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FIRST OUT, LAST IN AMID COVID-19: EMPLOYMENT VULNERABILITY OF YOUTHS IN ARAB COUNTRIES[1]

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Abstract

This study estimates the impacts of the evolving COVID crisis on the trends in workers' employment outcomes in Egypt and Jordan. Using panel microdata from ERF COVID-19 MENA Monitors, waves 1–5 (July '20–September '21), we estimate logit models of workers' job loss, and multinomial logits of workers' employment statuses. We confirm that the COVID regime stringency affects negatively employment and labor participation of most groups of workers – particularly youths, even if they were not disadvantaged pre-COVID. Higher education is associated with the retention of a better employment status, conferring consistently high returns in terms of remaining economically active, employed, and in formal employment. Workers' pre-COVID employment status affects their outcomes amid COVID, implying strong employment-status dependence. Those laid off amid COVID come predominantly from among those without (formal) employment pre-pandemic. Between mid-2020 and mid-2021, men's employment prospects gradually improved, but women faced a stagnation by being largely excluded from work opportunities. Youths trailed non-youths early during the pandemic, but have caught up during recovery. In sum, evidence suggests that youths and women are affected more adversely than non-youths and men at the height of the pandemic, face higher risks of getting laid off, and have a harder time returning to work – supporting the 'last in' if not the 'first out' hypothesis.

Keywords: Employment vulnerability, youth, COVID-19, MENA.
JEL Classifications: J21, J62, N35.

ملخص

تقدر هذه الدراسة آثار أزمة فيروس كورونا (كوفيد-19) الناشئة على اتجاهات نتائج توظيف العاملين في مصر والأردن. باستخدام البيانات الجزئية لمجموعة من راصدي فيروس كورونا (كوفيد-19) في منطقة الشرق الأوسط وشمال إفريقيا التابعين لمنتدى البحوث الاقتصادية، الموجات 1-5 (من يوليو 2020 إلى سبتمبر 2021)، من خلال تقدير النماذج اللوغاريتمية لفقدان الوظائف، واللوغاريتمات متعددة الحدود لحالات توظيف العاملين. ونؤكد أن صرامة نظام فيروس كورونا (كوفيد-19) تؤثر سلبًا على التوظيف والمشاركة في العمل لمعظم مجموعات العاملين، وخاصة الشباب، حتى لو لم يكونوا محرومين من الوظائف قبل فيروس كورونا (كوفيد-19). ويرتبط من لديه تعليم عالي ارتباطاً أفضل بالاحتفاظ بالوظائف، مما ينتج عنه عوائد عالية باستمرار من حيث البقاء كناشطين اقتصاديًا، ومحتفظين بوظائفهم، والاستمرار في قطاع العمل النظامي. وتؤثر حالة توظيف العاملين قبل جائحة فيروس كورونا (كوفيد-19) على نتائجهم خلال أزمة الجائحة، مما يعني اعتمادًا قويًا على حالة التوظيف. إن العاملين الذين تم تسريحهم وسط جائحة فيروس كورونا (كوفيد-19) في الغالب يكونون من بين أولئك غير العاملين (في القطاع النظامي) قبل تفشي الجائحة. بين منتصف عام 2020 ومنتصف عام 2021، تحسنت فرص توظيف الرجال تدريجيًا، لكن واجهت النساء حالة من الركود، حيث تم استبعادهن بدرجة كبيرة من فرص العمل. وسار الشباب في خطى غير تلك التي كانوا يسيرون فيها في وقت مبكر من الجائحة، لكنهم تمكنوا من اللحاق بهم أثناء فترة التعافي. باختصار، تشير الأدلة إلى أن الشباب والنساء هم أكثر من يتأثرون سلبيًا على خلاف الشباب والرجال في ذروة الجائحة، ويواجهون مخاطر أعلى للتسريح وصعوبة أكبر في العودة إلى العمل، وذلك يدعم فرضية "الداخل أخرًا" "يُصَرَّف أولًا" أي من تم توظيفه أخراً هو من يتم الاستغناء عنه أولاً.

I. Introduction

The COVID pandemic has hit workers in the Middle East and North Africa (MENA) region economies hard. Workers in these countries already faced precarious working conditions pre-pandemic. For decades the MENA labor markets have failed to create enough decent jobs to absorb new labor market entrants. The public employment sector has been shrinking due to economic reform programs in place since the 1990s, and formal private firms have failed to fill the void, in part due to competition from the informal sector.

Over 60% of all workers in the region are informally employed, while youths face even more vulnerability in employment on account of their missing work experience, skills that do not match employers' needs, and their sheer number (AlAzzawi and Hlasny 2020; Tzannatos 2021). Over 85% of youths are estimated to hold informal jobs (ILO 2020a,b).[4] Vulnerability of employment can thus be said to be the most critical condition facing MENA youths (Fehling et al. 2015), given that their jobs lack job security and stability, paid leaves, social and health insurance, and in many cases physical safety. Such vulnerability almost always stays with them throughout their careers as studies have found that transitions to better employment opportunities are rare for those who start out in vulnerable employment (AlAzzawi and Hlasny 2022). Moreover, the regional youth unemployment was already the highest in the world pre-pandemic, at over 30% for males and 40% for females, and COVID is likely to further aggravate youths' plight in terms of both unemployment and informality. Employers' drive toward cost-cutting, irregularization and gig employment will disproportionally affect youths and other at-risk groups.

In response to the onslaught of COVID, MENA governments have implemented an evolving range of measures to mitigate the health impacts. Egypt implemented relatively lenient responses to COVID in the first half of 2020, and maintained the measures at a consistent level longer, reducing them gradually ever since (see Figure A1 in the appendix). Consequently, Egypt has retained positive economic growth rates throughout the pandemic, albeit at less than half the pre-2020 projected level. Jordan started out with a very stringent regime as of the spring of 2020, but did not maintain it long. It was hit with resurgent waves of the pandemic in late 2020 and early 2021, requiring further restrictive measures throughout the first half of 2021, scaled back only in the second half of the year. Jordan is thus expected to face lingering socio-economic impacts throughout 2021.

Amid the market lockdowns implemented in tackling COVID across the region, workers without solid attachments to well established firms have faced particularly harsh prospects in terms of employability, job retention, and attainment of decent working conditions. Lockdowns and social-distancing rules exerted a heavy toll on all economic sectors in the MENA including manufacturing and industry, but it was particularly the service sector – where most of the recent secondary and tertiary school graduates and women work – that took the greatest pummeling (ILO

[4] The simultaneous oil price shock has also had far reaching implications on both oil exporters and importers through the channels of migrant work opportunities and remittances, and the generosity of domestic social programs.

2020c). Employers demoted, furloughed or laid off workers, and those in the informal sector were likely to be the hardest hit given the lack of job protection, and the lack of personal cushions such as savings, access to credit, and family connections. The ILO estimates that over 11 million full time equivalent (FTE) jobs were lost in the region during 2020 due to declining working hours. FTE job losses of over 23 million were estimated for the second quarter of 2020 alone, when the most severe lockdowns took place (ILO 2020c). According to ILO estimates, over 5 million FTE jobs were lost over the course of 2021, depending on how severe the course of the pandemic and the accompanying lockdowns are (ILO 2021a,b).

In light of the pre-existing structural obstacles in accessing decent jobs (Hlasny and AlAzzawi 2020), a break from service caused by COVID will undoubtedly impair youths' and women's ability to get back on their feet, particularly in terms of future employment prospects. The heaviest burden is expected to fall on workers lacking adequate backing – including job experience and social networks (*wasta*) – that would enable them to get rehired or return on a secure career track. By the same token, economic recovery seen in Q3–Q4 of 2021 may not fully offset the harms inflicted on youth and female workers during the prior eighteen months, as their skill sets deteriorate, and employers reorient to prioritizing the more experienced formally-employed workers.

Studies since the onset of the pandemic, and from around the world, have shown that specific groups of workers have been affected particularly severely by shutdowns. The brunt of the crisis has fallen on workers in industries with a "high risk" for a decline in economic activity as a result of the lockdowns, curfews and social distancing protocols; workers in informal employment whose income may have been wiped out completely due to the containment measures; those whose jobs cannot be performed remotely due to the nature of their occupation; and those without access to reliable technology and hence with limited opportunities for teleworking. The impact is also projected to be stronger in countries where limited public-sector employment is available and fiscal constraints prevent substantial response measures as part of government support.

Tracking the employment status of marginalized groups across the different phases of a health and economic crisis offers important lessons illuminating the transmission of vulnerability across business cycles and across the course of the pandemic. It can facilitate answering questions such as: Which worker groups are particularly hurt by health epidemics? How do the workers' outcomes change with the progress of the pandemic and the ensuing economic and health measures to contain it, and do such shocks have long-lasting impacts? What are some effective ways to help the workers, and when are the most critical points for intervention?

This study therefore evaluates the employment prospects of workers, separately for each gender and for two age groups, across various phases of the COVID pandemic, given their pre-COVID status and selected demographics. We rely on 2–4 waves of national panel surveys carried out over the period of June 2020 through September 2021, with a recall module to February 2020, right before the onset of the pandemic. The testable hypothesis of special interest is that vulnerable

workers such as youths and women are more likely to be, or earlier, laid off or converted to an informal status upon escalation of an economic crisis, and are less likely to be, or later, reinstated in the span of recovery. Our study evaluates this hypothesis by focusing on workers' experience of being laid off, their employment status and the degree of formality of their employment, because these outcomes represent the main aspirations of labor market entrants in the MENA region, and are crucial for workers' career progress, lifetime outcomes, and welfare. The first-out, last-in tendency is widely suspected but has not been established in regard to the COVID crisis, particularly in the MENA.

The rest of this study is organized as follows. Section II reviews the available evidence of vulnerability of the MENA labor markets to crises. Section III formalizes our testable hypotheses, and introduces our estimation strategy and data. Section IV reports our main results, and section V concludes with implications for labor market policy.

II. Existing Evidence on Labor Market Impacts of COVID

Studies since the onset of the pandemic, and from around the world, have shown that specific groups of workers have been affected particularly severely by lockdowns and the decline in aggregate demand.[5] The brunt of the crisis has fallen on workers in industries with a "high risk"[6] for a decline in economic activity as a result of the lockdowns, curfews and social distancing protocols; workers in informal employment whose income may have been wiped out completely due to the containment measures; those whose jobs cannot be performed remotely due to the nature of their occupation; and those without access to reliable technology and hence with limited opportunities for teleworking. The impact is also projected to be stronger in countries where limited public-sector employment is available and fiscal constraints prevent substantial response measures as part of government support.

Rapid assessments in the MENA region

International agencies such as the World Bank and the United Nations,[7] and national statistical offices have released preliminary results of rapid assessments of the pandemic's impact on the

[5] See for example AlAzzawi (2021) on the MENA region, as well as Delaporte and Peña (2020), Dingel and Nieman (2020), Hatayama et.al. (2020), Saltiel (2020), among others as well as ILO (2020d) and references therein.

[6] The ILO developed a sectoral risk classification in their second ILO Monitor (ILO 2020c) of the impact of the COVID pandemic on work worldwide. The classification is based on the ILO's assessment of the impact of the crisis on economic output at the industry level, utilizing data from real-time economic and financial data from a wide variety of sources including: IHS Markit Global Business Outlook and Sector PMI indices; Institute of International Finance; Cboe Volatility Index (VIX); McKinsey; OECD; Brookings; Moody's analytics; EUROSTAT, among others. These indices provided insight into the extent of the shock's impact on firms' production, sales, and expectations and most importantly on the impact on their plans for layoffs and short-term hiring. The classification indicated that roughly 55 million workers in the MENA were employed in industries at medium-high to high risk for severe decline in economic activity including accommodation and food services, real estate, manufacturing, trade activities, transport, and storage and communication.

[7] The World Bank (2020) enumerates the results of rapid phone surveys to assess the impact of COVID-19 on households. UNDP (2020) provides detailed summaries and references to rapid assessments conducted to examine the impact of COVID-19 on key sectors and groups including health, poverty, labor markets, migrant workers, small and medium enterprises and women. UN ESCWA assessed that in the first year of the pandemic, the distribution of

countries' labor markets and various social indicators. For example, the World Bank rapid survey in Yemen, conducted between March and April 2020, found that 18 percent of households could not reach their jobs due to COVID-imposed mobility restrictions and 31 percent of households were either not receiving salaries or receiving less than before the outbreak. Moreover, the share of households citing low wages and loss of employment as the most difficult challenges facing them increased from 45 to 49 percent, compared to before the pandemic. The assessment for Iraq focused on poverty and found that implementing a full curfew would have a severe impact on poverty due to changes in labor income raising the poverty headcount for the country as a whole by 10 percentage points and raising the poverty gap by 3 percentage points. In Djibouti, the results of the rapid phone survey also confirmed a strong impact of the pandemic on the labor market with almost one fifth of breadwinners losing their jobs since the start of the pandemic. This impact was more pronounced for households in the lowest income quintile. Of those who lost their jobs, 68 percent identified COVID-related reasons as the cause of their current economic inactivity. Moreover, among those who maintained their pre-pandemic employment status, 42 percent were working less or not at all with a simultaneous reduction in income: 45 percent of those working less than usual received no income at all, while 36 percent received only a partial wage.

