters of interpersonal ties contribute differently to matching job seekers to jobs and jobs to job seekers. Both the employers and the employees are seeking to obtain insider information about the other. This information is often imbedded in social processes unrelated to work such as informal social gatherings, which makes it difficult to equate them with a monetary value (Granovetter 1981: 25).

It has been shown that workers prefer to receive job-related information from personal contacts, since it is often cheaper and of better quality (Granovetter 1981:26). It has also been shown that acquaintances are more likely to be helpful in finding work than friends because friends tend to know the same people and are therefore not as efficient in providing new information.

Marsden and Gorman (2001: 474-9) cite numerous studies conducted throughout the United States in the 1970s and 1980s that record as much as 51% to 70% of successful job-seekers finding work through personal connections, such as friends and relatives. This seems to be less of the case in Europe, where studies conducted from the 1970s through to the early 1990s show that anywhere from 31% to 50% of those who successfully found work did so through personal connections. In Israel and Singapore, on the other hand, the percentages are in the 70% range. After surveying the available literature on the subject, Marsden & Gorman (2001: 495) concluded that clusters are able to properly communicate subtle information in an expensive manner, expose members to a closed community, and even influence the decision to hire.

According to networks expert Albert-László Barabási (2003: 206), networks and clusters are known to be present in all industries, with employers believing that employees hired through personal links perform better and quit less frequently than those who are hired through the formal process. Barabási points out that a closed, high density network may exhibit sharing as a main characteristic, while an open and sparse network may provide extended access as a main characteristic.

Nan Lin (1986; cited in Lin 2005: 12) provides three spheres of social relations – binding, bonding, and belonging – which differ in the strength of ties and extent of support. The binding sphere has the closest relationships where ties are strong and help is obligatory. The bonding sphere includes relationships of indirect interaction where resources are shared. The belonging sphere includes relationships based on shared identification with a particular group, even though there may be no direct or indirect interaction.

It is not clear which relations represent greater value (Granovetter 1973: 1371). For example, those within the binding sphere are likely to be more motivated to share resources, while those in the belonging sphere are likely to have more access to resources than those within the binding sphere. If resources in the binding sphere are rich, then there is less need for and dependence on the other spheres, particularly the belonging sphere. However, if resources in the binding sphere are poor, then there is more dependence on the other spheres, particularly the belonging sphere.

2.4.1 Social Capital

The idea that social networks have value led to the concept of social capital. Bourdieu (1979, 1980; cited in Portes 1998: 4) argued that while network exchanges usually lack specified obligations, time horizons, and reciprocity expectations, they are nevertheless exchanges of value. In this sense, social relations can be seen as investments, with the worth of one's social capital depending on the usefulness of one's social network in achieving particular goals.

In a way, one's individual social capital is access to others' capital, such as knowledge or influence. Therefore, social capital is access to those with valuable capital. Bourdieu, who is the originator of the term, made it clear that its meaning contains two components – the social relationship that allows access and the usefulness of the relationship (1985; cited in Portes 1998: 3-4). It has been noted that social capital is positively correlated with human capital (Coleman; cited in Portes 1998: 5).

2.4.2 Status Attainment Theory

Status attainment theory identifies job search success, or rather a job-seeker's educational level, which in turn ends up correlating the individual's social status with the occupational, educational and income levels of her/his parents (Duncan, Featherman, & Duncan 1972). The theory is somewhat of a cross-breed between human and social capital theories. While it sees intellectual capability as being extremely important, the theory perceives a family environment that encourages a particular level of educational and occupational achievement playing a more significant role.

In particular, this has been found to be the case with women, whereby women holding full-time jobs often tend to be from a family of higher status than working men. An outcome of status attainment theory is socialization theory, which lays importance on the socialization process, i.e. the learning of culture. In this way, family, social networks and educational institutions contribute to the socialization process and influence job options.

2.5 Context

Last but by no means the least, context plays a central role in determining job-search success. The context determines the quantity and quality of available work, as well as the ease within which one can find it. The context in which recent university graduates participating in this study were searching for work can be characterized by that of poverty and vulnerability. Poverty in the West Bank and Gaza Strip takes on many forms and on different levels extends to each and every Palestinian.[10] The Israeli occupation, which makes its presence felt through both a prolonged conflict and occasional and often severe shocks, has been the primary source of poverty, having crippling effects in many forms and to different extents (MoP 2006).

For example, in the words of UNRWA's Commissioner-General Karen AbuZayd (2008): "From recent studies and my own observations as a Gaza resident, I can testify that the suffering is as much in the psychological domain as it is in the physical. An air strike may claim to be exact in its deadly objective, but there is nothing precise about

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[10]   This and the next two paragraphs rely entirely on Sotnik, 2008.

collateral damage – almost certain in a place of such high population density as Gaza. The scope of the terror unleashed by this conflict touches everyone in Gaza. My staff (9,000 in Gaza) tell me each morning that they have spent the night huddled with their children, keeping them close because they wonder if they will be around to see them the following day. They struggle with answering the often-repeated question, 'why is this happening to us?'"

There are other examples of adverse effects. Again, according to UNRWA's Commissioner-General (2008): "New challenges [resulting from the Israeli siege of the Gaza Strip] are… posed to the health of Palestine refugees by a rise in the occurrence of non-communicable diseases, including hypertension, diabetes and cancer. Socio-economic decline and poverty in Gaza and the West Bank have also brought in their wake a sharp increase in low birth weight, growth retardation, anemia, malnutrition and the incidence of communicable diseases such as gastroenteritis and viral hepatitis."

The above quotes were in reference to the situation in the Gaza Strip prior to the most recent severe shock - Israel's military operation in the Gaza Strip that lasted from December 27, 2008, to January 18, 2009.[11] The operation involved ground incursions, artillery shelling, and aerial and naval bombardment, killing at least 1,314 Palestinians and leaving four times as many wounded, about half of whom were women and children. More than 100,000 people were displaced as result of the operation. More than 15,000 homes were damaged or destroyed. Public infrastructure and utilities, including water, sanitation, electricity, and transportation networks were damaged severely. Many businesses, factories, and farms were leveled.

While the above described military operation was limited to the Gaza Strip, the Israeli occupation is felt throughout the West Bank as well, as is portrayed by the following subsection, which briefly reviews the economic environment within which the recent graduates on whom this study is based searched for work.

2.5.1 Economy

The current economic environment is predominantly characterized by the Palestinian lack of control over their economic environment. Borders, air space, and, in the case of the West Bank, large tracts of land are controlled by the Israeli military. For example, an aspect of the Israeli occupation and a cause leading to deepening poverty and vulnerability is forced isolation. Isolation, which is imposed by Israel through its control over Palestinian borders and movement within them, disconnects most Palestinians living in the West Bank and Gaza Strip from the rest of the world as well as in many cases from each other. One of the adverse effects of isolation is the difficulty to access resources and trade goods (food, materials, etc.) and services (education, healthcare, etc.).

According to the World Bank (2009: 6), the Palestinian private sector is experiencing extreme restrictions that are preventing the West Bank economy from fulfilling its potential:

"Very few economies have faced such a comprehensive array of obstacles to investment -- not just of physical impediments to movement, but also comprehensive institutional and administrative barriers to economies of scale

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[11]   This paragraph relies entirely on The World Bank, 2009.

and natural resources, along with an unclear political horizon and the inability to predictably plan movement of people and goods. … As a result of the Israeli security regime, the Palestinian economy has hollowed out, with the productive sectors declining and the public sector growing, as more of the population looks to the public sector for employment and assistance in coping with the impact of unemployment. … In this policy environment and pending a political resolution to the conflict, aid should be recognized for what it is -- more of a stabilizing measure, slowing down socio-economic decline, than a catalyst for sustainable economic development. Large amounts of donor aid have produced insignificant growth and an increase in economic dependency, despite the consistent improvement in PA governance and security performance …"

Subsequently, The World Bank notes that unemployment rates and, in turn, poverty rates have been increasing in both West Bank and Gaza Strip with estimated poverty rates significantly higher in the Gaza Strip (30%) than in the West Bank (19%) due to the Israeli blockade. In terms of prospects, private investment is deteriorating as is manufacturing and agricultural output and, in the case of the Gaza Strip, the recent military operation destroyed a significant portion of business infrastructure and capital stock.

2.5.2 Discrimination

Discrimination, like poverty and vulnerability, varies in its breadth and depth. Most commonly-mentioned forms of discrimination that persist in employment rates and wages are gender and disability related. Another form of discrimination that is not as commonly referred to is that of physical appearance. Hamermesh and Biddle (1994) examined the impact of a person's looks on earnings and found discrimination and favoritism.

Labor market segmentation into vertical and horizontal clusters has been noted to exist, providing different working conditions, promotional opportunities, wages, and even market institutions to persons of different ethnic background, gender, educational credentials, and industry grouping. The following are two out of a number of theories aiming to explain the way in which discrimination functions.

Labor Market Segmentation Theory

Economists started to study segmentation in the labor market to investigate numerous persisting inequalities arising from discrimination. Generally, the theory separates the labor market into a primary and secondary, formal and informal, or high value added and low value added segments and considers the differences.

As an example, jobs within the primary segment are considered to be much better than secondary jobs, providing significantly higher wages, better working conditions, employment stability, opportunities for advancement, equity, and due process in work rules. Jobs within the primary segment demand and develop stable working habits, include on the job training, pay higher wages, and allow for upward job mobility. Jobs in the secondary segment, on the other hand, do not require stable working habits and even discourage them, offer lower wages, have high turnover rates, and seldom allow for upward job mobility.

Further separation can take place within the primary segment, dividing jobs into those that are independent and subordinate. Independent primary jobs demand and reward creativity, motivation, problem solving and initiative characteristics while subordinate primary jobs are highly routine and demand discipline and submission to rules and authority.

Labor Queue Theory

Thurow (1969) argued in his labor queue theory that the distribution of occupational opportunity in a society follows a hierarchy that is unique to that society. Based on this hierarchy, a labor queue is established in which employees are ordered according to that hierarchy and according to which employers make job offers. Employees from inferior clusters will not get superior jobs until all employees from superior clusters are employed.

The Palestinian Labor Law No. 7 (Appendix 3) prohibits discrimination and requires that employers include on their staff a minimum of 5% qualified disabled workers. It falls short, however, of clearly prohibiting discrimination in hiring. This law equally prohibits gender-based discrimination, however, it still persists.

Section 3

Survey Methodology

Section 3: Survey Methodology

A longitudinal survey was conducted in order to investigate the determinants of job search success for recent university graduates in the West Bank and Gaza Strip. In particular, the survey aimed to achieve two goals: to shed light on the job search experience of recent graduates and to help identify successful job search strategies. In order to participate, the recent graduate should have graduated either during the 2008 Spring or 2008 Summer semester and, at the time of the participation request phone call (Appendix 1), should have either been working, searching for work, had searched for work in the prior 2 months, or planned to begin searching for work in the next 2 months.

The following five subsections describe the university and participant selection process, define what is implied by working, explain the three questionnaires utilized in the survey, review the schedule followed by the survey team, provide some statistics on the three data sets and describe the data cleansing process that took place in preparation for analysis of the results.

3.1 University and Participant Selection

As was discussed in Section 2, education plays a significant role in making a potential employee appealing to her/his potential employer, with employers taking both the quantity and the quality of the recent graduate's education into account. As in most other places, universities in the West Bank and Gaza Strip can be at least informally ranked according to their assumed quality. Unlike most other places, however, recent graduates from different West Bank and Gaza Strip universities often do not compete for the same jobs.

The Israeli-imposed segmentation of the Occupied Territories coupled with tight restrictions on mobility among them, and often within them, to a great extent confines most recent graduates to their local job market, with each local job market offering different levels of quality and availability (quantity) of job opportunities. With this being the case, geography plays a leading role in job search success to the extent that universities may be used as proxies for their geographic location and, in turn, the state of the local labor market.

Therefore, the university selection process consisted of two steps. The first step involved selecting a set of local labor markets with work for university graduates. The second step involved selecting the leading university within the geographic segment of each of the local labor market.[12] The resulting list of labor markets and, accordingly, universities consisted of: 1) East Jerusalem, represented by Al Quds University; 2) Nablus, represented by An Najah University; 3) Jenin, represented by the Arab American University; 4) Ramallah and Al Bireh, represented by Birzeit University; and 5) the Gaza Strip, represented by the Islamic University.

The aim was to randomly select 100 recent graduates from each university, with the total sample equaling 500 participants. Sample size was chosen to be large enough to avoid a number of problems that could hinder statistical analysis, such as not enough participants finding work and/or loss of contact with too many participants before the

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[12]   The overall selection process was slightly altered to account for some universities' lack of willingness to cooperate.

study's end. Participating universities provided the lists of recent graduates from which graduates were randomly selected and contacted. The participation request phone script may be found in Appendix 1.

3.2 Defining Working

Broadly defined, working means participating in a formal or informal, short or long term, part or full time income generating activity. In other words, it is defined by generation of income. This study, however, is focused on the search process and therefore the definition of working needs to be centered on whether the search is successful or not. For this reason and in the context of this study, a recent graduate is considered to be working when s/he permanently stops searching after engaging in an income generating activity. This definition allows for time-to-event analysis.

3.3 Three Questionnaires

The survey consisted of three questionnaires. Below is a brief description of the questionnaires and the type of questions in each.

3.3.1 Pre-Tracking Questions

Questions in the pre-tracking questionnaire were asked only once and during the initial (first) round of the survey. There were eight questions related to the recent graduate's demographics and background, seven (A2-A8) questions related to the recent graduate's education, four (A9-A12) questions related to her/his employment history, one (A13) question related to the amount of time s/he spent searching prior to the first round, and two (D1-D2) questions for the field researcher, who was asked to assess the recent graduate's speaking and communication skills during the interview.

3.3.2 Tracking Questions

Questions in the tracking questionnaire were asked at each round, including the first, and aimed to capture information defining and affecting the participant's job-search experience. There were two (B1-B2) questions related to wages, three (B3-B5) questions related to the graduate's job search intensity and productivity, ten (B6-B15) questions related to the graduate's self-determination and employment value, three (B16-B18) questions related to her/his persistence in searching, four (B19-B22) questions related to her/his job-search expectations, and one (B23) related to the level of the graduate's satisfaction with life.

Questions in the tracking questionnaire related to the graduate's self-determination, employment value, and expectations were based on a 1-5 Likert scale and included the following type of answers: strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree. Likert scales are subject to a number of biases, including central tendency and social desirability.

3.3.3 Post-Tracking Questions

Questions in the post-tracking questionnaire aimed to summarize the job search experience and were asked during the last (third) round, or during any one of the

rounds in which the participant indicated that s/he has permanently stopped searching. There were seven (C1-C7) questions related to the graduate's search results.

3.4 Schedule

Initially the study was planned to include four rounds of surveying over a period of ten months:

		R1			R2			R3			R4
Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul

This approach captured data for an entire year or even longer, if the graduate started searching more than two months prior to the first round. Due to various constraints, the study included only three rounds of surveying over the period of ten months, and at different time increments.

		R1					R2				R3
Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug

This approach still captures data for an entire year, however, the larger increments make it a bit more difficult to narrow down the duration of the search, since the ideal would be every month. While in the planned scenario the search duration could be narrowed down to a three month time period, in the actual survey structure the time segment can be as large as five months, as is the case for round three data.

3.5 Data Statistics and Cleansing

As mentioned in subsection 3.1, the selected sample size (500) was chosen to be large enough to avoid a number of problems that could hinder statistical analysis, such as not enough participants finding work and/or loss of contact with too many participants before the study's end. In total, 499 recent graduates agreed to participate in the study and were surveyed during the first round.

This number was reduced to 495, with two cases removed during the data cleansing process because they did not meet the minimum quality standard of the data cleansing process and two additional cases removed during the analysis process because they did not meet the survey criteria.

