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Abstract

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Keywords: Return migration, intergenerational socioeconomic mobility, MENA.

JEL Codes: F22, O15, R23, J61, J62.

I. Motivation: Migration and Socioeconomic Mobility

To understand the roots of economic development and its distribution in society one must follow the mechanisms by which opportunities and outcomes accumulate over individuals' lifetimes and across generations (Solon 2014). These mechanisms involve dynamic complementarities through which economic returns to a worker's effort or investment – his or her capabilities – increase with the level of prior flows of effort and economic achievements. Societies where it is possible for individuals to move up the social or income scale are viewed positively from welfare and growth perspectives, since they give individuals an incentive to work hard. Indeed, any level of inequality is more tolerable if people believe there are opportunities to move up the social and economic ladder.

Migration is one course to advancing one's economic status and family welfare. Migration allows workers to be better matched to available jobs, and may help them escape local unemployment or poverty traps, thus alleviating unemployment across regions and potentially equalizing it in the process. If workers eventually return, migration can bestow on them lifetime benefits as it allows them to accumulate human, physical and social capital, exposes them to new career or skill-acquisition opportunities, or lowers their costs of access to such growth opportunities.

On the other hand, migrating across countries is risky and requires up-front outlays of resources. Only workers with the necessary pre-existing resources, skills, and career prospects can effectively pursue it, suggesting that selection plays a role in workers' career choices and outcomes. The complementarities between various investments and efforts that allow individuals to move to the best-fitting positions and improve their status over time generate inequality across

individuals starting in different circumstances. Understanding the role of migration and of the pre-existing factors in driving workers' outcomes is crucial.

These points are particularly relevant in the Middle East and North Africa (MENA), where migration and return migration are widespread and highly systematic phenomena that have been subject of dramatic coverage by worldwide media. Vast numbers of underemployed rural workers and unemployed fresh urban graduates move internally across regions within countries, to other MENA and Gulf countries, or to Europe and beyond. Outmigration, return migration, and remittance flows are associated with large shares of national workforce, and have significant implications for household finances (World Bank 2016).

Over the past decade, MENA-region migration has been at the forefront of global academic and policy interest in south–north and south–south migration (Özden et al. 2011; Graw and Schielke 2012; Sirkeci et al. 2012; Flahaux and De Haas 2016; World Bank 2010, 2016). A 2009 report by the European Commission Directorate-General for Economic and Financial Affairs (EC-DG ECFIN 2010a,b,c) documented that 10 million Arab region citizens, or 8% of working-age population, were residing abroad at the time. This number was predicted to be increasing, even before the jolt provided by the Arab Spring uprisings. According to public perceptions surveys, 28 percent (ILO 2015) or even upward of 50 percent (Fargues 2009; EC-DG ECFIN 2010b,c; Amer and Fargues 2014) of MENA youth expressed a willingness to travel abroad to improve their employment prospects and their families' welfare. Migration is thus seen as an important pathway to improving one's lifetime outcomes for those who can undertake it.

Migration in the MENA is inextricably linked to the state of development and inequality, including inequality of opportunity (Bibi and Nabli 2010; Assaad 2015; Devarajan and Ianchovichina 2015; Hlasny 2017), between-group inequality (Belhaj Hassine 2015; Ramadan et

al. 2018), and lack of intergenerational social mobility (Ibrahim 1982; Nugent and Saleh 2009). Migration represents an opportunity afforded selectively to some demographic and geographic groups, and is an act of investment undertaken by migrants' families to bear dividends (Munshi 2015).

At the national level, countries differ according to whether they experience positively or negatively selected migration flows in particular time periods (Bureš 2008). Outmigration causes brain drain in parts of the region, but the prospect of return migration of more experienced and capital-endowed workers yields potentially higher benefits for the individuals as well as for the sending economies at large (Olesen 2002). Over one-half of MENA-region migrants remain in the region, and most eventually return home, meaning that a large share of the brain drains are offset with brain gains elsewhere and are temporary. Meanwhile the benefit of improved employer–worker matching and skill acquisition accrues to workers in all countries albeit to a different extent (Marchetta 2012).

This study aims to advance our understanding of the role of return migration in three ways. One, we assess the effect of return migration and of workers' preexisting characteristics on their lifetime and intergenerational mobility. Two, we examine the backgrounds of return migrants as compared to non-migrants with the aim to explain their self-selection and to distinguish a causal impact of the return-migration experience on workers' outcomes. Three, we describe how the trends differ across three MENA countries, and over time. We tackle questions including: How large is the mobility of earnings, occupation and residential status in Egypt, Jordan and Tunisia, and what role does return migration play in it? What explains workers' decision to return-migrate, and is the migrant flow positively or negatively selected? How do the trends diverge across different parts of the MENA, and how do they evolve over time?

We use transition matrices and instrumental variable regressions to link prime-age men's present outcomes to those in prior years or to their fathers' outcomes, distinguishing return-migrants from non-migrants. One novel contribution is to consider workers' earnings in prior years and fathers' earnings by inferring them from job-type occupation-group cell means, thus shedding light on workers' socioeconomic mobility, and quantifying the value of return-migration. Instrumenting for workers' return migration using geographically detailed instruments facilitates the identification of the contribution of experience from return migration, and workers' self-selection into migrating, to their lifetime outcomes. Performing of various robustness tests with respect to socioeconomic outcomes, model specifications and sample delineation is another important contribution. This analysis is conducted in a harmonized fashion across three Arab countries and seven high-quality labor-market surveys with advanced modules on life events and mobility: Egypt (1998, 2006, 2012, 2018), Jordan (2010, 2016) and Tunisia (2014). The use of the most recent Egyptian and Jordanian surveys is a clear innovation on existing studies.

The study is structured as follows. The following pages review the existing evidence of the flows of return migration in the MENA, the correlates of return migration, and the implications of return migration for the distribution of socioeconomic outcomes in the region. Section II discusses our estimation strategy, and Section III presents the data. Section IV reports the main results, and Section V concludes with a summary of key findings, their implications, and further research directions.

Literature on migration and socioeconomic mobility

Few existing studies have addressed the circumstances of socioeconomic mobility in the MENA, particularly in relation to migration. Ibrahim (1982) examined the extent of intergenerational educational and occupational mobility in Cairo in the 1950s to 1970s, and found adequate opportunities for both prior to mid-1960s due to the development strategy pursued by the government, but stagnation in the opportunities in the 1970s amid a rollback of social policies. He concluded that private sector employment and migration offered workers the best opportunities for upward mobility. Amin (2000) discussed the causes and consequences of the accelerated pace of social mobility in Egypt from 1950 to the late 1990s, and pointed out the role of changing migration patterns that occurred in the 1970s. Permanent out-migration to North America by the country's educated elites was replaced by temporary migration to the Gulf countries by unskilled or semi-skilled laborers. This affected the composition of the Egyptian society and the observed social mobility. Nugent and Saleh (2009) evaluated the extent of educational mobility in Egypt and the returns to it, and found that intergenerational educational mobility was on the rise, but that parental education influenced the returns to children's education more than by simply raising children's educational attainment. Migration between rural and urban areas mitigated the dependence between parents' education and children's outcomes.

De Silva and Silva-Jáuregui (2004) was one of the first studies examining the MENA-region relationship between migration and economic outcomes directly. They found that internal migration from rural to urban regions exerted pressure on urban labor markets and raised unemployment there. On the other hand, international migration brought benefits to the MENA economies in the form of inflows of capital, of 39 percent of exports in Jordan, 22 percent in Egypt and 9 percent in Tunisia during 1996–2000. The inflow of capital was particularly high in

times of economic hardship, on account of migrants' compassion (Bouhga-Hagbe 2006). The EBRD (2013) confirmed the existence of significant migration across MENA countries, and found evidence of a brain drain in Egypt, Jordan, Morocco and Tunisia.

Amara and Jemmali (2016) used the Tunisian 2004 census data to explain migration trends across domestic regions. They found that unemployment rates and vacancy rates in the pairs of origin and destination regions were significant drivers of bilateral migration, while wages and skill composition were not. David and Marouani (2013a), using a model with endogenous international migration and remittance flows, concluded that labor-supply as well as labor-demand factors were responsible for recent spikes in Tunisian unemployment.