III. Methods and Data

In light of the employment trends observed under COVID across the MENA region and worldwide, this study aims to evaluate how vulnerable groups have fared across distinct phases of the pandemic compared to other groups, conditional on their pre-COVID status. Our hypotheses concern their probability of retaining employment or being laid off, and the timing of their termination or re-hiring, namely: 1) For all worker groups, the intensity of the COVID crisis affects negatively their employment prospects in terms of the probability of being employed or formally employed, and positively their probability of becoming laid off; 2) For youth and female workers, these effects are larger in magnitude; 3) For youth and female workers, the probability of being laid off or being in an inferior employment status rises earlier at the onset of the crisis, and falls later in the course of recovery.

Estimation strategy

We analyze the impacts of the pandemic on vulnerable workers in Egypt and Jordan statically as well as dynamically, using microdata from the ERF COVID-19 MENA Household Monitors (OAMDI 2021). To the extent that labor market conditions differ across economic sectors and over the span of the COVID outbreak, our study estimates the impact of the severity of the crisis on the employment outcomes of various groups of workers, separately between genders and across the five countries.

We start with a descriptive analysis of the impact of the pandemic on employment status, to understand how many and who were the workers who lost their jobs or transitioned to less formal

incomes and wealth in the region substantially widened, and poverty headcount in the 14 middle and low-income MENA countries rose by 11 percent, from 29.2 to 32.4 percent of the population (Abu-Ismail and Hlasny 2020).

employment statuses, and link these outcomes to workers' characteristics. We use the panel dimension of the surveys to examine individuals' transitions between their employment status in February 2020 and their current status at each phase of the pandemic as monitored by the rapid surveys. We also examine the labor market experiences of February 2020 wage workers over time in terms of being laid off temporarily or permanently, having to work reduced hours and no longer being wage workers over the sixty days prior to each survey data and how that varied by age and sex over time in the five countries.

Next, we turn to estimating probabilistic regressions of workers' employment status among distinct demographic groups as a function of the workers' pre-existing status and the degree of stringency of COVID lockdown-type policies (Hale et al. 2021). These regressions are discussed in more detail in the following section.

We use a six-category classification of employment status: *Formally employed* are all those who, over the past 7 days, were employed in formal, regular positions with social insurance, whether public or private.[8] We classify as *informal* those workers who are informally employed, or without social insurance, but work in establishments. We classify as *irregular* those who report working in unstable employment, or work outside of establishments. We classify as *self-employed* or *unpaid* all those who were farmers, self-employed business owners (without employing others), or unpaid family workers. *Unemployed* are those who are not presently employed but are actively searching for work. Finally, *out of the labor force* (OLF) are the housewives, retirees, and others not employed nor searching for work.[9]

Across all the statistical tests, we focus on workers' employment status (including formality) – rather than hours worked, wages or earnings – because the former outcomes are crucial for workers' career progress, lifetime achievements and living standards (see for example Alazzawi and Hlasny, 2022, on how initial employment status affects long term employment outcomes even after 20 years of work experience).[10]

[8] In the descriptive figures and transition matrices we used a slightly different breakdown distinguishing formal public from formal private to show the very different experiences of these groups, however the sample sizes were relatively small for some country/wave combination and therefore the regression results were not reliable, especially with multinomial regressions.

[9] For alternative specifications preserving some of the degrees of freedom (which would be lost in multinomial logit models with 6 categories of outcomes), we estimate models with 4–5 outcomes (formal, informal, unemployed, OLF; with self-employed/unpaid workers subsumed in informality, or put in a separate category). The baseline model presented in the main text has only 3 outcomes: employed, unemployed, OLF.

[10] We do not analyze workers' hours worked, wages or total earnings, because these 'intensive-margin' outcomes are more likely to be subject to personal choice than basic employment status, particularly amid the existential tradeoffs individuals face during a health pandemic. These latter outcomes can be thought of as more indicative of short-term welfare, with lower bearing on workers' career and lifetime achievements.

Logistic regressions

To investigate the risk factors for workers' vulnerable employment statuses, we turn to probabilistic models: multinomial logit regressions of workers' employment status, and simple logit regressions of the probability of a lay off.

Multinomial logistic regressions estimate the probability that a worker will attain a particular categorical value *j* of employment type (employed, unemployed) relative to the probability of the baseline option (remaining OLF). This baseline option is chosen as the natural state for recent graduates, is the most prevalent state among women, and is arguably the least-preferred state for the vast majority of working-age individuals. This choice of baseline facilitates easy interpretation of regression coefficients. The regressions take the values of explanatory variables (x), estimate *j*-outcome specific coefficients on those explanatory variables (β_j) using the maximum likelihood method, and calculate the probabilities of all possible outcomes relative to the baseline.

$$Pr\,(y = j) = \frac{exp(\beta_j x)}{\sum_{k \in J} exp(\beta_k x)} \quad (1)$$

Individual-specific and time subscripts are omitted here for clarity of presentation. (The outcome with the highest estimated probability of occurring for an observation could be classified as the predicted outcome.)

Multinomial logit models with dynamic components have been successfully applied to the employment-type problem in prior studies (Buddelmeyer and Wooden 2008; Assaad and Krafft 2014; AlAzzawi and Hlasny 2022; Aygun et al. 2022). We begin by estimating this model for workers' labor market status ($j \in \{\text{employed}; \text{unemployed \& searching}; \text{OLF}\}$). Next, we estimate a more detailed model of employment status reflecting job formality and other characteristics, as described in the previous section. This is useful, as workers' transition to informal employment carries different implications than the retention of formal employment, or the loss of employment altogether. This model is expected to yield insights into the impact of the pandemic on workers' outcomes, given the likely 'cascading' effects of COVID on workers: some formal workers lose their job amenities (informality), among these some are temporarily suspended (irregularity), or consigned to work externally without contracts, or without pay (self-employed/unpaid family workers), and among these some are let go entirely (unemployment/OLF). However, modeling the ordinal relationships among the alternative statuses comes at the expense of the model degrees of freedom, and significance.[11]

[11] Because the indicators of workers' informality/social insurance, irregularity, and work in/out of establishment are unavailable in some survey waves, or some statuses are rare among specific demographic groups, the dependent variables and sample delineations are adjusted accordingly. Out of consideration for the degrees of freedom, some categories are combined in several countries. Namely, due to the rarity of selected employment statuses among Egyptian workers, only employed, unemployed and OLF can be distinguished. Tables 1–2 show two specifications for Egypt – one with detailed disaggregation (in wave 4), and one with coarse disaggregation (in waves 2 and 4).

Beside this multinomial specification, we also estimate a simple logit regression of the workers' experience of having been laid off (temporarily or permanently) over the past 60 days. This is again estimable by maximum likelihood:

$$Pr\,(layoff)\; = \frac{1}{1+exp(-\beta x)} \tag{2}$$

As the main specifications, models (1) and (2) are estimated dynamically, accounting for workers' initial pre-COVID employment status as of February 2020 (y_0). The use of lagged dependent variables among regressors makes the problem dynamic and introduces challenges, including the lower share of variation in the dependent variable expected to be explained by other covariates, and larger sample-size requirements to achieve desirable properties (Honoré and Kyriazidou 2000). On the other hand, accounting for the pre-existing status mitigates various potential issues such as omitted variables and latent individual-level heterogeneity, and autocorrelation in errors. It also changes the problem from that of estimating workers' cumulative career status (a stock) to essentially estimating the short-term change in the career status (a flow), which is easier to fit using contemporaneous covariates.

Given the very different labor market experiences of men and women in the region even before the pandemic (AlAzzawi and Hlasny 2022, and references therein), we differentiate the functional relationships by gender, estimating women's and men's regressions separately. We also allow for distinct probabilities – and distinct effects of the COVID regime stringency – for youths versus non-youths. Youths are defined as those 17–29 years of age, while those 30–59 years old are classified as non-youth. Those 60–62 years old among respondents are omitted as not of the prime working age, and as candidates for partial or early retirement. Full-time students and non-nationals are also omitted, as they are deemed not to be competing in the same national labor markets as other workers. Workers' age in February 2020 is imputed as a non-integer value using the time range between 15-February 2020 and actual survey date, and the integer age as of the effective survey date (last 'try date').

Workers' propensity to transition to a different employment status is further made a function of the workers' skills (proxied by their completion of educational level l), residence near geographic labor markets (cluster of administrative regions r), and linear and quadratic time trends. At the national level, stringency index of the lockdown-style policies – as well as this index interacted with workers' youth status – proxies for the evolving labor market conditions in regard to all, or specifically youth, workers. Linear and quadratic time trends proxy for non-stringency related secular and business-cycle developments. In equations (1) and (2) we thus estimate:

$$\begin{aligned}\beta x = \beta_0 + \beta_1 stringency + \beta_2 youth + \beta_3 youth \times stringency + \sum_l \beta_l edu_l + \sum_r \beta_r region_r \\ + \beta_4 time + \beta_5 time^2 + \sum_{k\in J} \delta_k 1(y_0 = k)\end{aligned} \tag{3}$$

where individual-level and time subscripts are again omitted. The last term relates to the workers' February-2020 employment status k. (Supplementary model specifications are described in section IV.3.)

The particular vulnerability of youths and women to the stringency regime is gauged by the *youth*×*stringency* interaction term, and by the comparison of estimates on *stringency* in the men's and women's regressions. According to our main hypotheses, the estimates on the *youth* indicator and on the *youth*×*stringency* interaction term should be negative. Moreover, the estimates on *stringency* should be lower (more negative) in regressions of females than among males (when the regression specifications are identical for males and females).

In presenting the results, we will report the average marginal effects (AME) of unit increases in the corresponding explanatory variables on the probability of a specific employment status (or of a layoff).[12] To assess the significance of each explanatory variable in the multinomial model, we test the joint significance of AME estimates across all values of the dependent variable ($\text{AME}_{xj=1}$,…, $\text{AME}_{xj=J}$ for variable x). Residuals in regressions are clustered at the worker level to mitigate the potential effect of their autocorrelation on standard errors.

Data

Our analysis of workers' employment vulnerability is based on the ERF COVID-19 MENA Monitor: three waves for Egypt (June 2020, January–February 2021, June–July 2021) and for Jordan (January–February 2021, June–July 2021, August–September 2021) each. In terms of the time coverage, our data stretch from February 2020 (using recall modules in all survey waves for all countries, "wave 0") to August–September 2021 ("wave 5"; Jordan). The timing of fieldwork for the various waves spans across major phases of the COVID pandemic. July-October 2020 (wave 1) covers the apex of the pandemic when most economic sectors faced shutdowns and social lockdowns. January–April 2021 (waves 2 and 3) shows the state of affairs in the spring of 2021, when mass vaccinations got under way, and the initial onslaught of COVID eased down. June and August 2021 show a period when the easing down continued, before being interrupted by the arrival of the virulent Delta and Omicron variants and the associated tightening of the control regime.

ERF COVID-19 MENA Monitors are large-sample telephone surveys containing individual-level expansion weights facilitating representativeness within a certain sample-frame of contactable respondents. They are unbalanced panel surveys with a limited module of recall questions to February 2020, allowing us to track the same workers and their employment outcomes over the span of up to 19 months, February 2020 to September 2021. The surveys include information on workers' employment type, hours worked, income, and the status of self-employed workers'

[12] Raw multinomial-logit coefficients, or odds relative to the probability of being OLF (a.k.a. relative risk ratios $\frac{\Pr(j)}{\Pr(baseline)} = e^{\beta}$) for *J-1* options (less the baseline) are available on request.

enterprise.[13] For explanatory variables, the surveys cover workers' education, dependents by age category, residence and other demographics.

Our baseline dynamic regressions are estimated on pooled survey waves, for each country and for the two genders separately. Survey data are supplemented with national data on the tightness of the COVID lockdown-type policies – namely the 60-day moving average of the stringency index in the country (Hale et al. 2021) which varies by survey respondent according to their actual survey date. Data for the survey waves 1–5 are also supplemented by the recall-module information about workers' status as of the end of February 2020. This recall information is taken from the respondents' reporting upon the first instance when respondents were interviewed (regardless how many following waves they participated in), including for refresher-sample individuals. This gives us up to six data points for individuals, allowing us to track workers' outcomes from February 2020 to as late as September 2021. In the dynamic model specification, wave-0 employment status is used as the workers' pre-existing status, while employment status in waves 1–5 is used for the dependent variable. In the alternative static models without lagged dependent variables, waves 0–5 can all be used for estimation.[14]

IV. Results

Employment status transitions

A descriptive analysis of the impact of the pandemic on workers' employment status can help us understand how many and who were the workers who lost their jobs or transitioned to less formal employment statuses. We use the panel dimension of the surveys to examine individuals' transitions between their employment status in February 2020 and their current status at each phase of the pandemic as monitored by the rapid surveys. We also examine the labor market experiences of February 2020 wage workers over time in terms of being laid off temporarily or permanently, having to work reduced hours and no longer being wage workers over the sixty days prior to each survey data and how that varied by age and sex over time in the five countries.