During the first round, 62 recent graduates reported to have found work and eight permanently stopped searching without finding work, leaving 425 (85.9%) of the recent graduates to be surveyed during the second round. During the second round, the survey team was not able to establish contact with 64 graduates, reducing the number of graduates surveyed during the second round to 361 (72.9%). Out of those surveyed, 27 reported to have found permanent work and 11 permanently stopped searching without finding work, leaving 323 (65.3%) recent graduates to be surveyed during the third round. During the third round, the survey team was not able to establish contact with 63 graduates, reducing the number of graduates surveyed during the third round to 260 (52.5%). Out of those surveyed, 37 reported to have found permanent work and 19 permanently stopped searching without finding work.

In summary, out of 495 recent graduates, 126 (25.5%) recent graduates reported to have found permanent work, 38 (7.6%) reported to have permanently stopped searching without finding work, and contact was lost with the remaining 127 (25.7%). Such attrition rates are reasonable and were expected, avoiding the problems mentioned above.

Another problem that was not foreseen but potentially undermined the statistical significance of the analysis was data incompleteness, or presence of a large number of unanswered questions. It is tricky to measure the extent of this problem using frequency analysis because, for many questions, those who should have answered the question did not and those who should not have answered the question did (requiring additional levels of filtering in the analysis process). In other words, surveying instructions that were assigned to relevant questions in the questionnaires, guiding the surveyor from one question to another, were poorly followed.

Without spending too much time on measuring the exact extent of this problem, after conducting statistical analysis, it is clear that the number of missing values is significant and increases with each round. This problem did not completely prevent the analysis, but did limit it, particularly in building the regression model.

In the case of missing answers to the questions in the Individual Roster, values were filled in using data from the other two rounds. To systematize the reconstruction process, values from the previous round took priority over values in the following round.[13]

A number of other issues were identified that could have hindered the statistical analysis or distorted its results. Most if not all of these issues occurred during the data collection and input process. One issue was illegibility, with a number of questions not translated from Arabic into English, resulting in frequency tables in SPSS appearing as computer gibberish. Another issue was inconsistency. For example, answers in response to the recent graduate's grades should have been collected either in the GPA or the percentage format but were instead answered in both. Such inconsistencies, as well as typographical inconsistencies and errors that include case, spelling, and term selection made analysis difficult if not impossible.

In addition, while each case should have been unique, duplication was present in the data sets. A number of duplicate cases had to be removed, with the decision on which case to remove being based on relevant data in other rounds. In summary, issues such as incompleteness, illegibility, inconsistency, and duplicity were present in the data. While the issues were resolved through data cleansing, their resolution was a time consuming and imperfect process, with their presence undermining the data's overall integrity.

Measures should be taken to avoid such issues in the future and assure that the data meets minimal quality standards. The above constraints on data integrity can be considerably reduced through proper quality assurance training of the survey and data input teams. A standardized approach should be introduced to avoid the above issues including assuring that the survey team fully understands the questionnaire and accompanying directions.

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[13]   While the availability of three sources of unchanging demographic data (gender, refugee status, etc.) came in handy, it is not clear why identical demographic questions were repeatedly asked in each round. It seems it may be more time efficient to instead ask only those demographic questions not answered in the previous rounds.

Section 4

Recent University Graduates in the West Bank and Gaza Strip
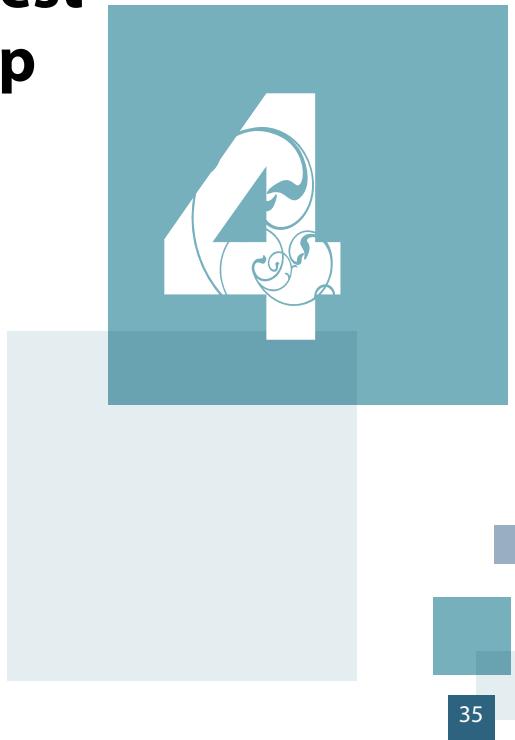
Section 4: Recent University Graduates in the West Bank and Gaza Strip

As discussed in the previous section, this study of determinants of job search success for recent university graduates is based on a survey that consisted of three rounds of interviewing and was conducted over a period of ten months. The fact that contact was lost during the survey period with a significant portion of the studied sample of recent graduates was also mentioned. This is typical in longitudinal studies of this nature and has led to the development of special statistical techniques to account for resulting limitations.

The central limitation is that common sample statistics related to the job search success rate cannot be calculated for the sample because job search success rates of a significant portion of the sample are unknown and cannot be estimated. For example, it is impossible to conclude that a certain percentage of the sample found or did not find work because it is unknown what percentage of those with whom contact was lost found or did not find work.

This section presents the analysis of the three rounds of data. First, descriptive statistics are presented, which are useful for drawing an overall picture of the subject under analysis. Despite the above mentioned limitations, descriptive statistics are insightful and in some cases conclusive. Their presentation follows the sequential order of the questions in the three questionnaires. The descriptive statistics section is followed by time-to-event analysis, where special statistical techniques are used to present a number of insightful statistics, and where a relationship between the job search success rates and a number of determinants is established.

4.1 Descriptive Statistics

This subsection focuses on describing the general attributes of the studied sample. From the 497 graduates available for analysis after the data cleansing process, two were removed because they did not meet the survey participation criteria. During the first round interview, these two recent graduates claimed to have neither searched nor planned to search in the near future. The two recent graduates were both females, graduated from Al Quds University, and had no other significant attributes differentiating them from the other recent graduates participating in the study except for that one of them is either permanently ill or disabled and the other had a young child to look after.

Out of the remaining 495 recent graduates participating in the study, 393 (79.4%) were from the West Bank and 102 (20.7%) were from the Gaza Strip. Which Occupied Territory a recent graduate is from determined the economic context in which the recent graduate searched for work. As time-to-event analysis will show, the economic contexts in the West Bank and Gaza Strip are significantly different.

Economic context is not only differentiated by territory, but by district as well, since restrictions on mobility within the West Bank minimize access of recent graduates to job opportunities in neighboring districts. As the chart below demonstrates, nearly one fifth (19%) of the participating recent graduates were from the Ramallah and Al Bireh district, while large portions of recent graduates were also from the Jenin (14%), Nablus (13%), East Jerusalem (11%), and Gaza (10%) districts.

District of Residence

- 1% Rafah
- 14% Jenin
- 3% Khan Younis
- 3% Deir Al-Balah
- 3% Tubas
- 10% Gaza
- 6% Tulkarm
- 5% North Gaza
- 13 % Nablus
- 5% Hebron
- 3% Bethlehem
- 3% Kalkilya
- 11% East Jerusalem
- 2% Salfit
- 19% Ramallah & Al-Bireh
- 1% Jericho
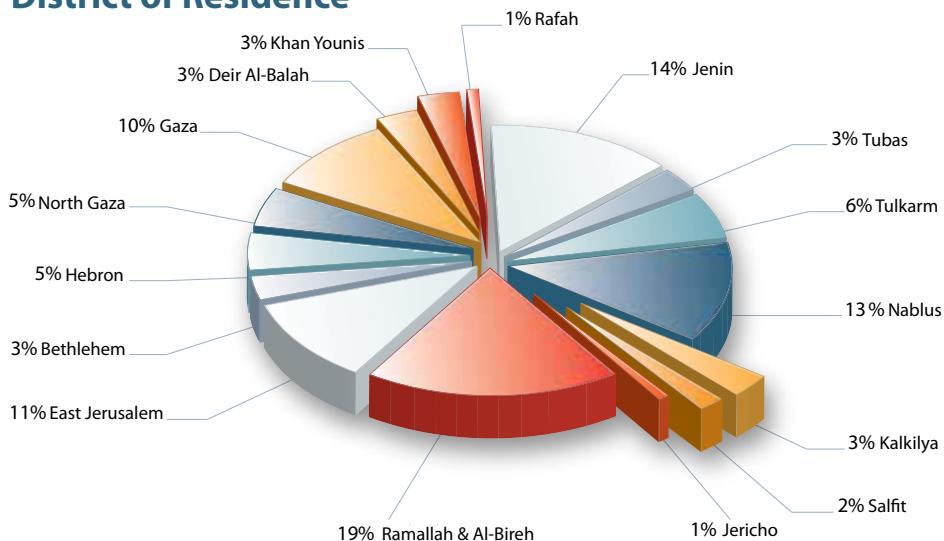
Among them, 51.2% (252) lived in an urban area, 41.9% (206) lived in a rural area, and 6.9% (34) lived in a refugee camp. The three locality types usually differ in the kinds of jobs that are locally available. University level jobs are commonly found in urban areas, particularly the Ramallah/Al Bireh district which can easily be considered the economic hub for University level type jobs. This is to a great extent due to the extensive and prolonged de-development that has been taking place in other districts, such as Gaza, Hebron, Jenin and Nablus. De-development is a term used by US economist Sara Roy, to describe Israeli policies that are aimed at preventing development in the Gaza Strip. This term can be easily extended to include the West Bank.

In the sample, 32.9% of recent graduates had refugee status, with many of them living outside refugee camps. Little research exists on the differences between the challenges faced by refugees and non-refugees in the Palestinian labor market. Potential for discrimination is large, considering the differences in history, locality, ownership, and services. No considerable differences in job search success were identified by the time-to-event analysis.

Gender bias is a common phenomenon in the labor market, stemming from both demand and supply side factors. On the demand side, employers' discrimination against female job-seekers may either stem from their beliefs on what a female's role in society should be or their beliefs on what a female's level of productivity is, as compared to that of a male job seeker. On the supply side, a number of social and personal factors can influence differently males' and females' motivations and expectations, encouraging or discouraging individuals from seeking work.

Despite the expected gender bias in the labor market, the set of recent graduates participating in the study was comprised of 61.8% female job seekers and 38.2% male job seekers. The female to male dominance was higher in the West Bank (69.6%/30.4%) than in the Gaza Strip (59.7%/40.3%) and supports the often discussed observation that there

is an extraordinary number of women receiving education in the West Bank and Gaza Strip. More than 90% of the participating recent graduates were 22 to 26 years of age during the first round of the study, with more than two fifth of them being 22 years old.

Marital status plays an important role in Palestinian society. The below table breaks down the sample according to marital status:

	Never Married	Engaged	Married	Divorced	Widowed
Female	180	43	81	1	1
Male	163	10	16	0	0
Total	343	53	97	1	1

Engaged and married male graduates represented only a small portion (13.8%) of recent graduates participating in the study, suggesting that employment may be a prerequisite for males to engage or marry. On the other hand, 40.8% of female graduates searching for work were either married or engaged, suggesting that many young Palestinian women choose work over becoming a housewife.

While this is not a statistically significant observation, it is worth making a mental note that there was one divorced female and one widowed female participating in the study. Both participated in all three of the study rounds. Both reported to be searching at each round, with the divorced female searching 12 months before the study's end and the widowed female searching 14 months before the study's end. Neither found work.

Four recent graduates out of the 495 participating in the study were permanently ill or disabled. Permanent illness or disability can be a serious hindrance to finding a job, even if the Palestinian Labor Law (Appendix 3) requires at least 5% of any work force to consist of permanently ill or disabled employees. One permanently ill or disabled graduate reported to have found work. Two reported to be searching for work during each survey round and did not find work before the studies' end. Contact was lost with one graduate before the third round and therefore his status is unknown.

A1: Recent graduates were asked if they had ever lived abroad. The majority of participating graduates reported to have never lived outside the WBGS, while 21.3% (105) had lived abroad in a non-Arab country and 1% (5) had lived abroad in an Arab country. Living abroad may be a positive factor, as it may expose the individual to benefits inaccessible in the WBGS or act as a proxy for financial capabilities that include access to social clusters with privileged job-related information. It may also play out as a negative factor, as it may imply unfamiliarity with the realities of the local context, a lack of access to relevant social clusters, and/or financial capability that dissuades one from needing to have a job. Time-to-event analysis in the following subsection was not able to establish a relationship between having lived abroad and the job search success rate.

4.1.1 Education

The sample was separated approximately equally among the five selected Universities: 1) Al Quds University (99) located near Jerusalem in Abu Dis, West Bank; 2) An Najah National University (100) located in Nablus, West Bank; 3) Arab American University (98) located in Jenin, West Bank; 4) Birzeit University (99) located near

Ramallah in Birzeit, West Bank; and 5) the Islamic University (99) located in Gaza, Gaza Strip.

It is often the case that a graduate's ability to find work is correlated with the reputation for quality of the university from which they graduate. Although, as anywhere else, quality of education in the WBGS varies, selection of university as well as job opportunities after graduation are likely to depend more on the district the recent graduate is from than the quality of the university. This is mainly due to the Israeli-imposed restrictions on movement that exist in the West Bank and between the West Bank and the Gaza Strip. As result, both university and job options are often geographically limited and unique.

Field of study is an important factor, considering the small size of the "white collar" sector in the WBGS. Business (11%), Computer Science (9%), Language (9%), Medicine (9%), and Education (8%) were the most popular fields studied by the recent graduates. As Granovetter pointed out, a weakness of human capital theory is that it does not account for the discipline the education is in. While language and computer science were among the most popular fields of study, they are not among the most common fields recent graduates reported to have found work in.

Field of Study
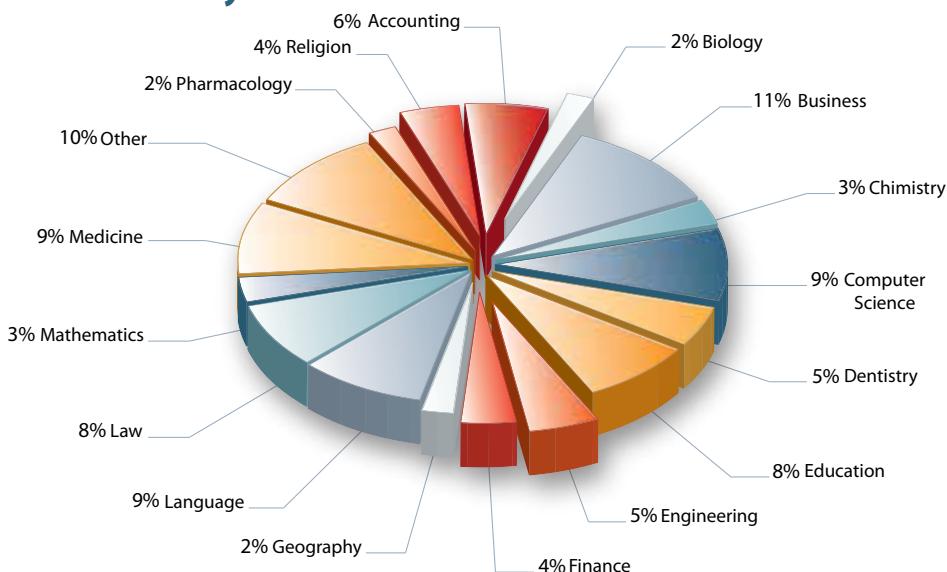
Human capital theory argues that employers use duration and quality of formal education of job seekers as a proxy for their productive capability. The duration factor cannot be analyzed here, however, because all participating graduates have completed their undergraduate studies. The quality of education also cannot be analyzed because, as mentioned before, the local labor market segment which the recent graduates have access to is likely to play a more influential role than the university they attended.

With this being the case, it is still possible to gauge a recent graduate's intellectual capability by human capital standards through observing their academic performance. Grades are often looked at closely by employers, who interpret them as an indication of the recent graduate's work ethic and intellectual capability, i.e. their prospective productivity as an employee. The average grade was 77.8%, with the median at 77.0%. Time-to-event analysis in the following subsection was unable to establish a relationship between grades and job search success.