David and Marouani (2013b,c) used a similar model to compare the migration-employment relationship following the financial crisis in Jordan and Tunisia, and found that the Tunisian workers were more exposed to falling labor demand because their main migration destination had been Europe, while the Jordanians' main destination had been the Gulf. Foreign wages affected the absolute size of migration more strongly in Tunisia, but they had a greater effect on wages in Jordan's smaller labor market. An increase in foreign wages for high-skilled workers affected low- and medium-skilled workers positively in Tunisia but adversely in Jordan, reflecting the differences in skill-biased migration in the two countries. In Jordan, migration prospects resulted in a rise in skill acquisition in regions with many aspiring migrants, fall in unemployment rates among graduates, but also a brain drain in terms of education (David and Marouani 2016). Migration also affects labor markets in the countries of origin through the status of the women left behind. Out-migration of men affected the division of labor in Egyptian and Moroccan households, affecting women's fertility and engagement in unpaid family work. However, men's outmigration had little effect on women's participation in formal labor markets,

because of entrenched social norms, discrimination, and constraints on women's access to resources (Binzel and Assaad 2011; Bertoli and Marchetta 2015; David and Lenoël 2016).

Return migrants bring with them new human and social skills, and physical capital that they apply in professional occupations, self-employment and entrepreneurship (McCormick and Wahba 2001, 2003; Mesnard 2004b; EC-DG ECFIN 2010a:145; David and Nordman 2017). Whether the more highly educated out-migrants would have invested in education in the absence of prospects for migration is unclear.

Recent studies have taken advantage of the proliferation of micro-level data to estimate individuals' labor market outcomes as a function of migration spells. Wahba (2007) found that Egyptian return migrants earned about 38 percent more than similar nonmigrants. Both the duration of migration and the length of time since their return home had a positive impact on return migrants' wage premium, but the destination country had no impact. Wahba (2013, 2014, 2015a,b) and David and Marouani (2017) compared the characteristics of non-migrants, current migrants and return migrants in Egypt and in Tunisia. They found that migrants were more educated than non-migrants, and came from better off families that could afford the cost of migration. Return migrants tended to be those less educated among all migrants, but they brought back other skills and capital from their migration stints. Wahba (2015c), and El-Mallakh and Wahba (2016b) confirmed that in Egypt return migration advanced the upward occupational mobility among highly-skilled workers (but did not study intergenerational mobility). El-Mallakh and Wahba (2016a) used the ELMPS to evaluate the impact of legal versus illegal emigration status in Egypt on earnings.

Wahba (2014) compared the characteristics of the Jordanian immigrants, emigrants and natives. She found that emigrants were typically more skilled and sent substantial remittances

home. Immigrants landed in low-skill jobs, undercutting local wages. For Egypt, David and Jarreau (2015) found that remittances from emigrants increased household living standards directly through earnings, but also indirectly through their effects on skill acquisition, savings and investment. Emigration contributed to inequality in earnings, but some benefits accrued specifically to poor rural households. Nilsson and Ramadan (2020) found that earnings differentials and remittances led to increases in earnings inequality in both the home and the destination markets. David and Jarreau (2016) found that unemployment and the size of the informal employment sector were the main drivers of emigration from Egypt. Due to migration costs, workers' propensity to emigrate depended positively on their household's wealth, but this link diminished when migrants could follow steps of the network of past emigrants from their community.

Our study contributes to this literature substantively by comparing several dimensions of relative and absolute socioeconomic mobility (Chetty et al. 2014) notably including earnings, across seven surveys from Egypt, Jordan and Tunisia. Differences across countries, and changes over time in Egypt and Jordan – all the way to the 2016–2018 survey years – are evaluated.

Methodologically we contribute by inferring workers' earnings in their prior occupations and their fathers' earnings, thus putting value on workers' economic mobility, and the role of their return-migration experience and their self-selection into migrating. Few existing studies have evaluated earnings mobility for lack of consistent longitudinal data. The ability to track earnings over time provides tremendous insight into the process by which opportunities and outcomes evolve over time and across generations, as well as how the trends differ across distinct socioeconomic groups. Finally, instrumenting for workers' return migration using geographically

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detailed instruments helps to isolate the causal impact of workers' return-migration experience, and their self-selection into migrating. These methodological approaches are discussed next.

II. Identification Methods

To investigate the prospects of MENA-region workers' socioeconomic mobility over time and across generations as a function of their circumstances and their migration experiences, we use seven nationally representative labor market surveys with recall modules on workers' life-events and mobility. These surveys track individuals' socioeconomic outcomes at different points in time, and link outcomes of children to those of their fathers.

We first identify individuals' migration histories including the destination, timing and duration of migration. We then isolate workers' circumstances – household wealth, birthplace residence, past occupation and earnings, education – and outcomes of interest – current residence, occupation and earnings. Since wealth and past earnings are not surveyed directly, they must be imputed using information on households' ownership of durable assets, and on workers' past occupation status, respectively. We estimate the transitions of individuals' outcomes over time as functions of their initial circumstances and their experience with return migration. We also compare workers' outcomes to those of their fathers at the time the workers were 15 years old. Because migration is individuals' conscious choice, we propose geographically detailed instruments in an attempt to account for workers' self-selection and to identify a causal effect of their return-migration experience.

Measuring return migration, circumstances and outcomes

To identify individuals' migrant status we compare their current, prior and birthplace residence. In Egypt 2012–2018, Tunisia 2014 and Jordan 2016, we also use retrospectively collected information on the governorate or country of one's prior employment. If workers changed their residence to a different country in their past (after their birth), or if they worked abroad for over six months, they are classified as return migrants.

Our main analysis excludes current migrants, because data on their current labor-market outcomes abroad are missing, reported imprecisely by relatives, or incomparable to the domestic outcomes of the surveyed return migrants and non-migrants. Since the vast majority of migrants are expected to return by the age of 55, we could subsume current migrants among our target population as eventual return migrants, speculating that current migrants end up with similar career paths and outcomes as return migrants. In fact, available evidence shows that current and past migrants are similar in terms of their education, while non-migrants are distinctly different (Wahba 2010). Relatedly, workers classified as non-migrants at present could more precisely be thought of as not-yet-migrants, but the low risk of their late-career migration is best ignored.

Tracking workers' socioeconomic mobility requires some imputation from the available survey information. Workers' household wealth must be imputed using principal component analysis of their possession of a comprehensive set of productive and nonproductive durable assets. Workers' career growth and welfare can be approximated using their wage earnings, but wage earnings are reported only for household members present, and only for the current year. Earnings of current migrants are unavailable.

The only information available consistently for workers' past jobs, for the jobs of respondents' fathers, and for the last domestic job of current migrants is the individuals' economic sector, degree of job formality (permanent/non-permanent, contract/non-contract) and

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a 2-digit occupation group. To impute workers' real earnings in past time periods, fathers' real earnings, or the real earnings of current migrants before emigration, we use the mean earnings in the same sector, job type and occupation group in the survey year. We thus infer individuals' real earnings at multiple points in time from the mean present earnings in the occupation groups they held in the past times. We then assess the evolution of those earnings estimates for each worker over time. For consistency of estimates and standard errors, workers' present earnings are also replaced with the mean occupation-group earnings. While this use of mean occupation-group earnings yields lower estimated heterogeneity in earnings across workers and over time than the true total heterogeneity, the method has several advantages over alternative imputation methods.

Essentially, our method evaluates job characteristics in various years using the same set of present-year compensation trends to impute workers' real hedonic earnings in the various years. This approach of using present-day values is used widely in various circumstances, including in the calculation of the Paasche Quantity Index of the value of a basket of products across different years. Our approach is more robust to earnings-reporting errors and model-specification errors than prediction based on individual-level regressions. Secular changes in workers' real earnings due to occupation mobility are arguably a better indicator of welfare changes over time than year-to-year fluctuations in individuals' earnings, particularly when we are interested in groups of workers rather than individuals. Our approach is also less data intensive and potentially yields more consistent aggregate results than propensity score matching or machine learning algorithms such as the random forest approach (Hlasny et al. 2020). Our approach is robust to changes in nominal wages or measurement errors in inflation than imputation using external income tabulations.