Figure 1 depicts transitions to being employed, unemployed or out of the labor force (OLF) for workers who were in each of six employment categories in February 2020, at the onset of the pandemic: employed in the public sector; in a formal private job (defined as having social security or a contract); in an informal job (defined as lacking social security or a contract) inside an establishment, those in an informal job working outside an establishment,[15] those who were

[13] Farmer; Business owner/self-employed; Unpaid family worker on a farm; Unpaid family worker; Wage worker for Government/Public sector; Wage Worker for a private sector/NGO; Unemployed/searching; Inactive.

[14] Available on request. Workers' selected characteristics at the end of February 2020 must be imputed using values in waves 1–5 as follows: Workers' (non-integer) age is derived from the (integer) age as of the actual survey date (survey try date 1, 2 or 3), using the time span between 15-February 2020 and the survey date. Education, and household size, composition and residency are assumed to be unchanged. The COVID policy-stringency index for end-February is taken to be 0 for both Egypt and Jordan.

[15] Studies have found that informal workers outside establishments are among the most vulnerable in MENA, and we therefore consider splitting informal workers by whether they work in outside an establishment to get a better idea about how each group fared.

unemployed, and those who were OLF. Figure 1a depicts the results over time during the three survey waves available for Jordan: February 2021, June 2021 and August 2021, relative to status in February 2020, differentiating workers by age and sex. A year after the onset of the pandemic (February 2021), youth women were the most adversely affected, either being more likely to become unemployed or to exit the labor force all together, followed by non-youth women. Informal workers outside establishments were also more likely to become unemployed or to exit the labor force, regardless of age and sex, but again youth women were hardest hit in that category. By June and August 2021, somewhat of a recovery occurred, with fewer women OLF and lower unemployment, but for youth men who had been informally employed in February 2020, larger shares had become unemployed than earlier in the pandemic.

For Egypt (Figure 1b), results again confirm the strong impact on youth women in February 2021, being the most likely to become unemployed regardless of initial status or to exit the labor force, followed by non-youth women. By June 2021 non-youth women in the formal private sector were the most likely to become unemployed if they had been working in that sector in February 2020, but non-youth women remained the most likely to be adversely affected if they had been in an informal job (whether inside or outside an establishment) in February 2020.

Figure 2 delves deeper into the employed groups to get a sense of transitions over time between employment categories. For both countries there seems to be very little transitions to other employment statuses-if workers do not remain in their original employment category they end up either unemployed or OLF, and there does not seem to be much difference by age or sex. The only exception is Jordan in June 2021 (Fig. 2d) where about 10 percent of youth men and women who had been in informal private in establishment in February 2020 transition to informal private out of establishment. But at the same time a few “moved up” to formal private sector jobs (12% of youth men and 17% of youth women).

Figure 3 presents the labor market experiences of those who were wage workers in February 2020. The survey asked these workers whether they had experienced temporary or permanent layoffs, decreased hours or where no longer wage workers over the previous 60 days. For each wave we first present the results for the whole sample and then split by age and sex. In February 2021 in both countries (Fig 3a) public sector workers were least likely to be affected in general and the most prominent experience was in the form of reduced hours (19% in Jordan and 30% in Egypt). Digging deeper within those numbers (Figure 3b), these were mostly non-youth women. Informal workers in both countries were more likely to be affected by all these changes than formal private workers and especially those informal outside establishments who were very likely to face temporary layoffs. Within that group high shares of youth men in particular in both countries faced temporary layoffs. By June 2021 (Figures 3cd) the situation seemed to have improved somewhat in Jordan compared to Egypt where many more workers continued to face decreased hours and temporary layoffs. Women of all ages were particularly vulnerable to temporary layoffs in Egypt. In August 2021 (Figure 3e; only data for Jordan are available), no longer being a wage worker, either exiting the labor force altogether or transitional to nonwage employment is the most

prominent experience and it was particularly women in informal employment both youth and non-youth.

Logit regressions

Tables 1–2 report on the dynamic logistic regressions estimated on pooled survey waves, separately for the two genders and the two countries. The estimates shown in tables 1–2 are for the average marginal effects (AME), as explained in section III.2. Positive AMEs imply an increase in the probability of an employment status due to an increase in x_{it}, while negative AMEs imply a reduction. The first left six columns of tables 1–2 report on the multinomial logit regressions of workers' employment status, for men (columns 1–3) and women (columns 4–6) separately. The last columns (7–8) show the results of the simple logit model of the probability of a layoff.

Table 1 confirms that the COVID regime *stringency* has the expected negative effect on Egyptian men's labor force participation and employment prospects. Among both genders, youths are surprisingly shown to have been weakly more likely to be economically active and employed than non-youths (without the interaction effect of the pandemic), but their prospects deteriorated under the tightness of the COVID regime more than among non-youths. The marginal effects of the *youth*×*stringency* interaction term are negative and higher in magnitude than those of *youth*. This confirms our hypothesis that youths are particularly adversely affected under COVID. The logit regressions of workers' experience of being laid off in the past 60 days (columns 7–8) confirm these findings among men, but not among women, where the estimates are of the opposite sign.

The rest of estimates in table 1 are of the expected sign, and highlight the importance of higher education for workers' ability to attain and hold secure jobs. However, workers' status in February 2020 is also important at explaining their outcomes amid COVID, confirming the high degree of state-dependence in worker's employment outcomes, and the difficulty for workers to exit vulnerability.

Table 2 shows similar trends for Jordan. Stringency of the COVID regime is seen to affect negatively the employment and labor-participation prospects of both men and women. Like in Egypt, Jordanian youths of both genders are estimated to have had better prospects in the absence of COVID, but are affected more by the stringency of the COVID regime. This is consistently so across all columns of table 2. Like in Egypt, education appears to be a pathway toward secure employment and toward dodging a layoff, but workers' pre-COVID status casts a shadow over their prospects amid the pandemic.

Taken together, these results support our main hypothesis about the respective effects of the COVID regime stringency on youths' and non-youths' employment outcomes. Gender differentials, by contrast, are unclear and remain to be established in future studies.

Propensities for changes in employment status across distinct phases of COVID

Using the results from tables 1–2, figures 4–7 illustrate the estimated probabilities of the respective employment outcomes for youths versus non-youths and women versus men, across different phases of the pandemic. The estimates shown are the medians in each age-cohort and sex group during each week. The dynamics in these estimates over time are due to the time-varying nature of policy stringency (including its interaction with the youth status) and to time trends. Since these are medians, they are not unduly affected by the rare changes in the residence, education and youth status of a small fraction of workers, or by attrition or introduction of refresher samples.

The time spans and samples covered in the figures are restricted to those appearing in the respective regressions. In figures 4–5, the focus is on the propensities for changes in workers' employment outcomes among workers at risk of such changes (Couch and Fairlie 2010). The samples are restricted to groups for which the outcomes are most pertinent: probability of becoming employed is shown only among those currently unemployed or OLF (speculating that they are presently discouraged but available; figures excluding those OLF are nearly identical), and probability of layoff is shown only among those currently employed. For reference, figures 6–7 show the probabilities of all employment statuses for the full sample used in regressions.

Figure 4 shows that, among presently unemployed and OLF workers, the prospect of becoming employed differs dramatically in its level between women and men, and in Egypt has been further diverging since June 2021. By contrast, there is little difference in probabilities between youths and non-youths: among men, non-youths appear to slightly outperform youths in their prospect of becoming employed (non-youths' estimates are higher), while among women, the difference is nonexistent or is even overturned.

In Egypt, the job prospects of non-youth males stagnated during the period summer 2020–spring 2021, and only started rising in June 2021. Youth males had a notably lower probability of becoming employed in June 2020, but have caught up and kept toe with the non-youth males since the start of 2021. Among women, youths lagged behind non-youths until February 2021, but have since surpassed them. In Jordan, the record is more volatile, with the prospect of hiring peaking in June 2021 before subsiding again in August. Youth males continue lagging behind non-youths throughout the year. Among Jordanian women, like in Egypt, youths lagged behind non-youths in the spring of 2021, but since July have surpassed them.

Figure 5 shows two alternative measures of the estimated propensities of a job loss, from the multinomial logit models of workers' employment status, and from the simple logits of workers' layoffs, respectively. In figure 5.*i–ii*, employed women of both age cohorts are shown to have a substantially higher propensity to switch to the status as unemployed/OLF compared to men. In Egypt, the propensity of male workers of both youth and non-youth cohorts to lose their employment are shown to drift down during the entire evaluation period. Egyptian female workers of both cohorts experienced a reduction in the probability of losing their employment until May 2021, but the probability has increased since. In Jordan, men's probability of losing their

employment has been volatile, bottoming out in June 2021 and gradually picking up since, while women's probability has been slowly falling. Jordanian male youths have consistently lagged the non-youths in the level of the probability, while among Jordanian women, the youths were somewhat privileged.

Figure 5.*iii*-*iv* shows that, among presently employed workers, youths of both sexes have a consistently higher propensity to be laid off than older workers across both countries and all survey waves. The gaps between youths and non-youths in Egypt further appear to have grown between early and mid 2021. Women's and men's propensities are difficult to rank. In sum, taking the subfigures in figure 5 together, they provide evidence that male youths face elevated risks of being laid off compared to their non-youth counterparts. For women, estimates of the youth–non-youth gaps differ between panels *i*–*ii* and *iii*–*iv*, with only the latter panels pointing to clear gaps favoring non-youths. By contrast, sex gaps favoring males are clear in panels *i*–*ii*, but unclear in panels *iii*–*iv*.

For completeness, figures 7–8 show the predicted probabilities of attaining each of the three employment statuses (employed, unemployed, OLF) across the age cohort and sex divides, using the full regression samples. These graphs confirm the catching up of male youths to the stagnating male non-youths in Egypt, and the advantage that female youths have over older women, in terms of both the level and the trend. In Jordan, male youths and non-youths fare similarly, with their employment prospects peaking in June 2021 and then slightly falling. Jordanian women of both age cohorts have a low probability of landing jobs. This probability peaked in July or August, and has abated since. Interestingly among Jordanian women, youths are significantly more likely to search for jobs if they are not employed, and thus less likely to remain OLF.

Model robustness tests

The dynamic multinomial logistic model applied here has many theoretical and empirical merits, but some limitations and potential pitfalls should be acknowledged. This section discusses the potential issues and, where available, reports the results of tests and alternative estimations.

Most saliently, while the majority of explanatory variables in multinomial logit regressions are significant when evaluated jointly across the columns, meaning that the variables belong in the model, many of the AMEs in individual columns are insignificant individually, meaning that the corresponding variables may have positive or negative effects on particular employment outcomes. There are several explanations for the weak results. One, the inclusion of both youths and non-youths – and other groupings across demographic divides, such as workers with dependents and those without – in the same models confounds the differential impacts on prime-age workers (as child-carers and caretakers) and recent graduates (as, say, loosely attached workers or marriage-market aspirants). The main specifications in tables 1–2 were thus supplemented by models disaggregated along important demographic lines. The regressions were run separately for youth and non-youth, as well as for those starting in formal, informal, or inactive employment statuses (Tansel and Ozdemir 2019). Interaction terms of education/experience with the demographic

indicator (e.g., youth) were also evaluated. These supplementary models produced similar results, broadly validating the main specifications.

Two, the lack of controls for panel dynamics, such as worker fixed effects, introduces small possible biases due to sample selection and attrition. While we have considered individual-level fixed-effect specifications, their viability is affected by the limited time dimension of data. Three, the joint use of youth status, time trends, and sluggishly evolving COVID stringency in regressions leads to some collinearity among covariates, which affects the reliability and efficiency of relevant coefficients. Alternative sets of covariates and sample compositions were considered, as follows: The counts of children under 6 years, and school-age children, either separately or jointly; linear and quadratic potential experience (*age–16.5* for youths, *age–29* for non-youths – denoted as age–min[age]); marital status; log household size.[16]

Regarding structural properties, the dynamic models in tables 1–2 have several potential limitations. One, they exclude wave 0 from the analysis, and their estimates (as in 'x×y covariances') are thus based on lower sample sizes. Two, the lagged dependent variables among regressors assume great explanatory power at the expense of other time-invariant or slow-motion underlying factors such as education, which may be causally more responsible for employment outcomes. An alternative static specification without lagged dependent variables, using February 2020 as an additional survey wave, has been estimated and the results are available on request.

Three, a critical assumption for the validity of the multinomial logistic model is independence of irrelevant alternatives (IIA) – the ratio of the probabilities of any two statuses should be independent of the set of possible options. Clear violations of this assumption can be identified using the Hausman tests (Hausman and McFadden 1984). In our case, these tests fail to reject the IIA assumption in all country sex-group regressions, implying that the estimates are not clearly systematically affected by the exclusion of any one of the outcomes from the analysis. For completeness, the selected logit regressions outperform or perform as well as equivalent probit specifications in terms of R-squared and other measures of fit.