Another attribute of intellectual capability, which is not accounted for by the human capital theory, is the number of languages in which a recent graduate is proficient. On average, the recent graduates spoke 1.05 languages in addition to Arabic, with the median being 1. Recent graduates were also asked if they were fluent in speaking, reading, and writing in English. English continues to be the international language in many fields. 70.5% of graduates participating in the study claimed to be good at speaking, reading, and writing in English. Time-to-event analysis in the following subsection was not able to establish a relationship between knowing extra languages or English in particular and job search success.

The last question about the recent graduate's education inquired whether s/he regularly used email and the Internet. Whether regular use of email and the Internet contributes to the success of the job search may say something about the job market, the recent graduate, or both. For example, email and the Internet are potentially becoming increasingly necessary in the office space. On the other hand, email and the Internet may not be progressively more useful in the office, but it may be that those recent graduates that are technologically savvy are also more capable in finding work. 74.6% regularly use email and the Internet. Interestingly, time-to-event analysis in the following subsection was able to establish a relationship between the recent graduate's email and Internet use frequency and job search success. This once again undermines the limitations of human capital theory, which solely focuses on the duration and quality of education.

4.1.2 Employment Experience

Another component of intellectual capability is previous employment experience. Previous work experience may play a positive role in the job search in a number of ways. For one, it signals to the employer that others have found the individual hirable in the past and that the individual is accustomed to working. Secondly, it is likely to mean that the job seeker has experience searching. Among the recently surveyed graduates, 34.6% have worked in the past. Time-to-event analysis was able to establish a relationship between the presence of previous employment experience and job search success.

A11: Out of those who worked in the past, 36.9% worked in the same field. While working in the past may be a plus, working in the same field shows the potential employer a signal that not only is the recent graduate hirable and accustomed to working, but that s/he already has experience working in a similar environment. Time-to-event analysis was not able to establish a relationship between previous work experience in the same field and job search success.

4.1.3 Search Duration

A13: The relationship between how many weeks passed since the recent graduate started searching and the success of the job search may be difficult to interpret. On one hand, there may be a positive relationship, as the job search process involves a learning curve or the need for finding a job becomes more extreme with the job seeker contributing more effort as time passes. On the other hand, the relationship may be negative as the job seeker may become increasingly discouraged to search.

Alternatively, it is possible that the job search process is segmented into a number of stages, with the well connected finding jobs without much effort during the first stage and the success of the rest either being positively or negatively affected in line with the discussion above. Not enough data was obtained in this study to verify the above mentioned stages hypothesis. On average, participating graduates searched for 14.7 weeks, i.e. 3.7 months.

4.1.4 Wage

B1 & B2: Expectations play an important role in the job search. On one hand, expectations of a high reward may be a great motivator. On the other hand, the introduction of high reward expectations to lower reward reality may lead to disappointment and, in turn, discouragement. Below is a chart depicting by university the participating recent graduates' average expected and offered monthly wages, where the university acts as a proxy for the local labor market segment.

Expected and offered Monthly Weges
(in NIS)

In all cases, expected wages were significantly higher than the offered, with considerable differences between expected/offered wages by region. This said, it should be noted that averages are somewhat misleading because they blur the differences between fields within a local labor market segment. For example, the comparison could be skewed if one group was populated more by educators while another was predominantly made up of bankers. It is theoretically possible to create a chart that would break down for each university expected and offered wages by field of study and gender. However, data limitations prevent such a disaggregation in this study.

4.1.5 Search Intensity & Productivity

B3, B4, B5: Participating graduates were asked about how many job openings they came across in the prior two months, how many job openings they pursued, and how many interviews they attended. Answers to these questions are interesting to analyze on average and individually. On average, if the number of job openings people came across is very low, then one can conclude that the lack of success in the job search is a result of a lack of job openings available to recent graduates. Individually, however, exposure to a lower number of job openings is likely to be a result of other factors, potentially resulting from a lack of effort on behalf of the job seeker.

Two statistics were developed based on these questions. One statistic measured the recent graduates' search intensity by dividing the number of jobs they pursued by the number of jobs they came across. As can be seen from the table below, recent graduates from the Islamic University searched most intensely.

	Mean	
	Pursuit	Interview
Al Quds University	57.	36.
An Najah University	46.	38.
Arab American University	59.	30.
Birzeit University	64.	32.
Islamic University	69.	24.

The second statistic measured the recent graduate's search productivity by dividing the number of interviews they attended by the number of jobs they pursued. From the table above, it can be said that An Najah University graduates were most productive in their job search. According to the time-to-event analysis in the following section, search productivity was positively correlated with job search success.

4.1.6 Self-Determination & Employment Value

Section 2 of this study described psychological capability as a contributing determinant of job-search success. Questions B6 to B15 in the survey explored this claim by inquiring with recent graduates as to why they searched for work. The table below lists by university three-round averages of answers to each question. The questions were based on a 1-5 Likert scale and included the following type of answers: 1) strongly disagree; 2) disagree; 3) neither disagree nor agree; 4) agree; and 5) strongly agree.

Searching for work because …	Al Quds	An Najah	Arab American	Birzeit	Islamic
B6: work is an important part of life.	4.3	4.8	4.4	4.6	4.6
B7: exploring job-market opportunities is enjoyable.	3.4	3.0	3.3	2.3	3.4
B8: working is enjoyable.	4.2	4.3	4.3	4.1	4.4
B9: want to use and develop skills.	4.3	4.6	4.5	4.5	4.6
B10: working allows interaction with other people.	4.2	4.6	4.3	4.5	4.7
B11: need money.	3.9	3.6	3.9	3.9	3.7
B12: working would increase self-esteem.	4.3	4.5	4.4	4.5	4.7
B13: feel guilty or ashamed about being unemployed.	3.4	3.2	3.6	2.9	3.1
B14: spouse is forcing.	2.2	2.7	2.3	2.5	2.9
B15: parent(s) is/are forcing.	2.7	2.9	2.9	2.7	3.0

B6, B8, B9, B10, & B12: Most of the questions are rooted in self-determination theory and aim to determine whether the recent graduate's motivation to search is autonomous or controlled. Recent graduates at all universities were searching partially because they believed work was an important part of life, which is an identified autonomous motivation because it stems from a desire to relate to or feel as part of a group.

Many of them were also searching because they believed work was enjoyable, which is an extrinsic autonomous motivation because it emerges from associating the activity of searching with another activity, i.e. work, that the person has intrinsic motivation toward. It also shows that the recent graduates value working, although not strongly. The same can be said about their motivation to work in order to develop their skills, interact with others, and increase their self-esteem.

B11: The need for money and the feel of guilt or embarrassment from unemployment did not seem to be considerable motivating factors for searching. Coercion from spouse or parent did not seem to be motivational factors at all, which is an external controlled motivation because it is driven by avoidance of punishment.

B7: Interestingly, participating graduates responded somewhat indifferently to the question of whether they were searching because they enjoyed the search itself, which is an intrinsic autonomous motivation because it stems from an inherent interest and even enjoyment in the activity itself.

4.1.7 Search Persistence

B16: Search frequency is an important factor in a search strategy and often varies according to method of search. For example, newspapers can be checked daily, while inquiring with close family is likely to happen less frequently, because once relatives know that the graduate is looking for work, they will explore their social network on the graduate's behalf. On average, participating recent graduates searched two days per week.

B18: Many students temporarily stopped searching for work and gave various reasons for their action. The largest portion of those who temporarily stopped searching had internships, studied either medicine (including dentistry) or law, and emanated mostly from Al Quds University. Other reasons included waiting for a response about a job opening, child care, continuing education, and discouragement due to the poor labor-market environment.

4.1.8 Expectations & Life Satisfaction

Questions in this subsection are rooted in expectancy-value theory and aim to determine the recent graduate's optimism about her/his job search prospects. The theory links the level of a job seeker's optimism about finding a job to the likelihood of the search resulting in satisfactory employment. The below table, as in the previous subsection, lists by university three-round averages of answers to each question. The questions were based on a 1-5 Likert scale and included the following type of answers: 1) very pessimistic; 2) pessimistic; 3) neither pessimistic nor optimistic; 4) optimistic; and 5) very optimistic.

Optimistic about…	Al Quds	An Najah	Arab American	Birzeit	Islamic
B19: doing well during an interview.	3.7	4.0	4.0	3.8	3.0
B20: finding an employer who is willing to hire.	3.3	3.4	3.4	3.5	3.3
B21: finding a likable job.	3.3	3.4	3.4	3.3	3.2
B22: finding any job.	3.5	3.4	3.4	3.4	3.6

B19, B20, B21, & B22: As can be seen from the table, most responses are between ambiguity and very weak optimism. Some are optimistic about doing well during an interview, but are much less optimistic about getting the job.

4.1.9 Life Satisfaction

The life-satisfaction question aims to gauge the recent graduate's general state of well-being. The below table, as in the previous subsection, lists by university three-round averages of answers to each question. The questions were based on a 1-5 Likert scale and included the following type of answers: 1) very unsatisfied; 2) unsatisfied; 3) neither unsatisfied nor satisfied; 4) satisfied; and 5) very satisfied.

	Al Quds	An Najah	Arab American	Birzeit	Islamic
B23: How satisfied are you with your life?	3.8	3.9	3.7	3.8	3.8

B23: As the above table shows, recent graduate's satisfaction with their life is a weak satisfaction. Time-to-event analysis was not able to establish a relationship between the level of life satisfaction and job-search success.

4.1.10 Search Results

C4: The last set of questions participating recent graduates who found work were asked was related to their search results. Most of those who found work did so within the field or one of the fields they hoped for.

	Al Quds	An Najah	Arab American	Birzeit	Islamic
C4: Is the work you found within the field or one of the fields you wanted?	1.1	1.1	1.3	1.2	1.4

C5: Work was most commonly found in education, health, accounting and finance, and administration.

C7: The majority of participating recent graduates selected inquiring with family connections ("wasta") as the most useful method of searching. Some also selected newspapers and inquiry with non-wasta family, friends, and neighbors as being helpful. Those who found temporary work found the labor office and previous employers useful.

4.1.11 Interview Assessment by Field Researcher

D1 & D2: Members of the surveying team were asked to gauge the recent graduate's speaking and communication skills. The questions were based on a 1-5 Likert scale and included the following type of answers: 1) very bad; 2) bad; 3) neither bad nor good; 4) good; and 5) very good. On average, surveyors gave the participating recent graduates a strong "good."

4.2 Time-To-Event Analysis

The objective of this section is to develop a number of search related statistics and deepen our understanding of what determines job search success. At the center of the analysis is the time it takes for a recent graduate to find permanent work.

In statistics, a number of methods have been developed to study the amount of time it takes until the occurrence of some event. The general name for these methods is time-to-event analysis. In the context of this study, time is the search duration and the event is finding permanent work. Time-to-event data is unique in that it includes both complete and incomplete cases. In this study, data on a particular graduate is considered complete if s/he found work before the end of the study. Measurement of search duration for each

graduate begins whenever s/he claims to have begun searching, and is denoted as time zero. Measurement of search duration ends either when: 1) the recent graduate stops searching for any reason; 2) at the end of the survey period; or 3) when the survey team loses contact with the graduate.

If the recent graduate did not find work prior to the end of the survey period or before the survey team lost contact with her/him, the case is considered to be incomplete and is formally called censored. This is because in either case (loss of contact, known as "random-right censored" or end of study, known as "fixed-right censored") the outcome of the job search is unobserved.

Censored cases are unique in that they hold useful information, such as that a particular graduate's time-to-event data is greater than that observed. For example, a recent graduate with whom contact was lost before the second round could have, in fact, found work in the duration of the study. Or, a recent graduate with whom contact was lost because the study ended could have found work immediately after the last (third) round. This implies that these cases can neither be included with the cases of those who definitely found permanent work, nor with those who definitely did not find permanent work. Unlike traditional statistical methods, time-to-event analysis offers ways to work with such censored cases.

Time-to-event data also requires unconventional statistical techniques because it is not normally distributed. Assuming normal distribution (as is done in linear regression such as the ordinary-least squares method) is unrealistic in relation to time because a normal distribution can be negative.

4.2.1 Estimated Successful Job Search Distribution

Due to the presence of censored cases, it is impossible to determine the actual successful job search distribution in the studied sample. However, it is possible to estimate the successful job search distribution by using the reported data and assuming that the process of censoring is independent of the process of finding work, which would imply that the distribution of the uncensored successful job searches is representative of the distribution of all the successful job searches, including the censored. It is unclear to what extent this assumption is realistic and it should be noted that in the case it is invalid the charted distributions below may not be representative of the actual distributions.

Below are charts of estimated successful job search distributions for (1) the entire West Bank and Gaza Strip, (2) for the West Bank alone, and (3) for each university (with Islamic University acting as the proxy for the Gaza Strip). The charts depict the number of recent graduates who found work (vertical axis) according to the number of months they searched (horizontal axis). Since "month zero" for many recent graduates is different, i.e. recent graduates started searching at different times, it also needs to be assumed that the successful job search distributions for different "month zeroes" are insignificantly different. As with the previous assumption, it is unclear to what extent this assumption is valid, and unfortunately the sample size was not large enough to test the validity of this assumption.

The following chart depicts estimated successful job search distribution for the WBGS combined:

Estimated Successful Job -Search Distribution (West Bank & Gaza Strip)
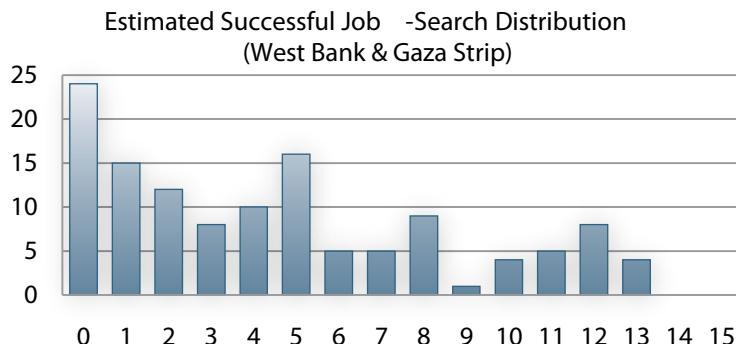
In total, 126 recent graduates from the WBGS reported to have found permanent work. The above chart shows that the largest number of those who found work searched for zero months, or, in other words, did not search at all. The second largest group that found work searched for five months. The number 13 does not appear to be the unluckiest in this context, as four people who searched for 13 months found work while only one recent graduate who searched for nine months found work and those who searched for 14 and 15 months did not find work at all, or at least according to the estimated figures.

The following chart depicts estimated successful job search distribution for the West Bank alone:

Estimated Successful Job -Search Distribution (West Bank)
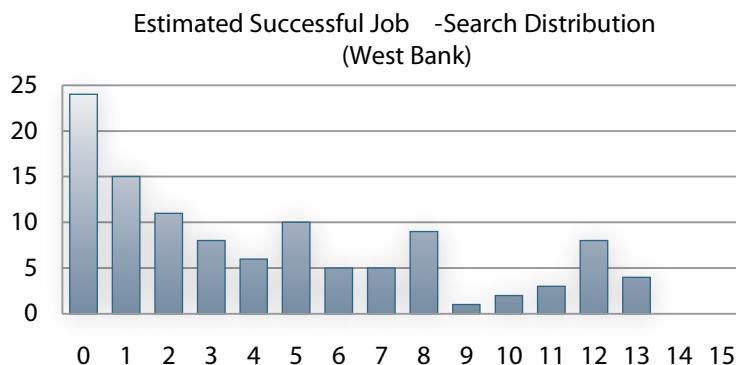
In total, 111 recent graduates from the West Bank reported to have found permanent work.