The validity of our method hinges on four assumptions necessary in the absence of complete and intergenerational earnings histories. One, the importance of monetary earnings relative to other forms of compensation did not change or changed analogously across occupation groups. Two, typical workers in any primary occupation group have similar earnings from primary and secondary jobs as the similarly situated workers in the benchmark year – because wage earnings are added up across all jobs that individuals hold. Three, occupation groups retained their positions in relation to one another in terms of worker earnings. Assumptions one and two appear quite reasonable, and only assumption three is contingent on the persistence of labor market structure. The three assumptions appear to be justified over the short time spans of up to 6–8 years in the absence of large structural changes in the economy. They have weaker justification in the span of 20+ years since the typical worker was 15 years old and had a working father, but they are still likely to hold for a large number of occupation groups and workers due to path-dependence. Finally the fourth assumption, individuals' earnings relative to the mean in their occupation group remain unchanged over time, regardless whether they have changed occupation groups. This is a typical assumption commonly made in statistical analyses including quantile regressions. It is justified by reference to workers' time-constant characteristics. In sum, our results may not be accurate for workers across all walks of life, but they are likely to apply on average and for a large bulk of mainstream workers.

Having multiple survey waves allows us to check how accurate our imputation of past wage earnings is, by comparing the 8-year prior occupation-group wage earnings imputed in wave t to workers' actual wage earnings (or actual mean occupation-group earnings) observed in wave $t-1$, 6 years previously. In Egypt 2006–2012 and 2012–2018, and Jordan 2010–2016 this is possible for 3,936, 5,190 and 1,303 matched earnings records (or 8,167, 8,607 and 2,535 records with

occupation-group earnings information), respectively. The correlation coefficients are all positive and highly significant. While individuals' and occupation-group earnings are estimated with some noise (correlation 0.292–0.458 in Egypt 2006–2012, 0.168–0.237 in Egypt 2012–2018, 0.126–0.149 in Jordan 2010–2016), earnings quantiles are estimated quite well (correlation 0.285–0.585 in Egypt 2006–2012, 0.170–0.554 in Egypt 2012–2018, 0.212–0.391 in Jordan).

Measuring mobility

To quantify the degree of socioeconomic mobility, we first report the distribution of workers' current socioeconomic status among return migrants and non-migrants. We also estimate the mean growth in the estimated real wage earnings over time between the two groups. To avoid bias due to changes in sample composition across years, only observations for the same individuals are used.

Next, we estimate the tendencies of individuals' moving along the distribution of various socioeconomic outcomes using transition matrices (AlAzzawi and Hlasny 2020). Workers' transitions across quintiles of the national distribution of occupation-group earnings, and transitions between urban/rural residence and residence in privileged/disadvantaged regions across different points in time are used for this analysis because of good data availability. A transition probability matrix (P) is an n × n matrix where n refers to the number of possible states. The element in the *j*th row and *k*th column can be interpreted as the probability that an individual moves from the *j*th to the *k*th category between periods. The greater the diagonal elements, the lower the degree of mobility. The Spearman rank-correlation coefficient for ordinal variables and the Shorrocks Mobility Index, $\widehat{M}(P) = \frac{n - trace(P)}{n-1}$, inform of the degree of mobility. $\widehat{M}(P)$ was shown to have desirable properties of a mobility measure (Shorrocks 1978), with

$\widehat{M}(P) = 1$ indicating perfect between-quintile mobility and $\widehat{M}(P) = 0$ indicating zero mobility. (Bhattacharya and Mazumder, 2011, present an alternative measure of mobility.)

To evaluate workers' mobility, we would have to observe their status at multiple points in time, especially before their migration spell. However, information on workers' status prior to their first migration is limited, due to heterogeneity in workers' migration histories, and lack of appropriate questions in surveys. Moreover, it is difficult to match outcomes in migrants' histories to those of non-migrants, because some workers' migrated repeatedly, at different ages, for different spells of time. Hence, we compare workers' wage earnings at fixed points in time relative to the date of the survey: at present, in their previous occupation, in their before-previous occupation, in their occupation eight years prior to the survey year, and in the occupation of their fathers when the respondents were 15 years old. Workers' residence in urban/rural areas and privileged/disadvantaged regions can only be consistently evaluated for workers' current residence and their birthplace.

The timing of the 'previous' and 'before-previous' occupations in relation to workers' migration spell is unclear. Information on the timing and duration of migration, and the spell of time since the last return from abroad, must be used with caution because it is available consistently only for Egypt 2012–2018, Jordan 2016 and Tunisia 2014, and even there it is reported imprecisely, sometimes with month or year missing. Taking this information at face value, 9–22 percent of Egyptian (2012, 2018), Tunisian and Jordanian (2016) return-migrants went abroad for the first time in the past eight years, before returning home. Migration spell is typically 3–5 years, and most return migrants have 5–25 years of post-migration experience and 10–30 years since initial outmigration.[1] For 78–91 percent of return migrants, the three points in

time – in the previous job, before-previous job, and job eight years ago – are thus likely to follow their initial outmigration.

Self-selection: Identification strategy for the impact of return migration

Comparing socioeconomic mobility between return migrants and non-migrants is problematic because workers can self-select into migration based on their unobserved circumstances and their expectations that have bearing even on their other efforts and outcomes. The observed association between return migration and socioeconomic mobility may operate through these confounding channels.

Migration and return migration are known to be subject to systematic self-selection, as migrants tend to be more motivated, better informed or less risk averse than non-migrants (Borjas and Bratsberg 1996; Moraga 2011, 2013). At the same time, migrants who end up returning to their home country self-select themselves on their prospects in the home and destination country labor markets. Moreover, institutional factors in the pair of countries contribute. Compulsory military service, which is typically longer for the lower skilled, may prohibit young men from migrating. Countries' restrictions on entry or work permit based on prospective migrants' skills may prevent lower or middle skill workers from entering or staying.

In regressions of workers' current earnings on their migration experience, workers' migration status is thus endogenous. A commonly used strategy is to account for workers' all observable characteristics and circumstances including past earnings or father's earnings, when these are available in longitudinal surveys or in recall modules on life-events and mobility. To allow for complementarity between workers' migration experience and other skills, their interaction terms may be used, mitigating the self-selection problem.

Self selection can be thought of as an omitted latent variable. To gauge the degree of the self-selection bias, it is customary to observe how coefficients of interest in a regression change as additional controls are added to the regression. However, Oster (2019) has shown that this is inadequate, because adding variables affects the portion of the model variance left to be explained by omitted factors. We follow her proposal to infer the degree of an omitted variable bias from the changes in model coefficients and the model R-squared as we add controls. Nevertheless, even after controlling for workers' all observable characteristics, in our case the migration status is likely to remain endogenous, because only a limited set of controls are available. Some variables are unavailable for all workers due to nonresponse or poor recall of variables in the advanced modules, or due to attrition, which themselves may be systematically related to workers' outcomes, compounding the identification problem.

To identify a direct causal effect of migration, we ultimately follow an instrumental variable approach of distilling the part of workers' decision to return-migrate that is unrelated to their socioeconomic outcomes, and using this distilled variable in the regressions of workers' outcomes. Valid and strong instruments for return migration are those highly correlated with the migration decision, uncorrelated with the socioeconomic outcome conditioning on the migration status, and having sufficient variation in the sample. Three types of variables have been suggested in prior literature as candidates for instruments: workers' preexisting characteristics, conditions in the region of origin, and conditions in the destination country.[2] The instrument that has been adopted most widely worldwide is the preexisting share of international migrants in the province of origin. This indicates the prevalence of migrant networks and other unobservable community-wide factors (such as ease of transportation, or proliferation of foreign traders) facilitating information to prospective migrants and lowering their migration costs. This

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instrument has recently been used by Gubert and Nordman (2008), Binzel and Assaad (2011), David and Jarreau (2015, 2016, 2017), and David and Lenoël (2016) among others. One justification of this instrument is the finding by de Haas et al. (2015) that migrants' formal integration in the host country – through labor market participation, education and social engagement – does not influence their decision to return, while their network back home does. Asked why they have returned home, one-time migrants typically quote family-related reasons.

Our study follows the prevalent literature and instruments for workers' return migration using the share of households with one or more current or past migrants, excluding the household in question, in workers' birthplace locality – essentially a 'lagged donut instrument.' We advance the common approach in several ways in order to ensure the instrument's exogeneity: in constructing the instrument we consider both current migrants and return migrants, we exclude the individual in question, and we use individuals' birthplace rather than their current or recent residence as the relevant geographic unit. This instrument is valid under the assumption that the migrant networks that it proxies for are conducive to workers' securing of opportunities abroad, not in the home country. To the extent that migrants typically return for personal or 'home country' reasons, not because of economic failure abroad, the instrument satisfies the exclusion restriction for validity.