Given the different availability of employment statuses across survey waves, supplementary regressions also considered alternative sets of dependent variables, namely: 1) public/private sector of employment; 2) informal/irregular/self/unpaid with or without regard for whether in/out of establishment; 3) COVID-induced status changes beside the permanent/temporarily job loss – hours change and pay change. Individual-level fixed effects were considered to mitigate any biases and heteroskedasticity in estimation due to latent heterogeneity across workers.

[16] Among the workers' additional family backgrounds – and the workers' associated responsibilities under the COVID crisis – several results stand out as candidates for follow-up analysis. Workers with children under 6 years of age are as likely as or more likely to be economically active than others, while those with school-age children are significantly less likely to be so. This holds across the majority of employment categories, and workers with school-aged children are also less likely to search for work if not currently employed.

V. Conclusions

This study strived to bring attention to the impacts of the COVID crisis and of government responses to it on the trend in employment outcomes of MENA workers, particularly focusing on the vulnerability of employment among youths and women. We confirm that the stringency of the COVID regime has had the expected negative effect on employment and labor force participation in both Egypt and Jordan, and that youths were particularly adversely affected amid COVID. Sketching the employment prospects of workers to post-pandemic times, as of July–August 2021, men's employment prospects were recovering from the pandemic shock of the early 2021. Male youths' progress was less pronounced. Women have witnessed more of a stagnation of their status by being largely excluded from work opportunities.

This is not to say that government responses to COVID have necessarily been excessive, or that without them the pre-COVID conditions would have persevered. Rather, our conclusions are forward-looking and point to the need to assist those most vulnerable to the lasting COVID effects and other future shocks, especially those knocked off their feet by the crisis. While our results are typically weak statistically, they are valuable as a yardstick for policy advocacy, and for more advanced, disaggregated analyses as more data become available.

Our analysis also points toward several important factors behind workers' employment vulnerability amid COVID. Skills as measured by education take the central stage at improving workers' employment prospects. Workers' distance from labor markets in the countries' key cities is also critical, and suggests that transportation and housing policies could be critical components of the efforts to promote effective matching and inclusivity in countries' labor markets. The regionality of employment impacts is also a sign that local policy measures may supplement national responses to support workers.

Our results suggest that, when a local economic sector goes through mass layoffs, those dismissed face an uphill battle transitioning to other sectors or vacancies to which they could be adequately matched. The impacts differ clearly by age and sex. Lack of employment protection of informal workers, and weak anti-discriminatory provisions and enforcement in MENA countries perpetuate the precarious labor market standing of vulnerable groups. Their economic participation shrank, as those demoted or fired have become unable to get rehired with their limited skills, or have become discouraged from job-searching. Our evidence suggests that the employment prospects of youths have trailed behind those of their older counterparts supporting the 'last in' hypothesis.

While our analysis does not estimate this explicitly, we can surmise that the countries' expansion of their pre-existing social-protection programs during the pandemic is contributing to the alleviation of workers' suffering, and the recovery in employment opportunities. In fact, social protection programs provided an important safety net in the MENA even before the onset of the COVID pandemic. Takaful and Karama in Egypt, and UNHCR cash transfers to Syrian refugees in Jordan helped to alleviate poverty, and helped workers weather periodic storms and remain employable. During the pandemic, countries expanded their pre-existing programs, for instance

expanded eligibility in Egypt's Takaful and introduction of new benefits to irregular workers (Krafft et al. 2021).

The upshot from the available evidence is that in summer 2021 the recovery gradually began from the COVID-induced employment shocks of the preceding 18 months, and has eventually swept in even youth workers. With the lessons learnt and with the continued support from social-protection and employment-promotion schemes, Egypt and Jordan can aspire to not only defeat the pandemic but also move beyond the notoriously precarious, fragmented and inequitable state of their labor markets.

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Table 1. Logit regressions on pooled survey waves with lagged dependent variables, Egypt

	Multinom. logit of empl. status: men			Multinom. logit of empl. status: women				
	Employed	Unempl. looking for work	Out of the labor force	Employed	Unempl. looking for work	Out of the labor force	Logit of layoff: men	Logit of layoff: women
Stringency	-.562	.499	.064	.500	-1.481**	.981	-5.210***	1.191
	(.496)	(.455)	(.320)	(.540)	(.647)	(.758)	(1.487)	(3.144)
Youth	.097	.045	-.141***	.026	.025	-.050	-.075	.810
	(.077)	(.070)	(.052)	(.080)	(.148)	(.126)	(.476)	(.902)
Youth × stringency	-.139	-.074	.213***	-.023	-.055	.078	.239	-1.058
	(.110)	(.104)	(.068)	(.117)	(.231)	(.186)	(.816)	(1.571)
Secondary education	.037**	-.033**	-.004	.018	.060**	-.078***	-.103**	-.371***
	(.016)	(.015)	(.010)	(.017)	(.026)	(.026)	(.044)	(.127)
Higher education	.096***	-.059***	-.037**	.029	.051	-.080**	-.205***	-.480***
	(.020)	(.017)	(.015)	(.020)	(.033)	(.034)	(.047)	(.129)
Alexandria	-.019	.025	-.005	.040	.015	-.055	-.041	.047
	(.030)	(.030)	(.021)	(.040)	(.042)	(.046)	(.071)	(.169)
Canal Cities	.024	-.038	.014	.027	.045	-.072	-.064	-.241
	(.058)	(.035)	(.050)	(.038)	(.069)	(.073)	(.141)	(.183)
Urban Lower Gov.	-.015	.019	-.005	-.040	.033	.008	-.034	-.309***
	(.027)	(.024)	(.015)	(.028)	(.046)	(.042)	(.062)	(.099)
Rural Lower Gov.	-.027	.011	.016	-.029	.038	-.009	-.095	-.092
	(.027)	(.024)	(.017)	(.024)	(.044)	(.045)	(.060)	(.139)
Urban Upper Gov.	-.012	-.009	.021	-.016	.040	-.024	-.058	-.256**
	(.022)	(.019)	(.014)	(.020)	(.040)	(.041)	(.054)	(.103)
Rural Upper Gov.	-.013	.010	.004	-.014	.041	-.027	-.012	-.236*
	(.023)	(.020)	(.014)	(.021)	(.041)	(.042)	(.056)	(.126)
Frontier Gov.	.059	-.047	-.012	-.050*	.138	-.088	.264**	-.364***
	(.037)	(.030)	(.028)	(.028)	(.102)	(.100)	(.126)	(.107)
Time trend (quarters)	-.076	.082	-.006	.062	.047	-.109	2.355***	-.092
	(.054)	(.050)	(.033)	(.061)	(.080)	(.089)	(.660)	(1.533)
Time trend squared	.010*	-.010**	-.000	-.005	-.018**	.022***	-.381***	.031
	(.005)	(.005)	(.004)	(.006)	(.008)	(.009)	(.103)	(.241)
Informal/Self-emp/ Unpaid, Feb '20							.297***	.268***
							(.030)	(.064)
Unemployed, Feb '20	-.587***	.506***	.081**	-.819***	.766***	.053	.299	
	(.041)	(.047)	(.031)	(.024)	(.055)	(.054)	(.288)	
OLF, Feb '20	-.626***	.067**	.559***	-.777***	.115***	.661***	.357*	-.063
	(.033)	(.026)	(.037)	(.024)	(.023)	(.020)	(.183)	(.053)
Observations		3,595			1,994		1,472	281
(worker clusters)		(3,094)			(1,710)		(1,235)	(249)
Chi-squared		637.9***			534.2***		150.4***	49.8***
(deg.freedom)		(32)			(32)		(17)	(16)
Pseudo R-squared		.322			.413		.147	.276

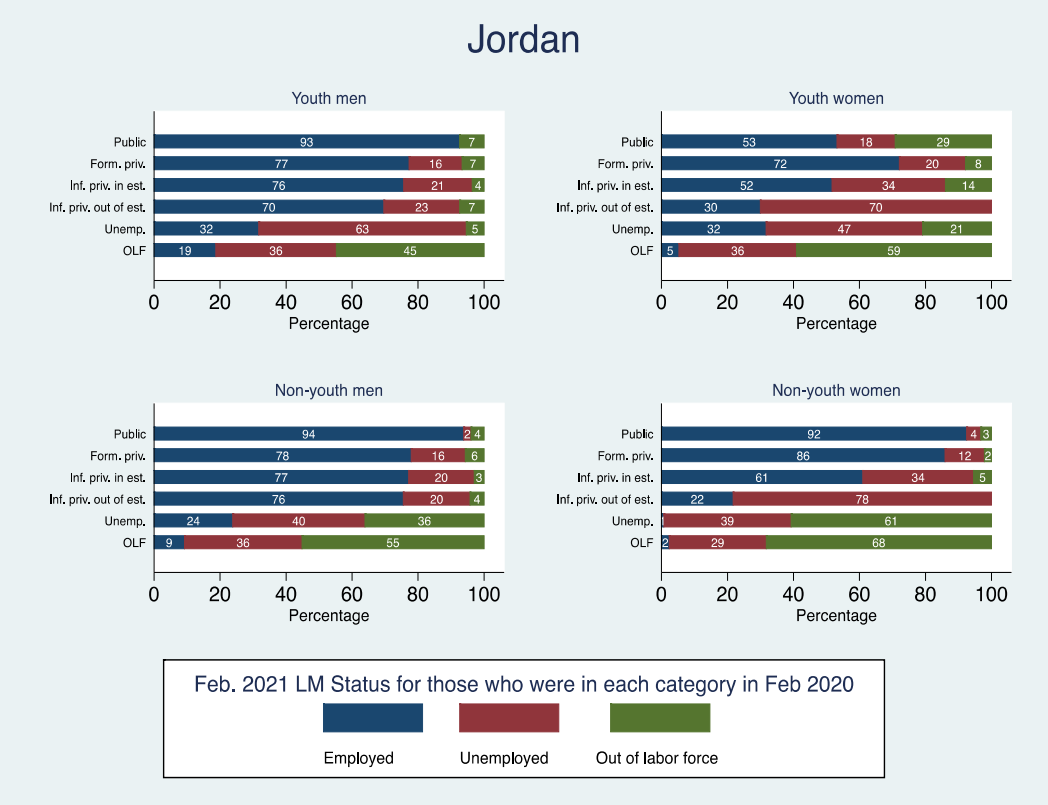
Source: Authors' calculations based on ERF COVID-19 Household Monitor, Egypt waves 1, 2, 4.
Notes: AMEs shown. Baseline group is the lower-educated workers in Cairo employed as of Feb. 2020. Samples weighted by individual-level weights. Heteroskedasticity-robust standard errors clustered at worker level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

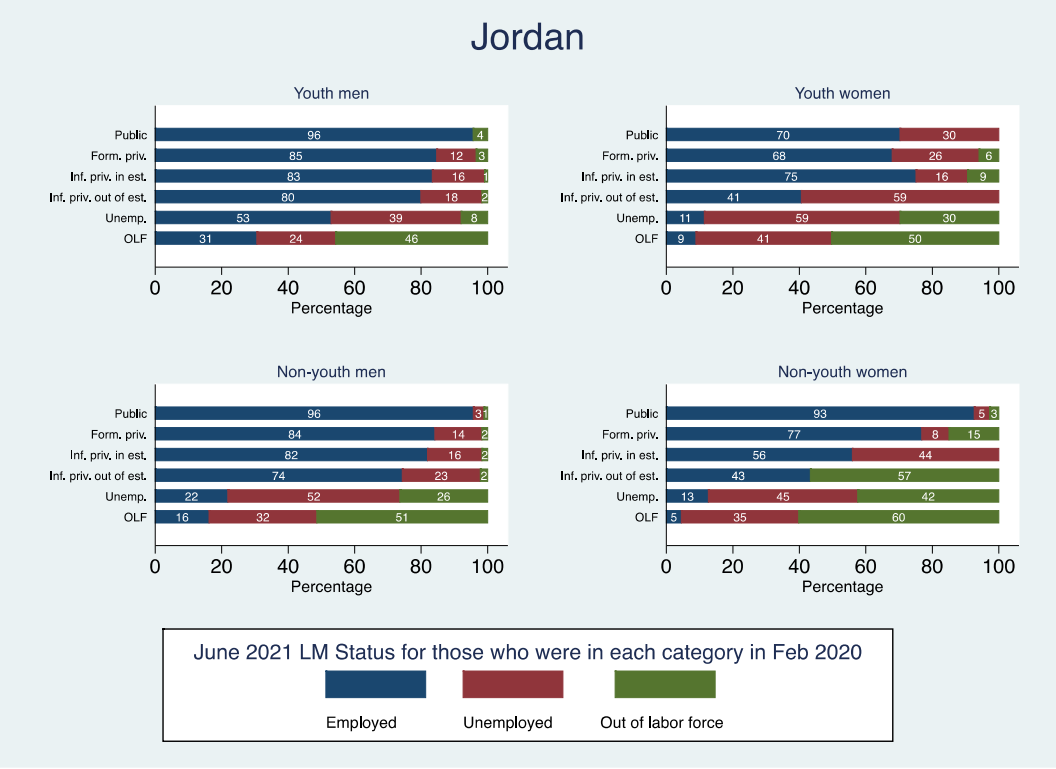
Table 2. Logit regressions on pooled survey waves with lagged dependent variables, Jordan