The following chart depicts estimated successful job search distribution for Al Quds University:

Estimated Successful Job -Search Distribution (Al Quds University)
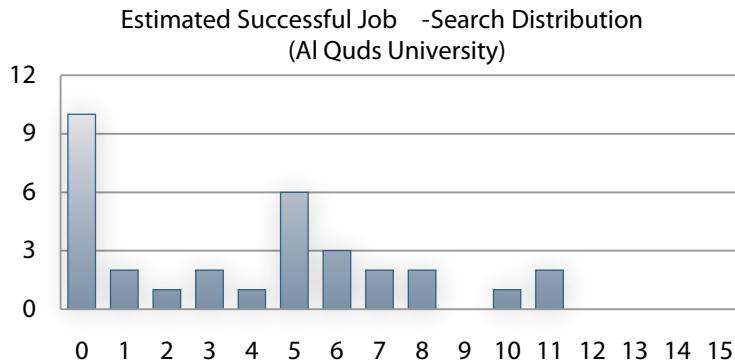
In total, 32 recent graduates from Al Quds University reported to have found permanent work. As was mentioned in the descriptive statistics section, 27 of Al Quds University recent graduates also reported having found internships.

The following chart depicts estimated successful job search distribution for An Najah University:

Estimated Successful Job -Search Distribution (An Najah University)
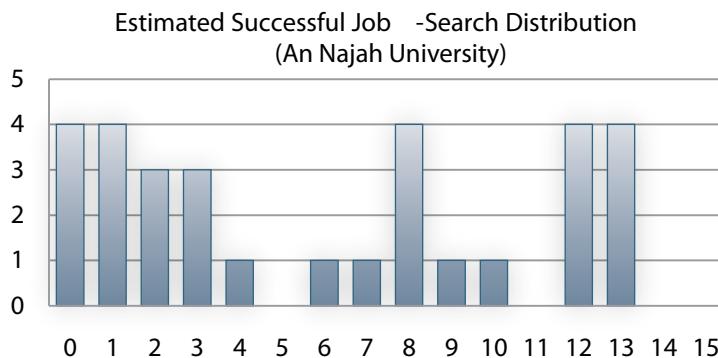
In total, 31 recent graduates from An Najah University reported to have found permanent work.

The following chart depicts estimated successful job search distribution for Arab American University:

Estimated Successful Job -Search Distribution
(Arab American University)
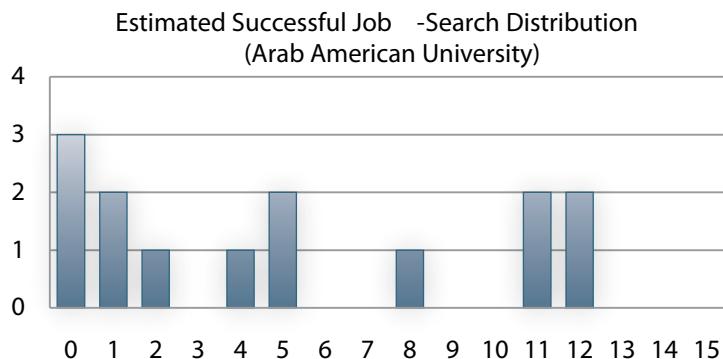
In total, 14 recent graduates from Arab American University reported to have found permanent work.

The following chart depicts estimated successful job search distribution for Birzeit University:

Estimated Successful Job -Search Distribution
(Birzeit University)
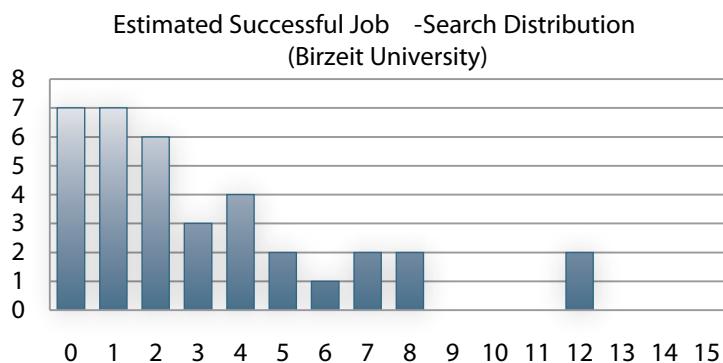
In total, 36 recent graduates from Birzeit University reported to have found permanent work.

The following chart depicts estimated successful job search distribution for Islamic University:

Estimated Successful Job -Search Distribution
(Islamic University)
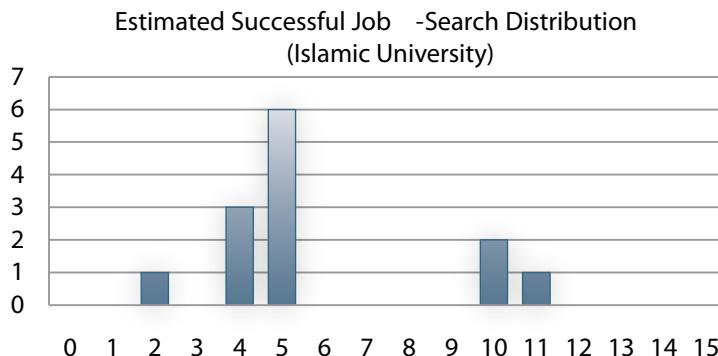
In total, 13 recent graduates from Islamic University reported to have found permanent work.

As was previously mentioned and shown in this subsection, least estimated successful job search distribution patterns are not normally distributed. West Bank universities had a considerable portion of recent graduates find work in the first three months of their search. This is not the case for Islamic University in the Gaza Strip. An interesting observation is that both search and employment patterns differed among universities.

4.2.2 Search Function

At the center of search analysis is the search (time-to-event or survival) function, which is the probability of finding work after spending a particular amount of time searching. The search function, $S(t)$, a.k.a. cumulative search function, takes on the following form:

$$S(t) = Pr(e \geq t) = \int_{t}^{\infty} f(u)\,du = 1 - F(t)$$

where $0 \leq S(t) \leq 1$, t is a particular amount of time, e is a nonnegative random variable representing the time of hire for an arbitrary graduate, $(F(t)$ is the probability density function describing the distribution of e (where $(Pr(e\text{-}t) = 0)$, and $(F(t)$, $0 \leq S(t) \leq 1$, is the cumulative distribution function of e that describes the probability of employment prior to time t. Every search function $S(t)$ is monotone decreasing, i.e. $S(u) < S(t)$ if $u > t$..

4.2.2.1 Kaplan-Meier Search Function Estimation

The presence of censored cases implies that the search function can only be estimated. One of the most commonly used estimation methods that adjusts for censored data is called the Kaplan-Meier Search Function Estimation. The method assumes that the process of censoring is independent of the process

of finding work. The method is also non-parametric, since no assumptions are made about the distribution of the search times. The Kaplan-Meier estimated search function takes the following form:

$$\hat{S}(t) = \frac{(s_1 - c_1) - e_1}{s_1} \times \frac{(s_2 - c_2) - e_2}{s_2} \times \cdots \times \frac{(s_i - c_i) - e_i}{s_i} = \prod_{t_i \leq t} \frac{(s_i - c_i) - e_i}{s_i}$$

where t_i is the number of months spent searching, s_i is the number of graduates still searching just before time t_i, is the number of censored cases at time t_i, and e_i is the number of graduates who found full-time work at time t_i. The following table summarizes the above calculation of the search-function estimate for the WBGS:

t_i	$s_i - c_i$	e_i	$\dfrac{(s_i - c_i) - e_i}{s_i}$	$\hat{S}(t) = \prod\limits_{t_i \leq t} \dfrac{(s_i - c_i) - e_i}{s_i}$
	495			
0	470	24	94.9%	94.9%
1	464	15	96.8%	91.8%
2	457	12	97.4%	89.4%
3	443	8	98.2%	87.8%
4	432	10	97.7%	85.8%
5	401	16	96.0%	82.3%
6	388	5	98.7%	81.3%
7	345	5	98.6%	80.1%
8	318	9	97.2%	77.8%
9	300	1	99.7%	77.6%
10	276	4	98.6%	76.5%
11	251	5	98.0%	74.9%
12	208	8	96.2%	72.1%
13	177	4	97.7%	70.4%
14	143	0	100.0%	70.4%
15	126	0	100.0%	70.4%
		126		

The Kaplan-Meier estimate $\hat{S}(t)$ is just a step function that changes with search durations t_i when e_i is positive. The Kaplan-Meier plot for the WBGS looks as follows:

Kaplan   Meier Search Function
(West Bank & Gaza Strip)
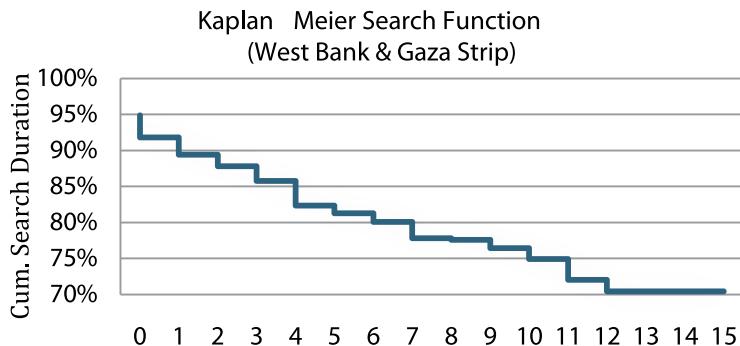
The following table summarizes the calculation of the search-function estimate for the West Bank, alone:

t_i	$s_i - c_i$	e_i	$\dfrac{(s_i - c_i) - e_i}{s_i}$	$\hat{S}(t) = \displaystyle\prod_{t_i \leq t} \dfrac{(s_i - c_i) - e_i}{s_i}$
	392			
0	369	24	93.5%	93.5%
1	364	15	95.9%	89.6%
2	360	11	96.9%	86.9%
3	349	8	97.7%	84.9%
4	343	6	98.3%	83.4%
5	324	10	96.9%	80.9%
6	314	5	98.4%	79.6%
7	282	5	98.2%	78.2%
8	259	9	96.5%	75.4%
9	249	1	99.6%	75.1%
10	231	2	99.1%	74.5%
11	212	3	98.6%	73.4%
12	178	8	95.5%	70.1%
13	153	4	97.4%	68.3%
14	128	0	100.0%	68.3%
15	111	0	100.0%	68.3%
		111		

The following is a Kaplan-Meier plot for the West Bank:

Kaplan -Meier Search Function
(West Bank)
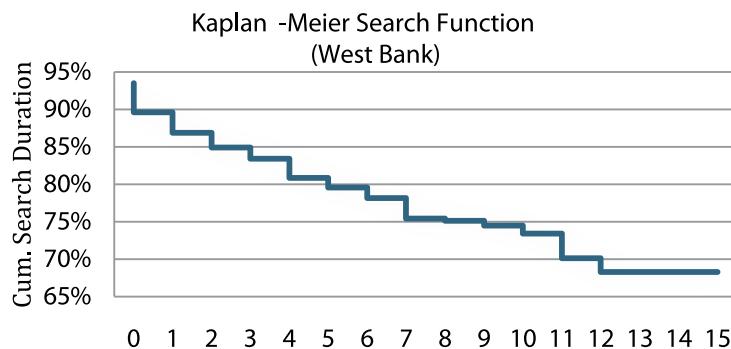
The following table summarizes the calculation of the search-function estimate for Al Quds University:

t_i	$s_i - c_i$	e_i	$\dfrac{(s_i - c_i) - e_i}{s_i}$	$\hat{S}(t) = \displaystyle\prod_{t_i \le t} \dfrac{(s_i - c_i) - e_i}{s_i}$
	98			
0	81	10	87.7%	87.7%
1	81	2	97.5%	85.5%
2	80	1	98.8%	84.4%
3	77	2	97.4%	82.2%
4	77	1	98.7%	81.2%
5	70	6	91.4%	74.2%
6	69	3	95.7%	71.0%
7	60	2	96.7%	68.6%
8	55	2	96.4%	66.1%
9	54	0	100.0%	66.1%
10	52	1	98.1%	64.8%
11	50	2	96.0%	62.3%
12	44	0	100.0%	62.3%
13	41	0	100.0%	62.3%
14	35	0	100.0%	62.3%
15	32	0	100.0%	62.3%
		32		

The following is a Kaplan-Meier plot for Al Quds University:

Kaplan Meier Search Function
(Al Quds University)
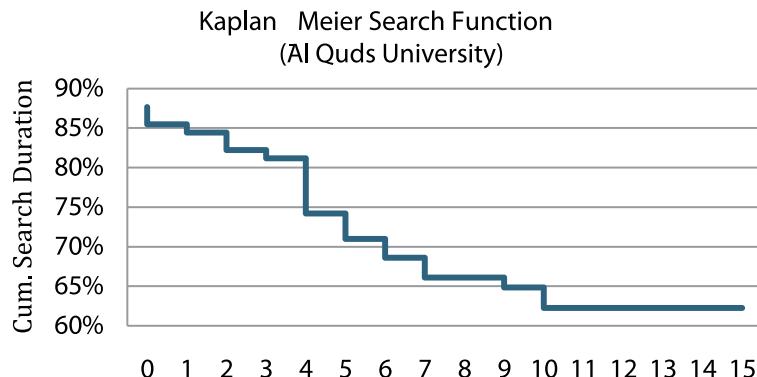
The following table summarizes the calculation of the search-function estimate for An Najah University:

| t_i	$s_i - c_i$	e_i	$\dfrac{(s_i - c_i) - e_i}{s_i}$	$\hat{S}(t) = \displaystyle\prod_{t_i \le t} \dfrac{(s_i - c_i) - e_i}{s_i}$
	100			
0	99	4	96.0%	96.0%
1	97	4	95.9%	92.0%
2	96	3	96.9%	89.1%
3	93	3	96.8%	86.3%
4	92	1	98.9%	85.3%
5	87	0	100.0%	85.3%
6	85	1	98.8%	84.3%
7	82	1	98.8%	83.3%
8	77	4	94.8%	79.0%
9	75	1	98.7%	77.9%
10	72	1	98.6%	76.8%
11	66	0	100.0%	76.8%
12	50	4	92.0%	70.7%
13	43	4	90.7%	64.1%
14	38	0	100.0%	64.1%
15	31	0	100.0%	64.1%
		31		

The following is a Kaplan-Meier plot for An Najah University:

Kaplan -Meier Search Function
(An Najah University)
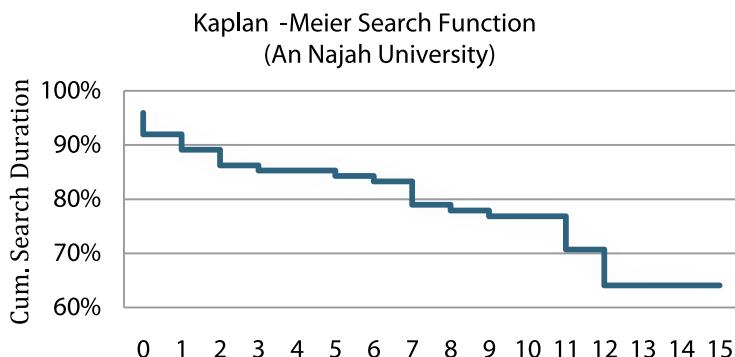
The following table summarizes the calculation of the search-function estimate for the Arab American University:

t_i	$s_i - c_i$	e_i	$\dfrac{(s_i - c_i) - e_i}{s_i}$	$\hat{S}(t) = \displaystyle\prod_{t_i \leq t} \dfrac{(s_i - c_i) - e_i}{s_i}$
	98			
0	96	3	96.9%	96.9%
1	96	2	97.9%	94.9%
2	96	1	99.0%	93.9%
3	94	0	100.0%	93.9%
4	92	1	98.9%	92.8%
5	85	2	97.6%	90.7%
6	80	0	100.0%	90.7%
7	73	0	100.0%	90.7%
8	66	1	98.5%	89.3%
9	59	0	100.0%	89.3%
10	54	0	100.0%	89.3%
11	46	2	95.7%	85.4%
12	41	2	95.1%	81.2%
13	30	0	100.0%	81.2%
14	21	0	100.0%	81.2%
15	14	0	100.0%	81.2%
		14		

The following is a Kaplan-Meier plot for the Arab American University:

