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Young and Unemployed: A Multivariable Analysis of Youth Unemployment in Jordan

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Young and Unemployed: A Multivariable Analysis of Youth Unemployment in Jordan

by

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Abstract

The level of youth unemployment in the Middle East is higher than any other region in the world. The detrimental effects of early unemployment can be broad and long lasting. This paper discusses some of the factors of youth unemployment in the Middle East, such as poor education systems and underdeveloped labor markets; and the social effects such as delayed marriages and political unrest. It then goes on to analyze the School-to-Work Transition Survey (SWTS) to understand the impact of age, sex, individual education, and parental education on the transition from school to work. The results indicated that sex and education play the largest part in transitioning. Males are at a greater advantage in the Jordanian labor market. Parental education was not as significant as expected.

Key Terms: Jordan, Youth Unemployment, School-to-work transition, Transition times, SWTS.

Dedication

Jillian Clark:

Your tenacious character (and the occasional free breakfast) inspires me more than you know. Your analysis of 2007-2009 Miley Cyrus hits was the original impetus for by desire to conduct this research.

Acknowledgment

I would like to thank Dr. Edward Sayre. I am grateful for his help and guidance along the way. This piece of work would not have been possible without his guidance and support. His enthusiasm for the topic greatly impacted the depth and breadth of my research for the better. Thank you for everything.

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Introduction

Revolutionary protest, riots, and civil wars have rocked the Middle East since late 2010 beginning with the Tunisian Revolution. Twenty-seven year old Tunisian, Mohamed Bouazizi, set himself on fire in protest after police confiscated his vegetable cart and beat him. His death set off a wave of demonstrations in his hometown that spread through the country, and throughout the region. The movement became known as the Arab Spring. Mass protests in Egypt led to President Hosni Muburak's removal; casing his ruling regime of thirty years to crumble. The following year Mohammed Morsi of the Muslim Brotherhood was elected president, though he too would be ousted after popular protest. Meanwhile, in Jordan protesters were demanding a popular vote for prime minister, an end to corruption and a solution to the persistent unemployment problem. The king responded with a wave of reforms. First, he began the process of amending the constitution, then he unveiled a new system to involve parliament in forming cabinets until a prime minister could be properly elected. The king's proposed changes were met with more skepticism than satisfaction. The unrest in the neighboring Syria far surpassed that of Jordan. In March 2011, several teenage boys were arrested and tortured for painting revolutionary slogans on a school wall. Their arrest led to protests in their city, Deraa, for greater freedoms and an end to corruption. After security forces opened fire on protesters discontent spread through the country and what began as another Arab Spring protest escalated into a full on civil war.

Several studies have shown a bi-directional relationship between economic growth and political instability, similar to what was seen in the Arab Spring. Alesina and Perotti (1993) found that socio- political instability and the ensuing uncertainty has an adverse effect on investment. They argue income inequality fuels social discontent and leads to unrest. They also argued, as did others[1] that income inequality is harmful to growth because the demand for redistribution is higher and financed by higher taxation causing a lower rate of growth. Aisen and Veiga (2006) found political instability hinders productivity growth and capital accumulation. They argue political instability likely shortens policy maker's horizons leading to sub-par macroeconomic policies and perhaps frequent policy changes, which can lead to volatility.

The above findings are relevant in the Middle East where young people make up nearly 30% of the population and account for 50% of the region's labor force.[2] Year after year the youth population struggles to find stable employment. With more than 100 million people between 15 and 29, the region with the youngest population is experiencing the highest rates of youth unemployment.[3] It is impossible to pinpoint a single cause for the unemployment crisis in the Middle East. However, political and economic institutional failures— such as a labor market ill-equipped to absorb the growing number of new entrants and an education system that inadvertently promotes skills mismatch, have played a part in youth joblessness.

[1] Alesina and Rodrik(1991),(1993), Persson and Tabellini(1991), Bertola(1991) and Perotti(1993) are just a few who have published papers on the topic
[2] Dhillon, Dyer and Yousef
[3] Chaaban

Following World War II, the Middle East began on a long road to development. Prior to the 1950's the region had some of lowest levels of socioeconomic development[4]. Most of the Middle Eastern economies followed a development model with a heavy focus on interventionist-redistributive policies. The emergence and prominence of the interventionist-redistributive model shaped a social contract in the Middle East of established expectations and obligations, such as state planning economic priorities and the provision of education, housing, healthcare, and food subsidies that has been difficult to break. [5] From the 1950s to 1970s, the region enjoyed a sustained period of growth. Vandewalle argues the welfare gains of the period helped to cement the "authoritarian bargain," citizens of the Middle East traded restrictions on political participation for economic security through public provisions of social services and welfare. [6] After an economic crash in the 1980's due to declining oil prices, a shrinking demand for migrant workers, smaller remittances, and a regulatory environment that discouraged investment and development, the 1990's saw a gradual transition to a market–led economy through deregulation of institutional foundations and liberalization of trade. [7] The pro-market reforms of the 1990's led to lower levels of unemployment, yet, the jobs created were low quality. Today, meager job creation is linked to slow industrialization, low global integration, and minimal private investment. Volatile macroeconomic factors, such as exogenously driven growth and an inconsistent regulatory environment, have deterred investors in high-value added sectors,

[4] Yousef
[5] Yousef
[6] Vandewalle
[7] Yousef

forcing the market to tend toward low -value-added sectors. Potential small business owners struggle to open new businesses due to strict regulations that inhibit competition and encourage informality. [8]

Institutions in the Middle East are struggling to keep up with the region's rapid demographic growth. The pressure of the youth bulge is only exacerbated by the lagging institutions. In the education sector, schools are both overwhelmed and ill equipped to prepare students for adulthood. Though education enrollment is at an all-time high, the quality of education needs improving. International education assessments show the Middle East lags behind the rest of the world. In the labor market, job creation has not grown enough to keep up with population booms resulting in flooded labor markets. Strict regulations in the private sector have further exacerbated youth unemployment[9].

The final area of concern is delayed marriage. Young people have begun to put off marriage because the associated costs are simply too high. Combined these variables have stretched the transition into adulthood and forced young people into a period of waiting. This type of economic environment not only harms the individual, but also has lasting effects on the economy and society as a whole. Young people turn to education to gain the skill sets necessary for stable employment. Institutional failures have made the path to stable employment a long and arduous one. Regionally, there is little research on the effects of early unemployment. In developed countries, however, long spans of early unemployment have proven to be of great consequences. Young people who have had extended periods of early

[8] Chaaban
[9] Dhillon, Dyer and Yousef

unemployment are immediately less well-off due to the lack of income. In the long run, early unemployment has led to depressed future wages and increased risk of repeated incidence of unemployment.[10]

The far-reaching effects of a poor labor market warrant further research into the types of unemployment in the Middle East and the extent of which certain variables affect unemployment. This study will focus on the effects of the variables of unemployment, such as family background and education, in Jordan. Jordan is the sole focus because it would be an impossible undertaking to study the whole region with the given time constraints and limited resources.

In 2009, the International Labour Organization (ILO) developed the School-to-Work Transition Survey (SWTS) to identify individual characteristics in young people that could signify labor market disadvantage and identify the features of youth labor demand. Understanding both is necessary to construct appropriate policy responses. The ILO is in the process of publishing, or has already published, national reports for each of the countries included in the STWS. The national reports include statistics on young people (age 15-29) in the labor market. Absent in the reports is statistical analysis on the multivariable relationship between different factors contribution to unemployment. For example, the national reports show unemployment rates by gender, family background, and education, but they do not elaborate on the relationship between each. This study will calculate the impact of education on unemployment controlling for family background, and vice versa.