The instrumental-variable approach is an indirect least squares procedure involving two stages: In the first stage, probit model is used to regress the binary return-migration indicator on all exogenous variables including the instrument. In the second stage, linear regression links workers' log-earnings to their characteristics and circumstances as well as the exogenous part of workers' probability of return migration (RM) accounting for the nonlinear probability estimate from the first stage:

$$\Pr RM = f(X, Z) \tag{1}$$

$$\log Earn = g[X, \widehat{RM(X, Z)}] + \varepsilon \tag{2}$$

Here X is a set of workers' characteristics and circumstances, Z is the exogenous instrument for return migration, $\widehat{RM}(\cdot)$ is the instrumented return migration using the probability estimate from the first stage, and ε is a random, potentially non-normal and heteroskedastic error term in earnings. This nonlinear estimator has desirable consistency and efficiency properties relative to the standard linear two-stage least squares.

III. Data and Descriptive Statistics of Return Migration

We consider all available recent waves of the Labor Market Panel Surveys (LMPS) for three MENA countries: Egypt (ELMPS 1998, 2006, 2012, 2018), Jordan (JLMPS 2010, 2016) and Tunisia (TLMPS 2014). These LMPSs contain detailed demographic and household-asset data, and special life-events and mobility ('recall') modules with information on workers' occupation and residence at various points in time, and on household members currently abroad. The surveys are thus well suited for the study of migration patterns and socioeconomic mobility, particularly in a cross-country and cross-year setup. The surveys also include linked information on fathers and sons, enabling the study of intergenerational mobility.

To measure workers' socioeconomic status, we assess workers' earnings (or mean earnings in their sector–job type–occupation group), possession of a job contract, asset-wealth rank, marital status, status as household head, and urban/rural area and privileged/ disadvantaged region of residence.[3] As explanatory variables for workers' return migration and workers' socioeconomic outcomes, we use workers' age, highest education achieved, household composition, current and past residence (urban/rural), and geographic region.

We restrict our sample to male nationals 35 to 55 years of age to limit the extent of heterogeneity among individuals, particularly with respect to the timing and type of migration. In the Jordanian surveys, Syrian, Egyptian and other non-Jordanian nationals are excluded. These restrictions agree with evidence that migrants are predominantly local men who have finished their formal education, and that nearly one-half of migrants return to their country of origin before the age of 40, and over two-thirds before the age of 50 (EC-DG ECFIN 2010a:80), so our target population is inclusive. Since our main economic outcome is wage earnings, limiting the sample to men in their prime earning age is appropriate. Subject to the age cutoffs, the mean age of return migrants approaches that of non-migrants, facilitating comparison.[4] The following paragraphs present some patterns of migration notable from our data.

Selected descriptive statistics of return migration

The geographic patterns of migration vary significantly across the three countries, over time, and across workers' subsequent migration spells. Return migration among Jordanians is diffused widely across many destinations, while it is concentrated in a handful of countries among Egyptians and Tunisians. Egyptian and Tunisian workers seeking work abroad find suitable opportunities and work authorization relying on their social networks, and follow their countries' diasporas to a limited number of countries. By contrast, Jordanian workers pursue alternative routes, including getting in direct contact with prospective employers, in countries where they have no acquaintances. Across workers' subsequent migration spells, and across cohorts of migrants, migration became more diffused. The direction of migration also shifted over time toward the Gulf, Europe, and Libya as a prospective gateway to Europe, and away from Mashreq.

Workers' propensity to migrate and their destination vary systematically across demographic groups, including by workers' age, urban status and education, suggesting that their migration decision depends on their job prospects and demand for their skills in the prospective host countries. Across all surveys, most migrants out-migrate at an early age and spend at most several years abroad. Return migrants come predominantly from economically disadvantaged regions offering inadequate job opportunities to workers for whom migration is a viable option. Return migrants also tend to come from families where fathers earned less than non-migrants' fathers (table 1 bottom row).

However, the patterns diverge in important ways across countries. In Egypt, starting out in rural areas is associated positively, and in Jordan and Tunisia negatively, with the risk of migration. Two-thirds of return migrants come from rural areas in Egypt, while in Jordan (and Tunisia) nine-tenths (and two-thirds, respectively) are urban. In Jordan (and to a lesser degree in Egypt), return migrants come predominantly from among high-school or university educated workers, while in Tunisia, migrants are slightly less educated than non-migrants. Migration flow from Jordan (and Egypt) is thus positively selected and represents a temporary brain drain for the labor market, while in Tunisia it is negatively selected. Return migrants' own testimonies confirm some of these observations about workers' selection on age, reliance on preexisting migrant networks, and reasons for outmigration and return. (Hlasny and AlAzzawi, 2018, provide descriptive statistics.)

Return migrants and non-migrants thus differ in their preexisting socioeconomic conditions, including their fathers' earnings. These must be taken into account when assessing workers' current outcomes, socioeconomic mobility, and the role of return migration in them. The

following section reports on our main analysis of the degree of workers' earnings mobility and its determinants.

IV. Main Results: The Degree and Drivers of Earnings Mobility

Table 1 shows a quasi difference-in-difference analysis of earnings between return migrants and non-migrants at different points in their lives (restricted to workers who were employed at multiple of the evaluated points in time). If return migrants are self-selected from underperforming past occupations, but rise to higher-earnings occupations by investing in their human, social and physical capital, we should find that return migrants underperformed initially, but gained relative to non-migrants following their migration spell.

Across all survey waves, return migrants are shown to fare better currently in terms of the wage earnings typical in their occupation group than their never migrating peers, albeit this is significant only in Egypt 1998 (table 1 top row). In fact, return migrants out-earn non-migrants at each of the evaluated points in time, not only currently but also in the previous occupation, occupation before previous, and eight years in the past. Many of the earnings differences are significant, and only a handful exceptions show non-migrants outperforming return migrants (insignificant or only marginally significant).

The earnings premium of migrants over non-migrants does not change systematically across the evaluated points in time. According to the 1998 Egyptian survey, would-be return migrants earned 17.4% more than non-migrants eight years prior, and 15.2% more currently. According to the 2006 survey (2012, respectively), return-migrants' premium was 2.1% (-1.9%) eight years prior, and 3.7% (1.3%) currently. In the Jordanian 2010 survey (2016, respectively), the premium was 12.8% (6.2%) eight years prior, and 9.8% (12.8%) currently. In the Tunisian

survey, it was 5.5% eight years prior, and 3.1% currently. One exception to the rule, in 2018 Egypt, post year-2016 financial crash, return-migrants earned 11.1% less than non-migrants 8 years prior, and 8.8% less currently. Figure 1 illustrates.

As we documented above, the several points evaluated in the past appear to follow return-migrants' initial migration spell for the majority of return migrants. Considering fathers' earnings at the time the workers were 15, we find that return migrants come from families with lower earning fathers compared to non-migrants (significant in Egypt 2012 and Jordan 2016; the only exceptions being Egypt 1998 and 2018 where both groups have similar-earning fathers). Combining these pieces of evidence would strengthen the case that migration plays a positive role in workers' earnings mobility. On the other hand, in a smaller subset for which this can be evaluated carefully, the occupation-group wage earnings eight years in the past were similar between those who outmigrated before and those who outmigrated after that date. We conclude that there is at best weak evidence that return migrants have higher upward mobility than nonmigrants, considering workers' current, previous, before-previous, and eight-years prior occupation, as well as fathers' historic occupation.