Kaplan -Meier Search Function
(Arab American University)
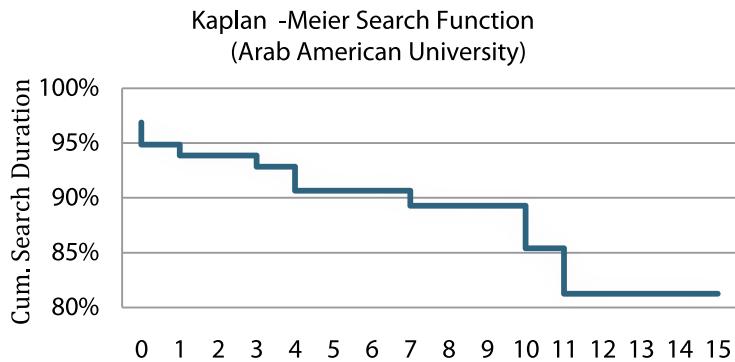
The following table summarizes the calculation of the search-function estimate for Birzeit University:

| t_i	$s_i - c_i$	e_i	$\dfrac{(s_i - c_i) - e_i}{s_i}$	$\hat{S}(t) = \displaystyle\prod_{t_i \leq t} \dfrac{(s_i - c_i) - e_i}{s_i}$
	100			
0	97	7	92.8%	92.8%
1	94	7	92.6%	85.9%
2	92	6	93.5%	80.3%
3	89	3	96.6%	77.6%
4	86	4	95.3%	74.0%
5	86	2	97.7%	72.2%
6	84	1	98.8%	71.4%
7	71	2	97.2%	69.4%
8	65	2	96.9%	67.2%
9	64	0	100.0%	67.2%
10	56	0	100.0%	67.2%
11	53	0	100.0%	67.2%
12	46	2	95.7%	64.3%
13	41	0	100.0%	64.3%
14	36	0	100.0%	64.3%
15	36	0	100.0%	64.3%
		36		

The following is a Kaplan-Meier plot for Birzeit University:

Kaplan -Meier Search Function
(Birzeit University)
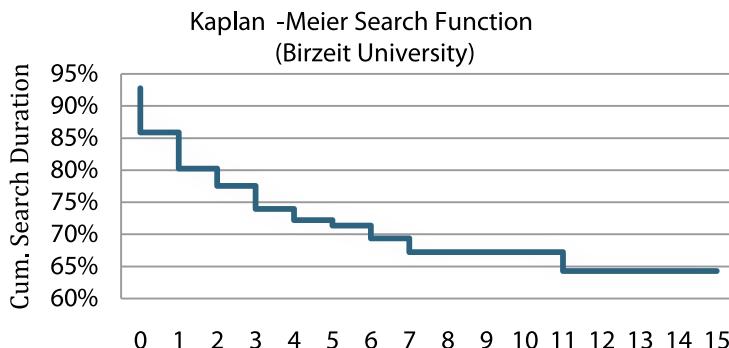
The following table summarizes the calculation of the search-function estimate for the Islamic University:

t_i	$s_i - c_i$	e_i	$\dfrac{(s_i - c_i) - e_i}{s_i}$	$\hat{S}(t) = \displaystyle\prod_{t_i \le t} \dfrac{(s_i - c_i) - e_i}{s_i}$
	99			
0	97	0	100.0%	100.0%
1	96	0	100.0%	100.0%
2	93	1	98.9%	98.9%
3	90	0	100.0%	98.9%
4	85	3	96.5%	95.4%
5	73	6	91.8%	87.6%
6	70	0	100.0%	87.6%
7	59	0	100.0%	87.6%
8	55	0	100.0%	87.6%
9	48	0	100.0%	87.6%
10	42	2	95.2%	83.4%
11	36	1	97.2%	81.1%
12	27	0	100.0%	81.1%
13	22	0	100.0%	81.1%
14	13	0	100.0%	81.1%
15	13	0	100.0%	81.1%
		13		

The following is a Kaplan-Meier plot for the Islamic University:

Kaplan -Meier Search Function
(Islamic University)
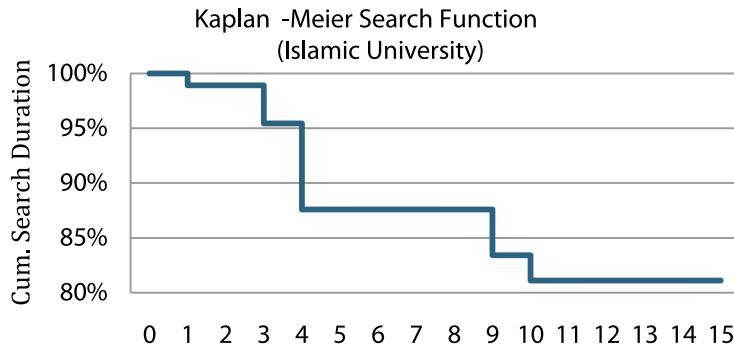
4.2.3 Employment Ratio

In the previous subsection, we estimated the chances of continuing to search for longer than a particular time period. In this subsection, we analyze the search process by looking at the employment rate, $\lambda(t)$, which is the frequency of employment after searching for a particular time period, t, assuming no employment occurred prior to this time. The employment rate can be defined with the help of the search function, $S(t)$, in the following way:

$$\lambda(t) = \lim_{\Delta t \to 0} \frac{Pr(t \leq e < t + \Delta t | e \geq t)}{\Delta t} = \lim_{\Delta t \to 0} \frac{Pr(t \leq e < t + \Delta t)}{Pr(e \geq t) \times \Delta t} = \lim_{\delta \to 0} \frac{S(t) - S(t + \Delta t)}{\Delta t} \times \frac{1}{S(t)}$$

with notation identical to that in the previous subsection. As the following subsection will show, this employment rate is the key link between the search process and the employment ratio, which measures the effect a particular variable has on job search success, i.e. the employment rate. The employment ratio is typically estimated with the Cox Proportional Employment regression model.

4.2.3.1 Cox Proportional-Employment Regression Model[14]

The Cox Proportional Employment regression model is based on a partial maximum likelihood method and is the preferred choice for estimating the employment ratio. This is partly because, unlike logistic regression, it is compatible with censored data, and partly because, like logistic regression, it does not assume a particular shape for the underlying employment rate, $\lambda(t)$.

The Cox model assumes the employment rate, $\lambda(t)$, can be described by the product of a baseline employment rate, $\lambda_0(t)$, which is dependent on time but independent of the effects of independent variables, and an exponential function, which is dependent on the effects of the independent variables but independent of time. The Cox model takes on the following form:

$$\lambda\{(t), (x_1, x_2, ..., x_i)\} = \lambda_0(t) \times e^{\beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_i x_i}$$

where x's are the independent variables and β's are their coefficients. While

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[14] The model is commonly referred to as the Cox Proportional Hazard model, since it utilizes the hazard rate and calculates the hazard ratio. In this study, motivated by the context, the term hazard is replaced with the word employment.

the Cox model does not assume a particular shape for the employment rate, it does assume proportionality by defining the employment rate through a multiplicative relationship between the baseline employment rate and the exponential function for the independent variables. The proportionality assumption implies that given two graduates with unique coefficient values, the ratio of their employment rates will be constant over time. Dividing both sides by the baseline employment rate $\lambda_0(t)$ transforms the Cox model into the following form:

$$\frac{\lambda\{(t),(x_1,x_2,...,x_i)\}}{\lambda_0(t)} = e^{\beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_i x_i}$$

This is the employment ratio. For a categorical independent variable, the employment ratio is the estimate of the ratio of the employment rates of two groups. Conversely, for a continuous independent variable, it is the ratio of the employment rate given a one unit increase in an independent variable to the employment rate without such an increase. Taking the natural log of both sides transforms the Cox model into the following linear form:

$$\ln\left[\frac{\lambda\{(t),(x_1,x_2,...,x_i)\}}{\lambda_0(t)}\right] = \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_i x_i$$

The above Cox model was used to estimate the effect of a number of variables on the recent graduates' employment rate. The following variables were considered: having lived abroad, age, disability status, English proficiency, enjoy search, frequency of search, Gaza Strip, gender, grade, guilt search, intensity, internet, languages, marital status, method, pre-search, productivity, profession, refugee status, status, time variable, university, worked, expectations and life satisfaction group, and the self-determination and employment value group. The derivation of each variable is described in Appendix 4.

Unfortunately, the majority of the above variables had too many missing values to be included in the regression model. The adversity of missing values is escalated by the fact that they are missing for different variables. For relatively complete variables, a stepwise Forward Wald selection procedure was used to identify those that improved the regression model's fit. At the end of the selection process, only five variables remained that improved the model's fit and for which the significance of the Wald statistic was below 0.05. These variables were: guilt search (gltsch), internet (net), pre-search (presch), productivity (prod), and worked (workd). Below are the results from running the Cox model on the five selected independent variables.

$\dfrac{\lambda\{(t),(x_1, x_2, \ldots, x_i)\}}{\lambda_0(t)} = e^{\beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_i x_i}$		N	Percent
Cases available in analysis	Event	97	19.6%
	Censored	317	64.0%
	Total	414	83.6%
Cases dropped	Cases with missing values	81	16.4%
	Cases with negative time	0	.0%
	Censored cases before the earliest event in a stratum	0	.0%
	Total	81	16.4%
Total		495	100.0%

As the above table shows, 81 cases were still excluded from the analysis due to missing values.

-2 Log Likelihood	Overall (score)			Change From Previous Step			Change From Previous Block		
	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
1011.999	87.539	5	.000	81.792	5	.000	81.792	5	.000

Note: Beginning Block Number 0, initial Log Likelihood function: -2 Log Likelihood: 1093.791; Beginning Block Number 1: Method=Enter

	B	SE	Wald	df	Sig.	Exp(B)	95.0% CI for Exp(B)	
							Lower	Upper
gltsch	-.331	.091	13.271	1	.000	.718	.601	.858
net	.705	.290	5.889	1	.015	2.024	1.145	3.576
presch	-.313	.055	32.937	1	.000	.731	.657	.814
prod	1.278	.302	17.866	1	.000	3.588	1.984	6.490
workd	.619	.210	8.707	1	.003	1.857	1.231	2.802

The analysis is focused on the employment ratio, Exp(B). An employment ratio of 1.0 implies that there is no relationship between the independent variable and the dependent variable, i.e. the employment rate, $\lambda(t)$. An employment ratio greater than 1.0 implies that the independent variable increases the odds of finding work by the amount Exp(B) is greater than 1.0. An employment ratio less than 1.0 implies that the independent variable decreases the odds of finding work by the amount Exp(B) is less than 1.0.

The guilt search is a continuous variable aimed at understanding the motivation behind the recent graduate's job search. According to the Cox model, searching out of guilt or embarrassment decreases the odds of employment by 28.2%. This is in line with self-determination theory, which claims that introjected motivation – controlled motivation driven by feeling of guilt, shame, or self-derogation – adversely affects well-being and usually does not lead to task effectiveness.

The internet variable is a dummy variable that represents the recent graduate's proficiency with email and the Internet. According to the Cox model, recent graduates who regularly use email and the Internet have more than a 100% higher chance of employment than graduates who do not regularly use email and the Internet. Since most jobs were found in a broad array of fields, such as education, health, accounting/finance, and administration, it does not appear that the use of email and the Internet is somehow a job requirement. A more probable explanation could be that proficiency in email and Internet use is a proxy for (an)other factor(s) that increase the graduate's potential to find work.

The pre-search independent variable is the number of months the recent graduate searched prior to the first round interview. According to the Cox model, starting the search sooner decreases the odds of finding work by 26.9%. There are a number of intuitive reasons that could explain this result, and they could vary for different graduates (surely, there are a number of counterintuitive reasons as well, that could very well be the real reasons).

One intuitive explanation is that recent graduates with lower chances of finding work started searching sooner, which did little to improve their chances. Another potential explanation could be related to the economic context. It is possible that there were less job opportunities earlier in the year than later in the year. Irrespective of the explanation, the result implies that the chance of finding work depends more on the quality of the search than on the quantity of the time spent searching.

The productivity variable is a continuous variable gauging the productivity of each graduate's search by comparing the number of interviews attended to the number of job opportunities pursued. According to the Cox model, being able to land more interviews per job opportunity pursued increases the odds of employment by 258.8%. This result is as expected.

The worked variable is a dummy variable that identifies those who have worked in the past. According to the Cox model, those who have worked in the past have an 85.7% better chance of employment than those that have not worked in the past. This is not surprising. Work experience does not only make the recent graduate better prepared for work (particularly if they worked in the same field) but also provides connections.

Below are charts for the search function and the employment ratio of the Cox model.

Cox Search Function
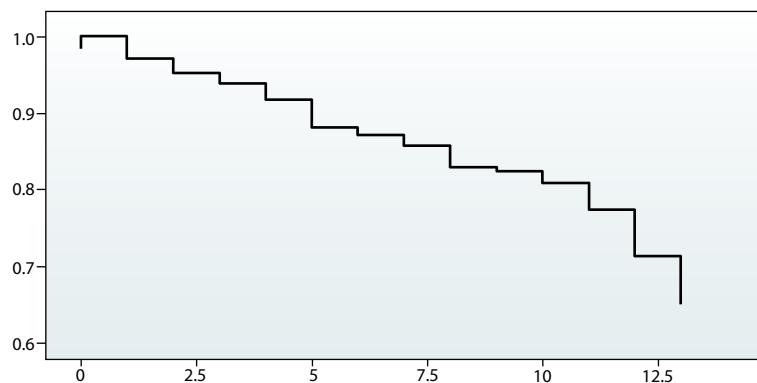
Source: SPSS output.

Cox Employment Ratio
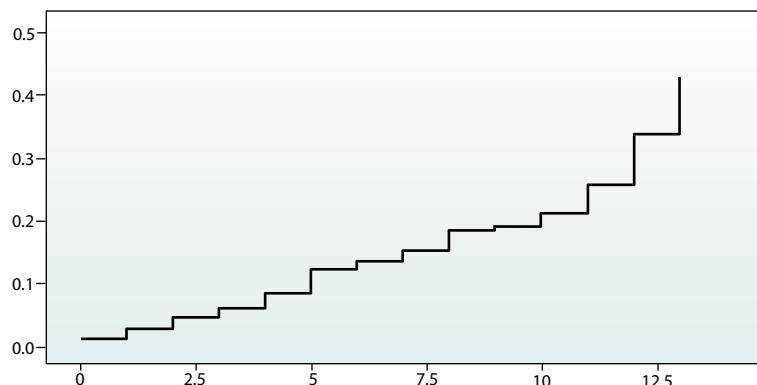
Source: SPSS output.

Two independent variables which were excluded from the multivariable model because they failed the significance criterion, but which met the significance criterion when included as the sole independent variable are gaza strip (gs) and enjoy search (enjsch).

Gaza Strip (gs)

The Gaza Strip variable is a dummy variable that represents the results of those recent graduates who reside in the Gaza Strip.

		N	Percent
Cases available in analysis	Event	126	25.5%
	Censored	369	74.5%
	Total	495	100.0%
Cases dropped	Cases with missing values	0	.0%
	Cases with negative time	0	.0%
	Censored cases before the earliest event in a stratum	0	.0%
	Total	0	.0%
Total		495	100.0%

	Overall (score)			Change From Previous Step			Change From Previous Block		
-2 Log Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
1454.363	6.832	1	.009	7.816	1	.005	7.816	1	.005

Note: Beginning Block Number 0, initial Log Likelihood function: -2 Log Likelihood: 1462.179; Beginning Block Number 1: Method=Enter

							95.0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
gs	-.705	.275	6.557	1	.010	.494	.288	.848

According to the Cox model, residing in the Gaza Strip, as opposed to the West Bank, reduces the odds of employment by 50.6%. This result is not surprising, considering the Israeli military operation that took place at the time the recent graduates were searching, as well as the much longer siege, which crippled the Gaza Strip economy even before the military operation began.

Enjoy Search (enjsch)

Enjoy search is a continuous variable aimed at understanding the motivation behind the recent graduate's job search.