[10] Blanchflower and Freeman

Literature Review

Education

Education enrollment in the Middle East is high; primary education is nearly universal and secondary enrollment is approaching 75%.[11] Recent years have seen greater investment in education, which now makes up 5% of regional GDP and 20% of government expenditure in the Middle East.[12] MENA countries' per pupil education expenditures are comparable to the rest of the world with a regional average of $1,583 (USD PPP). However expenditures vary greatly from country to country from $785 (Egypt) to $10,114 (Qatar).[13] Despite high investment, the return on education is relatively low. The academic achievements of Arab youth are low when judged according to international standards. Students from 13 of the14 Middle Eastern countries that participated in the International Mathematic and Science Studies (TIMSS) scored in the lowest benchmarked category. Jordanian students were the only to score in the intermediate benchmark category. [14]

Traditionally, the public sector has been the main employer in the region. Young people flock to the public sector because it often offers contracts of longer than a year, or in some cases of unlimited duration.[15] The adoption of the interventionist model discussed above paved the way for big government. During times of growth, especially the 1970s governments throughout the Middle East were able to hire most college and secondary school graduates in part due to oil revenues

[11] Dhillon, Dyer and Yousef
[12] World Bank: The Road Not Travelled.
[13] Salehi-Isfahani
[14] World Bank: The Road Not Travelled
[15] Barcucci and Mryyan

and high flows of remittances. Governments have incentivized formal schooling by promising employment to graduates of the education system.[16] In the 1960s, Egypt began guaranteeing public sector employment to all graduates of a secondary institution. At the time, the guarantee was realistic due to the limited number of eligible graduates, however, overtime that guarantee fueled the demand for secondary education putting stress on governing bodies trying to fulfill their promise.[17] The legacy of public sector employment has proven hard to break across the region. According to the SWTS, young public employees held contracts of unlimited duration in 85% of the cases. With this illusion of security, it is no surprise that more than 70% of students in higher education take the path to civil service jobs[18]. Table 1 shows how much Middle Eastern economies spend on public wages compared to their southeast Asian counterparts. The table comes from the World Bank's MENA development reports entitled *From Privilege to Competition: Unlocking Private Led Growth in the Middle East and North Africa*. Notice Jordan spends more on public wages as a percentage of their GDP than any other country; they spend almost 4 times as much as Malaysia. The effect of this overemphasis on public sector work will be detrimental in the long run because it traps human capital in unproductive jobs, which in turn limits economic growth[19].

Jordan links secondary schooling and the chance at tertiary education through the Tawjihi. In the final two years of secondary school students must choose between pursuing the academic track or the vocational track. Both tracks

[16] Assaad, Salehi-Isfahani, & Hendy (2014)
[17] Assaad (1997)
[18] Chaaban
[19] Pissarides

end with a general secondary education examination, the Tawjihi. Admission to universities in Jordan is based exclusively on how well one performs on the Tawjihi.[20] The structure of university admissions puts immense pressure on teachers and encourages rote learning. The exam is not designed to measure critical thinking or the application of knowledge from certain disciplines.

Table 1: Public Wages as a Percent of GDP

Country	Year	Percentage of public wages per gross domestic product
Algeria	2001–05	7.5
Bahrain	2001	16.0
Egypt, Arab Rep.	2001–05	7.8
Jordan	2001	19.0
Kuwait	2001	16.0
Lebanon	2001	10.0
Morocco	2001–05	12.0–13.0
Syrian Arab Republic	2001–05	9.5–11.0
Tunisia	2001–05	12.0
Indonesia	2005	1.3
Malaysia	2005	5.2
Philippines	2005	5.5
Thailand	2005	5.9

Students who make an "A+" are directed towards medicine, "A-" students are directed toward engineering and "D" students are led to the study of sharia law. The

[20] Kanaan and Hanania

outcome of the Tawjihi, could result in a student being directed down career path that runs counter to their aptitudes or interests.[21]

Unemployment is closely linked to education level. The unemployment level among Jordanians who can read and write is 14% it declines for those with secondary schooling to 6.2%, then rises once more for university graduates to 14.2%.[22] This pattern of unemployment, lower among secondary finishers and higher among college graduates, is apparent across the Middle East and has been a focus of study. Dhillon et al suggest those with secondary degrees and higher have higher expectations for employment and job quality, leading to higher rates of unemployment among that group.

Inequality of opportunity (IOp) is a large factor in the education attainment in MENA countries. IOp is the extent that an opportunity is dependent on circumstances outside the control of the individual. Assad et al. examined the effects of the circumstances Middle Eastern children are born into on their education achievement in the mathematics and sciences. The authors used student scores from TIMSS over time since 1999. They found exceedingly high levels of inequality of opportunity in the countries they studied. They found a child growing up in advantaged setting has nearly a perfect chance (.97) of entering school and making it to the secondary level, while the same child from the least advantaged background is far less likely. The variation in country outcomes for the latter group is large, but in Iraq, the most unequal country, a child from the best off family is 12

[21] Kanaan and Hanania
[22] Amer

times more likely to reach secondary school than a child from the worst.[23] Not only is it useful to measure inequality of opportunity in attainment (getting to school and going through), it is also very useful to measure inequality of opportunity in achievement (test scores). Assad et al. found that gender was not an important contributor in inequality of achievement, though it was important for inequality of opportunity in attainment. Women tend to achieve less education than men.

Gender Inequalities

Mona Amer (2012) presented several relevant findings on gender inequalities during the school to work transition. First, employment status differs greatly among men and women. According to Amer's analysis 64.3% of men go on to find work after school, while only 15.5% of women find jobs after school. The labor force participation rate for women age 15 to 34 is much lower than men in the same age bracket, 18.2% compared to 64.7%. Men also find jobs much quicker than their female counterparts. Two years after leaving school half of all men were employed. For working-women, the same feat takes 3 years.[24] The labor market status of men and women also substantially differs. Men who are not working are for the most part unemployed (29.2), while women who are not working tend to be inactive (71.4%). Informal and non-wage work is not as pervasive among women starting out in the labor market. When women are employed, their employment tends to be formal. Eleven point nine percent of women are formally employed, a relatively high figure considering only 15.5% are able to find employment. Men, on the other hand,

[23] Assaad, Salehi-Isfahani & Hendy (2014)
[24] Amer

are much more likely to accept informal positions. At the time of Amer's study 24.6% of working-men were in informal jobs.[25]

There is a large body of work studying female labor force participation in the Middle East. Assad et al. examined the paradox between female education attainment and the female labor force participation rate. In the past decade, as female education attainment has expanded, the labor force participation rate has fallen or stagnated. Assad argues the paradox is due to the limited opportunities for women in the labor force. Women have primarily been employed in health and education fields which are public sector positions. As the public sector has cut back, job opportunities for women have deteriorated. Private sector work is growing within the economy though it is unpopular among women because it is increasingly temporary and is perceived to be unfit for them.[26] Another popular explanation for low female labor force participation is Islamic culture. Some blame low workforce participation on Islam, due to its tendency to place women in subordinate positions outside the home. Sayre and Hendy (2015) argue Muslim women outside the Middle East tend to have labor force patterns similar to their place of residence, therefore Islam should not take the brunt of the blame for poor female labor force participation.[27]

Table 2: Labor Force Participation by Sex and Age Group

	(%)		
	Total	Male	Female
Total	37.1	60.4	13.2
15-19	8.7	16.0	0.5
20-24	40.6	60.1	17.6
25-29	57.7	92.4	24.1

[25] Amer
[26] Assaad, Hendy, & Yassine (2012)
[27] Sayre & Hendy

Amer also calculates the probability that an individual obtained his/her first job given his/her age, and again, the gap between males and females was wide. She found all men had obtained a job by 34, while just a third of women had any experience in the labor market by the same age. Further, 75% of men had found their first job by age 25, but only 25% of females had successfully transitioned into the labor market by 25. Based on these results, the author concludes many women may never enter the labor market. A 2007 study done under the Al-Manar Project of the National Center for Human Resource Development in Jordan (NCHRD) found that some employers in the private sector avoid hiring women due to the strict legislation on women's working conditions and maternity leave. Married women are discriminated against because employers fear their marital responsibilities will get in the way of the job thus they prefer to hire young men or unmarried women.[28]

Amer found that education level has minimal impact on the time it takes men to get a job post- graduation, however education greatly affects the timeliness of woman's job offers. Half of all university-educated women were able to find their first job within two years of graduation, a time frame comparable only to men of all levels of education. As the level of education attainment goes down, the length of unemployment goes up for women. [29] (See Assad et al.'s argument above).

