

Labor Market Dynamics and Youth Unemployment in the Middle East and North Africa: Evidence from Egypt, Jordan, and Tunisia

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Abstract

Although it is well-established in the literature that unemployment is a labor market insertion problem in the Middle East and North Africa (MENA), the dynamics driving unemployment remain poorly understood. Using panel and retrospective data from the Labor Market Panel Surveys in Egypt, Jordan, and Tunisia, we offer additional insights into youth unemployment in MENA by studying flows into and out of unemployment. We decompose trends in the unemployment rates in Egypt, Jordan, and Tunisia over the past decade into the contributions of individuals entering unemployment from outside the labor force and from previous employment, and changes in the duration of unemployment these individuals experience. Female youth and Tunisian youth of both genders are particularly likely to experience long periods of unemployment. Models for entry into unemployment and duration of unemployment illustrate the relationship between individuals' characteristics and their unemployment dynamics. Educated youth from higher socioeconomic status backgrounds are more likely to experience unemployment, but there is not a strong relationship between background and unemployment duration.

JEL codes: J64, J63, J21, J45, J46

Keywords: Labor Market Dynamics, Unemployment, Youth, Middle East and North Africa

Conflicts of interest:

None.

Declaration:

This submission is not under consideration elsewhere and has not already been published.

Data availability statement

This study uses the Egypt, Jordan, and Tunisia Labor Market Panel Surveys. The data are publicly available from www.erfdataportal.com. Stata .do files for replication will be made available on the corresponding author's website.

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1. Introduction

It is well established that unemployment in the Middle East and North Africa (MENA) is a phenomenon that is primarily associated with the labor market insertion of youth as they transition from school to work (Amer 2019; Amer and Atallah 2022; Chaaban 2009; Kabbani 2019; Kherfi 2015; World Bank 2013, 2014a). Although the predominance of youth among the unemployed is clear in the literature, the dynamics driving youth unemployment remain poorly understood. The study of dynamics requires information about various labor market flows and not simply about the stocks of the employed and unemployed. Such information is not present in the cross-sectional labor force surveys that are typically available in the MENA region. By making use of panel and retrospective data from the Labor Market Panel Surveys in Egypt, Jordan, and Tunisia, we are able to substantially improve our understanding of youth unemployment in MENA by studying flows into and out of unemployment.

A comparison of these three countries is interesting for a number of reasons. First, there is comparable retrospective data on all three countries to allow for a dynamic analysis of unemployment. Second, all three countries historically had an implicit social contract that promised jobs in the public sector to educated youth in return for the political quiescence of the middle class. These “authoritarian bargain” social contracts resulted in a dualistic labor market structure that encouraged educated workers to queue for public sector jobs even as these jobs were becoming scarcer under the influence of structural adjustment policies (Assaad 2014; Desai, Olofsgård, and Yousef 2009; El-Haddad 2020; Karshenas, Moghadam, and Alami 2014; Salehi-Isfahani 2012; Stampini and Verdier-Chouchane 2011). Third, all three countries experienced pronounced youth bulges and rapid increases in educational attainment that created further challenges for youth entering the labor market (Haouas, Sayre, and Yagoubi 2012; Roudi

2011; Salehi-Isfahani 2013). Fourth, while all three countries have struggled with similar challenges, differences in policy responses and labor market structures can illustrate important aspects of addressing youth unemployment.

Changes in the unemployment rate in any given period are driven by the size of the initial stock of the unemployed, entrants into the unemployment state from out of the labor force or from employment, and exit from unemployment into employment or non-participation. The rates at which individuals find and leave jobs over time and the rates at which they enter and exit the labor force drive these unemployment dynamics. There have been some preliminary efforts to assess job finding and separation rates (Yassin 2015; Yassine 2015) in Egypt and Jordan and unemployment durations in Egypt (Kherfi 2015) and Tunisia (Stampini and Verdier-Chouchane 2011). However, how these elements contribute to the unemployment rate remains an unanswered question.

This paper examines the drivers of unemployment in MENA from a dynamic perspective across three countries: Egypt, Jordan, and Tunisia. We draw on the life-course transitions literature to contrast “modern” and “traditional” life courses as they relate to transitions into work (Assaad, Krafft, and Salemi 2019; Dhillon and Yousef 2009). The “traditional” life course entails early entry into work without first experiencing unemployment, usually by means of family businesses or farms or other livelihood strategies, such as casual wage employment or petty self-employment. In the “modern” life course, individuals typically seek formal wage employment by spending time actively searching for it while remaining unemployed. Individuals who attempt the modern life course transition in MENA countries are usually educated. Although they seek formal employment, they often fail to find it and must then fall back on

informal employment, or if they do not absolutely need to work, as is the case for many educated women, they exit the labor force out of discouragement.

As part of the subsequent analysis, we decompose trends in the unemployment rates in Egypt, Jordan, and Tunisia over the past decade into the contributions of youth and prime-age individuals, individuals entering unemployment from outside the labor force and from previous employment, and changes in the duration of unemployment. We also disaggregate unemployment by gender, as men and women pursue different labor market trajectories and face very different dynamics (Amer 2019; Amer and Atallah 2022; Yassin 2015).

Understanding the dynamics of unemployment is particularly important to identifying effective policies for reducing unemployment. For instance, if new entrants are experiencing fewer transitions to employment and more transitions to unemployment after the Arab Spring, this may be because of employers' hesitancy to hire. In this case, policies that promote temporary contract hires of new entrants may allow employers to hire without being locked into long-term employment contracts during uncertain times. If the unemployed have been experiencing lengthening durations of unemployment since the Arab Spring, policies to shorten the period of search and accelerate matching will be a priority.

Three main questions are addressed by this paper, which compares the situations of Egypt, Jordan, and Tunisia:

- 1) What are the contributions to unemployment rates from new entrants, the previously employed, and the duration of unemployment? How have these dynamics changed over time?
- 2) How do these dynamics vary across countries and by individuals' characteristics, especially by gender?

3) How do the dynamics of youth and prime-age unemployment differ?

2. Data

2.1 Surveys

Data are from Egypt, Jordan,¹ and Tunisia. The study uses the Egypt Labor Market Panel Survey (ELMPS), fielded in 1998, 2006, 2012, and 2018,² the Jordan Labor Market Panel Survey (JLMPS) of 2010 and 2016,³ and the Tunisia Labor Market Panel Survey (TLMPS) of 2014.⁴ These surveys were produced by the Economic Research Forum (ERF) in collaboration with the national statistics offices of the respective countries. All the surveys include both detailed current employment and unemployment information as well as detailed labor market histories that allow for an assessment of employment and unemployment dynamics. The surveys also elicit information on individual and household characteristics, allowing for an assessment of the impact of these characteristics on unemployment dynamics—for instance, showing whether highly educated individuals have experienced longer spells of unemployment relative to less educated individuals.

2.2 Outcomes

We start our analysis with a discussion of unemployment rates. The unemployment rate, the number of unemployed divided by the sum of the employed and unemployed (i.e. the labor force), can be measured in a number of different ways. Both the definition of who is unemployed and who is employed will affect the unemployment rate. The definition of employment that we

¹ For Jordan, we keep only Jordanians, to avoid comparability problems over time related to refugee and migrant inflows.

² See Krafft, Assaad, and Rahman (2021) and Assaad and Krafft (2013) for more information on the ELMPS.

³ See Krafft and Assaad (2021) for more information on the JLMPS.

⁴ See Assaad, Ghazouani, Krafft, and Rolando (2016) for more information on the TLMPS.

use includes only those individuals engaged in economic activity for the purposes of pay or profit. Conforming with the recommendation of the 19th International Conference of Labour Statisticians (ICLS), the definition of employment is work for pay or profit and thus excludes those engaged solely in subsistence work, i.e. production exclusively for the purpose of their own consumption (ILO 2013). The broad definition of the unemployed, which we use, includes those who are not currently working but desire to work and available to start work within two weeks. The broad definition does not impose an active search requirement. Our analyses use the broad definition of the unemployment rate because it is hard to impose the active search criterion in retrospective data on unemployment.⁵ Since we quickly move to a combination of contemporaneous and retrospective data for our work on dynamics, we believe that the broad definition better reflects the essentially self-defined status individuals report in the retrospective data.

An additional set of outcomes we consider in relation to the unemployment rate is the duration of unemployment. We use information on the duration of unemployment to date for the currently unemployed in order to assess the unemployment rate under different durations, that is the share of the labor force that has been unemployed during the reference week, or for at least six months, one year, two years or more. Those who are currently unemployed but have been so for less than the duration in question are in the denominator of the various unemployment rates but not the numerator. We refer to those who are unemployed for at least six months as the long-term unemployed and those unemployed at least two years as the very long-term unemployed. A

⁵ Innovations starting in the JLMPS 2016 and ELMPS 2018 have better captured periods of unemployment in retrospective data and whether the unemployment included search, but not the exact timing of search (Krafft and Assaad 2021; Krafft, Assaad, and Rahman 2021).

number of our analyses further distinguish new entrants, that is those who have never worked before, from those who have previously worked.

To assess a number of dimensions of unemployment dynamics, we use the labor market histories obtained from retrospective questions in each survey to construct an annual vector of labor market statuses for a period of 10 years prior to each survey date. We categorize individuals into one of three labor market states in each year: out of the labor force, unemployed, or employed. We use only the 2018 round of the ELMPS and the 2016 round of the JLMPS for this purpose, not the preceding rounds, since patterns over a ten-year period can be assessed retrospectively from just one survey. The labor market history data are supplemented by information on current statuses (such as start dates for current unemployment and current employment).

Particularly when discussing unemployment, we know that short spells of unemployment will not be captured by the labor market history data since all statuses lasting less than six months are deliberately left out in that section. Typically, the statuses recorded lasted a year or longer,⁶ which works well for our creation of an annual vector of statuses. In addition to missing short spells of unemployment, we know that individuals tend to under-report unemployment in the retrospective data, especially when it occurred some time in the past (Assaad, Krafft, and Yassin 2018).⁷ These details and challenges must be kept in mind when interpreting the results.

⁶ On the rare occasions when there are two statuses within the same year, the latter of the two populates the annual vector.

⁷ Questions specifically about periods of unemployment in the labor market history in the JLMPS 2016 and ELMPS 2018 have improved detection of periods of unemployment (Krafft and Assaad 2021; Krafft, Assaad, and Rahman 2021).