		N	Percent	
Cases available in analysis	Event	125	25.3%	
	Censored	368	74.3%	
	Total	493	99.6%	
Cases dropped	Cases with missing values	2	.4%	
	Cases with negative time	0	.0%	
	Censored cases before the earliest event in a stratum	0	.0%	
	Total	2	.4%	
Total		495	100.0%	

-2 Log Likelihood	Overall (score)			Change From Previous Step			Change From Previous Block		
Chi-square	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
1442.935 5.891	5.886	1	.015	5.886	1	.015	5.886	1	.015

Note: Beginning Block Number 0, initial Log Likelihood function: -2 Log Likelihood: 1448.821; Beginning Block Number 1: Method=Enter

	B	SE	Wald	df	Sig.	Exp(B)	95.0% CI for Exp(B)	
							Lower	Upper
enjsch	-.191	.079	5.833	1	.016	.826	.708	.965

According to the Cox model, searching out of enjoyment of searching decreases the odds of employment by 17.4%. This is an interesting result that at first glance seems to contradict self-determination theory, which argues that intrinsic motivation – autonomous motivation that emerges from an inherent interest and even enjoyment in the activity itself – leads to task effectiveness. In fact, it does not. It is reasonable to expect a recent graduate who enjoys searching to be less likely to rush to complete the search process by finding work than a recent graduate who does not enjoy searching. In other words, while intrinsic motivation to search may increase task effectiveness, it may decrease task completeness, i.e., finding work.

Section 5

Building Job-Search Capabilities of Recent University Graduates

Section 5: Building Job-Search Capabilities of Recent University Graduates

"Work is a right for each citizen who is capable thereof. The Palestinian National Authority shall provide it on the basis of equal opportunities and without any kind of discrimination whatsoever."

- Article 2, Palestinian Labor Law No. 7

It is often said that children are the future, and in no time or place is this truer than under the current political ambiguity in the WBGS. This study shed some light on the difficulties faced by recent university graduates when searching for work. It showed that on average a recent graduate from the WBGS had a 70.4% chance of continuing to search, i.e., remain unemployed, after searching for 15 months. The situation was particularly bad in the Gaza Strip, where the likelihood of a recent graduate still searching after 15 months jumped to 81.1%.

For most WBGS recent graduates, these results paint a gloomy picture of the chances of finding work as well as having a number of direct and indirect repercussions. One such repercussion is that recent graduates are not able to generate income. In addition to directly affecting the recent graduates, this affects those who either support them financially or look to them for financial support. Another consequence is that recent graduates do not have the opportunity to apply their newly learned skills and gain valuable experience. This repercussion affects the entire economy, since the absence of new talent in the economy often results in a lacuna of new ideas and persistence of outdated practices.

The results of this study should increase the sense of urgency in developing and implementing a comprehensive strategy that aims to address the repercussions mentioned above. Such repercussions should be addressed simultaneously and from three directions: empowering recent graduates in their job search, creating skill development opportunities for the recent graduates, and improving the matching process in the labor market. The repercussion of the situation cannot be tackled by one or two stakeholders, but rather require a comprehensive and nationwide strategy to address them, including participation of the international community. The following subsections provide suggestions of how to address the repercussions mentioned.

5.1 Empowering Recent Graduates

Empowerment of recent graduates should be done through the development of each and every one of the capabilities that determine their job-search success. Below are recommendations organized by capability:

Development of Intellectual Capability

Intellectual capability is one of the key determinants of job-search success and has many ways of manifesting itself. For example, according to this study, email and Internet proficiency is one of its manifestations, with recent graduates who regularly use email and the Internet having more than a 100% higher chance of employment than graduates who do not regularly use email and the Internet. Another manifestation is work experience, with this study showing that those recent graduates who worked

in the past having an 85.7% higher chance of employment than those that have not worked in the past. This implies that increasing a student's proficiency in email and Internet usage and providing them with work experience should be made a priority.

Additionally, intellectual capability is affected by the recent graduates' knowledge and understanding of job market related information and processes. A necessary component of intellectual capability in relation to the job market is possession of an informed and strategic approach to career development. Career development is an approach to developing one's career in line with one's values, interests, and life objectives. The process must be well informed, realistic, and directed toward achieving short, medium and long term goals.

Various career development information materials need to be created in order to provide the proper career choice guidance. For example, students and recent graduates need to be aware of job search success statistics by sector as well as which career development resources are available. It is important to provide recent graduates with a step-by-step approach to identifying their career path and finding work within it. An excellent example of such guidance, the "Career Development eManual: Steps to Success," has been developed by the University of Waterloo and is posted online.[15] The eManual is organized into six steps that guide students through their career development process.

The first step encourages the user to engage in self assessment and consider her/his personality, values, skills, interests, knowledge and learning, and level of entrepreneurialism. The second step encourages the user to engage in research and find out about career types, trends, opportunities, and ways of gaining experience. The third step encourages the user to clarify some things for her/himself and make a number of decisions related to career and personal objectives. The fourth step encourages the user to identify the search channels and organize their work search, resumes and letters, and interviews. The fifth step informs the user about how to deal with employment offers and how to be successful at work. And, lastly, the sixth step talks about life-work planning and reevaluation. Each step on the webpage has hyperlinks to more information about the step itself and to related components. The eManual is written in an easy-to-use and encouraging manner.

Another example is the O*NET Resource Center's Career Exploration Tools, which is a set of tools geared toward self-directed career exploration and assessment. Such tools can help students and recent graduates to better understand their work-related values, interests, and abilities, and explore appropriate occupations.[16]

For a student or a recent graduate to develop her/his career strategy, s/he needs to understand as much as possible about the labor market, its conditions, and trends. The following are examples of information that need to be gathered, made easily available, and regularly updated about each sector and/or each occupation within each sector: name, key employers, which job-search channel is most successful, growth and demographic statistics, hierarchy, chances of promotion, key location, required skills and experience, activities, pros and cons, average wages, ease of access, job stability, disability friendliness, as well as information related to relevant laws, regulations and unions.

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[15]   Career Development eManual: http://www.cdm.uwaterloo.ca/steps.asp

[16]   O*NET Resource Center's Career Exploration Tools: http://www.onetcenter.org/tools.html

An example of such a source of information is O*NET Resource Center's "The Occupational Information Network," which describes occupations in the United States by skills, knowledge, activity, and setting.[17] Another example is the United States Bureau of Labor Statistics' "Occupational Outlook Handbook," which provides information on the training and education needed, earnings, expected job prospects, working conditions, and what workers do on the job for hundreds of different types of jobs.[18] Developing such a handbook for the WBGS would be a major achievement. This effort should also be coordinated with the Ministry of Planning, so that students will take into account which jobs are most needed for the overall development of the Palestinian economy.

Development of Psychological Capability

As Luthans, Youssef, and Avolio pointed out, psychological factors greatly contribute to a person's productivity. This applies to job search productivity as well. For example, as was shown in the previous section, searching out of guilt or embarrassment decreases the odds of employment by 28.2%. Self-efficacy/confidence, optimism, hope, and resilience are all vital components to successfully finding work and being successful at work. Since previous research has shown that unemployment has adverse effects on a person's psyche, steps should be taken to psychologically prepare and support recent graduates before and during the potentially long and challenging job-search process.

Development of Physical Capability

Helping to prepare permanently ill and disabled recent graduates for work can include expanding our understanding of which jobs are appropriate and what steps can be taken to expand the number and type of these jobs.

Development of Social Capability

Networking is the preferred method of employment by both employers and employees throughout the world. Networking is a core component of any society and suppressing it is unlikely to generate fruitful results. On the contrary, steps should be taken to expose all recent graduates to clusters where they can establish new and valuable connections. How this can be done is described in the following subsection (5.2).

Development of Context

Without a doubt, improving the context within which recent graduates search for work must be a central component of the strategy. The Israeli military occupation continues to greatly undermine the economic prospects in the WBGS and is the main cause of the challenges recent graduates face in finding work. Efforts to improve the context should include expanding policies and supervision against any type of discrimination.

5.2 Creating Skill-Developing Opportunities

It is critical for recent graduates to apply and expand the skills acquired during their studies, instead of losing them. While providing full-time permanent jobs to all recent graduates may be difficult, considering the facts on the ground, providing part-time jobs or internships both locally and internationally is within reach.

To actualize this, programs need to be developed that involve local and international employers from the private, public, and NGO sectors. Policies need to be explored

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[17]   O*NET Resource Center's The Occupational Information Network: http://www.onetcenter.org/

[18]   United States Bureau of Labor Statistics' Occupational Outlook Handbook: http://www.bls.gov/oco/

that give local employers incentives to hire and train recent graduates. Incentives can include wage subsidies or tax cuts. In addition, employers need to be encouraged to start or expand internship programs that are better targeted at skill-building.

5.3 Improving the Matching Process

Policies that expand job opportunities without improving matching to them are unlikely to meet their full potential, if they succeed at all. Those policies, however, that improve access to information about jobs can significantly decrease search cost and duration.

A recent university graduate with superior capabilities searching in a weak matching environment still has a large chance of failing. Current matching channels need to be improved and extended as well as new ones created. A more in-depth understanding needs to be developed regarding which channels are available, which of them are most useful and in which sector.

5.4 Strategy-Performance-Tracking Metrics

Such initiatives should be accompanied by ongoing efforts to keep them up to date, focused, and improving. A number of quality-assurance metrics should be developed to assure this and to gauge the success of the initiatives.

It would, for example, be useful to know whether the chance of finding permanent work, part-time work, or internships is improving. For this purpose, the search function used in this study could be utilized and regularly updated for comparison purposes. It could equally be redesigned to distinguish between permanent work, part-time work, and internships.

Section 6
Summary
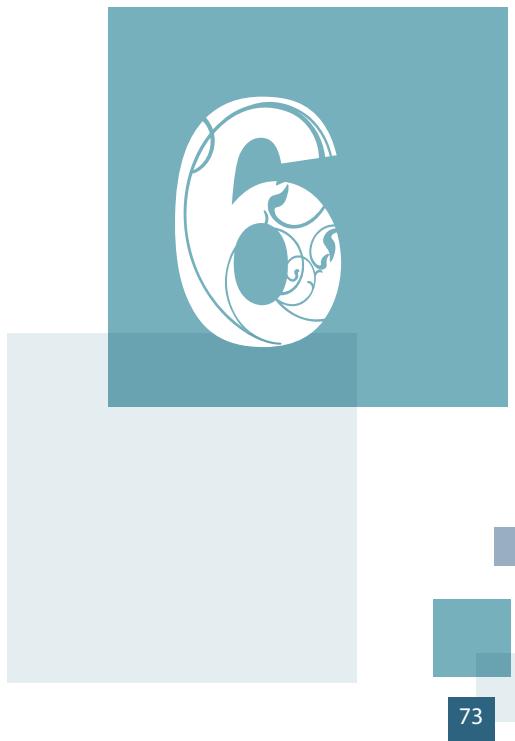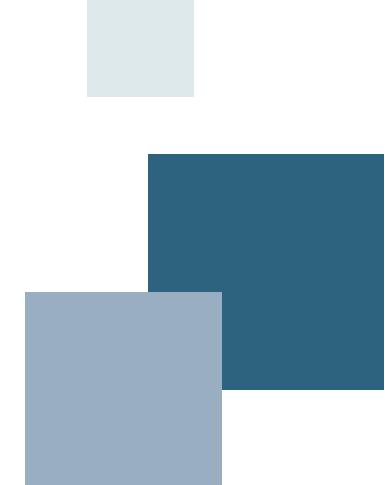
Section 6: Summary

The dynamic nature of the labor market makes labor economics a fascinating field to study, as well as a challenging one. The labor market is a complex network of highly interdependent heterogeneous employers and employees operating in an atmosphere of uncertainty and with unequal access to valuable and costly job search related information. Their goal is to be appropriately matched with the right employee or employer respectively. The likelihood of this match depends on the attributes of the employer, the employee, and the market context.

The aim of this study was to improve our understanding of the determinants of job search success for recent university graduates in the WBGS. Section 1 reviewed contemporary quantitative models of search and matching in the labor market. Section 2 identified five different categories of mostly qualitative determinants of job search success and reviewed prominent theories within each category. Section 3 described the survey methodology utilized in this study. Section 4 utilized descriptive and time-to-event statistics to analyze the survey results. Section 5 utilized the study's findings to develop a strategy for building job search capabilities of recent university graduates, and this final section, Section 6, summarizes all the previous sections.

Modern models of search and matching are attempts to quantitatively portray labor market activity in an effort to improve our understanding of labor market dynamics. Models that emerged over the last two to three decades started incorporating the presence of market friction, which is anything that prevents or delays job seekers from finding jobs and employers from finding workers. Although improvements in computational abilities and modeling techniques continue to advance the field toward greater insight, recent advances in modeling still fail to accurately portray economic activity in the labor market. This is mainly because the models focus on wage as the primary determinant of a match, excluding many other (mostly qualitative) job-seeker, employer, and contextual attributes that decisively affect the matching process.

A multitude of factors can increase or decrease a job seeker's chances of finding work. These factors include the unique attributes of each job seeker such as her/his intellectual, psychological, physical, and social capabilities; attributes of the labor market in general and each employer in particular; and, as often is the case, some amount of luck, i.e., random chance.

A longitudinal survey consisting of three rounds of surveying over a period of 10 months was conducted in order to investigate the determinants of job search success for recent university graduates in the WBGS. In particular, the survey aimed to achieve two goals: firstly, to shed light on the job search experience of recent graduates and secondly, to help identify successful job search strategies. Data was analyzed of 495 recent graduates who were approximately equally distributed among Al Quds University, An Najah University, the Arab American University, Birzeit University, and the Islamic University.

The survey asked questions about the recent graduate's demographics and background, the recent graduate's education, her/his employment history, the amount of time s/he spent searching prior to the first round, questions related to wages and to the graduate's job search intensity and productivity, the graduate's self-determination and employment value, her/his persistence in searching, her/his job-search expectations,

the level of the graduate's satisfaction with life, and about the recent graduate's search results. Additionally, the field researchers were asked to assess the recent graduate's Arabic and communication skills during the interview.

At the center of the analysis was the time it took the recent graduate to find permanent work. The study derived a number of statistics. The main statistic was the Kaplan-Meier Search Function, which is the probability of finding work after spending a particular amount of time searching. The analysis established a significant difference between the search functions in the West Bank and the Gaza Strip, which by the 15th month of searching implied that there is a 68.3% and 81.1% chance respectively, that the graduate would continue searching, i.e., remain unemployed.

The employment ratio was also derived which, with the help of a Cox Proportional-Employment Regression Model, was used to test the relationship between the employment rate and a number of potential determinants of job search success. In total, a relationship was tested between 38 potential determinants and the employment rate. It was successfully established with five of the potential determinants. It is unclear why a relationship was not established with the remaining 33 potential determinants and whether it is due to a lack of a relationship in general, due to the local context, or due to the large number of missing values in the data.

One of the potential determinants with which a relationship was established is the guilt search. The guilt search is a continuous variable aimed at understanding the motivation behind the recent graduate's job search. According to the Cox model, searching out of guilt or embarrassment decreases the odds of employment by 28.2%. This is in line with the self-determination theory, which claims that introjected motivation – controlled motivation driven by feeling of guilt, shame, or self-derogation – adversely affects well-being and usually does not lead to task effectiveness.

Another potential determinant with which a relationship was established is that of the internet. The internet variable is a dummy variable that represents the recent graduate's proficiency with email and the Internet. According to the Cox model, recent graduates who regularly use email and the Internet have more than a 100% higher chance of employment than graduates who do not regularly use email and the Internet. Since most jobs were found in a broad array of fields, such as education, health, accounting/finance, and administration, it does not appear that the use of email and the Internet is somehow a job requirement. A more probable explanation could be that proficiency in email and Internet use is a proxy for (an)other factor(s) that increase(s) the graduate's potential to find work.

Another potential determinant with which a relationship was established is pre-search. The pre-search variable is the number of months the recent graduate searched prior to the first round interview. According to the Cox model, starting the search sooner decreases the odds of finding work by 26.9%. There are a number of intuitive reasons that could explain this result, and they could differ for different graduates (surely, there are a number of counterintuitive reasons as well, that could very well be the real reasons).