The Work4Youth (W4Y) Jordan national report analyzed responses from the SWTS. Amer used a different dataset, the Jordan Labor Market Panel Survey (JLMPS), for her work, thus the statistics differ slightly. W4Y reported overall

[28] Peebles
[29] Amer

Jordanian labor force participation for those 15 and older was 37.1%, with only 13.2% of working age women participating compared to 60.4% of working age men. The exceedingly low labor force participation rate of women has affected Jordan's employment-to-population ratio so that it is now among the lowest in the world[30].

The W4Y report indicated fields of study that appear to be gender-specific. The responses showed women favor fields that focus on health and welfare, and education and teaching, while men preferred to study a broader range of specialties. Institutions in the Middle East have limited the number of jobs for which women are comfortable applying; one could conclude the propensity of women to choose select fields of study is a reflection of that.[31]

Lengthy Transitions and Worker Satisfaction

Although 84.5% of youth workers indicated they were satisfied with their employment situation job-quality indicators paint a different picture. Informal employment was more prevalent than other types of employment; 53.2% of workers were classified as informally employed. Many of those held contracts, some long term, but did not have access to benefits such as sick leave, annual leave and pension contributions. [32] Workers also face the problem of low-wages, excessive hours, and qualification mismatches. The largest share of employed workers worked 40-49 hours a week; 21.9% of men and 10.8% of women worked more than 60 hours per week. Qualification mismatches occur when an employee is either overeducated or undereducated for the job they are performing. In Jordan, more

[30] Barcucci and Mryyan
[31] Barcucci and Mryyan
[32] Barcucci and Mryyan

than 5 in 10 workers are affected by qualification mismatches. Undereducated workers account for 43% of workers, while just 9.4% are overeducated.

In recent years, labor market transitions have been extremely long. The transition is the length of time between an individual leaving school and settling in stable employment. The SWTS showed that those who did not move directly from school faced very long transition times. The average transition time at the time of the survey was 32.8 months, or just under 3 years. The average length of unemployment or inactivity during the transition was 22.1 months for males to 40.5 months for females.[33]

Housing Constraints and Marriage Delays

Early marriage, which is on the decline, and delayed marriage, a newer phenomenon, are two trends that characterize the family formation transition in Jordan. In the Middle East, a critical step during the transition to adulthood is marriage. In fact, the cultural meaning of adulthood is defined by marriage. A girl (*bint*) becomes a woman (*sit*) when she is married, no matter her age.[34] Yet, 50% of men between 25 and 29 remain unmarried, much higher than comparable rates in Asia and Latin America, which are 23% and 31% respectively. [35]

Young people are being forced into a period of waiting by job shortages and insufficient income. Financing marriage is a huge undertaking, especially in the Middle East where the cost of housing, dower, jewelry, celebrations, furniture and furnishings can cost the both the groom and his father years of income. In one

[33] Barcucci and Mryyan
[34] Singerman
[35] Dhillon and Yousef

Egyptian survey, fathers and grooms in the lowest income quartile would have needed to save their entire income for more than 7 years to cover the cost of marriage. In the next to last quartile, working grooms and their fathers were required to save for nearly five years to cover the cost of marriage. [36]Additionally, real estate cost in Jordan has been on the rise in past years, (and even more so since the US invasion of Iraq).[37] Rising housing costs will only draw out an already lengthy transition.

More and more young people are relying on their parents for financial help well into their twenties. The stalled transition caused by an inability to meet social and financial expectations can cause discontent and a feeling of exclusion among youth.

Macro Economic Environment

Economic growth in the Middle East is historically volatile, driven largely by exogenous factors. The first decade of the new millennium saw economic growth in the Middle East average 5%, but that is still not enough to accommodate the pressures of the youth bulge.[38] Real GDP growth was higher in Jordan than the regional average; unfortunately new employment did not experience parallel growth. Employment growth averaged 5.7% from 2001 to 2006. [39] In recent years, and after it recovered from the Arab Spring, tourism has been a driver of growth in Jordan. Due to conflict in surrounding countries, regional tourism has diverted to Jordan. Industries linked to tourism were the strongest performers in 2012 and

[36] Singerman
[37] Kanaan and Hanania
[38] Chaaban
[39] Kanaan and Hanania

2013, including: electricity and water, wholesale and retail trade, restaurant and hotels, and transportation and communication.[40]

Industrialization and a structural reform of the economy are needed for sustained growth. Under-industrialized areas are unable to reallocate labor to high-productivity sectors, resulting in suppressed productivity gains. Labor reallocation can lead to substantial growth, even when there is no productivity growth within sectors. Reallocation of labor led to significant productivity gains in East Asia and the Pacific between 1998 and 2008.[41]

Investment in the private sector of Middle Eastern economies is among the lowest in the world. Private investment as percentage of GDP went up less than 1 percent in the period between 1985-89 and 2005-08 in the Middle East and North Africa.[42] The World Bank found that the Middle East has the poorest performance in labor and productivity factors. With these kind of macroeconomic conditions, it is not surprising that unemployment is a concern.

Poor implementation of business regulations hinders small business growth. Discretionary implementation and privileges offered to larger companies affect investment and employment. In a survey conducted by the World Bank, researchers found macroeconomic instability, tax rates, business licensing are impediments to growth in Jordan.[43]

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[40] The World Bank: Jordan Economic Monitor
[41] Chaaban and ILO
[42] ILO: Rethinking Economic Growth
[43] The World Bank Enterprise Surveys

Labor Policy

Labor policy in the Middle East is not suited for the challenges plaguing the labor market. Arab governments, for the most part, do not have national employment strategies. According to Chaaban, there are two main factors that contribute to labor policy deficiencies: 1) passive policies encouraging emigration have been the solution to labor market challenges in the past; and 2) policy makers have not addressed the high reservation wages of highly educated workers. These high reservation wages discourage workers from engaging in low-skilled jobs, resulting in a large influx of foreign workers.[44] Employment of non- Jordanians increased by 18.9% in the period 2004-2006, where Jordanian employment only increased by 2.3% in the same period. During the same period, 71,000 jobs were created each year and only 41% of those jobs went to Jordanian workers. [45]

The higher wages and benefits of the public sector continually make it the preferred employer for youth in the region. The public sector's wage floor and low productivity are characteristics that have begun to influence the private sector. The World Bank found that in the presence of wage floors, employers will attempt to circumvent them by favoring informal arrangements. Thus, high wage floors negatively impact employment, because low productivity workers are unlikely to be employed in positions where their productivity is lower than the wage floor.[46] Tables 3, 4, and 5 reflect individual attitudes toward employment, the ideal employer, and well as mean wage and hours worked. Of those in the sample, the

[44] Chaaban
[45] Kanaan and Hanania
[46]World Bank: From Privilege to Competition

vast majority of them, 70.13%, would prefer to work for the government. Furthermore, nearly 30% were unsatisfied in their current position. This tells us a completed transition does not necessarily lead to satisfying work. Table 2 shows mean pay and average hours worked for varying pay periods. The largest proportion of the sample worked on a monthly basis, which was advantageous to the worker because average hourly wages were much higher than any other lengths of time worked.