2.3 *Covariates*

When considering unemployment dynamics, a number of different individual characteristics are likely to affect unemployment experiences. One important consideration is age, which is closely linked to labor market entry and subsequent trajectories. When looking at current labor market statuses, we consider current age; in the retrospective data analyses, age is adjusted to the age in the year in question (e.g. a 25-year-old in 2014 is categorized as a 15-year-old in 2004). We categorically distinguish between the youth (aged 15-24) and prime age (25+) populations.

Education also plays an important role in determining the labor market trajectories of individuals, but education systems and levels differ across countries. We construct comparable educational categories across the three countries as follows. We differentiate between those who: (1) have low education (completed basic education or less, including those who are illiterate or completed no educational certificate); (2) have intermediate education (completed an upper secondary education degree) and (3) have high education (completed a post-secondary (two-year) or four-year or higher university degree or post-graduate studies). Given the research showing substantial differentiation among the higher educated in their labor market insertion by socioeconomic status (SES) (Amer and Atallah 2022; Assaad, Krafft, and Salemi 2019), we split those who have high education into high education – low SES versus high education – high SES, where high SES is the respondent’s mother and father both having at least a basic education.⁸ In models of transitions starting from out of the labor force, we also control for the individual’s time varying enrollment status in school, since labor market transitions generally occur after school completion.

⁸ Parental education data are available even when parents are not in the household.

We consider differences in labor market dynamics by place of residence, since in some cases there are large disparities in unemployment rates by location (Bertoni and Ricchiuti 2017; Hanmer, Tebaldi, and Verner 2018; Kriaa and Bouhari 2018; Mryyan 2014). Specifically we compare urban versus rural areas. With our annual vector of statuses, we can analyze the current year or the start year of a status, split into 2004-2007, 2008-2010, 2011-2013, and 2014-2016, which allows for the assessment of changes over time, especially during the global financial crisis and after the start of the Arab Spring uprisings. Our analyses are consistently split by sex and country.

3. Methods

3.1 Stocks and flows of the unemployed

We begin the paper with descriptive statistics on unemployment rates and the new entrants versus previously worked unemployed in the oldest and most recent waves of the labor market panel surveys according to the different durations of unemployment. The labor market histories for the past decade are then used to assess labor market dynamics. The unemployment rate as well as the probability of transition from one state to another are calculated over time. For instance, the probability of transitioning from employment to unemployment is measured. This value is assigned to the “destination” year, i.e. the probability of transitioning from unemployment in 2005 to employment in 2006 appears in the figures in 2006. These rates are estimated for the total population, the 15-24 year-old population, and those 25+ to distinguish new entrants from the prime-aged working population. All analyses are done for men and women separately, as well as for the total, and all estimates are performed separately by country.

Specifically, we estimate a number of different stocks and flows. Denote the following as stocks:

O=Out of Labor Force

U=Unemployed

E=Employed

The stocks can be subscripted with the year, t . With this notation, we estimate the unemployment rate as:

$$\text{Unemployment Rate in } t = \frac{U_t}{E_t + U_t}$$

There are a number of different flows that affect this rate:

$$O_{t-1} \rightarrow U_t$$

$$E_{t-1} \rightarrow U_t$$

$$U_{t-1} \rightarrow E_t$$

$$U_{t-1} \rightarrow O_t$$

The last flow, $U_{t-1} \rightarrow O_t$, is not observed for individuals who have never worked and are not currently unemployed in Tunisia, as only individuals who have ever worked are asked the labor market history questions. The design was improved in JLMPS 2016 and ELMPS 2018 to better capture this $U_{t-1} \rightarrow O_t$ dynamic, but for comparability we do not analyze it directly. For men, this is unlikely to miss much unemployment. However, many women who search for work never find it (Amer 2019; Amer and Atallah 2022) and leave the labor force. So past unemployment, particularly for women in Tunisia, will be under-estimated. Two additional flows of interest are:

$$E_{t-1} \rightarrow O_t$$

particularly for women leaving the labor force, as this will affect the denominator of the unemployment rate, and:

$$O_{t-1} \rightarrow E_t$$

which is likely to capture entrants finding work without a period of unemployment, an important complement to our analyses. We estimate all of these flows as rates, i.e. annual probabilities relative to the base stock in $t-1$. The combinations of flows and rates are displayed in Table 1.

Table 1. Flows and Probabilities of Labor Market Transitions

<u>Flow</u>	<u>Rate</u>
$E_{t-1} \rightarrow O_t$	$\frac{E_{t-1} \rightarrow O_t}{E_{t-1}}$
$E_{t-1} \rightarrow U_t$	$\frac{E_{t-1} \rightarrow U_t}{E_{t-1}}$
$O_{t-1} \rightarrow E_t$	$\frac{O_{t-1} \rightarrow E_t}{O_{t-1}}$
$O_{t-1} \rightarrow U_t$	$\frac{O_{t-1} \rightarrow U_t}{O_{t-1}}$
$U_{t-1} \rightarrow E_t$	$\frac{U_{t-1} \rightarrow E_t}{U_{t-1}}$
$U_{t-1} \rightarrow O_t$	$\frac{U_{t-1} \rightarrow O_t}{U_{t-1}}$

To decompose the unemployment rate, we distinguish between the share of the unemployed in each year who entered from out of the labor force (OLF), who entered unemployment from employment, and who are continuing in the unemployment state from the previous year. We also decompose the pool of the unemployed by how long they have been unemployed, to date, in each year.

3.2 Models of unemployment duration

An important aspect of the unemployment rate is how long individuals remain unemployed if they experience unemployment—the duration of unemployment. Using both the labor market

histories and current unemployment data, we estimate survival analysis models of unemployment durations. Survival analysis models are required to account for right-censoring, i.e. those still unemployed at the time of the survey whose duration of unemployment is not yet complete. We include only spells that start in our study period (exclude left-censored spells), to accurately characterize durations for those entering unemployment. In addition to descriptive estimates with the Kaplan-Meier estimator, we rely on a discrete-time hazard model to assess how individual characteristics affect unemployment durations.⁹

Specifically, we estimate a logit model on annual data for the probability of ending an unemployment spell in each year. Denote the event of interest, exiting unemployment, as T_i . This event can be described with the discrete time hazard function, h_{it} (Jenkins 1995):

$$h_{it} = \Pr (T_i | T_i \geq t) \quad (1)$$

The logit model estimates the relationship between this hazard and covariates, X_{it} , as (Jenkins 1995):

$$h_{it} = 1/(1 + \exp (\theta(t) + \beta X_{it})) \quad (2)$$

or

$$\ln \left(\frac{h_{it}}{1 - h_{it}} \right) = \theta(t) + \beta X_{it} \quad (3)$$

This specification is essentially a odds-hazard-ratio model that assumes that individual characteristics shift the odds of exit relative to a baseline hazard for a reference individual. The results are therefore presented as odds ratios, multiplying the odds of the hazard. An odds ratio greater than one means an individual with this characteristic is more likely to exit unemployment than a reference individual and thus has a shorter unemployment duration, while an odds ratio

⁹ We use discrete time rather than continuous time models to account for the fact that our durations are measured in years and our data is thus likely to be grouped at these discrete durations.

less than one means an individual is less likely to exit unemployment and therefore has a longer unemployment duration. Standard errors, clustered at the primary sampling unit (PSU) level, can be used with the odds ratios to evaluate their statistical significance in terms of deviations from one. The baseline hazard, $\theta(t)$, for each duration is modeled non-parametrically with a series of time-varying dummies for being in the first, second, third, fourth, fifth, or sixth and higher year of unemployment.

3.3 Models of entry into unemployment

As well as modeling the duration of unemployment, we estimate models for entry into unemployment. For those out of the labor force, we estimate a model of exiting to either employment or unemployment. For those employed, we estimate a model of exiting to either unemployment or out of the labor force. These models use the stocks of those out of the labor force or employed each year, as the population at risk for entering unemployment. The models are estimated as multinomial logit models on annualized data, estimating the relative risk of transitioning between states. The relative risk ratios, centered at one, tell us whether individuals with particular characteristics are more or less likely to transition to different states or remain in their current state.

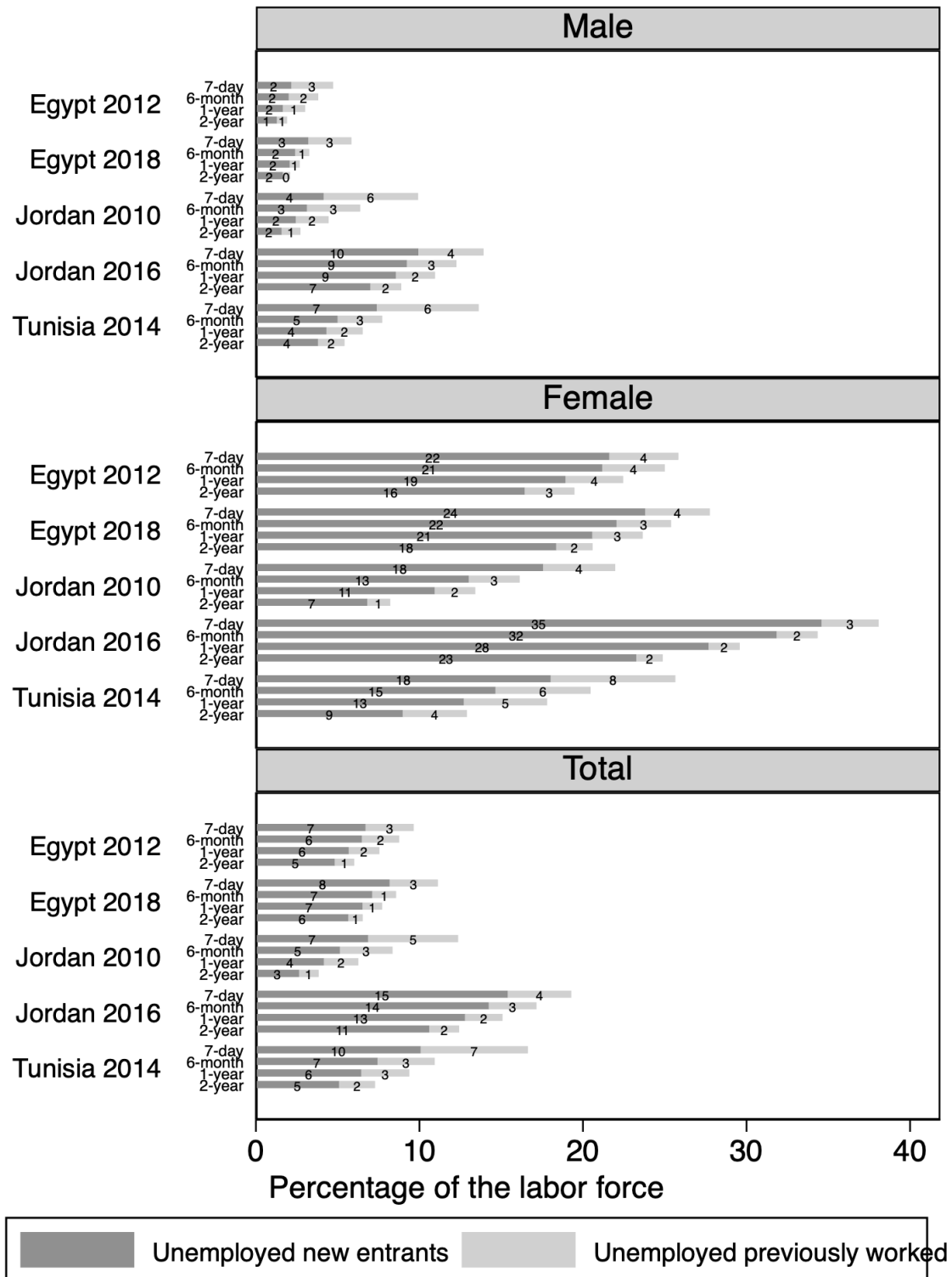
4. Results

4.1 Unemployment Rates

How does the unemployment rate depend on the duration of unemployment? Figure 1 shows the unemployment rate using different minimum unemployment durations. Figure 1 also shows the breakdown of the unemployment rate by new entrant or unemployed with previous work experience for the different unemployment duration definitions. These labor force shares add up