One intuitive explanation is that recent graduates with lower chances of finding work started searching sooner, which did little to improve their chances. Another potential explanation could be related to the economic context. It is possible that there were less job opportunities earlier in the year than later in the year. Irrespective of the explanation,

the result implies that the chance of finding work depends more on the quality of the search than on the quantity of the time spent searching.

Another potential determinant with which a relationship was established is productivity. The productivity variable is a continuous variable gauging the productivity of each graduate's search by comparing the number of interviews attended to the number of job opportunities pursued. According to the Cox model, being able to land more interviews per job opportunity pursued increases the odds of employment by 258.8%. This result was anticipated.

The last potential determinant with which a relationship was established is worked. The worked variable is a dummy variable that identifies those who have worked in the past. According to the Cox model, those who have worked in the past have an 85.7% higher chance of employment than those that have not worked in the past. This is also not surprising. Work experience does not only make the recent graduate better prepared for work, particularly if they worked in the same field, but also provides connections.

Lastly, the study found that the majority of participating recent graduates found inquiring with family wasta to be the most useful method of searching. Some also selected newspapers and inquiry with non-wasta family, friends, and neighbors as being helpful.

It is often said that children are the future, and in no time or place is this truer than under the current political ambiguity in the WBGS. This study shed some light on the difficulties faced by recent university graduates when searching for work. It showed that on average a recent graduate from the WBGS had a 70.4% chance of continuing to search, i.e., remain unemployed, after searching for 15 months. The situation was particularly bad in the Gaza Strip, where the likelihood of a recent graduate to remain searching after 15 months jumped to 81.1%.

For most WBGS recent graduates, these results paint a gloomy picture of the chances of finding work and have a number of direct and indirect repercussions. One repercussion is that recent graduates are not able to generate income. In addition to directly affecting the recent graduates, this also affects those who either support them financially or look to them for financial support. Another repercussion is that recent graduates do not have the opportunity to apply their newly-learned skills and gain valuable experience. This repercussion affects the entire economy, since the absence of new talent in the economy often results in a lacuna of new ideas and the persistence of outdated practices.

The results in this study should increase the sense of urgency in developing and implementing a comprehensive strategy that aims to address the repercussions mentioned above. These consequences should be addressed simultaneously and from three directions: empowering recent graduates in their job search, creating skill development opportunities for the recent graduates, and improving the matching process in the labor market. The repercussions cannot be tackled by one or two stakeholders, but rather should be the result of a comprehensive and nationwide strategy which includes the participation of the international community.

Empowerment of recent graduates should be done through the development of each and every one of the capabilities that determine their job search success. It is also critical for recent graduates to apply and expand the skills acquired during their studies

instead of losing them. While providing full-time permanent jobs to all recent graduates may be difficult considering the facts on the ground, providing part-time jobs or internships both locally and internationally is within reach. Lastly, policies that expand job opportunities without improving the matching of graduates to them, are unlikely to meet their full potential, if succeed at all. Policies that improve access to information about jobs can significantly decrease the search cost and duration.

Appendix 1: Phone Script

Hello, may I speak with _____?

My name is _____ and I am calling from Birzeit University's Centre for Development Studies. Your University provided me with your number.

1. Would you mind if I asked you a few questions related to your job search?
    *   Yes (skip to question 4)
    *   No

2. Is there a more convenient time when I may call you to ask you a few questions?
    *   Yes
    *   No (skip to saying good bye)

3. When is a better time to call?
    Take note: _____; and skip to saying good bye.

4. Did you successfully graduate this past semester with a diploma from your University?
    *   Yes
    *   No (Explain that your questions are related to those who have graduated and skip to saying good bye)

5. Congratulations! Are you currently searching for work?
    *   Yes (skip to question 9)
    *   No

6. Do you plan on searching for work in the next two months?
    a. No
    b. Yes (skip to question 9)

7. May I ask why?
    *   I have already found a job and have either started or will start soon
    *   Other (Specify _____ and skip to saying good bye)

8. Congratulations! We partnered up with Universities throughout the West Bank and Gaza Strip to study the job search experience of recent graduates in order to see how it can be improved. For this, we are conducting a survey in October. Would you be interested in participating and helping us out?
    *   Yes (skip to question 13)
    *   No

9. Are you sure, it would really be helpful?
    *   No, I will not participate (skip to saying goodbye)
    *   Ok, I will participate (skip to question 13)

10. Very good. As you know, finding a job is a difficult process, especially when it is for the first time. We partnered up with Universities throughout the West Bank and Gaza Strip to study the job search experience of recent graduates in order to see how it can be improved. For this, we are conducting a survey from the beginning of November, 2008, until the end of August, 2009. The survey involves 500 participants from 5 Universities filling out a questionnaire every two months, four times in total, and describing their job search experience. It would be great if you could participate.

Would you be interested in participating and helping us out?
a.   Yes (skip to question 13)
b.   No

11. Are you sure, it would really be helpful?
a.   No, I will not participate (skip to saying good bye)
b.   Ok, I will participate

12. Great! Will you be around from now until August, 2009, to fill out the questionnaires, 3 in total?
•   Yes (skip to question 14)
•   No (Thank you for your cooperation with this, but we need to contact you every month during the coming 10 months; skip to saying good bye)

Before the start of each other month (November, March, and August), we will have a person contact you and schedule a time for when you can fill-out the questionnaire.

13. Would you be able to fill out the questionnaire online?
•   Yes
•   No

14. Would you be able to fill out the questionnaire if we sent it to you as a Word document in an email?
•   Yes
•   No

15. What is the best way to reach you?
•   Email (verify/specify _____)
•   Land line (verify/specify _____)
•   Mobile phone (verify/specify _____)

16. Thank you very much for agreeing to participate. We will contact you again toward the end of October to schedule the first round of the survey.

17. Have a nice morning/day/evening.

End of Phone Script

Appendix 2a: Pre-Tracking Questionnaire

Individual Roster

District: which district do you currently reside in?

1. Jenin	5. Kalkilya	11. Hebron	13. Gaza
2. Tubas	6. Salfit	12. North Gaza	14. Deir Al Balah
3. Tulkarm	7. Jericho	9. Jerusalem	15. Khan Younis
4. Nablus	8. Ramallah & Al Bireh	10. Bethlehem	16. Rafah

Place: Which locality type do you currently reside in?
(1) Urban   (2) Rural   (3) Refugee Camp

What is your age at last birthday? Specify in years: _____

What is your gender?
(1) Male   (2) Female

What is your refugee status?
(1) Refugee   (2) Non-refugee

What is your current marital status?
1. Never married
2. Engaged
3. Married
4. Separated
5. Divorced
6. Widow or widower

Are you permanently ill or disabled?
(1) Yes   (2) No

A1: Have you ever lived outside of WBGS?
1. Yes, I have lived in a non-Arab country. Specify number of years: _____
2. Yes, I have lived in an Arab country. Specify number of years: _____
3. No, I have never lived outside of WBGS.

Education

A2: Which University did you graduate from?
1. Birzeit University (Birzeit)
2. Al Quds University (Abu Dis)
3. Islamic University (Gaza)
4. An Najah National University (Nablus)
5. Arab American University (Jenin)

A3: When did you graduate?
1. 2nd semester
2. Summer semester

A4: What was your field of study?
    Specify field: _____

A5: What was your average grade?
    Provide general grade average: _____

A6: How many languages can you speak other than Arabic?
    Provide number of languages: _____

A7: Can you speak, read and write fluently in English?
    (1) Yes   (2) No

A8: Do you regularly use email and the Internet?
    (1) Yes   (2) No

Employment Experience

A9: Have you worked in the past?
    (1) Yes   (2) No (skip to question 20)

A10: How long did it take you to find a job in the past?
    Provide number of weeks: _____

A11: Have you worked in the past in a field similar to the field you are trying to find work in?
    (1) Yes   (2) No

A12: Were your 200 hours of volunteering relevant in relation to preparing you for work?
    (1) Yes   (2) No

Search Duration

A13: Approximately how many weeks ago did you start searching for work?
    Provide number of weeks: _____

Interview Assessment by Field Researcher

On a scale from 1 to 5, with 1 being very bad and 5 being very good, please answer the following questions:

D1: How is her/his Arabic?
    (1) Very Bad   (2) Bad   (3) Neither bad nor good
    (4) Good   (5) Very good

D2: How are her/his communication skills?
    (1) Very Bad   (2) Bad   (3) Neither bad nor good
    (4) Good   (5) Very good

End of Pre-Tracking Questionnaire

Appendix 2b: Tracking Questionnaire

Wage

B1: Which monthly wage would you be willing to work for?
   Provide the wage in NIS: _____

B2: Which highest monthly wage have you been offered in the past two months?
   Provide the wage in NIS: _____

Search Intensity and Productivity

B3: About how many job openings did you come across?
   Provide the number: _____

B4: About how many job openings did you pursue?
   Provide the number: _____

B5: About how many interviews did you attend?
   Provide the number: _____

Self-Determination & Employment Value

B6: You are searching for work because work is an important part of life.
   1. Strongly disagree   2. Disagree   3. Neither agree nor disagree
   4. Agree   5. Strongly agree

B7: You are searching for work because you find it enjoyable to explore the job market opportunities.
   1. Strongly disagree   2. Disagree   3. Neither agree nor disagree
   4. Agree   5. Strongly agree

B8: You are searching for work because you would enjoy working.
   1. Strongly disagree   2. Disagree   3. Neither agree nor disagree
   4. Agree   5. Strongly agree

B9: You are searching for work because you want to use and develop your skills.
   1. Strongly disagree   2. Disagree   3. Neither agree nor disagree
   4. Agree   5. Strongly agree

B10: You are searching for work because working would allow you to interact with other people.
   1. Strongly disagree   2. Disagree   3. Neither agree nor disagree
   4. Agree   5. Strongly agree

B11: You are searching for work because you need money.
   1. Strongly disagree   2. Disagree   3. Neither agree nor disagree
   4. Agree   5. Strongly agree

B12: You are searching for work because working would increase your self-esteem.
    1. Strongly disagree   2. Disagree   3. Neither agree nor disagree
    4. Agree   5. Strongly agree

B13: You are searching for work because you feel guilty or ashamed about being unemployed.
    1. Strongly disagree   2. Disagree   3. Neither agree nor disagree
    4. Agree   5. Strongly agree

B14: (If you have a spouse) You are searching for work because your spouse has been making you look for a job.
    1. Strongly disagree   2. Disagree   3. Neither agree nor disagree
    4. Agree   5. Strongly agree

6. I have no spouse
B15: You are searching for work because your parents have been making you look for a job.
    1. Strongly disagree   2. Disagree   3. Neither agree nor disagree
    4. Agree   5. Strongly agree

Search Frequency

B16: On average, how many days per week did you search for work?
    Provide the average number of days: _____

B17: What is your current job search status?
1. I have completely stopped searching because I found work that I plan to stay with. (Skip to Post-Tracking Questionnaire)
2. I am searching for work. (skip to module E)
3. I have temporarily stopped searching.
4. I have permanently stopped searching. (Skip to Post-Tracking Questionnaire)

B18: Why have you temporarily stopped searching?
1. Because I found temporary work.
2. Because I did not come across any job openings.
3. Because I did not come across any job openings that I liked.
4. Because employers tell me that my qualifications are too low.
5. Other (Specify: _____).

Expectations

B19: How optimistic are you about doing well during an interview with an employer?
    1. Very pessimistic   2. Pessimistic   3. Neither optim. nor pessim.
    4. Optimistic   5. Very optimistic

B20: How optimistic are you about your prospects of finding an employer who is willing to hire you?
    1. Very pessimistic   2. Pessimistic   3. Neither optim. nor pessim.
    4. Optimistic   5. Very optimistic

B21: How optimistic are you about your prospects of finding a job that you like?
    1. Very pessimistic   2. Pessimistic   3. Neither optim. nor pessim.
    4. Optimistic   5. Very optimistic

B22: How optimistic are you about your prospects of finding any job?
   1. Very pessimistic   2. Pessimistic   3. Neither optim. nor pessim.
   4. Optimistic   5. Very optimistic

Life Satisfaction

B23: How satisfied are you with your life?
   1. Very unsatisfied   2. Unsatisfied   3. Neither satisfied nor unsatisfied
   4. Satisfied   5. Very Satisfied

End of Tracking Questionnaire

Appendix 2c: Post-Tracking Questionnaire

Search Results

C1: Did you find work?
1. Yes (skip to question 3)   2. No

C2: What is your job search status?
1.   I am still searching for work. (End the interview)
2.   I stopped searching because I did not come across any job openings. (End the interview)
3.   I stopped searching because I did not come across any job openings that I liked. (End the interview)
4.   I stopped searching because employers say that my qualifications are too low. (End the interview)
5.   Other (Specify: _____). (End the interview)

C3: How satisfied are you with the work you found?
1. Very unsatisfied   2. Unsatisfied   3. Neither satisfied nor unsatisfied
4. Satisfied   5. Very Satisfied

C4: Is the work you found within the field or one of the fields you wanted?
1. Yes   2. No

C5: Which sector did you find work in? _____

1. Accounting/ Finance	5. Craft	9. Small manuf	13. Other
2. Administration	6. Education	10. Restaurant	
3. Agriculture	7. Health	11. Retail	
4. Construction	8. Large manuf	12. Transportation	

C6: In which governorate did you find work?

1. Bethlehem	5. Jenin	9. Khan Younis	13. Ramallah & Al Bireh
2. Deir Al Balah	6. Jericho	10. Nablus	14. Salfit
3. Gaza	7. Jerusalem	11. North Gaza	15. Tubas
4. Hebron	8. Kalkilya	12. Rafah	16. Tulkarm

C7: Which job search method did you find most useful in your job search?
1.   Inquiring with my family's wasta.
2.   Inquiring with non-wasta family, friends and neighbors.
3.   Inquiring with previous employers.
4.   Inquiring with new potential employers.
5.   Inquiring in the newspaper.
6.   Inquiring with the labor office.
7.   Other (Specify: _____)

End of Post-Tracking Questionnaire

Appendix 3: Labor Law No. 7 & Worker's Rights Summary

Below is a summary of the Palestinian Labor Law No. 7 and Workers Rights. The active Labor Law No. 7 was ratified in 2000 and replaced the 1960 Jordanian Labor Law in the West Bank and the 1964 Egyptian Labor Law in the Gaza Strip. It was drafted in line with the Arab Labor Organization's (ALO) and the International Labor Organization's (ILO) standards. An Arabic and/or English version of the Labor Law No. 7 may be acquired upon request from the Ministry of Labor.

Labor Law No. 7

The Labor Law No. 7 covers a number of issues that are organized into 10 sections. Below is a brief summarization of each section:

1. ***General Provisions and Principles*** section:
   - makes work a right for each work-able citizen;
   - exempts workers from judicial fees accrued from work-related disputes;
   - permits unionization; and
   - excludes from the provisions of the Labor Law No. 7 government functionaries, house servants and alike, and up-to first-degree family members of the employer.

2. ***Employment, Occupational Training and Guidance***
   - Employment subsection:
     - requires employers to submit to the Ministry of Labor on a monthly basis various demographic data on its employees;
     - requires employment of qualified disabled workers to be no less than 5% of the staff;
     - allows the Ministry of Labor to grant licenses to work to non-Palestinians; and
     - prohibits the discrimination in the circumstances and conditions of work between workers.
   - *Occupational Training and Guidance* subsection instructs the Ministry of Labor to establish and regulate training and guidance that safeguards the principle of equal opportunity.

3. ***The Individual Work Contract*** section covers the various methods of agreement, the composition of the contract, its duration, expiration and termination.

4. ***Collective Labor Relations*** section:
   - covers collective negotiation, collective labor agreement, the settlement of collective *labor* disputes and regulation of strikes and lockouts.

5. ***Requirements and Conditions of the Work*** section covers working hours and weekly *holidays*, leaves, salaries and occupational safety and hygiene (health).

6. ***Regulation of the Work of Minors*** (from 15 to 18 years old) section:
   - prohibits employment of children below the age of fifteen;
   - narrows the type of work minors can perform, for example, dangerous work; and
   - makes adjustments to several provisions above in order to provide minors with a greater level of protection.