Table 3: Survey of Ideal Employment

Ideal Employer	**Percent**
Myself	4.76%
Government	70.13%
Private Company	24.89%
International or non profit	0.22%

Table 4: Pay Periods, Mean Hours Worked and Wages

Length of Pay Period	**Mean Pay**	**Average Hours Worked**
One day (n=23)	9.13	8.87
One week (n=29)	53.14	48.86
Two weeks (n=2)	170	106
One month (n=867)	1553.15	176.31

Table 5: Contentment in Current Employment

Desire to change employment	**Frequency**	**Percent (%)**
Yes	263	27.06
No	709	72.94

Methodology

As discussed above, the labor markets in Middle Eastern economies are under quite a bit of strain. Pressure from the youth bulge and its impact on labor markets has garnered the attention of researchers around the world, who are trying to define the nature of the problem and conduct evidence-based analyses of the problem. Policy makers would greatly benefit from evidence based discussions aimed at "solving" the following problems. They should ask the following questions: (1) why is it so difficult for youth to find decent employment? (2) who is impacted the most and what areas are more disadvantaged than others? (3) how are these disadvantages manifested? (4) what is the impact on today's youth and long-term economic growth in the country/region?[47]

This study attempts to answer, at least in part, why it is difficult to find decent employment and who is impacted more. To do so, data from the ILO's School-to-Work Transition Survey (SWTS) will be analyzed. The SWTS was first developed as a questionnaire in the early 2000's to shed light on the gender inequality in the youth labor market in Indonesia, Sri Lanka, and Vietnam. Since then it has evolved into a full survey and analytical framework implemented in more than 30 countries around the world. Its objective is to collect in-depth information regarding the school-to-work transition of young people. The survey identifies the strengths and weaknesses of the youth labor market, addresses why labor market transitions can be long and difficult, and attempts to measure the demand for youth labor. It targets five groups: in school youth, unemployed young job-seekers, young self-employed,

[47] ILO methodological guide

youth outside the labor force and employers and managers hiring young workers. What is unique about the SWTS framework is the development of indicators that define the stages and quality of transition; and the "decent work" concept. These groupings give investigators a better understanding of the state of an individual's transition. Knowing where individuals are in their school-to-work transition allows for a better understanding of the true impact of education and parental status on school-to-work transition. Are individual's with wealthier parents more likely to have completed the school-to-work transition? How does education level impact state of transition and transition length? Researchers use multiple regression concepts, the Kaplan-Meier method, and the Cox proportional hazard test to test the impact of education and parental status on the school to work transition.

Multiple Regression

Multiple regression is used to study the impact of more than one independent variable on the dependent variable. It is used to analyze the effect of x_1, x_2, $x_3 \ldots x_k$ on the y. Each x is an independent variable or predictor variable, while the y is the dependent or response variable. Multiple regression is an extension of simple linear regression. Instead of having a one-to-one relationship between the independent and dependent variables, multiple regression allows the investigator to study a single independent variable's effect on the dependent variable while holding other independent variables the same. The standard equation for multiple regression analysis is below.

$$y = \alpha + \beta_1 x_1 + \beta_2 x_2 + u$$

Each coefficient is interpreted as the change in *y* resulting from one unit change in a variable when all other variables are held constant.

In this case multiple regression analysis is useful because it answers the question, *what effect does education and parental background have on a young person's transition to adulthood in the Middle East?* The below equation will be used to determine the relationship between transition time, education and parental status. The time it takes to transition to adulthood is represented by y. The individual's education level is represented by *edu* and parental status is represented by *par.*

$$E(y) = \beta_1 + edu\beta_2 + par\beta_3 + u$$

The *u* is an error term, it accounts for unobservable variables that impact the school to work transition. These could range from political factors to individual characteristics not captured in the survey. The *u* is not restrictive, as it is assumed across the population.

Survival Analysis

Survival analysis is used on data sets that study the time until an event. The event is a change in state. In this case the event is attaining a stable job after the individual finishes school. In survival analysis the variable of interest is the length of time each observation stays in the sample. The time variable is the dependent variable. If the event has happened (i.e. the individual gets a job) the time variable equals one. If the event has not yet occurred the time variable equals zero. If an observation is lost and it is unknown whether the individual secured employment, that observation will be censored. The censor variable denotes whether the

observation has been censored or not. If the censor variable equals one, the observation has been censored. If the censor variable equals zero, the observation has not been censored. The time scale for this study will be months. In the literature cited in previous pages the standard descriptive unit was months and this study will follow accordingly.

Kaplan-Meier Survival Curve

The Kaplan-Meier survival curve is the probability of surviving a given length of time while considering time in many small intervals.[48] The analysis comes with three assumptions: 1) censored patients have the same survival prospects as those who are still in the data; 2) survival probabilities are the same for those recruited early and late in the study; and 3) the events happen at the specified time. The equation used for calculating the Kaplan-Meier survival estimates is:

$$S_t = \frac{Number\ of\ subjects\ living\ at\ the\ start - Number\ of\ subjects\ died}{Number\ of\ subjects\ living\ at\ the\ start}$$

The equation finds survival probability by dividing the number of subjects surviving by the number of subjects at risk. Once a subject has failed or dropped out (censored), it is no longer considered to be at risk. The survival estimates are expressed graphically; the estimated survival probability is on the Y axis and the time since the start of the study is on the X axis. The curve is drawn as a step function because the proportion of survivors is unchanged between events. To compare two groups' survival curves the logrank test is required.

Cox Proportional Hazard Test

[48] Altman

The hazard function is the probability of the event happening in time period *t*. The hazard function, *h(t),* can by estimated by the following equation:

$$h(t) = \frac{\begin{array}{c} number\ of\ individuals\ experiencing \\ an\ event\ in\ the\ interval\ begining\ at\ t \end{array}}{(number\ of\ individuals\ surviving\ at\ time\ t) * (interval\ width)}$$

Multiple regression and Cox's method share similarities, except in Cox's method, the dependent variable is the hazard function at a given time. For multiple explanatory (independent) variables (education and parental status) the hazard, or likelihood of getting a job is as follows:

$$h(t) = h_0(t) * \exp(\beta_1 x_1 + \beta_2 x_2)$$

Whereas, $h_0(t)$ is the baseline hazard at time t and x_1 and x_2 are predictor variables. The baseline hazard is the probability of getting a job when all the predictor variables are set to zero. The baseline hazard function is analogous to the intercept in ordinary regression. The coefficients of the predictor variables give the expected change in the hazard function due to the x_1 or x_2. The coefficients in the Cox regression relate to hazard; a positive coefficient indicates a better chance of attaining employment, while a negative coefficient indicates the opposite.

Definitions and concept application

Because this study uses SWTS data, it will also adopt the SWTS framework's definitions. "The school-to-work transition is defined as the passage of a young person (aged 15 to 29 years) from the end of schooling to the first regular of satisfactory job."[49] Regular employment is defined in terms of contract length and intended duration of work. Satisfactory employment is a subjective measure that

[49] ILO methodological guide

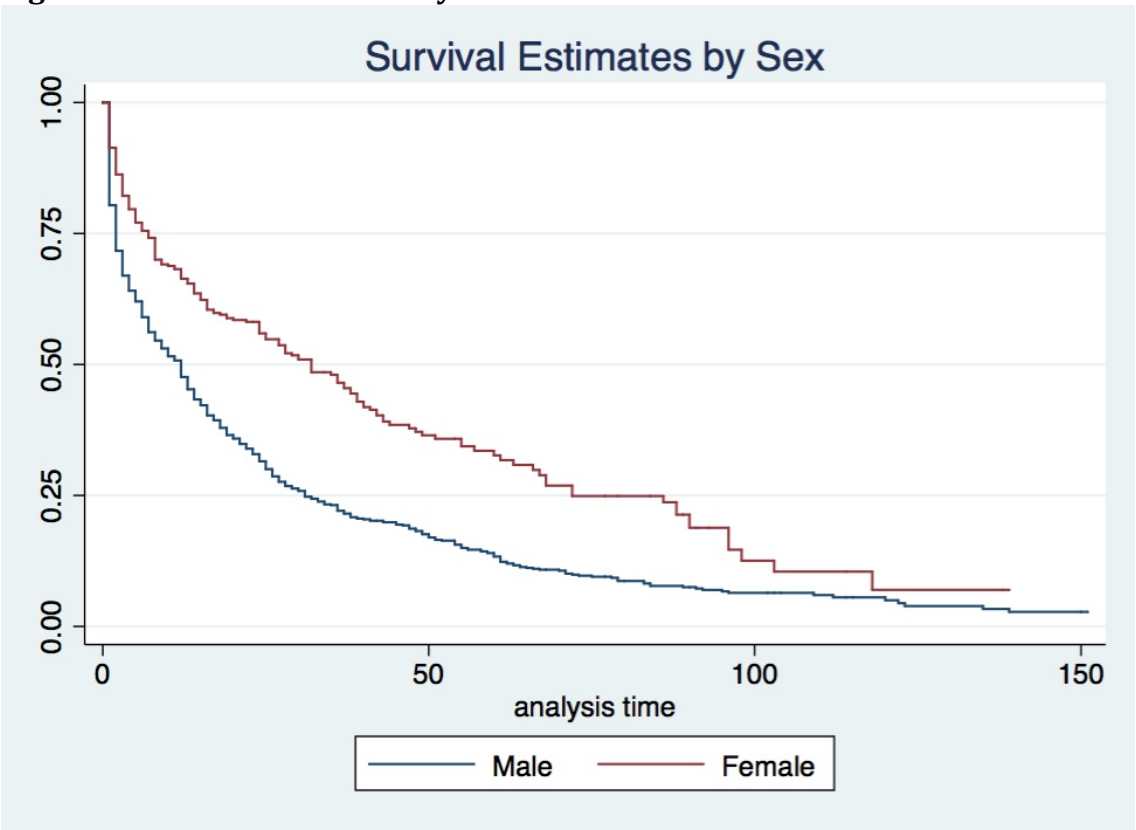
depends on the individual. Satisfactory employment is had when the job-holder considers the job to fit his/her desired employment path.