to the unemployment rates. We focus first on the results by duration definition and then turn to the differences between new entrants or unemployed with previous work experience.

Figure 1. Shares of the labor force (percentage) under different definitions of unemployment length, by sex, country, and year



Source: Authors' calculations based on ELMPS 1998, ELMPS 2018, JLMPS 2010, JLMPS 2016 and TLMPS 2014

Notes: Sum of shares is the broad unemployment rate.

Individuals who are unemployed for less than the minimum for each definition are considered to be in the labor force but not unemployed. For men in Egypt, current (7-day) unemployment rates are about double the very long-term (two-year) unemployment rates, meaning that about half the male unemployed in Egypt are very long-term unemployed. The decline in the unemployment rate from 1998 to 2018 for men in Egypt appears to have occurred irrespective of the minimum duration of unemployment used. For women in Egypt, most of those currently unemployed are very long-term unemployed. Very long-term unemployment has become a more acute problem over time for women in Egypt, with the very long-term unemployment rate rising from 19% to 21% and the share of the very long-term unemployed (relative to current unemployment) increasing from 61% in 1998 to 77% in 2018.

Unemployment rates in Jordan have risen from 2010 to 2016, with substantial increases in long-term unemployment in particular. For men, the current unemployment rate was 10% in 2010 and rose to 14% in 2016, while the very long-term unemployment rate was 3% in 2010 and rose to 9% in 2016. For women, the current unemployment rate was 22% in 2010 and 38% in 2016, with very the long-term unemployment rate rising from 8% to 25% over this period. Worsening unemployment and especially very long-term unemployment in Jordan, particularly in comparison to the case for men in Egypt, may relate to the more challenging economic situation of Jordan in 2016 (World Bank 2016). This pattern may also relate to Jordanian youth continuing to queue in unemployment for formal and public sector jobs, which are more available and more broadly available than in Egypt, where youth are increasingly accepting informal private sector employment (Assaad, Krafft, and Salemi 2019).

Tunisia,¹⁰ like Jordan, has relatively high unemployment rates among men, particularly for the current unemployment rate (14%). The current unemployment rates for men are more than double the very long-term (2-year) rate (5%). Tunisia in 2014 has lower female unemployment rates than either Egypt in 2018 or Jordan in 2016 (but not 2010). The share of the very long-term unemployed among the female unemployed in Jordan in 2016 was 65% and in Egypt was 74% but was substantially lower in Tunisia in 2014 at 50%. The lower female unemployment rates and relatively less female long-term unemployment in Tunisia may be related to higher rates of employment for women in Tunisia than Jordan or Egypt (Alazzawi and Hlasny 2022). In Egypt and Jordan, most of these long-term unemployed women are holding out for a government job, but have little desire or inclination to accept a job, especially an informal job, in the private sector, which is usually what is available to them (Barsoum and Abdalla 2022).

Unemployment is primarily a new entrant phenomenon across Egypt, Jordan, and Tunisia. New entrants are a large percentage of the unemployed and tend to make up an even higher proportion among the long-term unemployed. The unemployed with previous experience tend to be short-term unemployed. Especially for men, the share of the labor force that is unemployed and has worked before decreases rapidly as the reference duration of unemployment lengthens. This indicates that unemployment, especially prolonged unemployment, is a labor market insertion phenomenon with inexperienced young adults looking for their first jobs. They are likely searching for formal or public sector work and being less willing to settle for lower quality employment. This problem is particularly acute among women.

¹⁰ Because of more missing data on duration of unemployment than unemployment rates in Tunisia, special weights were created to expand all of those who actually had data on unemployment durations to represent all of those who were unemployed for the 6-month, 1-year, and 2-year definitions.

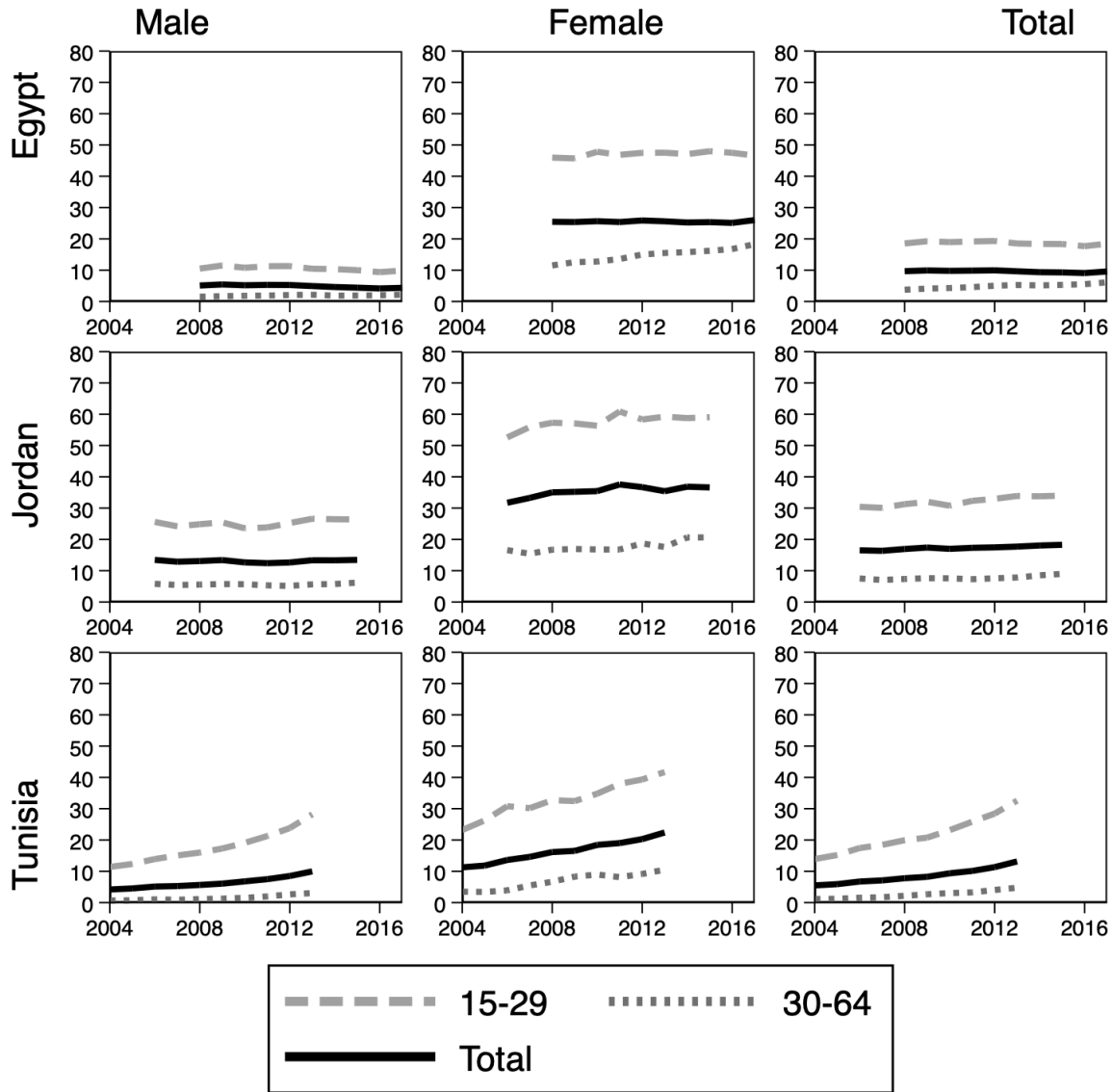
We can also calculate the share of new entrants among the unemployed, which we discuss here for the current (7-day definition). The share of new entrants among the unemployed is higher among women, ranging from 70%-91% in the most recent year for each country. The share in Egypt has decreased slightly from 1998 to 2018 for men, from 59% to 55%, but remained constant at 86% for women. The share of new entrants among the unemployed in Jordan has risen over time for both men (from 42% to 71%) and women (from 80% to 91%). Tunisia's share of new entrants among the unemployed for men is similar to Egypt in 2018, at 54%, and the lowest of any country for women, at 70%. New entrant unemployment is thus particularly acute for women and for men in Jordan, all of whom may be particularly likely to be queuing for formal (especially public) employment.

Using the annual panel of labor market statuses derived from the retrospective data, we estimate the annual unemployment rate for the decade preceding each survey by sex and compare youth (15-24) to prime-aged individuals (25+) (Figure 2). Note that this is essentially measuring long-term unemployment since unemployment durations of less than 6 months are not captured in the retrospective data. Unemployment rates for youth are, in all cases, consistently higher than for prime-aged individuals, ranging from more than twice as high (in Egypt) to three times as high in Tunisia and four times as high in Jordan.

For men and women in Egypt, the unemployment rate has been flat, with youth experiencing a very slight decline and prime-aged individuals a very slight increase and then a very slight decline in their unemployment rates. In both Jordan and Tunisia, the unemployment rate has increased slightly over time, but driven by different sub-groups. In Jordan, unemployment rates for young women have been persistently high (around 70%), but risen for older women, leading to a slight increase overall over the decade. In Tunisia, both young and old

men and women have experienced increases in unemployment rates, with similar relative increases but higher levels among youth and women.