7. ***Regulation of the Work of Women*** section:
   - prohibits gender-based discrimination;
   - narrows the type of work women can perform, for example, dangerous or strenuous work.
   - makes adjustments to several provisions in order to assist women before and after pregnancy.

8. ***Labor Inspection*** section authorizes members of The Commission of Labor Inspection to enter the workplace, make inquiry with employers and/or workers, view and take copies of what pertains to the condition of work, take samples of used materials and issue orders and directives.

9. ***Work Injuries and Occupational Diseases*** section describes what is required from the employer upon the occurrence of a work injury or death.

10. ***Penalties and Conclusive Provisions*** section describes the occasion for and the type of penalties.

The Labor Law No. 7 is supplemented with about 30 bylaws that were ratified during 2003, 2004, 2005 and 2006. The bylaws cover a broad range of issues, concerning:

- special protection and regulation on work for minors, women, seasonal workers and those working in a group;

- Protective safety and health standards and requirements on employment and conditions in the workplace, including prerequisite and periodical medical check-ups, on-location first-aid equipment, etc.; and

- general regulation regarding working hours and extra work and specific regulation regarding dangerous and harmful-to-health work and operation and type of work during religious and official holidays.

The Ministry of Labor's Inspection and Protection Administration is responsible for insuring the adherence to the Labor Law No. 7 in the work place. Currently around 40 inspectors in the West Bank and around 30 in the Gaza Strip each visit a minimum of 40 establishments per month, in every district, checking the safety and health conditions of the workplace.

Appendix 4: Variables

This appendix describes and organizes in an alphabetical order all the variables used in the time-to-event analysis. Most variables were uniquely calculated and are listed below under the *Individual Variables* heading. Some variables are related and were calculated in a similar way and therefore were grouped for convenience. The grouped variables are listed below under the *Grouped Variables* heading. In parenthesis, following each variable's full name, is the question number with which the variable is associated with, its type, and its short name.

Individual Variables

Abroad (A1; categorical; abroad)

Abroad is a dummy variable that distinguished those who have lived abroad from those who have not. The variable is based on question A1 in the Individual Roster section of the Pre-Tracking Questionnaire (Appendix 2a). The question asks: *Have you ever lived outside of WBGS?* The answers are: *Yes, I have lived in a non-Arab country*; *Yes, I have lived in an Arab country*; or *No, I have never lived outside of WBGS*. Answers *Yes, I have lived in a non-Arab country* and *Yes, I have lived in an Arab country* are marked with a 1; *No, I have never lived outside of WBGS* is marked with a 0.

Age (Individual Roster; continuous; age)

Age is a continuous variable stating the recent graduate's age. It is based on the age question in the Individual Roster section of the Pre-Tracking Questionnaire (Appendix 2a). The variable's min is 21, max is 40, mean is 23.1, median is 23, and mode is 22.

Disability Status (Individual Roster; categorical; disab)

Disability status is a dummy variable that distinguished those who are permanently ill or disabled from those who are not. The variable is based on the disability status question in the Individual Roster section of the Pre-Tracking Questionnaire (Appendix 2a). The question asks: *Are you permanently ill or disabled?* The answer is either yes or no. Answer yes is marked with a 1; no is marked with a 0.

English (A7; categorical; eng)

English is a dummy variable that identifies those who are proficient with the English language. The variable is based on question A7 in the Education section of the Pre-Tracking Questionnaire (Appendix 2a). The question asks: *Can you speak, read and write fluently in English?* The answer is either *yes* or *no*. Answer *yes* is marked with a 1; *no* is marked with a 0.

Enjoy Search (B7; continuous; enjsch)

Enjoy search is a continuous variable aimed at understand the motivation behind the recent graduate's job search. It is based on question B7 in the Self-Determination and Employment Value section of the Tracking Questionnaire (Appendix 2b). The question proposes: *You are searching for work because you find it enjoyable to explore the job market opportunities.* Answers include: 1) strongly disagree; 2) disagree; 3) neither agree nor

disagree; 4) agree; and 5) strongly agree. Strongly disagree was assigned a 1, disagree was assigned a 2, and so on, with strongly agree assigned a 5. The variable was calculated for each graduate by taking the mean from the three rounds.

Frequency (B16; continuous; freq)

Frequency is a continuous variable stating how frequently the recent graduate searched for work. The variable is based on question B16 in the Search Frequency section of the Tracking Questionnaire (Appendix 2b). The question asks: *On average, how many days per week did you search for work?* The variable was calculated for every recent graduate by taking the mean of her/his answers. For example, if for a particular graduate the answer was recorded three times, i.e. during each round of surveying, then the mean was based on the three answers. If, for example, for a particular graduate the answer was recorded one time, i.e. the graduate either only participated in one round of surveying or participated in more rounds but the answer was only recorded once, then the mean was based on the one answer.

Gaza Strip (Individual Roster; categorical; gs)

Gaza Strip is a dummy variable that identifies those who reside in the Gaza Strip. It is based on the district question in the Individual Roster section of the Pre-Tracking Questionnaire (Appendix 2a). The question asks: *Which district do you currently reside in?* Answers: North Gaza, Gaza, Deir Al Balah, Khan Younis, and Rafah are marked with a 1, the other eleven districts are located in the West Bank and are marked with a 0. Since Islamic University is the only university from the Gaza Strip participating in the study, the Gaza Strip dummy variable also represents recent graduates from Islamic University.

Gender (Individual Roster; categorical; male, fmale)

A dummy variable was created for each gender. The variables are based on the gender question in the Individual Roster section of the Pre-Tracking Questionnaire (Appendix 2a). The question asks: *What is your gender?* The answer is male or female.

Grade (A5; continuous; grade)

Grade is a continuous variable that states the recent graduate's average grade scores. It is based on question A5 in the Education section of the Pre-Tracking Questionnaire (Appendix 2a). The question asks: *What was your average grade?* About 58 graduates (11.6%) reported their grades in GPA format while the rest 439 (88.4%) in percentages. The GPA format grades were transformed into percentages using the following system, the source of which is the Princeton review:[19]

1.7 → 72; 1.8 → 73; 1.9 → 74; 2.0 → 75, 2.1 → 76; 2.2 → 77; 2.3 → 78; 2.4 → 79; 2.5 → 80; 2.6 → 81; 2.7 → 82; 2.8 → 83; 2.9 → 84; 3.0 → 85; 3.1 → 86; 3.2 → 87; 3.3   88; 3.4 → 89; 3.5 → 90; 3.6 → 91; 3.7 → 92; 3.8 → 93; 3.9 → 94; 4.0 → 95 + up → A.

This may not be perfectly in line with the system used at each of the five Universities, but it should be close enough for the purpose of this study.

Guilt Search (B13; continuous; gltsch)

Guilt search is a continuous variable aimed at understand the motivation behind the recent graduate's job search. It is based on question B13 in the Self-Determination and

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[19]   GPA Conversion Chart: http://inquiry.princetonreview.com/leadgentemplate/GPA_popup.asp

Employment Value section of the Tracking Questionnaire (Appendix 2b). The question proposes: *You are searching for work because you feel guilty or ashamed about being unemployed.* Answers include: 1) strongly disagree; 2) disagree; 3) neither agree nor disagree; 4) agree; and 5) strongly agree. Strongly disagree was assigned a 1, disagree was assigned a 2, and so on, with strongly agree assigned a 5. The variable was calculated for each graduate by taking the mean from the three rounds.

Intensity (new; continuous; intens)

Intensity is a continuous variable gauging the intensity of the recent graduate's search. The variable is based on questions B3 and B4 in the Search Intensity and Productivity section of the Tracking Questionnaire (Appendix 2b). The questions ask: About *how many job openings did you come across?* and *About how many job openings did you pursue?* The variable is a ratio, calculated by dividing the numeric answer to the question *About how many job openings did you pursue?* by the numeric answer to the question About *how many job openings did you come across?*.

Internet (Individual Roster; categorical; net)

Internet is a dummy variable that identifies those who are proficient with using email and the Internet. The variable is based on question A8 in the Individual Roster section of the Pre-Tracking Questionnaire (Appendix 2a). The question asks: *Do you regularly use email and the Internet?* The answer is either *yes* or *no*. Answer *yes* is marked with a 1, *no* is marked with a 0.

Languages (A6; continuous; lang)

Languages is a continuous variable based on question A6 in the Education section of the Pre-Tracking Questionnaire (Appendix 2a). The question asks: *How many languages can you speak other than Arabic?* The answer is the number of languages the recent graduate speaks other than Arabic.

Marital Status (Individual Roster; categorical; mar)

Marital status is a dummy variable that distinguished those who are committed from those who are not. The variable is based on the marital status question in the Individual Roster section of the Pre-Tracking Questionnaire (Appendix 2a). The question asks: *What is your marital status?* The answer is never married, engaged, married, separated, divorced, or widow or widower. Answers engaged or married are marked with a 1; never married, separated, divorced, or widow or widower are marked with a 0.

Method (C7; categorical; meth)

Method is a categorical variable describing the recent graduate's most useful job-search method. The variable is based on question C7 in the Search Results section of the Post-Tracking Questionnaire (Appendix 2c). The question asks: *Which job search method did you find most useful in your job search?* The answers are: *Inquiring with my family's wasta*; *Inquiring with non-wasta family, friends and neighbors*; *Inquiring with previous employers*; *Inquiring with new potential employers*; *Inquiring in the newspaper*; *Inquiring with the labor office*; or *Other*.

Pre-search (A13; continuous; presch)

Pre-search is a continuous variable based on question A13 in the Search Duration section of the Pre-Tracking Questionnaire (Appendix 2a). The question asks: Approximately how many weeks ago did you start searching for work? The answer is meant to state the number of weeks the recent graduate searched prior to the first round interview. For compatibility with the rest of the survey, the answers were converted into months. For example, if a graduate searched for four or less weeks prior to the first round interview, her/his pre-search duration was counted as one month, if s/he searched between five and eight weeks prior to the first round interview, her/his pre-search duration was counted as two month, and etc.

Productivity (B4, B5; continuous; prod)

Productivity is a continuous variable gauging the productivity of the recent graduate's search. The variable is based on questions B4 and B5 in the Search Intensity and Productivity section of the Tracking Questionnaire (Appendix 2b). The questions ask: About how many job openings did you pursue? and About how many interviews did you attend? The variable is a ratio, calculated by dividing the numeric answer to the question About how many job openings did you pursue? by the numeric answer to the question About how many job openings did you come across?.

Profession (A4; categorical; prof)

Profession is a categorical variable that states the recent graduate's field of study. The variable is based on question A4 in the Education section of the Pre-Tracking Questionnaire (Appendix 2a). The question asks: *What was your field of study?* Around 160 answers were given that were later consolidated into 19 fields, which included: *Accounting, Biology, Business, Chemistry, Computer Science, Dentistry, Education, Engineering, Finance, Geography, Languages (Arabic), Languages (English), Law, Law (Islamic), Mathematics, Medicine, Pharmacy,* and *Religion (Islam)*. An *Other* category was also created for about 50 different answers that contained less than 10 entries.

Refugee Status (Individual Roster; categorical; ref)

Refugee status is a dummy variable that distinguished refugees from non-refugees. The variable is based on the refugee status question in the Individual Roster section of the Pre-Tracking Questionnaire (Appendix 2a). The question asks: *What is your refugee status?* The answer is either *refugee* or *non-refugee*. Answer refugee is marked with a 1; *non-refugee* is marked with a 0.

Status (new; categorical; status)

Status is a dummy variable created for time-to-event analysis. If a recent graduate reported becoming permanently employed during the studied period, s/he was marked with a 1; otherwise s/he is marked with a 0.

Time variable (new; continuous; time)

Time is a continuous variable measuring the duration of the recent graduate's search. The variable is calculated by adding up the months the graduate searched during each round, according to the following rules:

- For the first round, the number of months that s/he claims to have searched

prior to the first round is used, regardless of whether s/he claims to have searched at the time of the survey.[20]

- For the second round, it depends on what the graduate was doing during the first round. If the graduate was searching during the first round and is searching during the second round, four months are added. If the graduate was searching during the first round, but is not searching during the second round, two months are added. If the graduate was not searching during the first round, but is searching during the second round, two months are added. Lastly, if the graduate was not searching during the first round and is not searching during the second round, no months are added.

- For the third round, it depends on what the graduate was doing during the second round. If the graduate was searching during the second round and is searching during the third round, five months are added. If the graduate was searching during the second round, but is not searching during the third round, three months are added. If the graduate was not searching during the second round, but is searching during the third round, three months are added. Lastly, if the graduate was not searching during the second round and is not searching during the third round, no months are added.

This method treats all months equally, irrespective of whether they occurred during the first round, second, or third. This may be misleading, since environment changes as well as motivation. Time is a rough estimate also because when the pre variable was converted from weeks into months, all weeks went into months. As result, time is a range of plus or minus 2 months.

University (A2; categorical; alquds, annaj, arabam, birzeit, islam)

A dummy variable was created for each University. The variables are based on question A2 in the Education section of the Pre-Tracking Questionnaire (Appendix 2a). The question asks: *Which University did you graduate from?* The answer is Al Quds University, An Najah University, Arab American University, Birzeit University, or Islamic University.

Worked (A9; categorical; workd)

Worked is a dummy variable that identifies those who have worked in the past. The variable is based on question A9 in the Employment Experience section of the Pre-Tracking Questionnaire (Appendix 2a). The question asks: *Have you worked in the past?* The answer is either *yes* or *no*. Answer *yes* is marked with a 1, *no* is marked with a 0.

Grouped Variables

Below is an alphabetically-ordered list of variables that were calculated in the following way: Every variable in each below group is calculated for every recent graduate by taking the mean of the answers associated with each question. For example, if for a particular graduate the answer was recorded three times, i.e. during each round of surveying, then the mean was based on the three answers. If, for example, for a particular graduate the answer was recorded one time, i.e. the graduate either only participated in one round of surveying or participated in more rounds but the answer was only recorded once, then the mean was based on the one answer.

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[20]   This information was gathered in response to A13. The weeks were converted into months and the duration was capped at six months.

Expectations & Life Satisfaction Group

(B19, …, B23; categorical; B19_ave, …, B23_ave)

The Expectations & Life Satisfaction Group of variables aims to measure the psychological capability of each recent graduate. The group is based on questions B19, B20, B21, B22, and B23 in the Tracking Questionnaire (Appendix 2b). The questions ask: How optimistic are you about doing well during an interview with an employer?; How optimistic are you about your prospects of finding an employer who is willing to hire you?; How optimistic are you about your prospects of finding a job that you like?; How optimistic are you about your prospects of finding any job?; and How satisfied are you with your life?. The answers are based on a 1-5 Likert scale and for questions B19-22 include: 1) strongly disagree; 2) disagree; 3) neither agree nor disagree; 4) agree; and 5) strongly agree. For question B23, the answers are: 1) very unsatisfied; 2) unsatisfied; 3) neither satisfied nor unsatisfied; 4) satisfied; and 5) very satisfied.

Self-Determination & Employment Value Group

(B6, …, B15; categorical; B6_ave, …, B15_ave)

The Self-Determination & Employment Value group of variables aims to measure the psychological capability of each recent graduate. The group is based on questions B6, B7, B8, B9, B10, B11, B12, B13, B14, and B15 in the Tracking Questionnaire (Appendix 2b). The questions propose: You are searching for work because work is an important part of life; You are searching for work because you find it enjoyable to explore the job market opportunities; You are searching for work because you would enjoy working; You are searching for work because you want to use and develop your skills; You are searching for work because working would allow you to interact with other people; You are searching for work because you need money; You are searching for work because working would increase your self-esteem; You are searching for work because you feel guilty or ashamed about being unemployed; (If you have a spouse) You are searching for work because your spouse has been making you look for a job; and You are searching for work because your parents have been making you look for a job. The answers are based on a 1-5 Likert scale and include: strongly disagree; disagree; neither agree nor disagree; agree; and strongly agree.

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