Table 1. Mean occupation-group gross earnings at different points in time, by migration status (PPP2012$)

|	Return migrant	EG98	EG06	EG12	EG18	JO10	JO16	TU14
Panel 1: Mean earnings in all occupation-groups, among non-migrants and return migrants								
Occupation-group mean earnings, current job	N	250.48***	361.96	370.96	392.78***	718.54	600.57	563.44
	Y	265.20	375.28	375.81	358.16	832.99	675.37[i]	593.98[i]
Occupation-group mean earnings, previous job	N	248.27***	350.36**	315.29	288.02	743.16*	405.70	499.08*
	Y	295.46	365.84	315.82	286.89	844.05	438.96[i]	493.00[i]
Occupation-group mean earnings, before previous job	N	235.30***	337.09**	316.24	304.92**	687.43**	385.27	491.14
	Y				264.31			
		278.53	350.16	313.18		803.75	362.97[i]	451.10[i]
Occupation-group mean earnings, 8 years prior	N	244.86***	382.06*	355.02*	355.18***	743.80*	418.61*	563.80
	Y	287.38	390.19	348.43	315.88	838.80	444.70[i]	594.63[i]
Occupation-group mean earnings, father's occupation	N	187.74	328.07	345.08***	366.06	850.60	376.59*	481.67
	Y							
		187.78	321.95	324.68	366.65	814.80	465.19[i]	447.01[i]

Note: Statistics account for individuals' sampling weights. Workers are classified into occupation groups by their 2-digit occupation code, permanent vs. non-permanent job, public vs. private sector, and contract vs. non-contract job. Evaluated only among workers with known occupations 8 years prior, to improve consistency of samples across points in time. [i] Evaluated over small sample sizes in JO16 and TU14 (12–97 individuals). Sample is restricted to male nationals 35–55 years old. Difference of means significant at * 10%, ** 5%, *** 1% using estimate standard errors on non-weighted samples.

Figure 1. Wage earnings evolution over lifetime, non-migrants vs. return migrants (PPP2012$)

i. Egypt 1998

ii. Egypt 2006
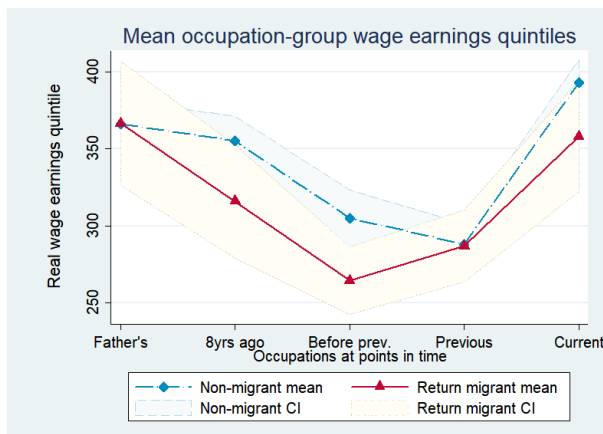
iii. Egypt 2012

iv. Tunisia 2014
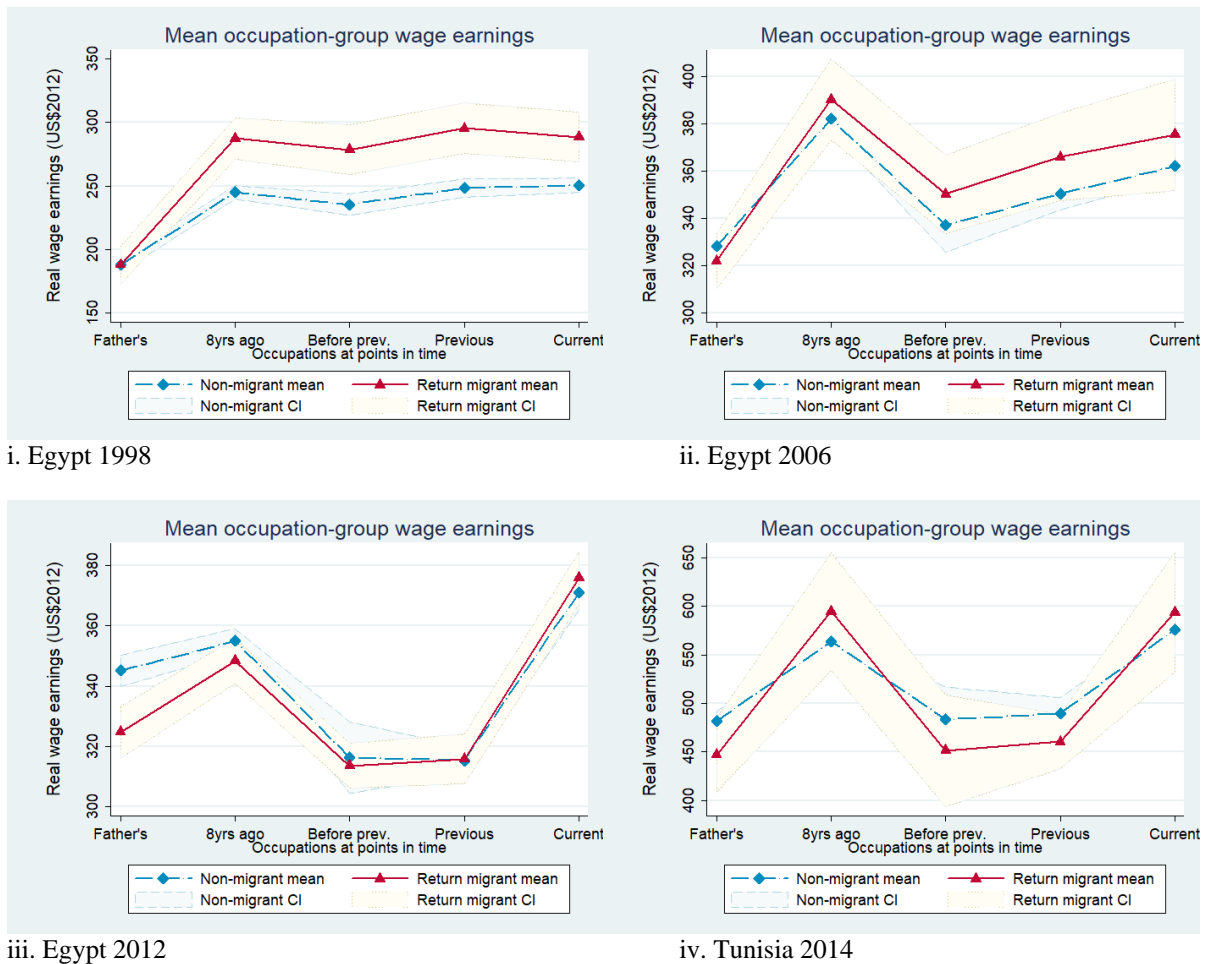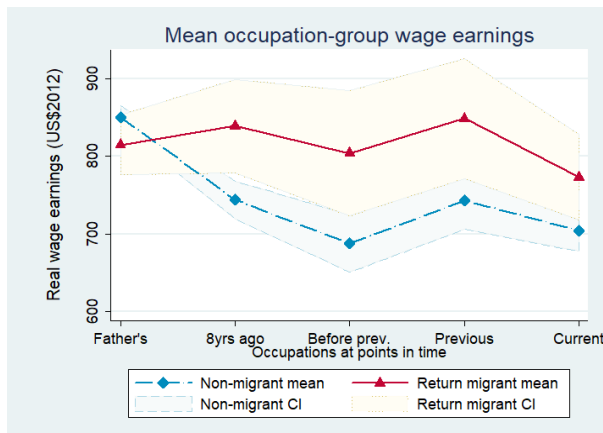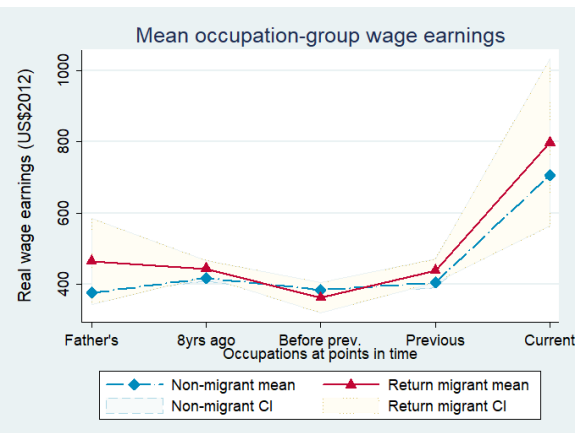
v. Jordan 2010

vi. Jordan 2016

vii. Egypt 2018

Note: These predicted lines are computed among individuals for whom both current and 8-years prior occupation is observable, to improve consistency of samples across points in time. Mean occupation-group wage earnings are shown. Workers are classified into occupation groups by their 2-digit occupation code, permanent vs. non-permanent job, public vs. private sector, and contract vs. non-contract job. 95% confidence intervals based on standard errors are shown.