	Multinom. logit of empl. status: men			Multinom. logit of empl. status: women				
	Employed	Unempl. looking for work	Out of the labor force	Employed	Unempl. looking for work	Out of the labor force	Logit of layoff: men	Logit of layoff: women
Stringency	.704	-.750	.046	-.657	-.169	.827	-.223	-1.476**
	(.605)	(.565)	(.479)	(.428)	(.663)	(.654)	(.511)	(.665)
Youth	.023	.059	-.083	.104	-.005	-.099	-.047	-.172
	(.152)	(.145)	(.118)	(.129)	(.178)	(.177)	(.116)	(.175)
Youth × stringency	-.036	-.064	.100	-.179	.133	.047	.120	.375
	(.225)	(.215)	(.176)	(.197)	(.279)	(.274)	(.178)	(.270)
Secondary education	.045	-.019	-.026	.028	.031	-.059*	-.082***	.003
	(.028)	(.025)	(.021)	(.029)	(.033)	(.035)	(.021)	(.075)
Higher education	.087***	-.044*	-.043*	.035	.179***	-.215***	-.079***	-.081
	(.026)	(.026)	(.023)	(.024)	(.039)	(.037)	(.022)	(.063)
Amman/Balkka/El Zarkaa/Madaba, Rural	-.062***	.043***	.019***	-.021***	.130***	-.109***	-.062***	.026***
	(.003)	(.003)	(.002)	(.002)	(.003)	(.003)	(.007)	(.005)
Erbd/Elmafrk/ Gersh/Agloon, Urban	.060***	-.063***	.002	-.012***	-.040***	.052***	-.057***	.016***
	(.004)	(.004)	(.002)	(.001)	(.002)	(.001)	(.006)	(.003)
Erbd/Elmafrk/ Gersh/Agloon, Rural	.132***	-.029***	-.102***	-.057***	.076***	-.019***	-.041***	.007***
	(.006)	(.007)	(.009)	(.004)	(.003)	(.003)	(.004)	(.001)
El Kark/El Tofila/ Maan/El Akba, Urban	.076***	-.035***	-.041***	.051***	.030***	-.081***	-.052***	-.040***
	(.003)	(.004)	(.003)	(.005)	(.003)	(.003)	(.006)	(.008)
El Kark/El Tofila/ Maan/El Akba, Rural	.067***	.037***	-.104***	-.004***	.042***	-.037***	-.092***	.048***
	(.006)	(.006)	(.009)	(.001)	(.001)	(.001)	(.010)	(.008)
Time trend (quarters)	.522***	-.606***	.084	-.069	.189	-.120	-.089	-.409*
	(.199)	(.179)	(.156)	(.135)	(.204)	(.204)	(.162)	(.247)
Time trend squared	-.053**	.067***	-.014	.002	-.022	.020	.004	.033
	(.021)	(.020)	(.018)	(.016)	(.024)	(.024)	(.019)	(.027)
Informal/Self-emp/ Unpaid, Feb '20							.151***	.161***
							(.024)	(.041)
Unemployed, Feb '20	-.481***	.318***	.162***	-.547***	.336***	.210***	.215*	
	(.044)	(.051)	(.054)	(.056)	(.065)	(.060)	(.112)	
OLF, Feb '20	-.583***	.219***	.364***	-.711***	.264***	.447***	.139	
	(.036)	(.035)	(.046)	(.033)	(.033)	(.028)	(.104)	
Observations		3,020			2,610		1,859	523
(worker clusters)		(1,941)			(1,678)		(1,281)	(381)
Chi-squared		461.4***			465.3***		136.7***	84.53***
(deg.freedom)		(28)			(28)		(15)	(13)
Pseudo R-squared		.233			.248		.154	.201

Source: Authors' calculations based on ERF COVID-19 Household Monitor, Egypt waves 1, 2, 4.
Notes: AMEs shown. Baseline group is the lower-educated workers in urban Amman/Balkka/El Zarkaa/Madaba employed as of Feb. 2020 (formally employed in simple logit). Samples weighted by individual-level weights. Heteroskedasticity-robust standard errors clustered at worker level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Figure 1a. Labor Market transitions from Feb 2020 to Feb 2021, June 2021 and August 2021, Jordan, by age and gender





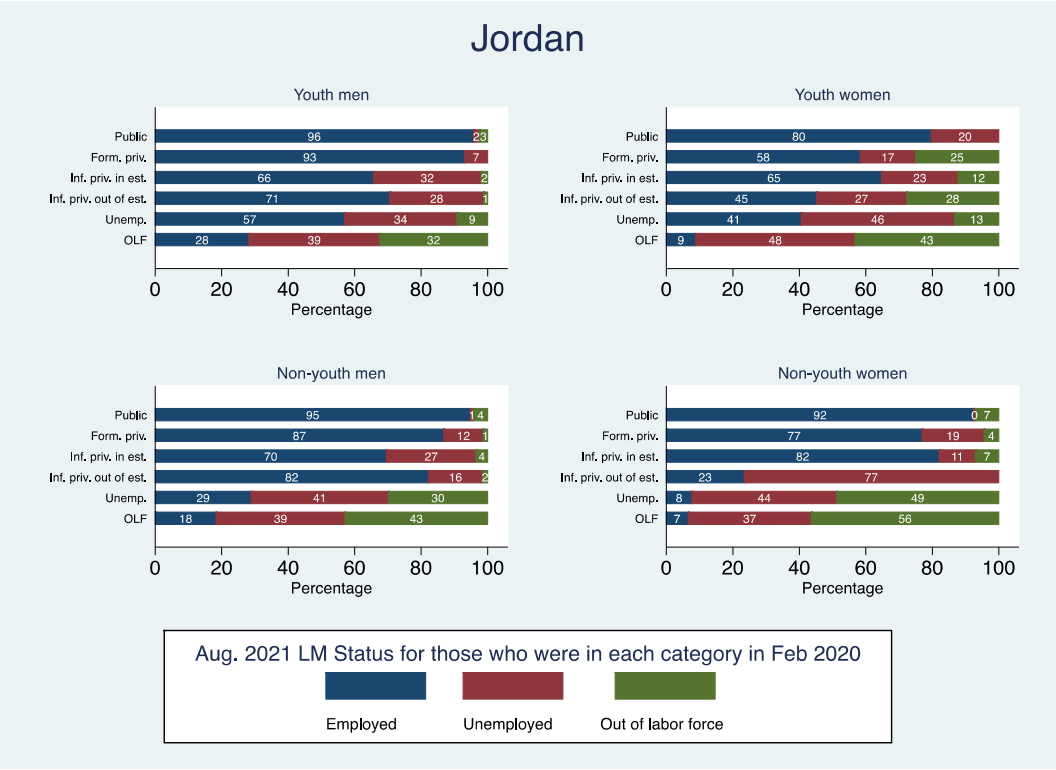
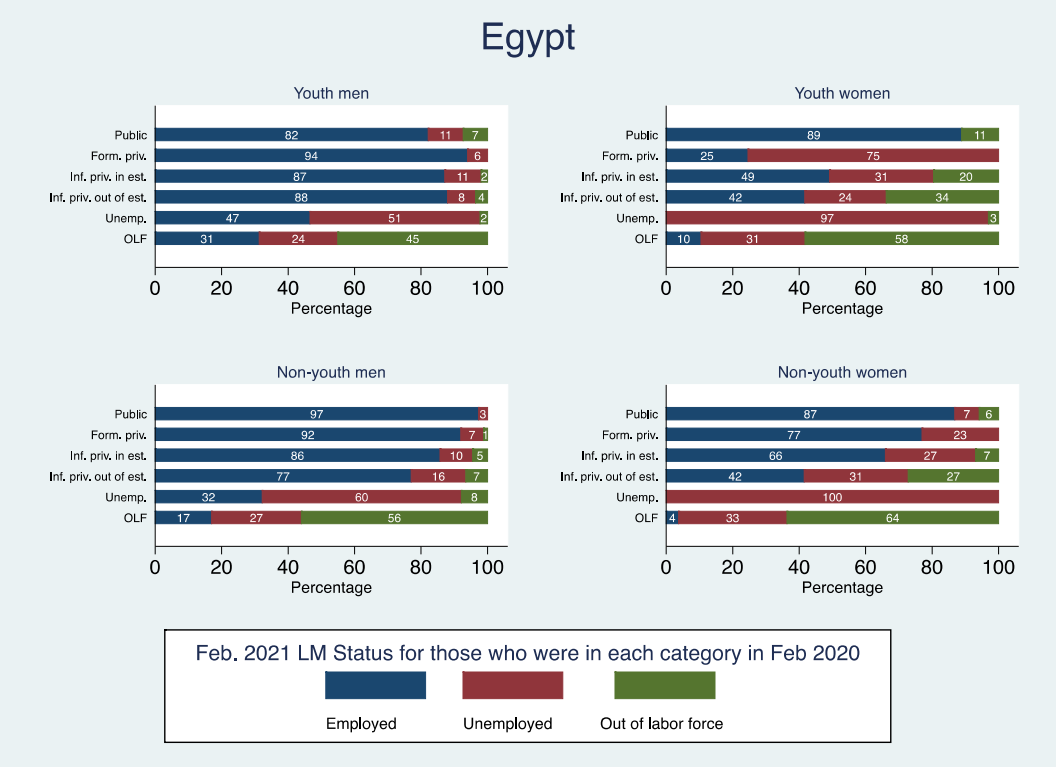


Figure 1b. Labor Market transitions from Feb 2020 to Feb 2021 and June 2021 Egypt, by age and gender



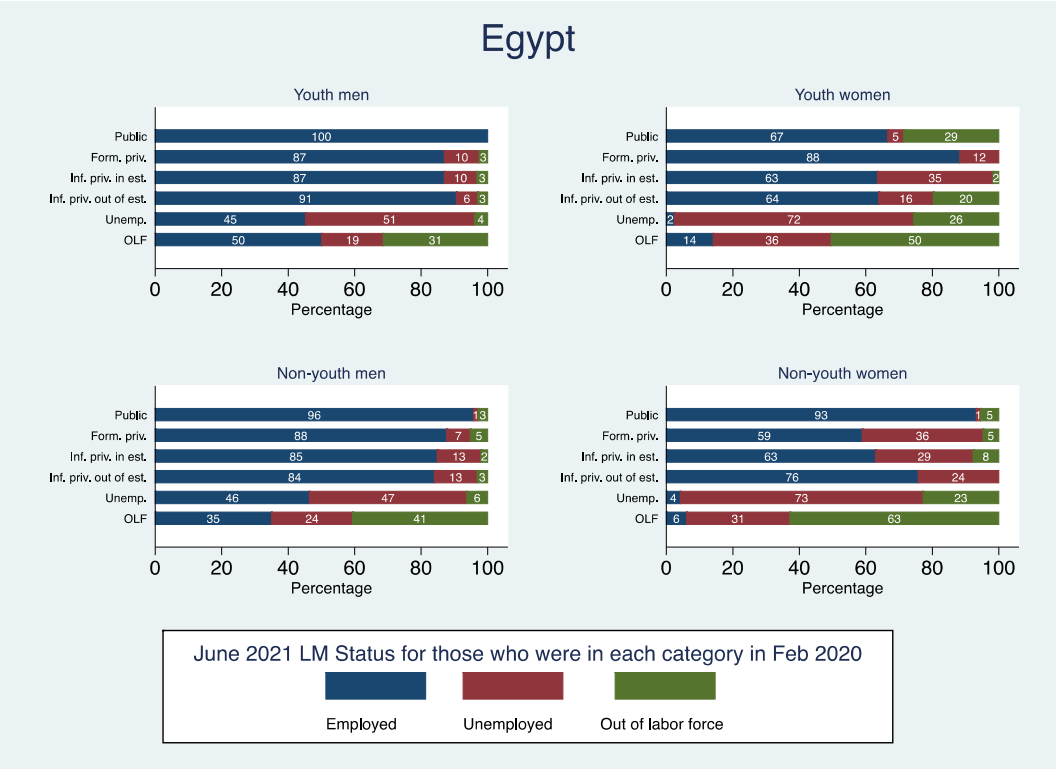


Figure 2a. Employment Status transitions from Feb 2020 to Feb 2021, Jordan, by age and gender