Figure 2. Annual unemployment rate (percentage) by sex, age group, and country, decade preceding survey, ages 15-64



Source: Authors' calculations based on ELMPS 2012, JLMPS 2016 and TLMPS 2014

Notes: Annual statuses based on retrospective labor market history and current employment and current unemployment start dates. Lowess smoothed, bandwidth 0.3

4.2 Unemployment dynamics

The relative stability or increases in unemployment rates mask a number of changing dynamics behind unemployment. Figure 3 shows the annual probability of transitioning from OLF to unemployment, a phenomenon that reflects the propensity of youth to search for formal jobs upon entry rather than directly enter into traditional forms of employment. Table 2 shows the multinomial logit models for transitioning from OLF to unemployment or employment, as compared to remaining in OLF. OLF to unemployment transitions, in all cases, are significantly higher for youth than prime-age adults. For older males to be OLF is very rare, so in Figure 3 for men we focus on the patterns among youth, which drive the overall pattern.

Table 2. Multinomial logit model (relative risk ratios) for probability of transitions from out of labor force (O) to employment (E) or unemployment (U)

	<u>Egypt</u> <u>Males</u>	<u>Egypt</u> <u>Females</u>	<u>Jordan</u> <u>Males</u>	<u>Jordan</u> <u>Females</u>	<u>Tunisia</u> <u>Males</u>	<u>Tunisia</u> <u>Females</u>
<u>O to E</u>						
Age group (15-24 omit.)						
25+	0.375*** (0.031)	0.477*** (0.055)	0.277*** (0.034)	0.243*** (0.054)	0.438*** (0.076)	0.378*** (0.086)
Education and SES (higher ed.- high SES omit.)						
Low	0.361*** (0.044)	0.237*** (0.041)	0.317*** (0.047)	0.048*** (0.015)	0.365** (0.133)	0.111*** (0.036)
Intermediate	0.771* (0.081)	0.259*** (0.045)	0.473*** (0.084)	0.134*** (0.046)	0.349** (0.125)	0.153*** (0.056)
High ed. - low SES	0.753* (0.099)	0.676* (0.118)	0.782 (0.128)	0.739 (0.158)	0.534 (0.206)	0.760 (0.279)
Rural (urban omit.)						
Rural	1.369*** (0.120)	0.978 (0.139)	0.942 (0.103)	1.331 (0.232)	0.997 (0.150)	1.056 (0.201)
Current year (2004-07 omit. Jordan & Tunisia & 2008-2010 omit. Egypt)						
2008-2010			0.769 (0.125)	1.023 (0.319)	1.188 (0.206)	1.974*** (0.407)
2011-13	0.853* (0.066)	1.270 (0.191)	0.737 (0.131)	0.771 (0.228)	1.314 (0.268)	2.258*** (0.527)
2014-16	0.896	1.640**	0.749	0.926		

	<u>Egypt</u> <u>Males</u>	<u>Egypt</u> <u>Females</u>	<u>Jordan</u> <u>Males</u>	<u>Jordan</u> <u>Females</u>	<u>Tunisia</u> <u>Males</u>	<u>Tunisia</u> <u>Females</u>
	(0.076)	(0.253)	(0.133)	(0.347)		
In school (not in school omit.)						
In school	0.125*** (0.012)	0.422*** (0.082)	0.061*** (0.011)	0.045*** (0.014)	0.039*** (0.014)	0.047*** (0.021)
O to U						
Age group (15-24 omit.)						
25+	0.092*** (0.019)	0.050*** (0.009)	0.044*** (0.011)	0.044*** (0.009)	0.208*** (0.051)	0.288*** (0.085)
Education and SES (higher ed.- high SES omit.)						
Low	0.061*** (0.013)	0.029*** (0.007)	0.498*** (0.103)	0.030*** (0.007)	0.399 (0.203)	0.022*** (0.010)
Intermediate	0.337*** (0.052)	0.170*** (0.025)	0.439** (0.113)	0.047*** (0.013)	0.438 (0.223)	0.282** (0.117)
High ed. - low SES	0.473*** (0.090)	1.000 (0.180)	0.897 (0.205)	0.548*** (0.089)	1.130 (0.502)	2.130* (0.813)
Rural (urban omit.)						
Rural	0.986 (0.119)	1.292 (0.173)	1.278 (0.187)	1.341 (0.239)	1.187 (0.292)	1.424 (0.323)
Current year (2004-07 omit. Jordan & Tunisia & 2008-2010 omit. Egypt)						
2008-2010			1.032 (0.220)	1.244 (0.332)	1.627 (0.464)	2.039* (0.636)
2011-13	0.866 (0.136)	0.928 (0.128)	1.281 (0.264)	1.145 (0.273)	2.703** (0.874)	2.943*** (0.861)
2014-16	0.830 (0.133)	1.445* (0.234)	1.048 (0.222)	1.330 (0.348)		
In school (not in school omit.)						
In school	0.192*** (0.029)	0.437*** (0.061)	0.081*** (0.017)	0.052*** (0.013)	0.065*** (0.031)	0.081*** (0.025)
N	27751	100773	22918	49429	5895	25328

Source: Authors' calculations based on ELMPS 2018, JLMPS 2016, and TLMPS 2014.

Notes: *p<0.05; **p<0.01; ***p<0.001

Standard errors in parentheses.

Probability of entering state for those who were out of the labor force in the preceding year

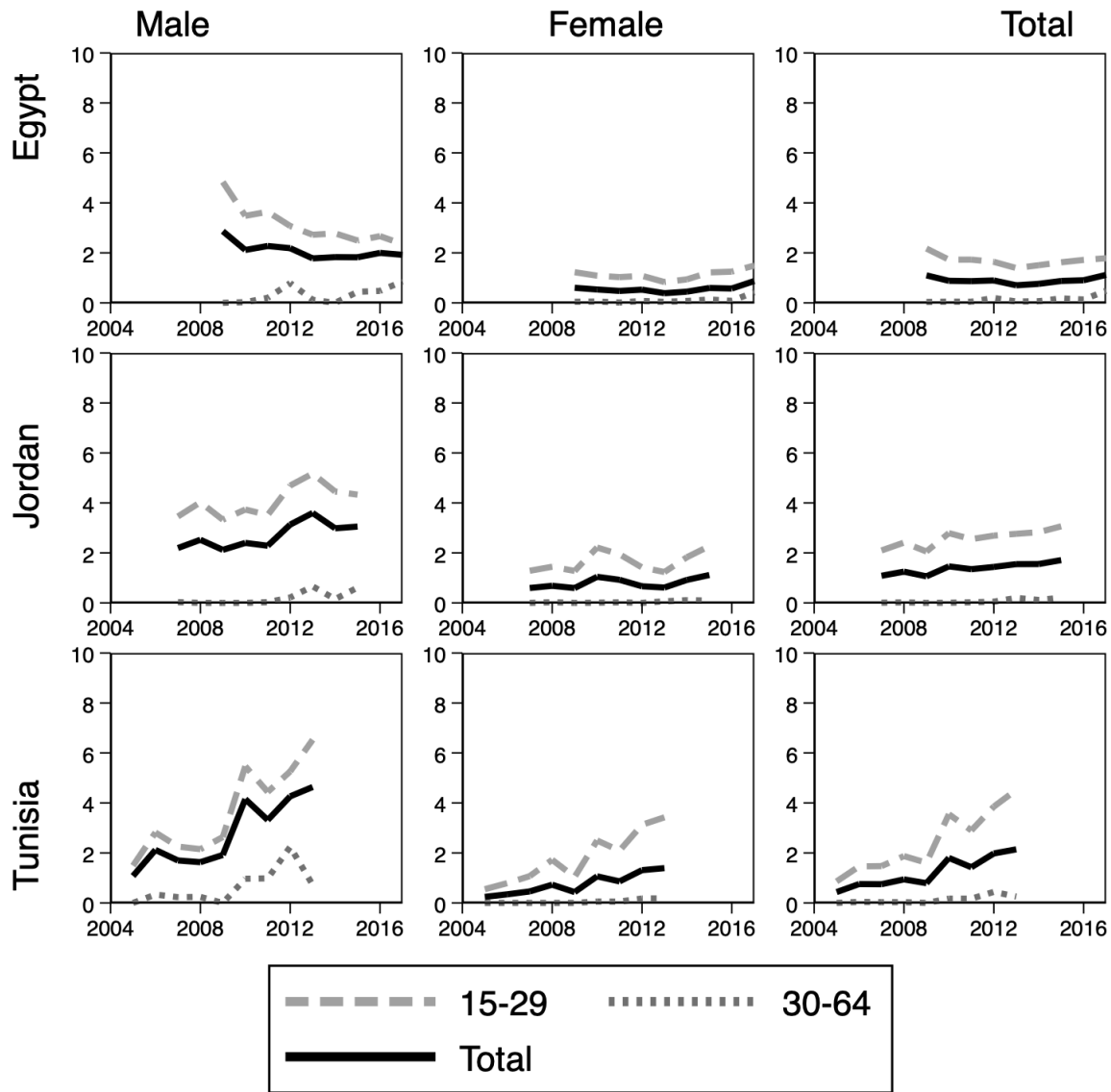
Using a model that fully interacts the covariates in Table 2 with sex and round, we tested for differences in the probability of transitions from OLF to unemployment by sex within countries and across countries by sex. Men in Tunisia had the highest probability, followed by

men in Jordan, women in Tunisia, men in Egypt, women in Tunisia, and then women in Egypt. In Egypt and Jordan, but not Tunisia, there are significant differences by sex (men are more likely to transition from OLF to unemployment, as women remain persistently OLF). There are significant differences across countries, with two exceptions: Egyptian and Jordanian women have similar probabilities of transitioning from OLF to unemployment, and Tunisian and Jordanian men have similar probabilities as well.

In Egypt, the annual probability of transitioning from OLF to unemployment has been declining over time for young men. This may be due, in part, to young men remaining in school longer (and thus experiencing lower rates of transition to either employment or unemployment). After accounting for school enrollment in Table 2, Egypt has lower but insignificantly different relative risks of transitions from OLF to unemployment in 2011-13 and 2014-16 as compared to 2008-2010. In Jordan and Tunisia there has been a rising probability of transitioning from OLF to unemployment for young men, likely an increasing trend in initial unemployment as part of the labor market entry process, but while the relative risks are higher in Table 2 for other periods compared to 2004-2007, only in Tunisia for 2011-2013 are they statistically significantly so, which may also represent a challenging labor market during the Arab Spring.