Kaplan-Meier Survival Estimates

The first figure shows the difference in survival estimates by sex. Women in the work force clearly have longer transitions than men. Approximately 50% of men are able to find employment within a year of graduating, while the same feat takes women 31 months. After six years of searching 25% of women had still not transitioned into their first jobs. These results are not surprising considering much of the literature reflects these trends[50]. These results are especially concerning for women, considering they make up such small portion of the labor force. If more women were to enter the workforce, it is likely transition times would lengthen as a result of the growing number of women vying for the limited jobs available.

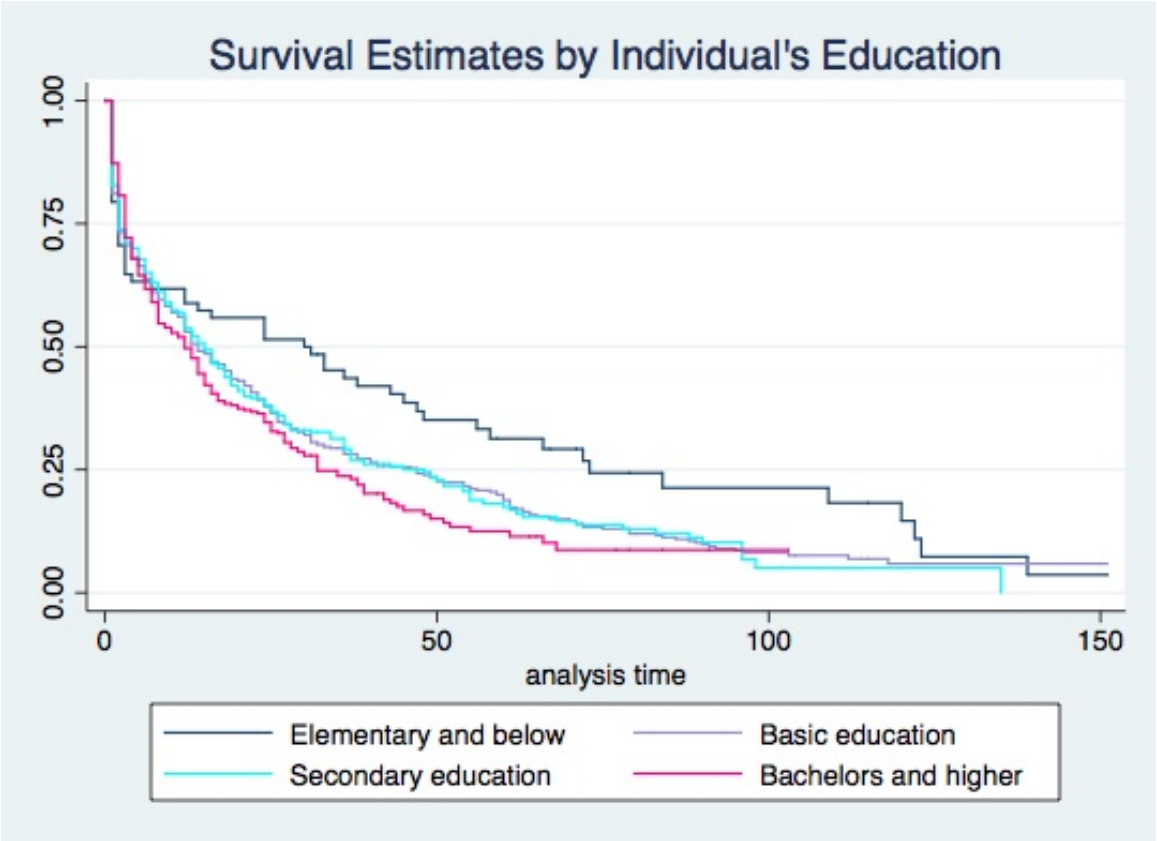
[50] Amer, Assaad (2012), and Chaaban

Figure 1: Survival Estimates by Sex



The graph of Figure 2 shows the likelihood that an individual will still not have transitioned at a given time period up to 150 months after finishing school. The survival estimates show about 20% of individuals with elementary education or below find jobs rapidly—within the first month, then the slope of the graph flattens and remains above the lines representing the other groups. This indicates the remaining individuals experience longer transitions than individuals with more education. The survival estimates for basic education (preparatory, basic education and vocational training) and secondary education (secondary vocational, secondary academy, and intermediate diploma) have a great deal of overlap indicating that the length of transition for the two groups is very similar.

Figure 2: Survival Estimates by Individual's Education



For example, it takes between 13 and 14 months for 50% of individuals with a basic education to transition. For the same percentage of secondary educated individuals to transition it takes 14 to 15 months. Finally, individuals with a bachelor's degree or higher are the least likely to have lengthy transitions relative to their peers. Twenty-eight percent of individuals were able to transition within the first three months and fifty percent were able to transition within a year. The following two graphs, Figure 2a and 2b, show the survival estimates for education by sex. Women with an elementary education or below appeared to transition much quicker than the other groups. However, upon further investigation the sample of size of women

with elementary education or below was very small (n=3). In order to provide a more accurate picture, the categories for basic education and elementary education or below were pooled for female individual education. The next group, those with a bachelor's degree or higher, transitioned quicker than women with basic education and secondary education. It took 60 months for 50% of women who achieved a basic education to find work and 55 months for women with a secondary education to find work, while it only to 23 months for 50% of women with a bachelor's degree or higher.