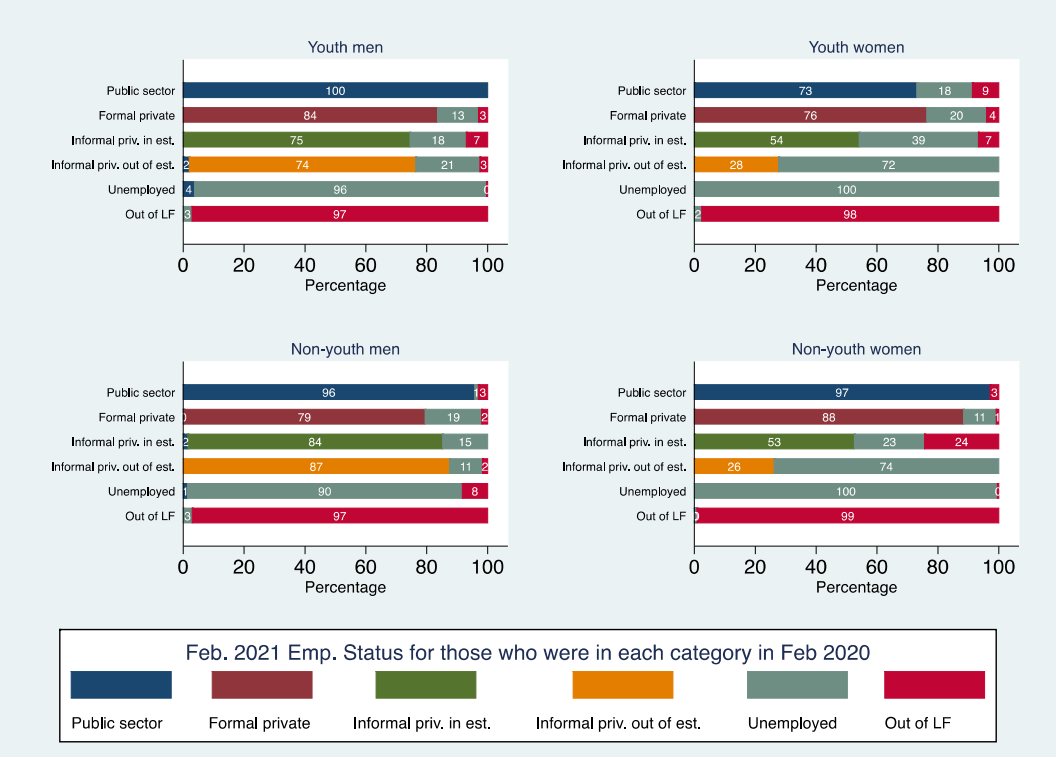


Figure 2b. Employment Status transitions from Feb 2020 to June 2021, Jordan, by age and gender

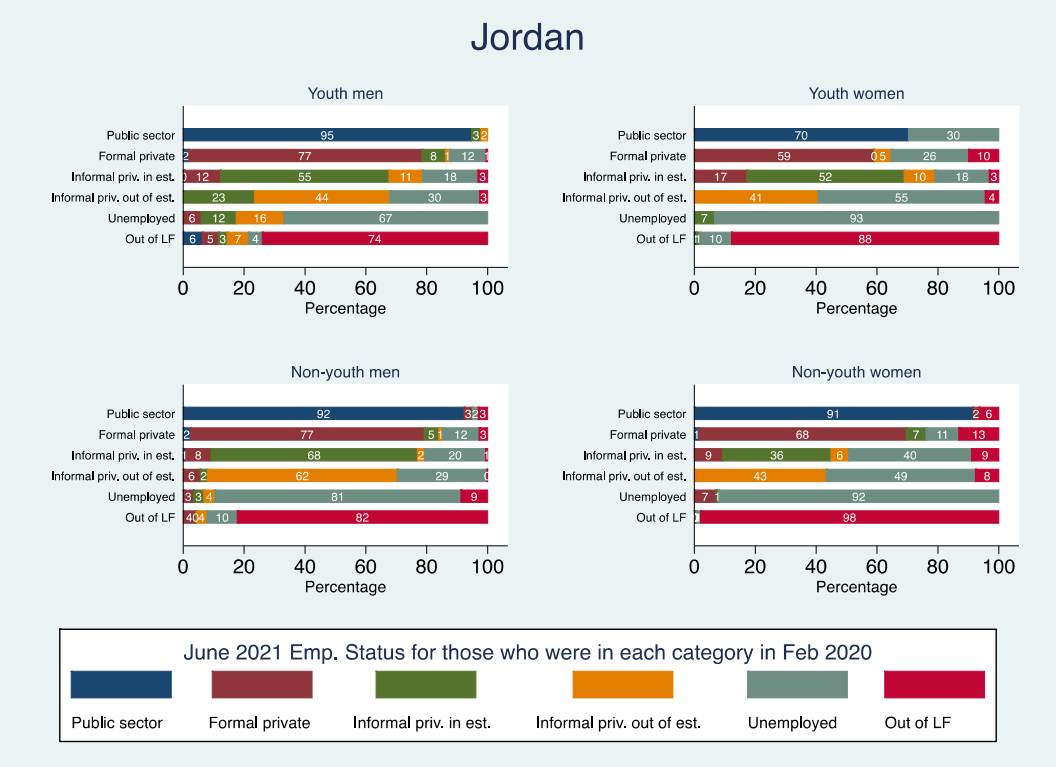


Figure 2c. Employment Status transitions from Feb 2020 to Feb 2021, Egypt, by age and gender

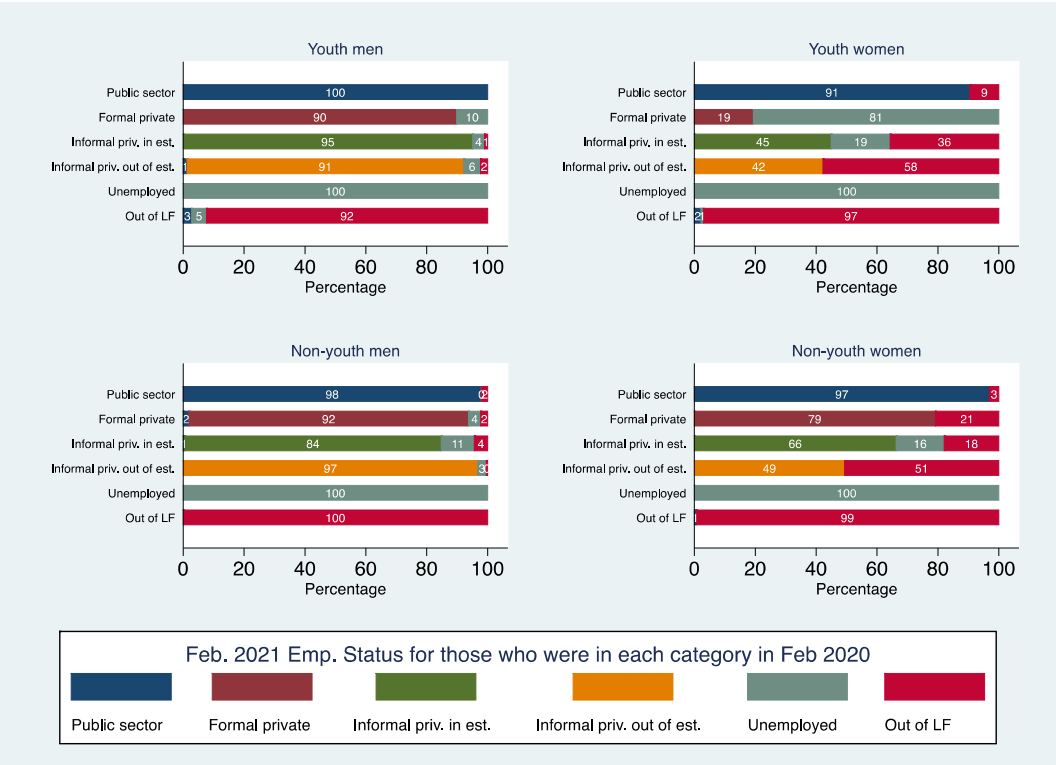


Figure 2d. Employment Status transitions from Feb 2020 to June 2021, Egypt, by age and gender

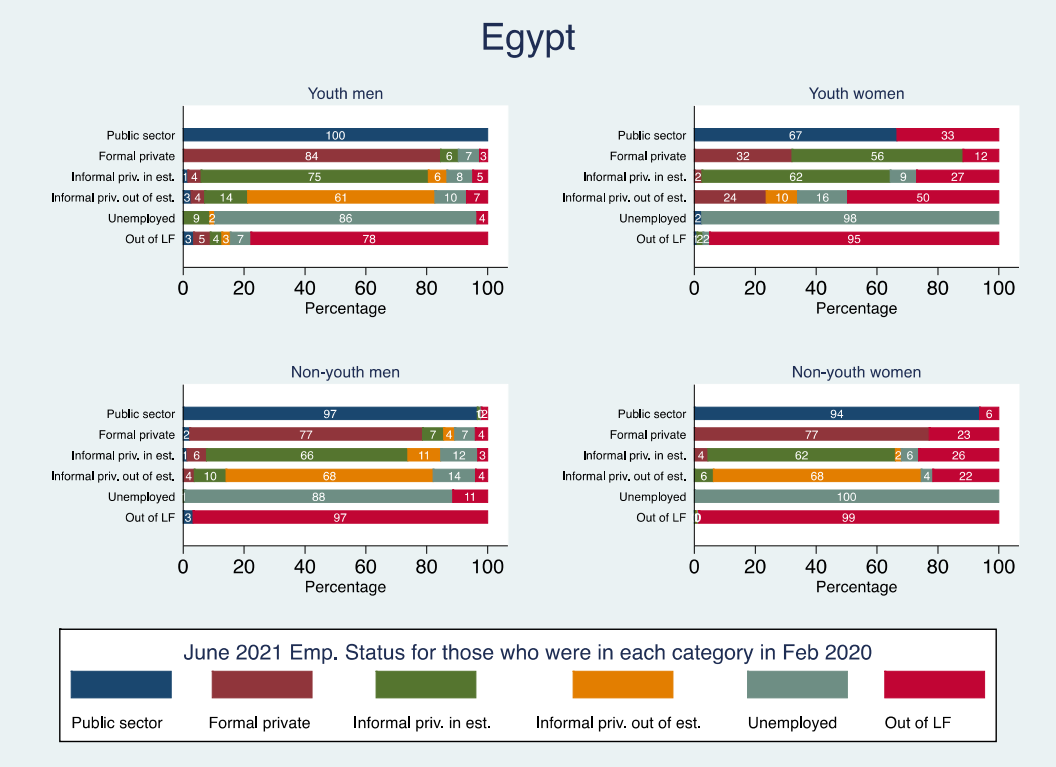


Figure 3a. Experience of Feb. 2020 Wage Workers in past 60 days from Feb. 2021

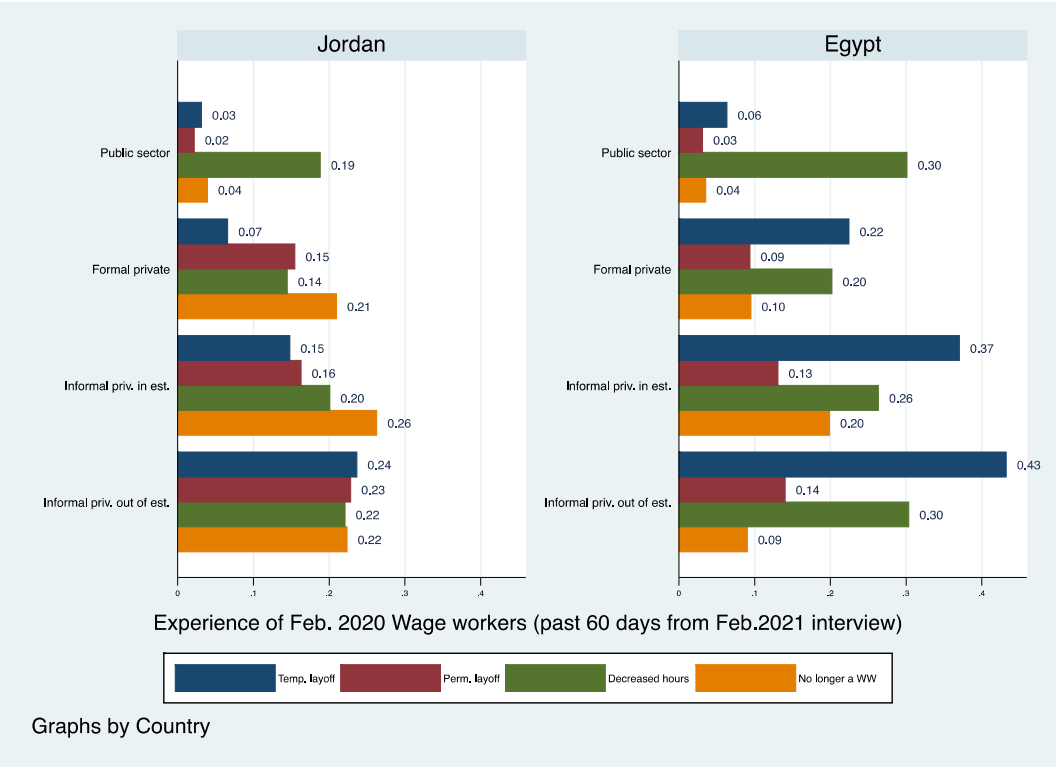


Figure 3b. Experience of Feb. 2020 Wage Workers in past 60 days from Feb. 2021 by age and sex