Young women too have seen recent increases in their probability of transitioning from OLF to unemployment, particularly in Tunisia. The differences are statistically significant over 2008-10 and 2011-13 versus 2004-2007; differences are also statistically significant in Egypt for 2014-16 versus 2008-10. However, in part due to very low participation among women overall, probabilities are low, substantially lower than for men.

Figure 3. Annual probability of transition from OLF to unemployment (O→U percentage) by sex, age group, and country, decade preceding survey, ages 15-64



Source: Authors' calculations based on ELMPS 2018, JLMPS 2016 and TLMPS 2014

Notes: Annual statuses based on retrospective labor market history and current employment and current unemployment start dates. Lowess smoothed, bandwidth 0.3

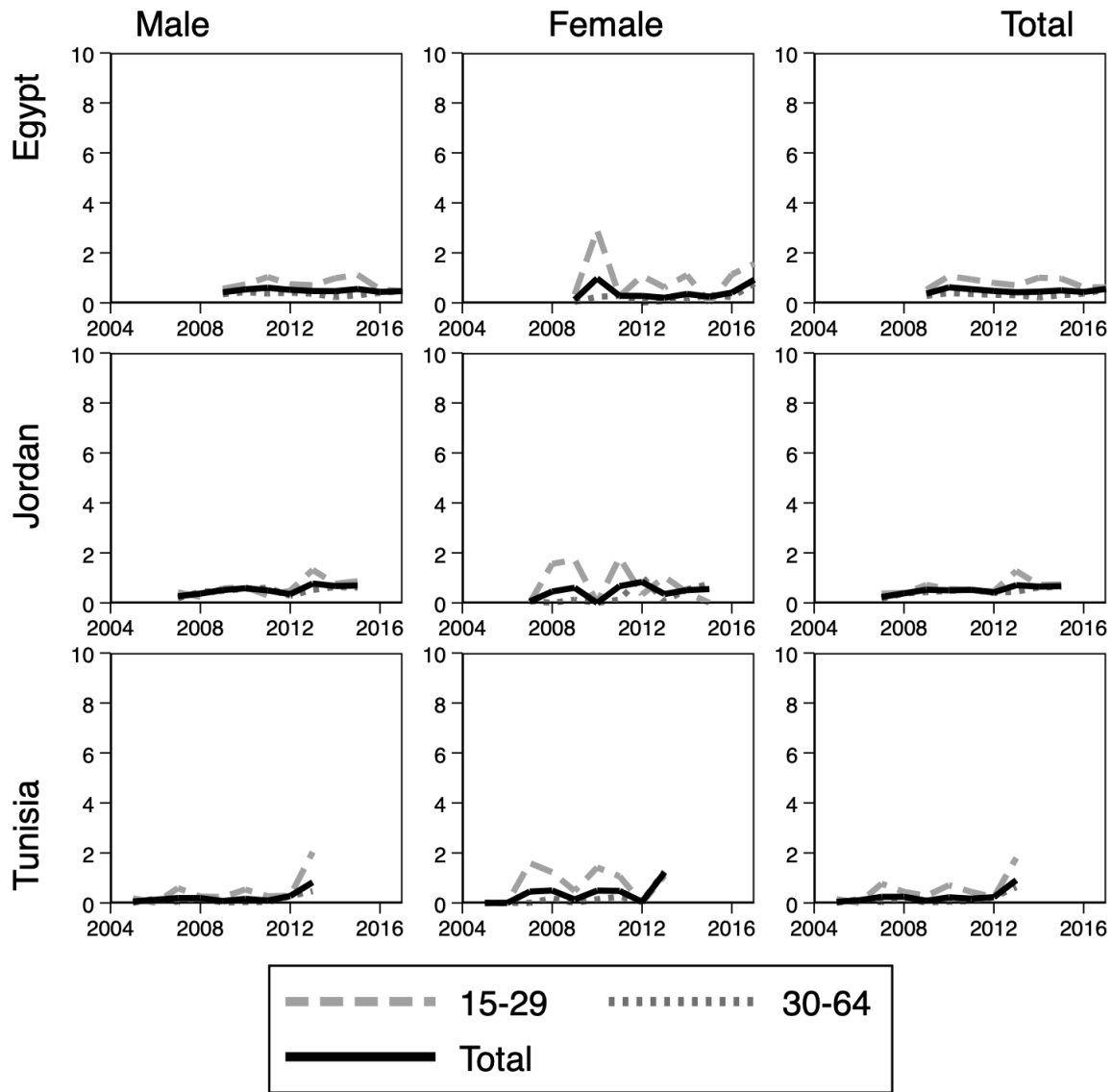
Exiting employment for unemployment (either voluntarily or involuntarily) is a small part of long-term unemployment dynamics (as Figure 1 demonstrated in terms of the share of the labor force that is unemployed and that previously worked). Figure 4 corroborates that the transition probability is low. Indeed, in estimating multinomial logit models for exit from

employment to unemployment or out of the labor force (Table 3), the model for Tunisian men was inestimable.¹¹ In all the estimable models, the relative risk of transition from employed to unemployed was lower for prime-age adults than youth, usually significantly so (insignificantly so for men and women in Jordan).

While in Figure 4 the transition from employment to unemployment appears to have been rising slightly over time in Jordan and Tunisia, caution in interpretation is required here, as we know that there are reporting problems with retrospective unemployment spells (Assaad, Krafft, and Yassin 2018). Moreover, in the multivariate models (Table 3), only one difference is statistically significant, with higher employment to unemployment transitions for Jordanian women in 2011-2013 compared to a reference year of 2004-2007. The overall lack of employment to unemployment transitions may be positive news for those who obtain jobs but may also reflect a very rigid labor market that lacks dynamism and creates challenges for new entrants. In the long run, particularly if the social harms of unemployment can be ameliorated, through some form of effective unemployment insurance, increases in dynamism (potentially including transitions from employment to unemployment for a time) may lead to a more efficient allocation of human resources.

¹¹ In an attempt to compare employment to unemployment transitions across countries and by sex and test for differences, we tried to estimate a pooled model with sex and country interactions and all covariates, but it too was inestimable. We were able to estimate a model with just country and sex interacted, and there were not significant differences in employment to unemployment transitions by sex within countries. Comparing across countries, Tunisian men had significantly lower probabilities of transitioning from employment to unemployment compared to Egyptian or Jordanian men, but no other differences across countries (within men or women) were significant.

Figure 4. Annual probability of transition from employment to unemployment (E→U percentage) by sex, age group, and country, decade preceding survey, ages 15-64



Source: Authors' calculations based on ELMPS 2018, JLMPS 2016, and TLMPS 2014

Notes: Annual statuses based on retrospective labor market history and current employment and current unemployment start dates. Lowess smoothed, bandwidth 0.3

Table 3. Multinomial logit model (relative risk ratios) for probability of transitions from employment (E) to out of labor force (O) or unemployment (U)

	<u>Egypt</u> <u>Males</u>	<u>Egypt</u> <u>Females</u>	<u>Jordan</u> <u>Males</u>	<u>Jordan</u> <u>Females</u>	<u>Tunisia</u> <u>Females</u>
<u>E to O</u>					
Age group (15-24 omit.)					
25+	0.582*** (0.063)	0.223*** (0.033)	1.974* (0.536)	0.606 (0.247)	0.301* (0.168)
Education and SES (higher ed.- high SES omit.)					
Low	0.800 (0.159)	2.922*** (0.841)	3.094* (1.519)	1.590 (0.711)	0.923 (0.988)
Intermediate	0.701 (0.133)	2.371** (0.681)	3.196* (1.653)	1.360 (0.637)	0.691 (0.819)
High ed. - low SES	0.828 (0.184)	1.878* (0.542)	2.994* (1.499)	0.876 (0.322)	0.147 (0.184)
Rural (urban omit.)					
Rural	0.858 (0.093)	0.508*** (0.079)	1.579** (0.264)	1.153 (0.330)	0.979 (0.430)
Current year (2004-07 omit. Jordan & Tunisia & 2008-2010 omit. Egypt)					
2008-2010			0.957 (0.248)	0.653 (0.287)	1.076 (0.433)
2011-13	0.869 (0.106)	0.968 (0.158)	0.795 (0.207)	0.675 (0.294)	0.803 (0.261)
2014-16	1.045 (0.127)	1.177 (0.199)	1.034 (0.296)	0.966 (0.447)	
<u>E to U</u>					
Age group (15-24 omit.)					
25+	0.510*** (0.082)	0.132*** (0.075)	0.807 (0.227)	0.434 (0.379)	0.096** (0.075)
Education and SES (higher ed.- high SES omit.)					
Low	0.686 (0.206)	0.458 (0.218)	0.548 (0.241)	1.118 (0.794)	0.161 (0.192)
Intermediate	0.815 (0.209)	0.649 (0.294)	0.524 (0.296)	0.590 (0.453)	0.438 (0.530)
High ed. - low SES	0.743 (0.227)	2.099 (1.119)	0.422 (0.249)	0.414 (0.279)	0.615 (0.715)
Rural (urban omit.)					
Rural	0.503***	0.707	0.854	1.189	0.903

	<u>Egypt</u> <u>Males</u>	<u>Egypt</u> <u>Females</u>	<u>Jordan</u> <u>Males</u>	<u>Jordan</u> <u>Females</u>	<u>Tunisia</u> <u>Females</u>
	(0.092)	(0.251)	(0.247)	(0.710)	(0.675)
Current year (2004-07 omit. Jordan & Tunisia & 2008-2010 omit. Egypt)					
2008-2010			1.845 (0.822)	6.150 (6.814)	2.582 (2.047)
2011-13	1.127 (0.178)	0.490 (0.217)	1.998 (0.909)	10.795* (11.390)	1.741 (1.591)
2014-16	1.052 (0.168)	0.689 (0.294)	2.490 (1.340)	8.977 (10.228)	
N	86600	18349	29247	5034	4507

Source: Authors' calculations based on ELMPS 2018, JLMPS 2016, and TLMPS 2014.