The findings in table 1 hold for several alternative indicators of workers' socioeconomic outcomes: household earnings quintiles, individual gross wage earnings, household wage earnings (total and per capita), household wealth (total and per capita), having a job contract, being married, and heading own household. Across the majority of the considered indicators and surveys, return migrants tend to score higher or are more likely to have achieved them, substantially so in Egypt 2006, Jordan 2010 and Tunisia 2014. This lends support to the assertion that these trends are not limited to workers for whom we can identify wage earnings in multiple

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time periods, but apply to a larger population including the unemployed and the economically inactive.[5]

To understand workers' earnings mobility beyond the trend for the mean worker, we can construct the complete transition matrices using, say, quintiles of the distribution of wage earnings of sons and those of their fathers. This can be done separately for non-migrants and return migrants.[6] The joint densities for return migrants are found to be more dispersed than those for non-migrants, implying greater intergenerational earnings mobility among return migrants.

Symmetry of the transition matrices around the main diagonal reveals that minor transitions (from one quintile to the next) are more prevalent than major transitions (across 2–4 quintiles). More men experience upward earnings mobility than downward mobility, particularly in Egypt 1998 and 2012, and particularly among return migrants. Moreover, great upward jumps of a few fortunate individuals have not been accompanied by great falls of a few unlucky persons. Instead, other individuals retained or only slightly lost their economic standing. This suggests that opportunities for substantial upward mobility do exist in MENA countries that are traditionally thought of as exhibiting substantial dependence between parents' and children's outcomes. This finding corroborates conclusions by El Enbaby and Galal (2015), and Hlasny and AlAzzawi (2019) that circumstances make up a modest portion of inequality of opportunity.

The Shorrocks (1978) mobility index – showing the share of households transitioning to a different quintile over time – takes very different values across survey waves. Its values are higher among return migrants than among non-migrants in all Egyptian and Tunisian surveys, confirming that return migrants have greater earnings mobility there. In Jordan, the Shorrocks mobility index is higher among non-migrants. In fact, looking at the frequencies in 2010, we see

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very low movements of workers away from the quintile of their father (i.e., away from the diagonal), particularly among return-migrants. In 2016, we see that lowest-quintile fathers have sons represented in all earnings quintiles, while still a large number of sons remain in the same earnings quintile as their fathers. Spearman rank-correlation of workers' and their fathers' earnings quintiles also confirms higher mobility among return migrants in Egypt and Tunisia, and lower or similar degree of mobility among return migrants in Jordan.[7]

The results from the difference-in-difference tabulations and transition matrices (table 1) thus confirm that return migration is correlated with greater upward intergenerational earnings mobility in Egypt and Tunisia, although the evidence in Jordan is inconclusive. This, coupled with the similarity between return migrants and non-migrants in mobility over the past eight years, raises questions about the sources of these trends. How much of the intergenerational mobility gap is a product of the skill gains that workers obtain through return migration, and how much is due to inherent qualities and circumstances associated with return migrants that would have operated even without the migration experience? In Jordan 2016, in particular, does self-selection of migrants from among urban upper-class families lead us to underestimate the benefit of return migration? We turn to multivariate regressions to elucidate the contributions of factors that are in workers' power to influence – namely the decision to migrate and the duration and timing of migration – and the contributions of workers' initial circumstances.

To be able to interpret the estimated effects of return migration causally, instrumental-variable strategy is employed as per equations 1–2. The 'lagged donut instrument' used is the density of households with migrants or return migrants among their members in the worker's birthplace locality. This instrument is irrelevant in the earnings equation, satisfying the exclusion, or order, condition necessary for identification. The instrument is also a strong

predictor of migration status, satisfying the rank condition sufficient for identification. As a test of the first condition, we find that the instrument is insignificant in the ordinary least-squares (OLS) regressions of log personal earnings, and should be excluded from them (available on request). The results of the first stage regressions, validating the second condition on instrument strength, are available on request.[8] Migrant density in workers' birthplace locality is found to be associated positively with their return migration, highly significant in Egypt (2006, 2012, 2018; near significant in 1998) and Tunisia. This is even after controlling out other governorate- and worker-level risk factors, most notably higher education, family with lower-earnings fathers, urban residence, and economically disadvantaged region.[9]

Table 2 reports on the structural models (equation 2) of workers' current personal wage earnings. In the first seven columns, earnings are made a function of workers' status as return migrants (instrumented), mean earnings in father's occupation group and their interaction with the return migration status, education, age, and birthplace in urban areas or privileged regions. The return migration status appears to be exogenous to other covariates, and its coefficient can be interpreted causally given that the necessary and sufficient conditions appear valid. The last four columns also control for the destination and duration of migration, and replace workers' age with their potential work tenure after their return from abroad, and potential tenure before/between any migration spells. These additional variables can better gauge workers' acquisition of skills and other forms of capital during their migration spell abroad, as well as their integration in the domestic labor market and work experience following their return. These variables are potentially endogenous as they reflect migrants' conscious choices, which depend on workers' characteristics and circumstances. There are no clear candidates for instruments for them. Nevertheless, these variables may help improve efficiency and comparability of

coefficients of interest, as they mitigate heterogeneity of migration experience both among individual return migrants, as well as across countries.

The results in table 2 indicate that return migration does not have a systematic earnings effect of either sign once the endogenous portion of the migration decision is removed and other background characteristics are controlled for. The coefficient on the instrumented return-migration status is negative in most surveys, and is only significant in Egypt 2012 (negative in column 3 and positive in column 7, which appears spurious). The interaction of the return-migration status with father's earnings, indicating the contribution of return migration to intergenerational earnings mobility, has a positive effect in 7 surveys (negative in 4), but the coefficients are at most weakly significant.[10]

Conditioning on the destination, duration and timing of migration (columns 7–9), the coefficient on return migration changes magnitude but remains insignificant, suggesting that the additional covariates may have introduced multicollinearity and measurement errors, but they did not succeed at making the coefficients on the return-migrant status any more consistent or significant. The additional migration controls – destination, estimated duration, and potential post-migration tenure – have the expected positive coefficients in Egypt 2018, Jordan 2016 and Tunisia 2014, but what appears like spurious negative coefficients in Egypt 2012. These findings support prior evidence that migration destination does not affect migration returns in the home country significantly. However, these results also fail to corroborate that the timing or duration of migration matters (Wahba 2007).[11]

If migration experience itself is not responsible for return-migrants higher earnings, we must look to other factors for explanations. Here we find support for the self-selection narrative. Typical earnings in father's occupation group are associated positively with workers' own

earnings (significant in Egypt 1998, 2012 and Jordan 2016), suggesting a strong degree of intergenerational transmission of status, through genes, access to skill acquisition or jobs, or other means. The effects were particularly large in Egypt 2012 and Jordan 2016, corroborating evidence that inequality of employment opportunities and intergeneration transmission of outcomes were on the rise in the two countries in the post Arab-spring years (AlAzzawi and Hlasny 2020).

As expected, education has a strong and highly systematic effect on earnings, as does work experience, proxied by age in columns 1–6, and post-migration and pre-/between-migration tenure in columns 7–9. Having a post-graduate education increases one's earnings rather consistently across the seven surveys compared to workers with up to a primary education. Work experience is associated with higher earnings (insignificant) in Jordan and Tunisia, but has little or negative effect in Egypt 2012 and 2018.

Having grown up in an urban area helps significantly as well, in all but one survey, especially in Tunisia (19.5–22.3% raise). Having grown up in a privileged region has weaker but still positive bearing on earnings after controlling for own characteristics and father's earnings, and is especially beneficial in Tunisia.[12]

In sum, the results in table 2 indicate that return migration does not have a clear stand-alone impact on workers' earnings, or the transmission of economic status across generations. Instead, workers' human capital and their starting circumstances including family background, birthplace, and labor-market conditions play an important role in workers' eventual outcomes.