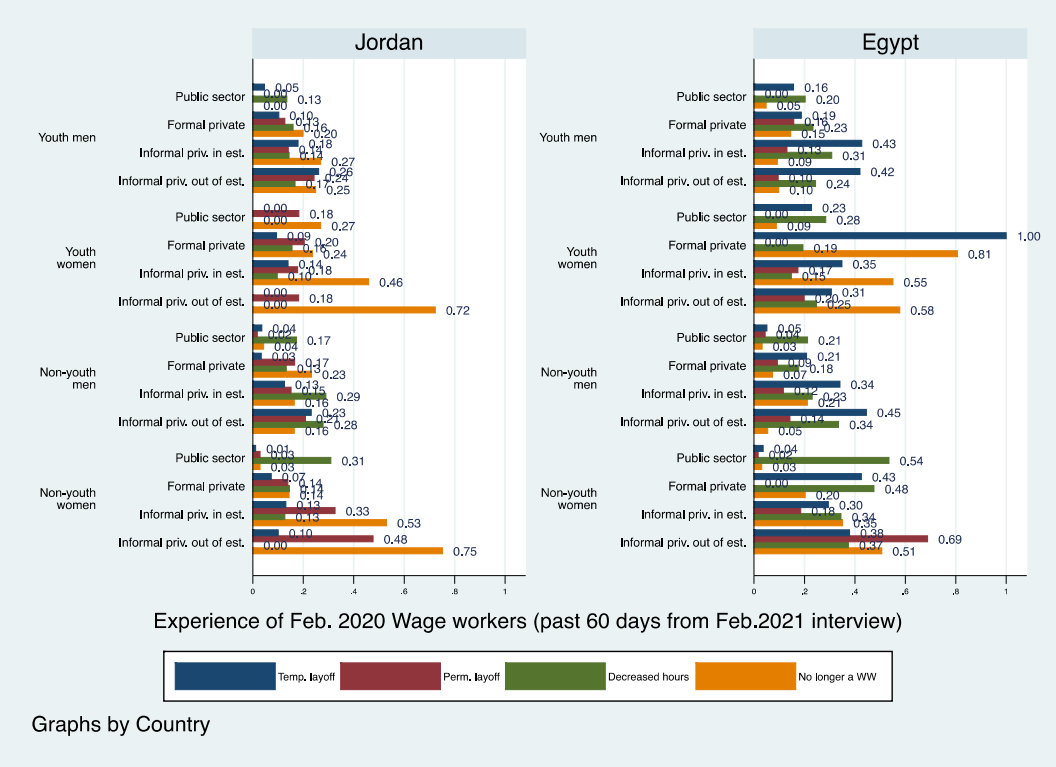


Figure 3c. Experience of Feb. 2020 Wage Workers in past 60 days from June. 2021

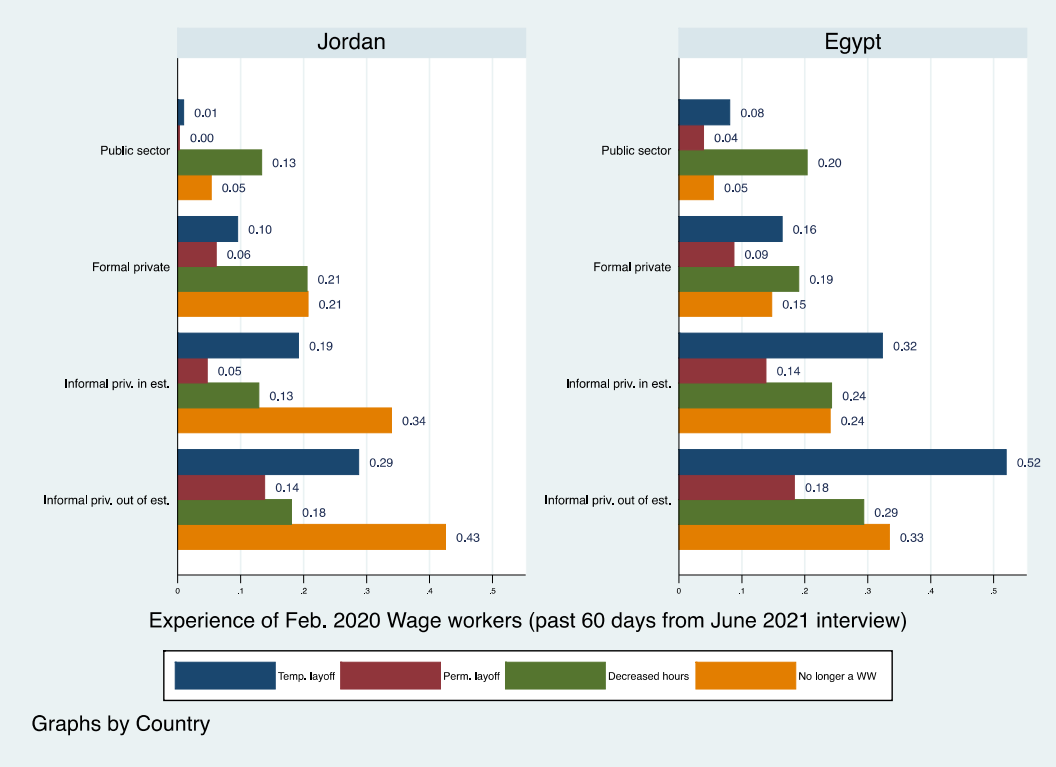


Figure 3d. Experience of Feb. 2020 Wage Workers in past 60 days from June. 2021 by age and sex

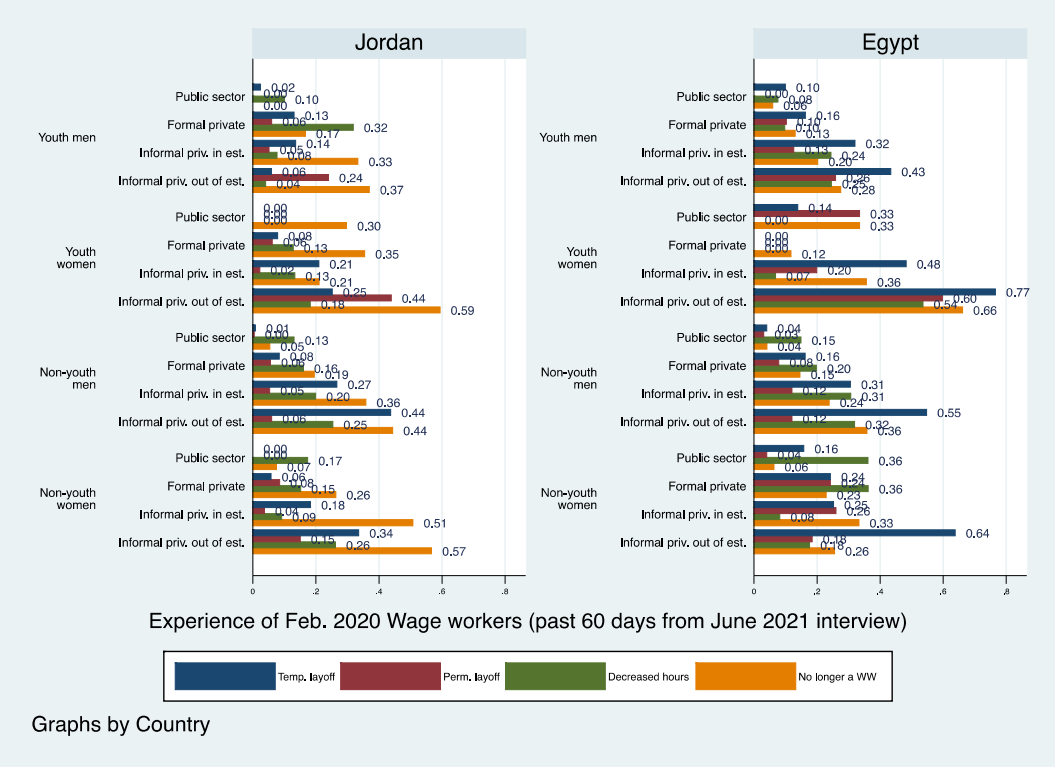


Figure 3e. Experience of Feb. 2020 Wage Workers in past 60 days from Aug. 2021, overall and by age and sex, Jordan.

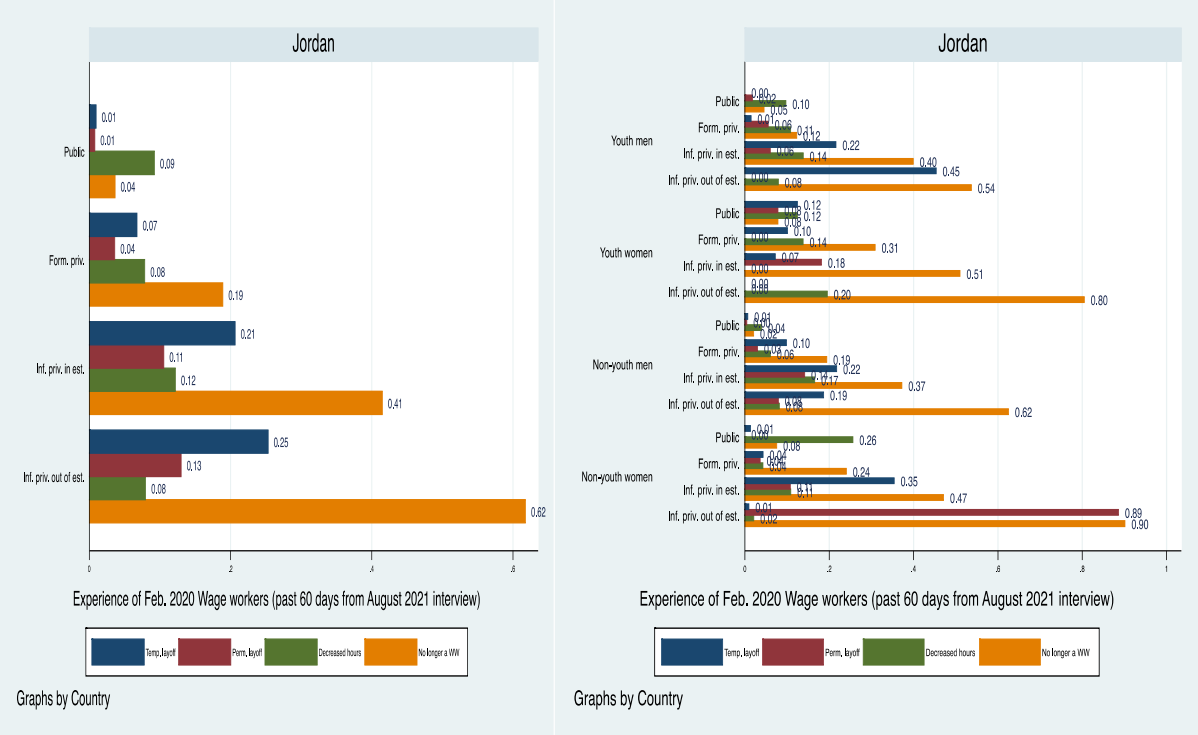
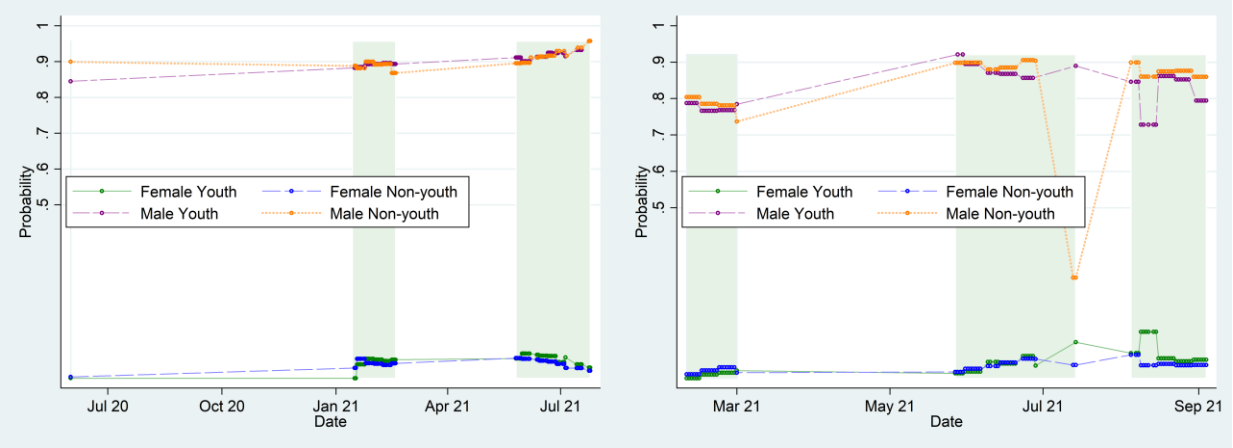


Figure 4. Propensity to become employed, by date

i. Egyptian unemployed & OLF workers

ii. Jordanian unemployed & OLF workers

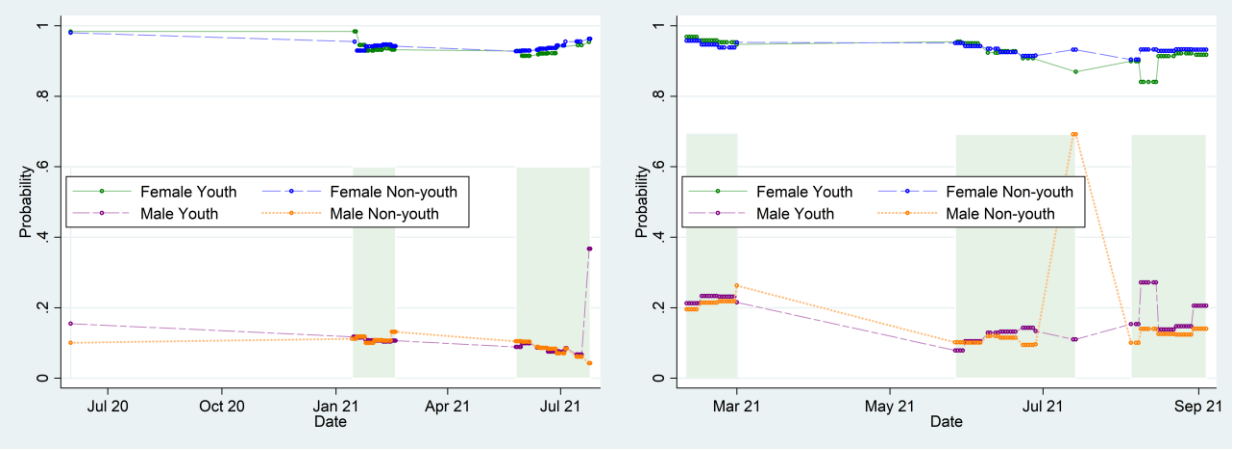


Source: Authors' calculations based on ERF COVID-19 Household Monitors, waves 1–5.
Notes: Plotted probabilities during survey periods (shaded gray) are weekly medians, hence no time trend is observable within 7-day periods.