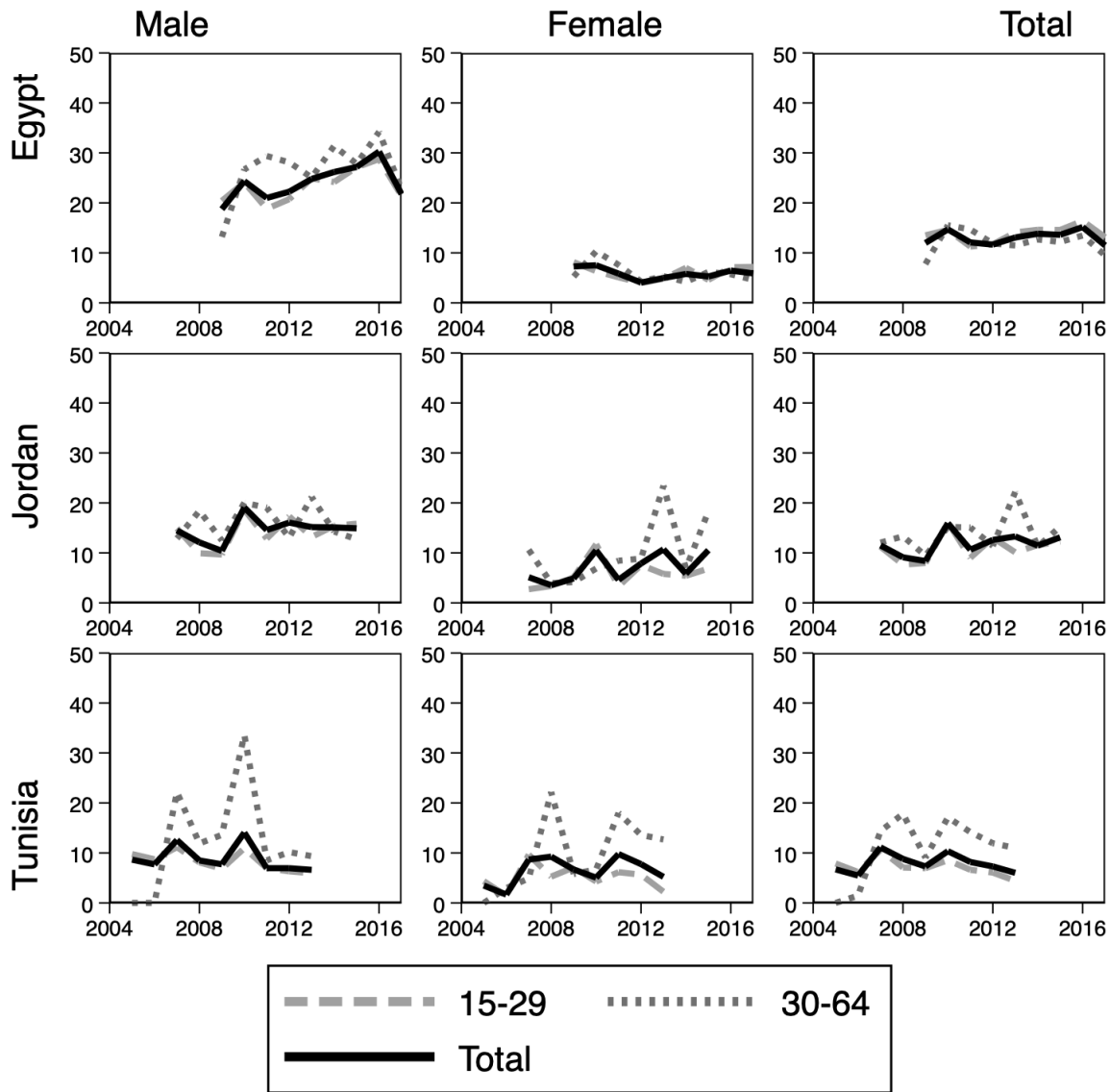
Notes: *p<0.05; **p<0.01; ***p<0.001

Standard errors in parentheses.

Probability of entering state for those who were employed in the preceding year. Tunisia men not shown – inestimable.

A very important aspect of unemployment dynamics is job-finding rates among those who are unemployed. Figure 5 shows this transition from unemployment to employment by age group (later sections provide multivariate models of unemployment durations). There are not large differences in the job-finding rate by age group. Particularly in Egypt and Jordan, the annual probability of transitioning from unemployment to employment has increased substantially for men to reach relatively high levels (especially so in Egypt). In Tunisia the unemployment to employment transition rate remains low and has increased more modestly. This suggests that in Tunisia those who are unemployed (for at least a year—note that this is different than the earlier figures on 7-day unemployment) tend to persist in this state, a point we explore further below. For women in all countries, there has not been a clear pattern of change over time, and unemployment appears very persistent, with few women transitioning from unemployment to employment each year (generally less than 10% of unemployed women transition to employment each year).

Figure 5. Annual probability of transition from unemployment to employment (U→E percentage) by sex, age group, and country, decade preceding survey, ages 15-64



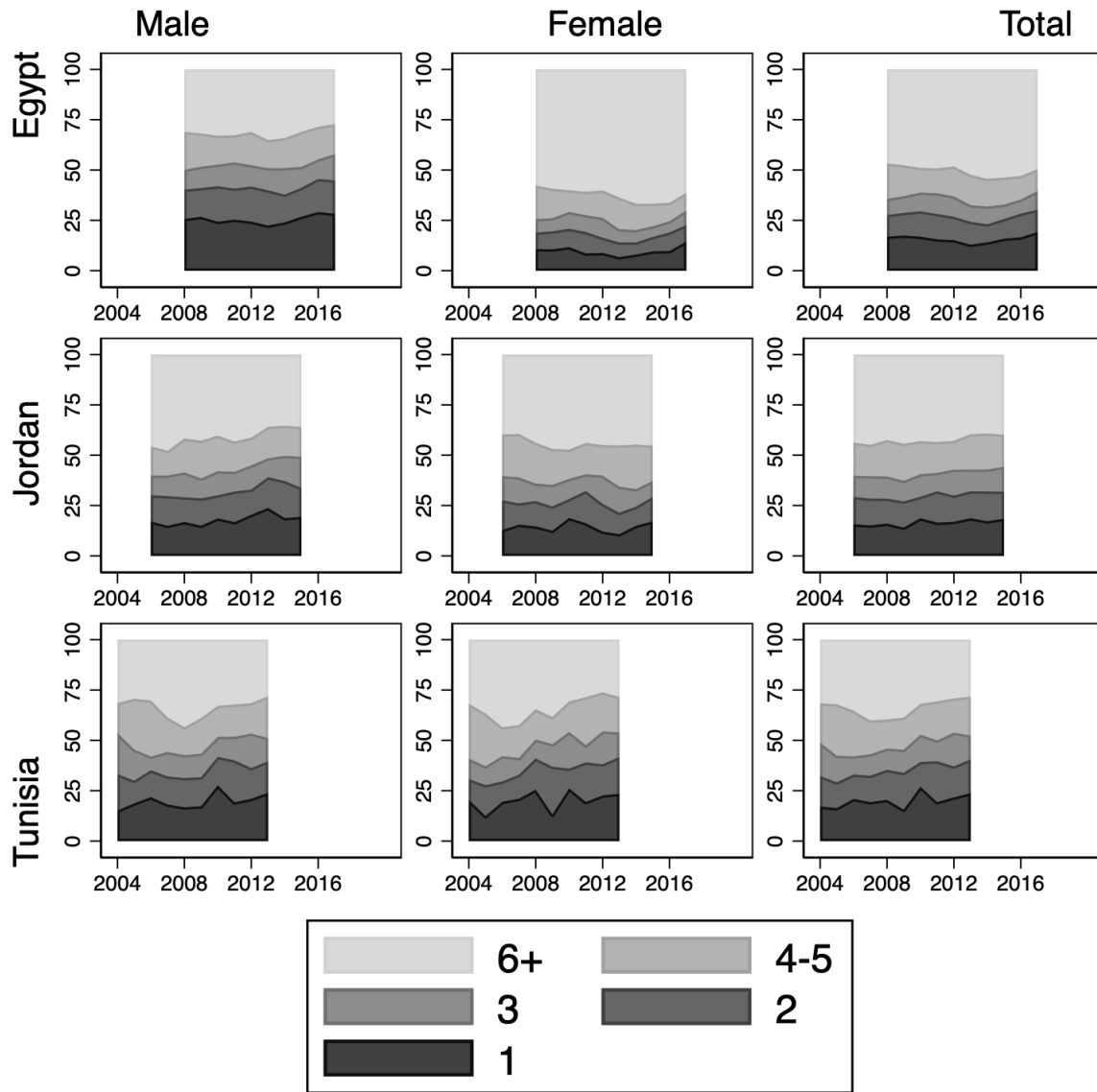
Source: Authors' calculations based on ELMPS 2018, JLMPS 2016, and TLMPS 2014

Notes: Annual statuses based on retrospective labor market history and current employment and current unemployment start dates. Lowess smoothed, bandwidth 0.3

An additional decomposition can shed further light on the changes in the prevalence of short vs. long-term unemployment. Figure 6 shows the percentage of the unemployed who have been unemployed by various reference periods to date. Note that these are only durations to date, and the final durations (explored in the next section) will be different. In most cases, the largest

group of unemployed are those who have been unemployed six or more years. Again, it is important to emphasize that six years is not necessarily a typical duration for an individual entering unemployment; the stock of unemployed necessarily has more individuals who experience longer durations as well as having individuals who will experience additional years of unemployment. There are not particularly clear trends over time, but there are some important differences by country and sex. Unemployed women, particularly in Egypt, somewhat in Tunisia, and less so in Jordan are more likely to be 6 or more years unemployed. Persistent queuing for government jobs may be driving this pattern. The stock of unemployed men in Egypt tends to have shorter unemployment durations to date, consistent with higher unemployment to employment transitions.