Table 2. Two-stage indirect least squares regressions of log personal wage earnings

	EG98	EG06	EG12	EG18	JO10	JO16	TU14	EG12	EG18	JO16	TU14
Return migrant (instrumented)	0.15	-0.49	-1.71°	1.38	-4.97	-2.42	-0.004	3.39×	-1.13	-5.94	-4.61
	(0.52)	(0.58)	(0.91)	(1.31)	(8.59)	(2.79)	(1.46)	(1.70)	(3.08)	(6.87)	(7.84)
Log occ-group wage earn father×Return migrant (instr)	-1.36×	0.80	1.40°	-0.81	4.56	0.45	-1.01	0.86°	0.35	1.82	-0.91
	(0.54)	(0.73)	(0.78)	(0.79)	(6.24)	(1.41)	(1.01)	(0.49)	(1.01)	(2.69)	(0.71)
Log occ-group wage earnings, father	0.24×	0.46	0.96*	0.13	1.97	1.90°	-0.11	0.96*	0.90	1.50	-0.06
	(0.11)	(0.33)	(0.35)	(1.41)	(1.94)	(1.02)	(0.59)	(0.32)	(2.54)	(0.95)	(0.59)
Post-primary, preparatory edu.	0.25*	0.17×	0.16*	-0.20	0.02	1.05	0.31*	0.15*	-0.17	1.12	0.29*
	(0.07)	(0.07)	(0.06)	(0.17)	(0.11)	(0.86)	(0.09)	(0.06)	(0.15)	(1.10)	(0.09)
Secondary edu.	0.41*	0.16×	0.24*	0.15	0.18	0.22°	0.46*	0.21×	0.07	0.14	0.40*
	(0.07)	(0.07)	(0.08)	(0.13)	(0.13)	(0.12)	(0.08)	(0.08)	(0.27)	(0.11)	(0.13)
University edu.	0.67*	0.47*	0.51*	0.43*	0.43	0.53*	0.98*	0.51*	0.38*	0.37×	1.02*
	(0.06)	(0.07)	(0.07)	(0.15)	(0.28)	(0.15)	(0.10)	(0.06)	(0.14)	(0.15)	(0.12)
Post-graduate edu.	1.03*	0.81*	0.66*	0.83°	-0.26	1.04	1.18*	0.72*	0.64×	0.13	1.15*
	(0.11)	(0.20)	(0.14)	(0.50)	(1.10)	(0.63)	(0.13)	(0.15)	(0.27)	(0.89)	(0.12)
Age	0.01×	0.02*	0.001	0.01	-0.03	0.01	0.02*				
	(.004)	(.004)	(0.01)	(0.01)	(0.04)	(0.01)	(.005)				
Urban birthplace residence	0.08	0.12×	0.14×	0.15	-0.05	0.14°	0.22*	0.08	0.13	0.14	0.20×
	(0.05)	(0.06)	(0.07)	(0.17)	(0.16)	(0.09)	(0.08)	(0.06)	(0.13)	(0.09)	(0.09)
Privileg. birthplace governorate	-0.12	0.01	0.11	0.34	0.07	0.04	0.28	0.02	0.01	0.17	0.45°
	(0.07)	(0.07)	(0.09)	(0.35)	(0.42)	(0.15)	(0.33)	(0.08)	(0.34)	(0.14)	(0.27)
Destination: rich & Gulf countries								-0.69	0.36	2.29	3.43
								(0.50)	(0.69)	(3.09)	(5.20)
Duration of migration								-0.21°	0.025	0.60	0.09
								(0.11)	(0.05)	(0.66)	(0.13)
Post-migration tenure								-0.12°	0.02	0.18	0.14
								(0.06)	(0.04)	(0.22)	(0.21)
Pre-/between-migration tenure								0.01	0.00	0.00	0.02
								(0.01)	(0.07)	(0.01)	(0.01)
Birth govern. indictrs.	Y*a	Y*	Y*	Y*	Y*	Y*	Y*	Y*	Y*	Y*	Y*
Constant	4.71*	4.10*	3.71*	4.97°	3.57	2.09	5.22*	3.47*	9.09	2.99°	5.48*
	(0.25)	(0.61)	(0.60)	(2.62)	(2.73)	(1.74)	(1.11)	(0.59)	(6.50)	(1.73)	(1.02)
Observations	1,292	1,962	3,132	584	1,163	940	559	3,116	572	930	555
Wald Chi²	506*	368*	219*	41°	30°	68*	446*	299*	61*	102*	362*

Notes: All regressions are weighted using survey sampling weights. Significant at ° 10%, × 5%, * 1% using two-sided tests on standard errors robust to arbitrary heteroskedasticity (in parentheses). Sample is restricted to male nationals 35–55 years old. [a] Asterisks indicate joint significance.

IV. Discussion

Existing studies have asserted that cross-border migration serves to match workers to employers, and alleviates unemployment among young workers in the countries of origin even as it puts pressure on urban labor markets in host countries. Outmigration was said to affect households' division of labor and the performance of local labor markets, and to alleviate poverty and economic inequality through capital inflows to disadvantaged and rural regions. Our study has investigated the role of migration in workers' own lifetime and intergenerational socioeconomic mobility by tracking workers' occupations over time and across generations, and imputing typical earnings in those occupations, for migrants and non-migrants separately. We then used difference-in-difference tabulations, transition matrices and instrumental-variable regressions to estimate the degree of earnings mobility and the role of migration in it.

Migration trends are found to differ systematically between Egypt, Jordan and Tunisia, as well as across years, both in their prevalence, form, and impact on workers' socioeconomic outcomes. Descriptive statistics show that Egyptian migrants predominantly come from rural areas and disadvantaged governorates, and are less educated, while in Jordan the opposite is the case. In Tunisia, return migrants are nearly as educated but less likely to be rural than non-migrants. Following their migration spells, return migrants tend to work in higher-earnings occupations, reside in more urbanized areas and privileged regions, and achieve other desirable socioeconomic outcomes relative to non-migrants. Comparing workers' current outcomes to those of their fathers shows that return migrants in most surveys tend to come from lower-earning parents, but are more inter-generationally mobile and attain higher earnings than non-migrants.

The link between migration and earnings mobility breaks down when other mediating factors are considered. Difference-in-difference tabulations show that return migrants outperform non-migrants not only currently, but also in the previous occupation, occupation before previous, and eight years in the past. The earnings premium of migrants over non-migrants does not evolve over time, as one may expect. Workers who had migrated did not systematically earn more eight years ago than workers who would end up migrating later. Another reason is that, after controlling for workers' characteristics and preexisting circumstances, and particularly after removing the endogenous part of return migration through instrumenting, the premium due to return migration disappears. Moreover, the destination and duration of migration also does not appear to affect future earnings. Instead, father's earnings adopt a positive sign, significant in the Egyptian surveys and marginally in Jordan 2016, pointing to inequality of opportunities based on parental outcomes, corroborating evidence of a growing employment vulnerability among young workers in the post Arab-Spring years (AlAzzawi and Hlasny 2020). Our findings also point toward latent individual-level predispositions, or enduring effects of planned future migration as sources. These qualities may have operated since workers' youth. One possible interpretation is that prospective migrants – say, those growing up in localities with dense return-migrant networks – invest more intensively in globally marketable qualities (say, soft skills such as sociability, adaptability) beyond those revealed by their educational attainment. The qualities may represent exogenous endowments (emotional intelligence, school quality), or endogenously-selected investments (language training) into workers' careers subject to costs. These qualities may allow them to outperform non-migrants in all stages of their careers regardless when the actual migration took place and how long it lasted.

Our results have a number of limitations. One is the focus on a relatively comparable population of prime-working age, wage-earning men. Excluding non-earners limits our inference to the population of workers employed in each time period under consideration. This may induce a bias since individuals self-select into the sample of domestic active workers according to their expected labor market outcomes, wage offers and reservation wages (Wahba 2007). Correcting for this potential bias is complicated by the small number of non-wage earning workers and the lack of appropriate individual-level instruments. Restricting our attention to prime-age men simplified our analysis and made our results easier to interpret, but clearly it would be policy-relevant to understand the career investments and mobility of marginalized groups, including married women, fresh graduates or the middle-aged. Moreover, return migration has important spillovers on home-country labor markets and those left behind. The reduction in labor supply, pressure on wages, and wage stickiness may contribute to our finding of little individual return on migration even if non-migrants or indeed all workers benefit. Accounting for sector-wide effects of migration, say using a recentered influence function approach (Ramadan et al. 2018), could be a worthwhile undertaking.