Figure 5. Probability of being laid off among those presently employed, by date

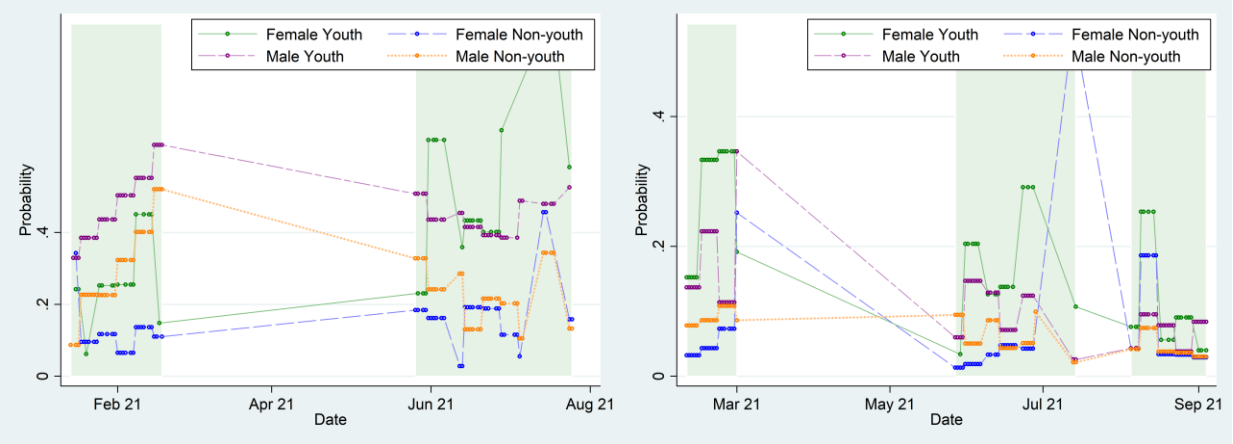
i. Becoming unemployed/OLF (multinomial logit), Egypt

ii. Becoming unemployed/OLF (mult. logit), Jordan



iii. Temporary/permanent layoff (logit), Egypt

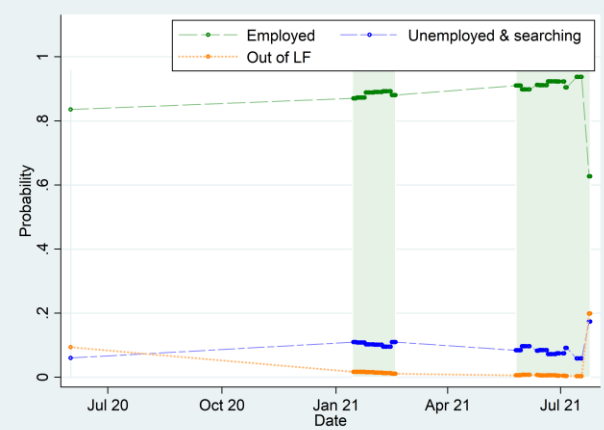
iv. Temporary/permanent layoff (logit), Jordan



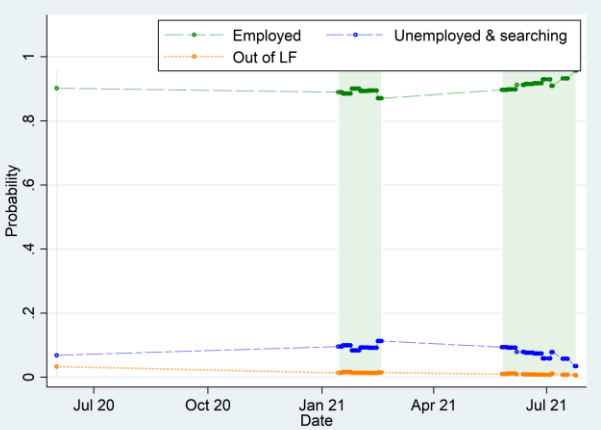
Source: Authors' calculations based on ERF COVID-19 Household Monitors, waves 1–5.
Notes: Plotted probabilities during survey periods (shaded gray) are weekly medians, hence no time trend is observable within 7-day periods.

Figure 6. Predicted probability of main job/activity by survey wave, Egypt, by age-group and sex

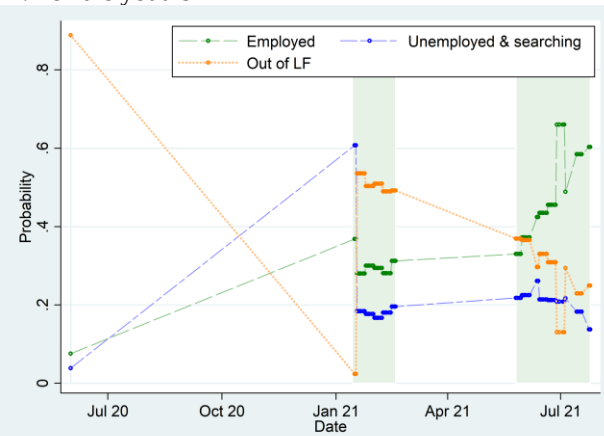
i. Male youths



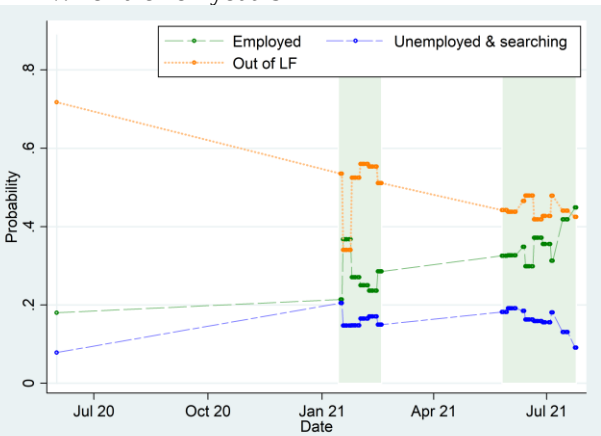
i. Male non-youths



iii. Female youths



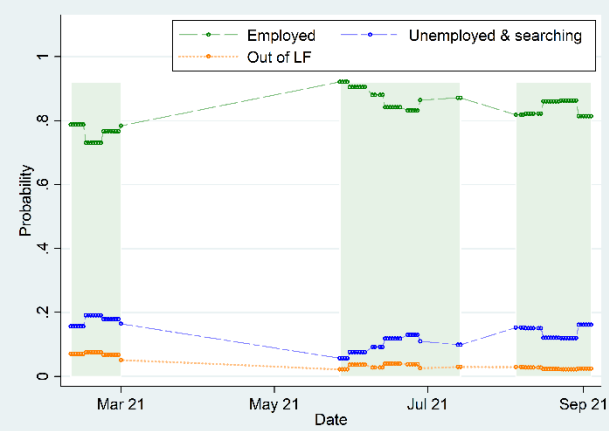
iv. Female non-youths



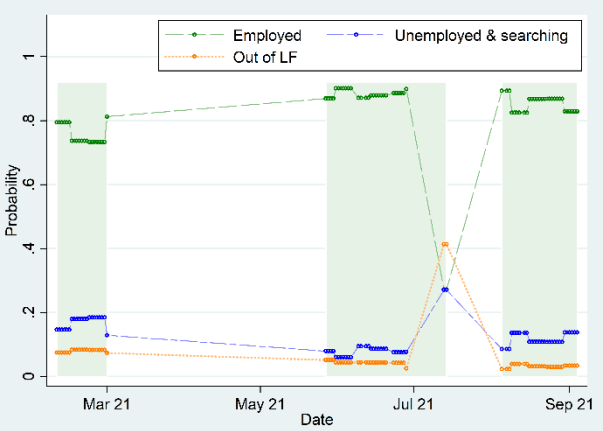
Source: Authors' calculations based on ERF COVID-19 Household Monitors, waves 1–4.

Figure 7. Predicted probability of main job/activity by survey wave, Jordan, by age-group and sex

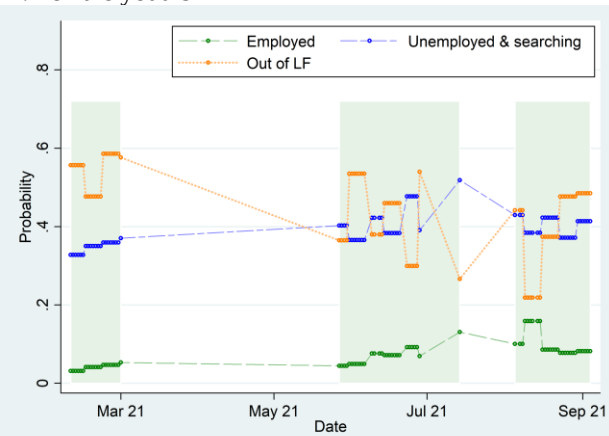
i. Male youths



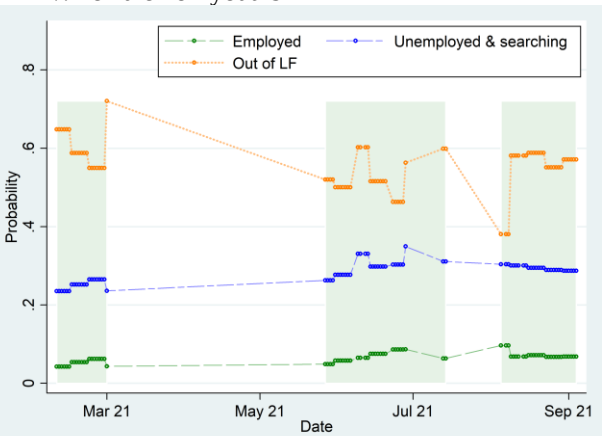
i. Male non-youths



iii. Female youths



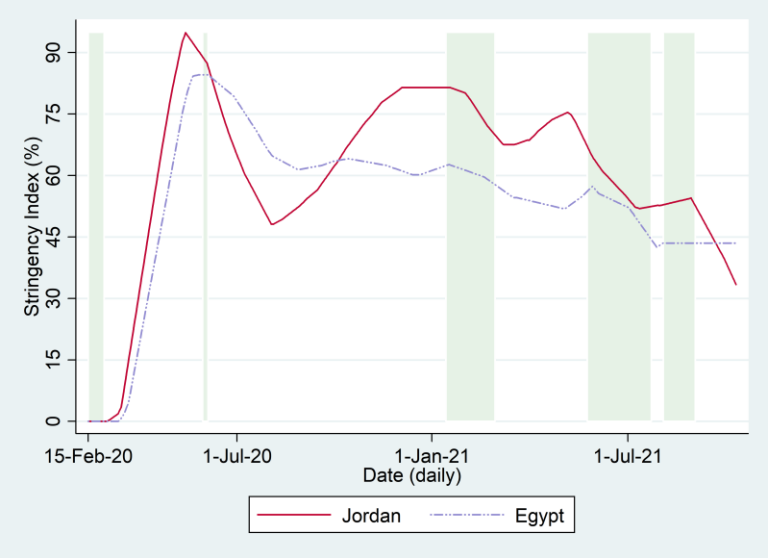
iv. Female non-youths



Source: Authors' calculations based on ERF COVID-19 Household Monitors, waves 1–5.

Appendix

Figure A1. Stringency index, 60-day moving average, by country and date



Note: Shaded areas show survey periods. Wave 0 occurred during end-Feb 2020; Wave 1 during June 2020 and during October–November 2020; Wave 2 during January–February 2021; Wave 3 during March–April 2021; Wave 4 during May–July 2021; Wave 5 during August–September 2021.