Figure 6. Percentage of unemployed in each year by duration of unemployment, sex and country, decade preceding survey, ages 15-64



Source: Authors' calculations based on ELMPS 2018, JLMPS 2016, and TLMPS 2014

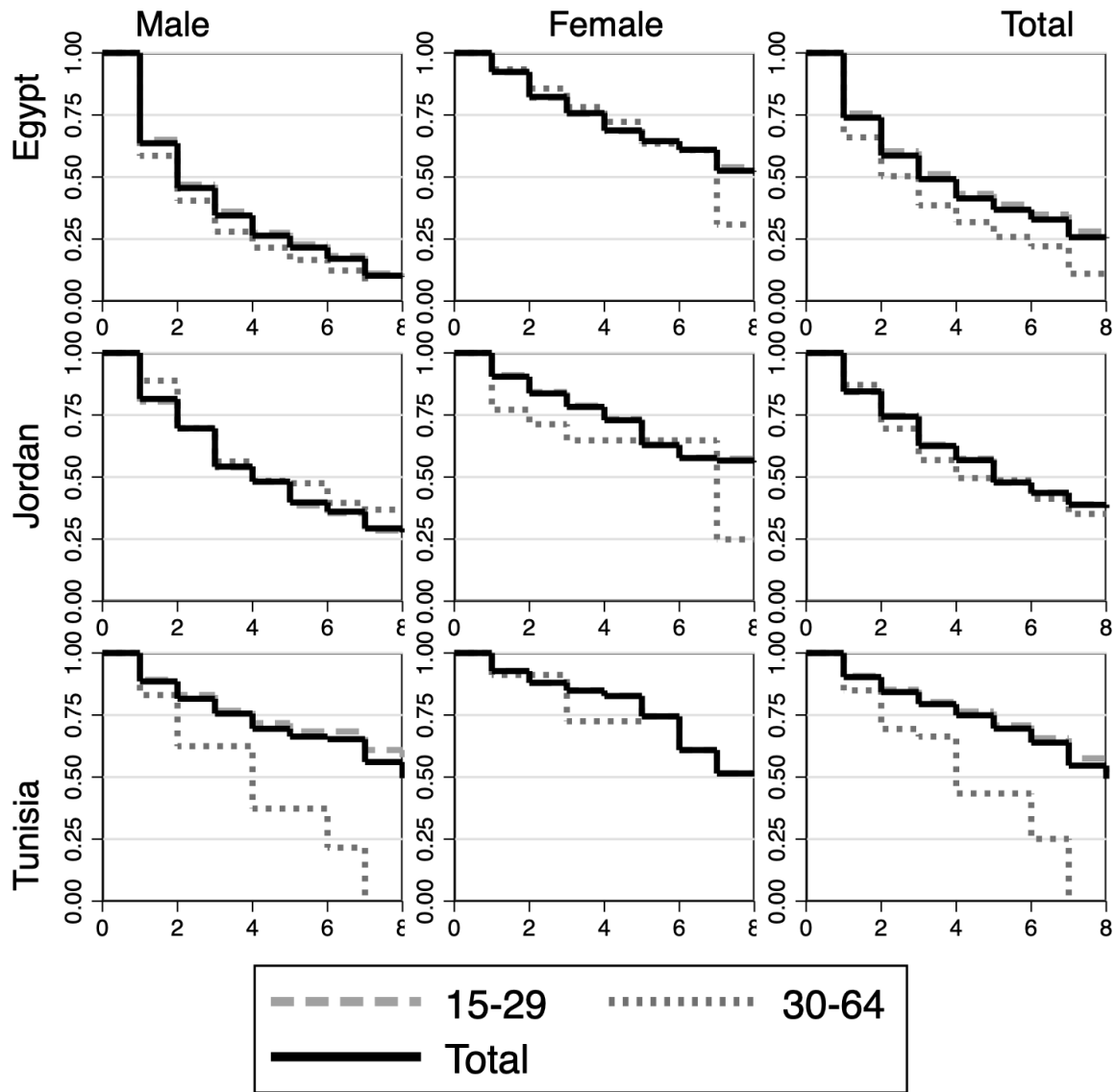
Notes: Annual statuses based on retrospective labor market history and current employment and current unemployment start dates.

4.3 Unemployment durations

In this section we first provide descriptive statistics on unemployment durations and then examine multivariate models of unemployment durations. Figure 7 provides Kaplan-Meier survival functions that show the proportion remaining unemployed by the number of years since

entering unemployment by age group (when the unemployment spell began). The estimator accounts for right censoring, that is, durations of unemployment that are not complete, to accurately estimate unemployment durations. Although there are important differences, as discussed previously, in entering unemployment by age group, the durations do not show large differences by starting age group. For men, in Egypt, the 25th percentile duration is one year, while it is two years for men in Jordan and four years for men in Tunisia. The median unemployment durations for men show a further spread, at two years in Egypt, four years in Jordan, and eight years in Tunisia. While after eight years only 10% of Egyptian men who started an unemployment spell are still unemployed, this is 28% in Jordan and 50% in Tunisia. Unemployment durations for women are long; four years is the 25th percentile unemployment duration for women in Jordan and Egypt, and this is five years in Tunisia. Even after eight years, slightly less than half of unemployed women have exited unemployment in all countries, and more than half remain unemployed.

Figure 7. Kaplan-Meier survival function (proportion remaining unemployed) by years since entering unemployment and age group at start of unemployment



Source: Authors' calculations based on ELMPS 2012, JLMPS 2016 and TLMPS 2014

Notes: Unemployment durations based on retrospective labor market history and current unemployment start dates.

In order to assess the relationship between characteristics and duration of unemployment, we turn to the discrete time logit models to model duration in Table 4. Recall that odds ratios greater than 1 indicate faster exit and shorter unemployment and those less than 1 indicate slower exit and longer unemployment, compared to the reference category. Also note that the data used

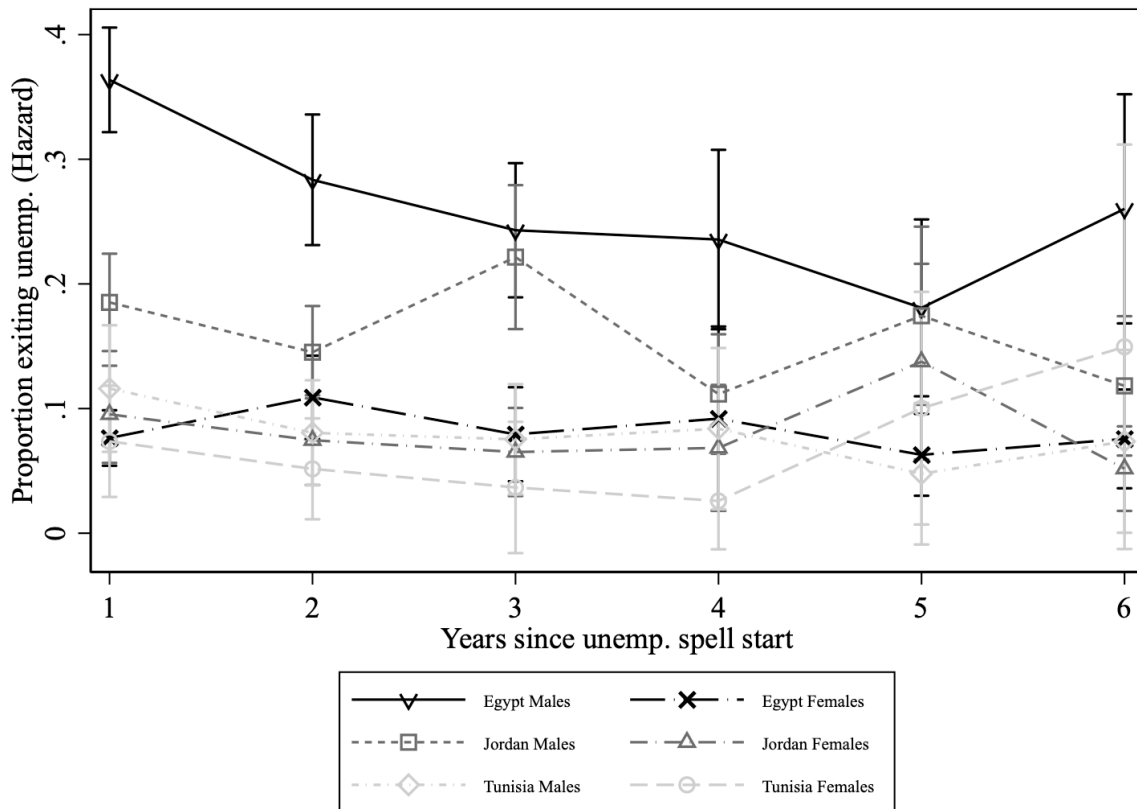
here only captures those who experienced unemployment of at least six months (more typically, at least a year). Further, there are known recall problems with reporting unemployment.

Another important caveat is that, because we are focusing on only those who experience unemployment, durations may be at odds with entry into unemployment. For instance, women may be less likely to enter into unemployment (because they remain out of the labor force entirely), but then experience longer durations when they do. We therefore briefly discuss who transitions from out of the labor force to unemployment (Table 2) and from employment to unemployment (a much smaller group, Table 3), before discussing unemployment durations. As expected, individuals who are younger and more educated are more likely to enter unemployment than individuals who are older or less educated. Differences by socioeconomic status are complex, with low SES individuals significantly less likely to enter unemployment from OLF for Egyptian men and Jordanian women, but significantly more likely among Tunisian women. These patterns could represent complex tradeoffs, for instance, in terms of being able to afford a period of unemployment (for men), desiring/seeking employment (for Jordanian women), and access to networks and jobs (for Tunisian women).

Turning to the duration of unemployment, we first present simulations of the hazards (Figure 8) and then discuss the other results of the model (Table 4). To demonstrate how the probability of exiting unemployment evolves over the duration of unemployment, Figure 8 shows the hazards (an average hazard and confidence interval, essentially a marginal effect with all other characteristics as observed). Furthermore, we estimated a pooled model, with interactions between all covariates, sex, and country, to test for significant differences in the hazard by sex within countries and across countries, by sex. The hazard of exiting unemployment is highest for Egyptian men, followed by Jordanian men, Egyptian women, Tunisian men,

Jordanian women, and Tunisian women. Differences are particularly large for Egyptian men, whose hazard of exit in the first year of unemployment, at 0.36, is nearly twice that of Jordanian men (0.19), the next highest group in terms of the first-year hazard. In Jordan and Egypt, but not Tunisia, women have significantly lower hazards than men of exiting unemployment. Across countries, differences in the hazard are significant, except for comparing Tunisian and Jordanian women. The result in Tunisia is consistent with the pattern of those experiencing long unemployment experiencing very long durations, as noted elsewhere. Only in Egypt for men is there a clear and significant pattern of duration dependence, with the hazard falling from the first year to later years, although rising again somewhat at six and more years.

Figure 8. Predicted hazards of exiting unemployment by country, sex, and time since unemployment spell start



Source: Based on models in Table 4.
 Notes: Bars denote 95% confidence intervals

Turning to the other results of our multivariate model (Table 4), in terms of our key variable age group, there are few significant differences by age group. The only significant difference is that men aged 25+ in Egypt exit unemployment faster (have shorter durations) than men ages 15-24. Compared to those with higher education and high SES, those unemployed individuals who are less educated have lower chances of exiting unemployment in Jordan and Egypt, sometimes significantly so. This applies to both men and women with intermediate education in Egypt, men with low education in Egypt, and women with low education in Jordan. However, all of these groups have significantly lower changes of entering unemployment (from OLF) in the first place and are thus very select. There are no statistically significant differences in unemployment durations by SES. In terms of location, in Egypt, compared to urban areas, the only significant difference is for men in rural areas exiting unemployment faster. Focusing on the patterns over time, the only statistically significant pattern is lower exit from unemployment for Tunisian women in 2008-2010 and 2011-13 compared to 2004-07. Although the smaller sample size of those who are in unemployment needs to be kept in mind, the results suggest that the pattern of educated, new entrant unemployment is driven by entry into unemployment, not unemployment durations.