Figure 2a: Survival Estimates for Females by Education

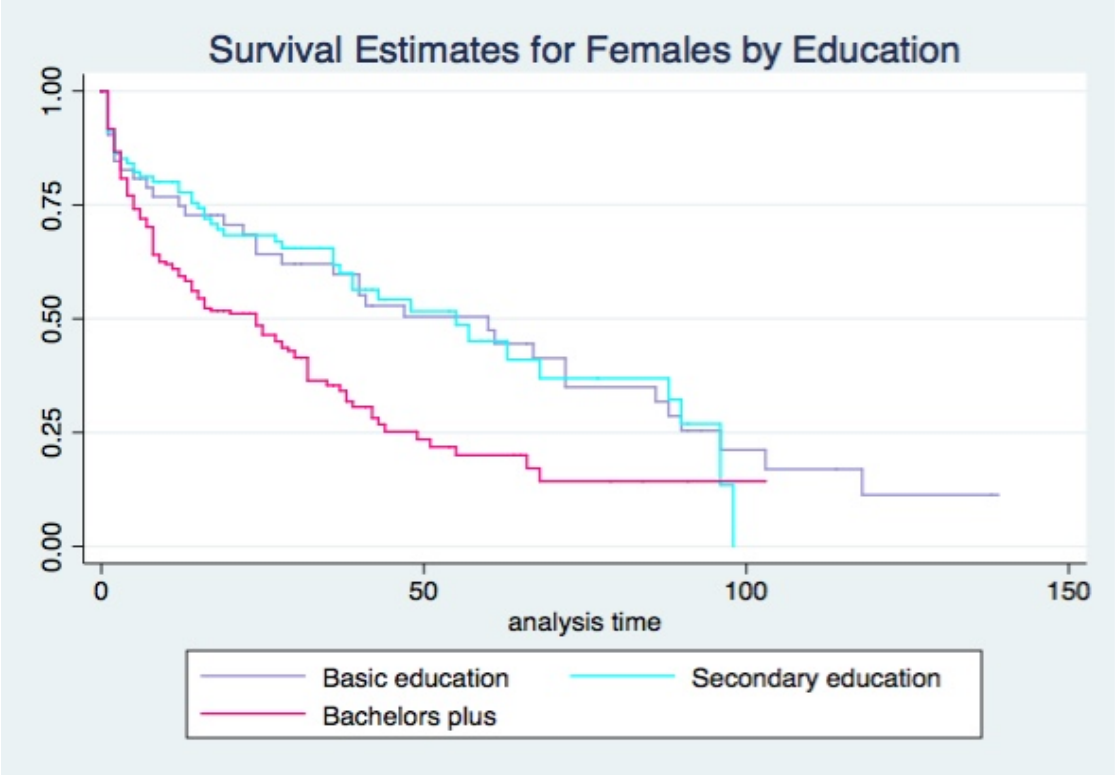
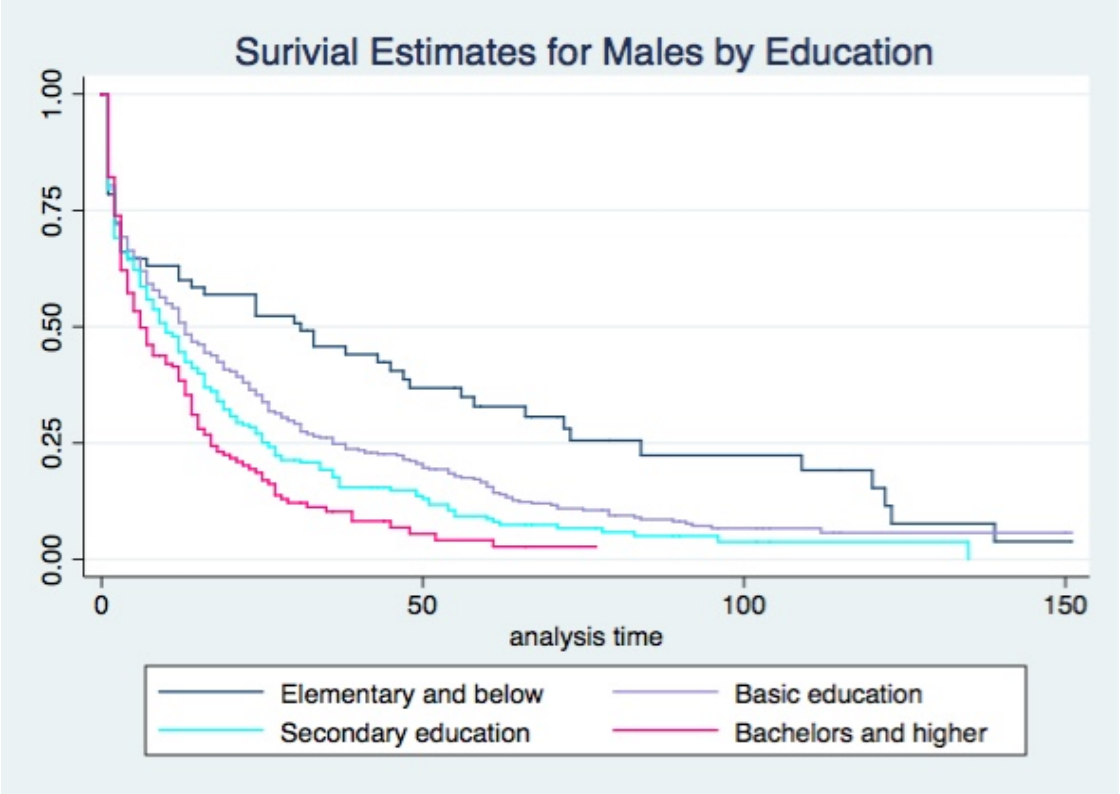


Figure 2b shows the survival functions for males by education level. The survival function for men is smoother than the women because the sample is larger and

more evenly distributed. Half of men with the highest levels of education were able to find work in six months while it took 30 months for the same proportion men who completed elementary or below education. For men there appears to be a positive relationship between transition time and each additional level of education attainment.

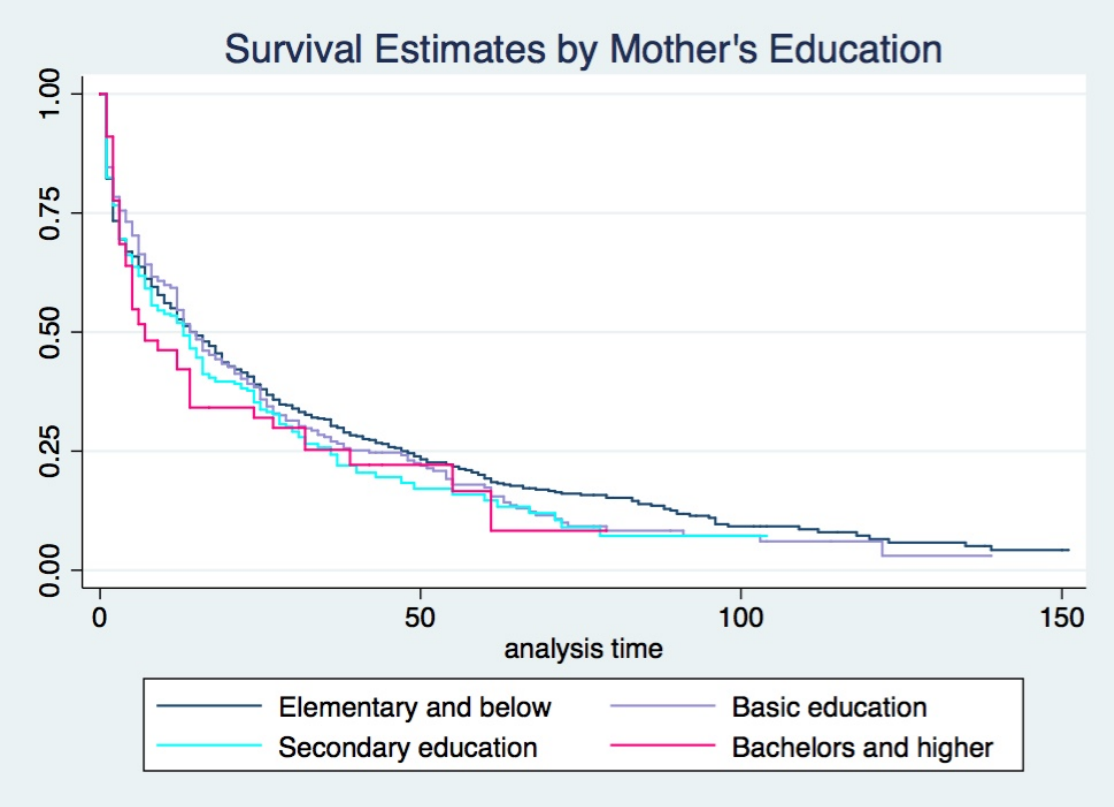
Figure 2b: Survival Estimates for Males by Education



The graphs in Figure 3 and Figure 4 are survival estimates by mother's education and father's education. The trends for these groups are not as clear as they are in the analysis based on individual education or sex. However, there are a few noteworthy points. Individuals with the most highly educated mothers experienced *relatively* quick transitions. After 14 months nearly 65% of individuals in that category had transitioned into work. There was a greater positive impact on an individual's

transition length from a mother having a bachelor's degree or higher than the individual having a bachelor's or higher. Estimates based on individual education predict it will take the 12 months for half of the highest educated individuals to transition to work, while it will only takes 6 months for individuals with highly educated mothers to transition.