Another area for further research is the construction of a more nuanced migration indicator. Rather than a binary indicator, a better measure would incorporate some of the economic realities of migration experience, including direct and indirect outlays on migrating, duration of stay, access to training and capital, exposure to economic forces abroad, and benefits for workers' careers at home. All of these considerations affect the true impact of migration experience on workers' welfare – as well as motivation for them to migrate in the first place. A migration index accounting for distance and direction of travel could be a start.

Our study has found a limited effect of migration on earnings, and on earnings mobility over workers' lifetimes and across generations. We surmise that the prospect of migration may have a beneficial role with respect to workers' motivation, and employer–worker matching and negotiation, counteracting intergenerational transmission of status and inequality in society. In order for such benefits to accrue to individuals other than those predisposed for migration and for economic success, non-governmental and governmental actors could exert resources to enable even disadvantaged workers to partake in the opportunities, as these may enhance workers' careers, family welfare, as well as the organization of society. Providing loans, job boards, transparent worker-sponsorship schemes, or counseling of current migrants would help. Programs promoting service exports, which target low-skilled native workers, may benefit these workers as well as tackle brain drains (David and Marouani 2013a). We know that regulated migration helps to balance labor market conditions across geographies, and can offer short-term benefits to recipient countries without subjecting them to long-term political risks. This could call for intergovernmental and interagency cooperation in enabling and managing informed flow of migration across the MENA and beyond.

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Endnotes

[1] Duration of migration is constructed as years between the initial migration abroad and final return, divided by the square root of trips abroad. This normalization accounts for spells of time spent at home, when more precise information is unavailable.

[2] Worker-specific instruments that have been proposed are: previous self-employment (Dustmann and Kirchkamp 2002), past levels of return plans of other household members (Dustmann and Mestres 2010), spending on fixed phone calls, and household composition including age of household head, father's age, members aged above 50 and females in the household (Wahba 2007; Chabaan and Mansour 2012). At the level of the region of origin, existing studies have used labor market conditions (Djajic et al. 2016), distance to the closest border or to foreign missions (McKenzie et. al. 2010), natural disasters (Munshi 2015), and preexisting trends in migration and remittances. Variations on this last instrument include the shares of households with a migrant, households owning a bank deposit, households owning livestock, empty houses due to migration, and average duration of dwelling vacancy (Chabaan and Mansour 2012). At the level of host countries, existing studies have considered a dummy for years when Europe practiced a closed-border policy (Mesnard 2004a,b), historic unemployment rates (McKenzie and Rapoport 2007), historic real international oil prices when the individual was 28 (Wahba and Zenou 2012; El-Mallakh and Wahba 2016), and political shocks (Wahba 2015), as predictors of labor demand at destination. McKenzie and Sasin (2007) discuss the appropriate usage and the potential pitfalls of alternative instruments.

Technically we should distinguish the decision to out-migrate and the decision to return, and instrument for each separately, but the majority of MENA-region migration is temporary, and is planned that way by the would-be migrants, justifying the reduced-form approach. Moreover, information on current migrants is unreliable or outright missing, so we cannot estimate the two stages separately.

[3] Governorates are classified as privileged/disadvantaged following standard classification related to the privileged nature (Belhaj Hassine 2015) and economic development of administrative regions: Privileged regions in Egypt are Greater Cairo, Alexandria and Suez Canal, and Urban Upper Egypt (versus Urban Lower, Rural Lower, and Rural Upper); in Jordan it is the Middle region (versus North and South); and in Tunisia they are North, Center East, South East and South West (versus North West and Center West).

[4] Among this age group, our study excludes a minority of individuals who have no observable earnings, occupation or other variables. Regression results obtained on a twice-as-large sample of 26-60 year olds (who can be expected to have 8+ years of work experience, and who may have finished their migration) are available on request.

[5] Results for other socioeconomic outcomes are available on request. In fact, employment rates between migrants and non-migrants are comparable to each other across most surveys.

[6] The same statistics for fathers and sons, and for non-migrants and return migrants combined, are available on request in a detailed appendix.

[7] Intergenerational transitions can be compared to the 8-year transitions. The Shorrocks and Spearman statistics are as high or higher for return migrants as for non-migrants (except Jordan 2010). Return migrants exhibit as much mobility over the past 8 years as non-migrants, but more intergenerational mobility (in terms of the quintiles jumped as well the Shorrocks and Spearman statistics). This is not surprising, since a longer time spell allows greater transitions, and we know that many of the return migrants were post-migration even 8 years ago. Kernel joint-density plots of workers' current and fathers' earnings are available on request.

[8] The Hausman test is used to evaluate the baseline hypothesis that the migration status is exogenous in the earnings equation. Under this hypothesis, and assuming valid instrumentation, both OLS and two-stage least squares regressions are consistent, while OLS is more efficient. The differences in the two sets of coefficient estimates and their standard errors, can be used to form a test statistic distributed as chi-squared. Across all models in table 2, the test statistics are low, failing to reject exogeneity. Given the size of coefficient standard errors, this should be interpreted as an inconclusive outcome – migration status remains potentially endogenous – which is a common outcome of the Hausman test in limited samples. More powerful residual-based tests cannot be used because of the nonlinear form of the first-stage regression.

[9] Several alternative sets of instruments were considered. Distance of workers' subdistrict of birth from the nearest border was adopted from McKenzie et. al. (2010), but in the case of small countries such as Tunisia and Jordan, and the geographically heterogeneous Egypt, the variable is not necessarily correlated with migration probability, or likely correlated with workers' economic outcomes. Another instrument – the density of households with migrants at the governorate level – was considered as more reliable, but performed worse than the locality-level instrument.

An alternative refinement can be implemented by lagging the migrant network instrument by one survey wave. This would ensure its exogeneity with respect to return-migrants' current outcomes and robustness to survey-specific measurement issues. We are grateful to an anonymous referee for this interesting suggestion. The instrument is constructed in one survey wave (Egypt 1998 and 2006, and Jordan 2010), and used for the first and second stage regressions in the following wave (Egypt 2006 and 2012, and Jordan 2016). Nevertheless, in the case of our surveys, matching of respondents or of birthplaces across waves is problematic, leading to smaller sample sizes or unreliable matching. Moreover, since the survey waves are 6-8 years apart, the conditions in the localities and directions of migration are likely to be different.

In our search for better instruments, the panel structure of the Egyptian and Jordanian data is of limited value in matching migrants to those around them such as prior migrants in their household. Individual identifiers are imperfect when it comes to identifying family relations even within households. Moreover, two siblings' decisions to migrate are not independent. Self-selection problems are exacerbated, because those who stay behind do so despite facing lower migration costs were they to follow their migrant relatives. Either their marketable skills are low, or their (shadow) benefits of remaining are very high.

[10] Compared to OLS coefficients, coefficients on the instrumented return migration status are similar in magnitude, but with fluctuating signs. How much of the differences is due to sampling issues and due to endogeneity is unclear.

[11] Only in the OLS regressions, we see consistently positive effects of migration duration. In any case, these estimates should be viewed with caution, due to the potential endogeneity. When we expand the sample from 35–55 year olds to 26–60 year olds, return migration takes on a positive effect across most surveys, but this is significant only in two surveys. The coefficients on migration destination and duration keep their fluctuating signs.

[12] A number of robustness checks were performed that are worth noting: 1) Quadratic forms of household size (in the first stage regression) and age were evaluated but omitted – they would show diminishing effects of these variables, but were not very significant. 2) Controlling for workers' earnings in their occupation group from eight years prior has a large positive effect on current earnings (available on request), confirming strong lifetime propagation, or path dependence, of one's status. This variable is excluded from table 2 as problematic, because the 8-year prior occupation was held after the time of migration for a large share of national samples. 3) Log household wage earnings per capita were used as an alternative dependent variable to capture other household-level returns to one's migration. The results are analogous but less precise than in table 2, confirming that personal earnings have a clearer link with workers' characteristics than household earnings corrected for household size. The coefficients on migration status still fluctuate across surveys and are insignificant. 4) We controlled for workers' current occupation group, employment status and sector (i.e., contract×permanent×sector indicators), and current place of residence, to distinguish the between-occupation versus within-occupation difference in earnings between non-migrants and return migrants. These factors had a clear effect on earnings. If we viewed these occupation and location choices as exogenous, we could evaluate the within-occupation earnings impact of migration. In any case, the migration-status coefficient was insignificant, and so it remains unclear whether migration has any effects on within-occupation earnings or occupational choice.