Table 4. Logit discrete time proportional hazard model (odds ratios) of unemployment exit, individuals experiencing unemployment, ages 15-64 during spell

	<u>Egypt</u> <u>Males</u>	<u>Egypt</u> <u>Females</u>	<u>Jordan</u> <u>Males</u>	<u>Jordan</u> <u>Females</u>	<u>Tunisia</u> <u>Males</u>	<u>Tunisia</u> <u>Females</u>
Age group (15-24 omit.)						
25+	1.637*** (0.183)	1.251 (0.317)	1.055 (0.228)	1.598 (0.513)	0.999 (0.487)	1.589 (0.809)
Education and SES (higher ed.- high SES omit.)						

Low	0.547** (0.105)	0.573 (0.185)	0.674 (0.171)	0.397* (0.171)	1.209 (0.824)	1.199 (0.928)
Intermediate	0.684* (0.121)	0.372*** (0.086)	0.906 (0.254)	0.309 (0.193)	0.613 (0.487)	2.133 (1.831)
High ed. - low SES	0.745 (0.142)	0.615 (0.161)	1.112 (0.352)	0.581 (0.174)	1.216 (0.834)	0.343 (0.254)
Rural (urban omit.)						
Rural	1.294* (0.160)	0.724 (0.146)	1.089 (0.194)	0.884 (0.293)	1.702 (0.544)	0.829 (0.438)
Start year (2004-07 omit. Jordan & Tunisia & 2008-2010 omit. Egypt)						
2008-2010			0.996 (0.251)	0.828 (0.327)	0.532 (0.203)	0.392* (0.181)
2011-13	0.910 (0.126)	1.140 (0.262)	1.100 (0.260)	0.753 (0.314)	0.455 (0.249)	0.100* (0.093)
2014-16	1.005 (0.160)	1.104 (0.316)	1.148 (0.510)	1.065 (0.637)		
Year of unemployment (1 omit.)						
2	0.712* (0.110)	1.512 (0.388)	0.759 (0.173)	0.826 (0.283)	0.649 (0.270)	0.597 (0.326)
3	0.600** (0.104)	1.096 (0.348)	1.293 (0.318)	0.714 (0.222)	0.562 (0.246)	0.362 (0.322)
4	0.586* (0.142)	1.328 (0.700)	0.590 (0.166)	0.745 (0.351)	0.578 (0.261)	0.221 (0.195)
5	0.410*** (0.107)	0.872 (0.321)	1.014 (0.314)	1.678 (0.792)	0.277* (0.181)	0.978 (0.620)
6+	0.658 (0.193)	1.160 (0.444)	0.639 (0.211)	0.602 (0.272)	0.428 (0.279)	1.247 (0.996)
N	2802	2606	2640	1859	697	573

Source: Authors' calculations based on ELMPS 2018, JLMPS 2016, and TLMPS 2014.

Notes: *p<0.05; **p<0.01; ***p<0.001

Standard errors in parentheses.

Unemployment durations based on retrospective labor market history and current unemployment start dates.

5. Summary and Conclusions

We began our analysis by examining the patterns of unemployment across Egypt, Jordan, and Tunisia, in terms of the duration of unemployment, the extent to which it involves new entrants versus individuals with prior work experience, and the pattern of unemployment rates for youth

(15-24) and prime age workers (25-64). Unemployment rates were higher in Jordan (2016) and Tunisia (2014) than in Egypt (2018), primarily due to differences in men's unemployment, as women had high unemployment rates across countries. In all three countries the very long-term unemployed are almost all new entrants to the labor force with no work experience. This underscores the nature of unemployment in the MENA region as primarily a labor market insertion phenomenon. Those who enter unemployment as a result of leaving or losing a job tend to be fewer, and unemployed for a fairly short period of time.

Unemployment rates were decreasing over time in Egypt (from 1998 to 2016) but increasing over time in Jordan (from 2010 to 2016). The ten-year long-term unemployment trend in the retrospective data showed relative stability in Egypt, but an increase in Jordan and Tunisia. In the multivariate models of OLF to unemployment transitions, there was a significant increase for Tunisia in the probability of transitioning to unemployment in 2011-13. Rates of transition from OLF to unemployment were particularly high for men in Tunisia, men in Jordan, and women in Tunisia. There were significant differences by sex in these transitions in Egypt and Jordan (but not Tunisia), and across countries (except for insignificant differences between Tunisian and Jordanian men, who both had high initial unemployment, and Jordanian and Egyptian women, who had low entry into the labor force generally). Employment to unemployment transitions were rare in the retrospective data, further underscoring the new entrant nature of unemployment

Women and Tunisians of both sexes had the longest unemployment durations when they did enter unemployment. The hazard of exiting unemployment was correspondingly highest for Egyptian men, followed by Jordanian men, Egyptian women, Tunisian men, Jordanian women, and Tunisian women. Differences across countries by sex or within countries comparing men

and women were statistically significant, except in Tunisia (comparing men and women) and when comparing Tunisian and Jordanian women.

The determinants of unemployment durations for those who experienced unemployment show different patterns than for the risk of entering unemployment (which occurs primarily for educated youth, often from high SES backgrounds). Youth did not have significantly different unemployment durations than prime age adults (but youth had a much higher risk of initially entering unemployment). Likewise, the less educated, who have a low chance of entering unemployment to start with, paradoxically experience long durations of unemployment when they do experience it (in Egypt and Jordan). We also find that socio-economic background may explain who can afford to be unemployed but does not explain duration of unemployment once an individual becomes unemployed.

With regard to the time dependence of the probability of exit from unemployment, only in Egypt, where hazards of exit are highest, do we see a significant pattern of declining hazards. In other contexts, where unemployment is essentially involuntary, duration dependence is typically negative (Bradley and Nguyen 2003; Kroft, Notowidigdo, and Lange 2013; T. Addison and Portugal 1998), meaning that hazards of exit fall the longer a person remains in unemployment. This typically is an indication of stigma, scarring or skill atrophy as individuals become less employable the longer they remain unemployed. The fact that MENA exhibits less duration dependence in the hazard of exit suggests that there is an element of voluntariness (likely queuing) in the unemployment experience of MENA youth. The longer they are unemployed, the more time they have to adjust their wage and employment conditions downward, eventually accepting what jobs are available to them. Women, however, have a third option, which many of

them take, and that is the option of withdrawing from the labor force altogether if they do not find a position that meets their reservation working conditions.

The differences across countries in the probability of entering and remaining in unemployment have important links to labor market structures, economic conditions, and also labor market policy. All three countries, historically, had an authoritarian bargain social contract, with public services (including public sector jobs) offered in exchange for political acquiescence (Assaad 2014; Desai, Olofsgård, and Yousef 2009; El-Haddad 2020; Karshenas, Moghadam, and Alami 2014; Salehi-Isfahani 2012; Stampini and Verdier-Chouchane 2011). This bargain has broken down, with a variety of resulting paradigms. Egypt has reduced the role of the public sector and the private formal sector's growth has been anemic. Male youth in Egypt have been increasingly accepting the readily available informal jobs, rather than queuing in unemployment, while women have increasingly been falling back on leaving or remaining out of the labor force (Alazzawi and Hlasny 2022). Jordan has not curtailed public sector hiring to the same extent, public sector work remains strongly preferred, and such work is more broadly available across education levels (Amer 2019; Barcucci and Mryyan 2014). Youth in Jordan therefore continue to queue for preferred jobs, but in a period of substantial economic challenges, leading to rising unemployment.

Youth in Tunisia also faced difficult economic conditions around the Arab Spring, but also strong structural and policy issues at the same time. Rapid expansion in higher education without corresponding good jobs exacerbated unemployment (World Bank 2014b; a). Furthermore, public sector hiring is only from among the unemployed and prioritizes those with long unemployment durations (based on the date they register as unemployed) (World Bank 2014a). This creates strong incentives to queue and incentivizes long unemployment durations.

In all three countries, there are a large number of educated young women who aspire to work and to make use of their educational credentials but remain unemployed. Existing jobs do not meet their reservation working conditions (Dougherty 2014; Groh et al. 2015). When jobs otherwise are acceptable, women may also lack the requisite mobility to move to where the jobs are. Mobility constraints are likely to be binding for both married and unmarried women in MENA, leading to low participation and high unemployment rates among women (Assaad and Arntz 2005; Hanmer, Tebaldi, and Verner 2018). Unmarried women potentially risk their reputations and marriageability if they take up employment that requires them to spend the night away from their parent's home and are therefore restricted to the possibly meager employment opportunities available in their immediate community. Married women's location decisions are conditioned by those of their husbands and even their ability to commute is likely to be severely constrained by the non-negotiable amount of time they must spend on domestic chores (Economic Research Forum and UN Women 2020; Hendy 2015; El-Feki, Heilman, and Barker 2017).

Another factor that is likely to contribute to high unemployment rates among both male and female youth in all three countries is the norm that unmarried individuals continue residing in their parents' households at least until marriage (Assaad, Krafft, and Rolando 2021). This may make youth unemployment more affordable than in other contexts where young people often move out to establish their own independent households at a much earlier stage in their life course. The fact that unemployment is positively correlated with education levels and also with parental wealth (Krafft and Assaad 2014; World Bank 2013) supports the voluntariness hypothesis. Those youth who become unemployed are the ones with some probability of

obtaining formal jobs and who are able to afford to remain without work while looking for one. Less educated youth, who have no hope for formal jobs, rarely enter the unemployment state.

The current nature of unemployment as primarily educated new entrant unemployment does not lend itself to easy policy remedies. Active labor market policies (ALMPs) that try to reduce search time in the region have mostly proven ineffective, since unemployed youth typically do not want the available jobs (Groh et al. 2015; McKenzie 2017). Entrepreneurship, soft skills, and similar programs targeting youth with high unemployment rates have also proven to be mostly ineffective, although few of them have been thoroughly evaluated in MENA (Bausch et al. 2017; Broecke 2013; Groh et al. 2012). Unemployment policy must therefore focus on lessening the constraints on creating more and better jobs by improving the business and regulatory climate for small and medium firms and by reducing rent-seeking behavior among larger firms (Diwan, Keefer, and Schiffbauer 2014; Malik and Awadallah 2013).

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