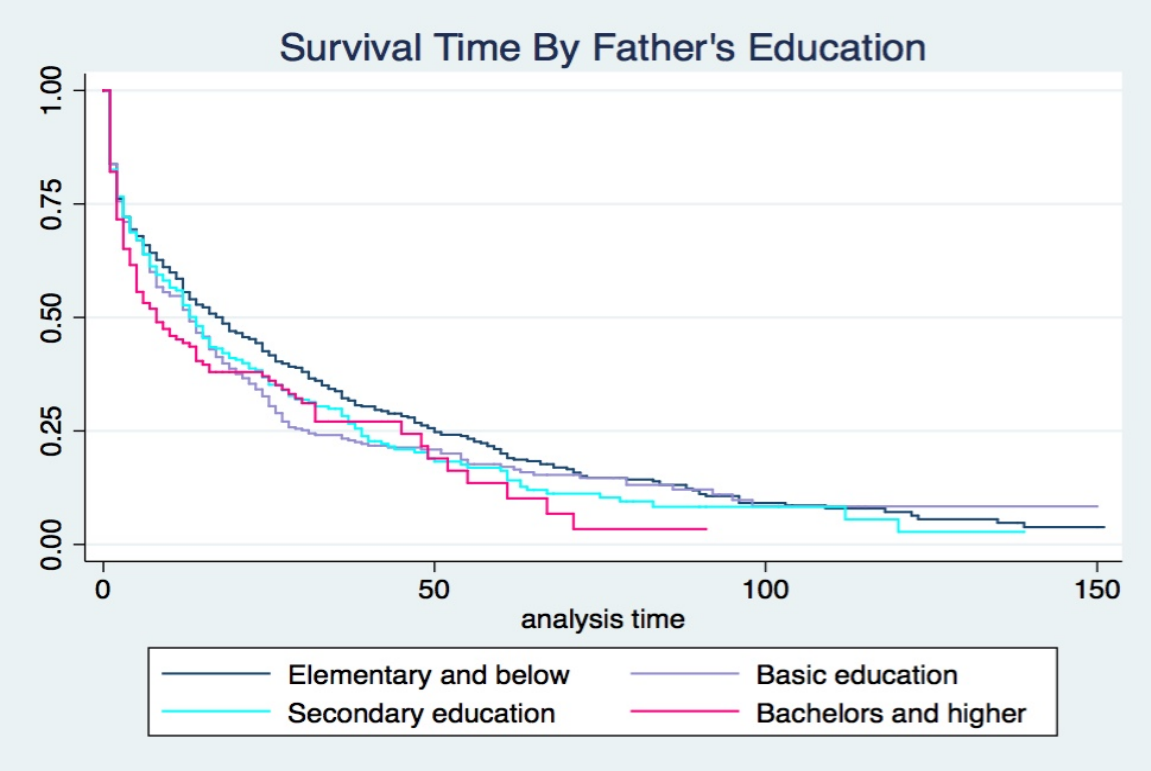
Figure 3: Survival Estimates by Mother's Education



After making this observation, I tabulated individual education based on maternal education and found 94.03% of individuals with highly educated mothers (bachelor's and higher) were also highly educated. The difference between the estimates based on individual education and the mother's education and the fact that 94.03% of highly educated mothers also have highly educated children leads me to believe 1. a mother's education has a significant impact on school to work

transition and 2. college graduates with college educated mothers have an advantage over peers without educated mothers when transitioning into work.

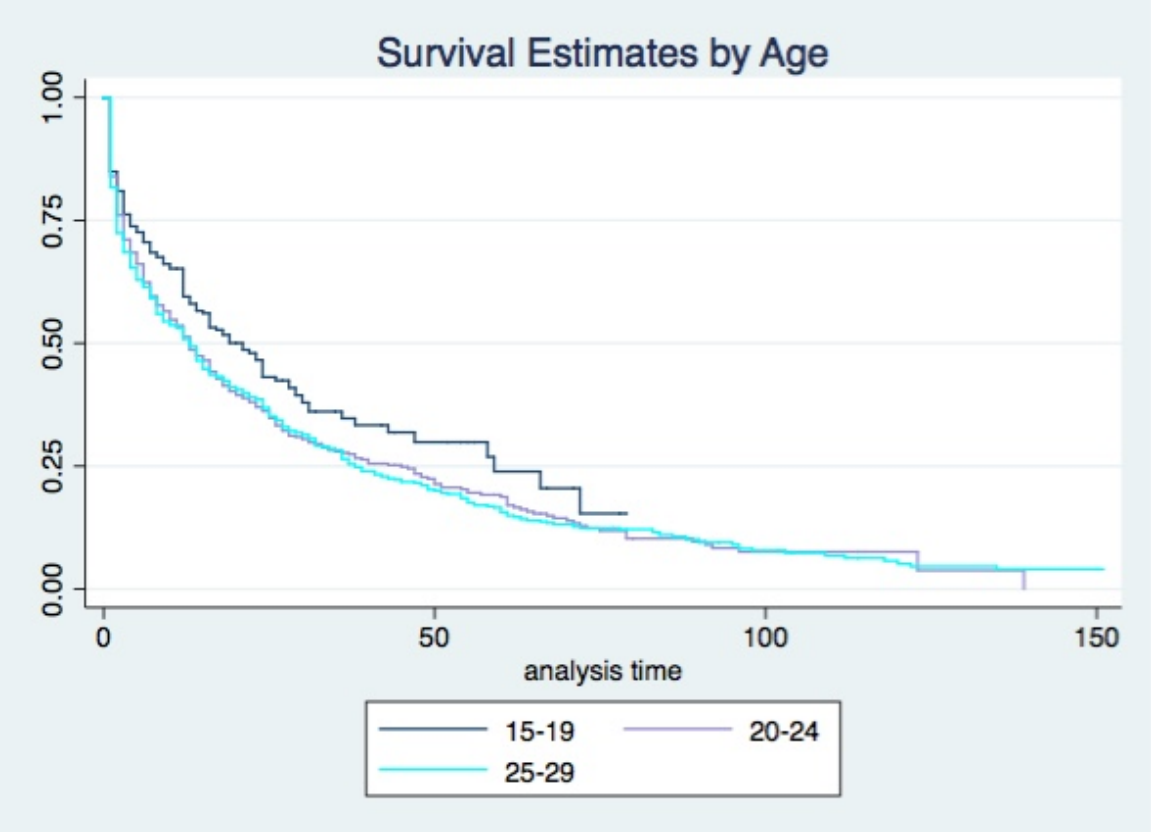
Figure 4: Survival Estimates by Father's Education



Similarly to mother's education, father's education does impact the length of transition from school to work. The impact of father's education on survival estimates is not as large as the impact of mother's education. Fifty percent of individuals whose father has a bachelor's degree or higher were able to transition in between seven and eight months, four months quicker than estimates based only on individual education. As with educated mothers, highly educated fathers tend to have children that also achieve high levels of education. Seventy-seven percent of highly educated fathers had children who went on to attain a bachelor's degree or more.

Figure 5 shows the survival estimates by age. Individuals in the 20-24 age group appear to have very similar transition lengths as those in the 25-29 age group. Individuals in the 15-19 age group tend to have longer transitions. This is expected because individuals in the 15-19 age group are likely not as well educated as their peers in the other age groups. Individuals entering the labor market between the ages of 15 and 19 left school much earlier than individuals entering the job market between 20 and 29. The youngest group (15-19) was 50% transitioned after 19 months, while the other two age groups were 50% transitioned after 12 months.

Figure 5: Survival Estimates by Age



Cox Proportional Hazard Analysis

Tables 8, 9, and 10 together make up a larger table that shows the results of several different Cox proportional hazard models. Table 8 shows the pooled results, Table 9 shows the results for males, and Table 10 shows the results for females. Each table shows: (1) a comprehensive model including individual education, paternal education, maternal education, and age group; (2) a model with individual education and age group; and (3) a model for each parent's education level with individual education and age group. Table 8 includes a dummy variable for sex because sex is known to have a large impact on transition time. Due to the small number of women with elementary or below education, the categories for individual education were consolidated. Individual education for both males and females is categorized as basic education, secondary education, or bachelors plus. The category "Elementary and below" from the discussion above was consolidated into "Basic education" and is used as the baseline for the Cox proportional hazard model. The education distribution for mothers and fathers was what was expected, thus mother's education and father's education are categorized as "Elementary or below", "Basic education", "Secondary Education" and "Bachelors plus" where "Elementary and below" acts as the baseline in the Cox proportional hazard model. The comprehensive model offers a more realistic estimate of transition times because it includes more variables and possibilities, as a result it will be used in the following discussion. The non-comprehensive models are useful for illustrating the progression of the hazard ratios as more variables are added to the model.

The impact of paternal education on school-to-work transition time was not significant in male and female models, however in the pooled models there was some significance. In the comprehensive model, basic education was the only level of education that had a significant impact on transition. Take the variables for maternal education out of the model and the impact of a father's education is significant on more levels—basic and secondary. Finally, running a model that only includes father's education results in significance for all levels of paternal education. This pattern indicates there is some covariance with paternal education and the other variables. The variables affect the school-to-work transition in the same way, yet to different degrees. In this case, as more variables are added to the model the impact of father's education shrinks because the variables that have a greater effect on the school-to-work transition are added to the model which takes away any undue impact attributed to paternal education.

Studying the Kaplan Meir graphs above and the logrank test indicated mother's education does impact transition time, though the impact is not uniform across sexes. The Cox model confirms these results. The impact of mothers' education on the pooled sample is not significant, nor is it significant for the males, but for females maternal education has a significant impact. A mother with basic education is 45.3% more likely to have a daughter transition at a given time than a mother with elementary or below education. As the level of education attainment goes up, the hazard ratios and likelihood of transitioning also goes up. For example, the daughter of a mother who finished tertiary education is 67.1% more likely to

transition at a given time than the daughter of a mother with elementary or below education attainment.

Individual education appeared to have the largest impact on school-to-work transition, although for females, maternal education had a similar impact. The pooled results do not yield significant results at the secondary level, yet at the bachelor's level an individual is 44.2% more likely to transition than those with basic education. Running the model for each sex showed the individual's education attainment has a larger impact on women than men. Men with secondary and tertiary education attainment were 17.6% and 35.5% respectively more likely to transition than men with basic education. Women, on the other hand, have a different story to tell. Women who attain a bachelor's degree or more are 76.9% more likely to transition at a given time than women with just basic education. Secondary education did not appear to impact the transition of women. The pooled results as well as those for the different sexes indicate a tertiary education could lead to a shorter transition. These results are interesting, considering the literature has found the opposite to be the case (more education leads to longer wait times).

The final variable tested is age. Respondents were put into three age groups, 15-19, 20-24, and 25-29. Age did not have a significant impact on the transition of women. Though it did impact men, initially at least. The hazard ratios for the 20-24 and 25-29 age groups are very similar, which means their transition times will be similar in length. This tells us that 15-19 year old males are far less likely to transition than the other two age groups, but once they get older, the likelihood of transition levels out across age groups.

Conclusion and Discussion

The analysis showed all the variables tested in some way affected school-to-work transition, but the variable that had the most impact was sex. The impact of parental education was not as large as initially expected. Parental education, specifically maternal education, was most significant on the school-to-work transition of women. Otherwise parental education is not a strong indicator of school-to-work transition length. Well-educated mothers are conceivably from a more privileged background,[51] meaning their children are more likely to get higher levels of education and find a job quicker. Though that explanation is open to potential scrutiny considering only females significantly benefited from a mother with higher levels of education attainment.

The pooled results including the dummy variable for sex indicated age and education had a positive impact on school-to-work transition. The labor market appears to be more accommodating to men in transition than women. The hazard ratio for the dummy variable for women is less than 1, indicating women are far less likely (55% less likely) to find work than men. Many women who were initially part of the SWTS were dropped from our sample because they did not choose to enter the labor force. The women that are included in the sample are likely those that most desire to be in the labor force because it is not necessarily the norm to participate as a women. If that is the case, one can assume they are just as qualified as their male counterparts with equal education, meaning inequality of opportunity exist in Jordanian labor markets. An alternative to the inequality of opportunity

[51] see inequality of opportunity discussion under education

explanation could be women are more likely to decline a job offers (like an informal position) that are not fitting.

Table 6. Distribution of educational attainment

	Males		Females	
	Frequency	Share	Frequency	Share
Basic Education	615	56 %	52	13 %
Secondary Education	259	24 %	101	26 %
Bachelor's plus	207	19 %	240	61 %

Table 7. Distribution by Age Group

	Males		Females	
	Frequency	Share	Frequency	Share
15-19	236	22%	16	4%
20-24	465	43%	220	56%
24-29	380	35%	157	40%

Table 8. Cox Proportional Hazard functions for exiting unemployment, Pooled sample

	All				
Individual Education					
Secondary	1.125	1.158*	1.139	1.132	1.038
	(0.091)	(0.091)	(0.090)	(0.091)	(0.078)
Bachelors	1.442***	1.542***	1.463	1.465***	1.157**
	(0.134)	(0.130)	(0.133)***	(0.132)	(0.084)
Father's Education					
Basic	1.140*		1.156*		
	(0.089)		(0.087)		
Secondary	1.082		1.120		
	(0.095)		(0.091)		
Bachelors	1.172		1.237*		
	(0.154)		(0.142)		
Mother's Education					
Basic	1.033			1.072	
	(0.080)			(0.079)	
Secondary	1.102			1.152*	
	(0.102)			(0.096)	
Bachelors	1.087			1.181	
	(0.194)			(0.191)	
Age					
20-24	1.317***	1.307	1.310***	1.319***	
	(0.131)	(0.130)***	(0.130)	(0.131)	
25-29	1.316***	1.294**	1.301**	1.320***	
	(0.138)	(0.134)	(0.135)	(0.138)	
Sex					
Female	0.451***	0.453***	0.452***	0.451***	
	(0.037)	(0.037)	(0.037)	(0.070)	

*, **, *** designate significance at the 10, 5 and 1 percent level of significance

Table 9. Cox Proportional Hazard functions for exiting unemployment, Male sample

	Male				
Individual Education					
Secondary	1.176*	1.205**	1.183**	1.186**	1.279***
	(0.101)	(0.102)	(0.100)	(0.102)	(0.104)
Bachelors	1.355***	1.450***	1.358***	1.402***	1.576***
	(0.145)	(0.139)	(0.142)	(0.146)	(0.143)
Father's Education					
Basic	1.146		1.143		
	(0.097)		(0.094)		
Secondary	1.143		1.147		
	(0.111)		(0.103)		
Bachelors	1.129		1.286*		
	(0.206)		(0.182)		
Mother's Education					
Basic	0.978			1.026	
	(0.083)			(0.083)	
Secondary	1.027			1.100	
	(0.108)			(0.106)	
Bachelors	0.960			1.110	
	(0.232)			(0.244)	
Age					
20-24	1.343***	1.344***	1.345***	1.352***	
	(0.138)	(0.138)	(0.138)	(0.139)	
25-29	1.318**	1.312**	1.319**	1.325***	
	(0.144)	(0.142)	(0.143)	(0.145)	

*, **, *** designate significance at the 10, 5 and 1 percent level of significance

Table 10. Cox Proportional Hazard functions for exiting unemployment, Female sample

	Female				
Individual Education					
Secondary	0.956	1.010	0.983	.965	1.008
	(0.223)	(0.232)	(0.227)	(0.224)	(0.232)
Bachelors	1.769***	1.869***	1.841***	1.677**	1.852***
	(0.391)	(0.390)	(0.402)	(0.364)	(0.376)
Father's Education					
Basic	1.058		1.272		
	(0.216)		(0.240)		
Secondary	0.796		1.029		
	(0.168)		(0.190)		
Bachelors	0.819		1.165		
	(0.206)		(0.240)		
Mother's Education					
Basic	1.453*			1.370*	
	(0.292)			(0.249)	
Secondary	1.657**			1.478**	
	(0.354)			(0.266)	
Bachelor's	1.671*			1.476	
	(0.484)			(0.371)	
Age					
20-24	0.952	0.998	0.973	0.956	
	(0.448)	(0.468)	(0.457)	(0.449)	
25-29	0.958	0.950	0.921	0.961	
	(0.457)	(0.451)	(0.438)	(0.457)	

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