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Fostering Decent Jobs in MENA Countries: Segmented Employment,
Occupational Mobility and Formalising Informality

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Fostering Decent Jobs in MENA Countries: Segmented Employment, Occupational Mobility and Formalising Informality

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Abstract:

Why is there persistent labour market segmentation as evidenced by gender patterns in employment and occupational mobility? What is the impact and potential of various formalisation policies in MENA countries? An overview of the informal economy across MENA countries is provided with respect to taxonomy, coverage and drivers. Transition matrices and multinomial logistic regressions are applied to longitudinal microdata from Labor Market Panel Surveys (in Egypt, Jordan and Tunisia), focusing on workers' occupational mobility regarding their pre-existing status, age cohort, gender and other demographics. Persistent segmentation and low occupational mobility in all countries suggest that informal employment is not driven by choice on the labour supply side but by structural constraints on the demand side. Existing formalisation policies encapsulating distinct stick and carrot strategies, and targeting business versus workers achieve rather modest impacts. Promoting social and solidarity enterprises, and extending microfinance to informal enterprises are promising policies for the creation of decent jobs.

Keywords: Dualism; Formalisation policies; Informal employment; MENA countries; Logistic regressions; Occupational mobility; Labour force segmentation; Transition matrices.

JEL: E26, J46, O17.

1. Introduction

We address the following two issues: Why is there persistent labour market segmentation? What are the gender patterns in employment and occupational mobility in this respect? What is the impact of various formalisation policies of the informal economy (henceforth informality)? We evaluate the conditions in six lower middle-income, oil-importing MENA economies: Egypt, Morocco and Tunisia in North Africa, and Jordan, Lebanon and Palestine in the Middle East. These countries share many pervasive labour-market characteristics: dramatically low female participation rate; high youth unemployment; micro and small-size informal businesses providing most jobs and operating in low productivity industries; and informal employment constituting half the labour force (Charmes 2019).

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The rest of the study is organized as follows. Section 2 addresses informality as regards the definitions and coverage in MENA countries. Section 3 starts out with selected stylised facts, and then evaluates occupational status and mobility according to workers' initial position, age cohort and gender, using transition tables and multinomial logistic regressions applied to Labor Market Panel Surveys (LMPS) in Egypt, Jordan and Tunisia. Section 4 assesses existing formalisation policies including distinct stick and carrot strategies, and business and worker targeting approaches. Section 5 concludes, taking stock of the status quo and the policy responses in place, and proposes ways forward toward a more equitable and sustainable state. In this respect, fostering social and solidarity enterprises, and extending microfinance funding to informal enterprises seem promising for decent jobs creation.

2. Definitions and Theories of Informality: A Fuzzy Set and Happy Heuristics

The common thread in literature on the MENA region labour markets is fragmentation, a duality between formal and informal private employment (Hlasny & AlAzzawi 2020), and a growing trend of vulnerable employment, particularly among youths. Once the school-to-work transition drives workers into informal jobs, they are at pain transitioning to formal employment later in their careers. Despite higher learning attainment, noteworthy is that female labour force participation in the MENA region (the lowest worldwide) has been rising very slowly from 2000 (19%) up to 2019 (20%), and even receded during 2016–2019 (ILOSTAT retrieved in World Bank Data Bank 2022). Extant research over half a century suggests that the concept of informal economy aligns with happy heuristics, but encapsulates diverse theories and distinct methodologies lacking consensus. Informality is thus better thought of as a “fuzzy set” at the intersection of multi-criteria assessments of the informal economy, the non-observed economy, and the shadow economy. This fuzziness affects the precision and adequacy of policies and regulations relating to informality in developing countries (Adair 2022a).

Informality encapsulates three key components: the informal sector, and informal activities within the formal sector and in households. Data sources are patchy, and coverage remains poor, not least in the MENA countries. The informal sector encompasses the unincorporated enterprises made up of unregistered own-account workers and employers with fewer than five permanent paid employees. Informal employment encompasses all precarious jobs carried out both in the informal sector (the largest component) as well as within formal enterprises and households. It includes domestic workers and household members producing goods and services for their own final use,

where workers are not subject to labour regulations, income taxation or employer-provided social protection (Charmes 2019).

According to Chen et al (2020, 71), there is gender segmentation of informal employment according to status and income. The vulnerability to poverty risk is uneven between genders. In a five-prong classification of informal workers – as employers, regular informal employees, own-account workers, casual/irregular employees, and unpaid family workers – men are over-represented among the three upper categories, whereas women concentrate in the two bottom categories wherein higher poverty risk prevails.

Such a stratification of regional labour markets has attracted various explanations. A threefold spectrum of theories tackled the emergence of informality, namely dualism, structuralism and institutionalism. According to a less optimistic interpretation of dualism (Lewis 1954), persistent informality is due to labour market segmentation, namely barriers to entry in the formal economy affecting the labour market supply side (i.e., workers).

Labour market segmentation – into formal *versus* informal jobs – is not congruent with structuralism (Castells & Portes 1989), given that the informal economy is not separated but rather subsumed by the formal economy under subcontracting arrangements. These have been used in the region to, for instance, shrink production costs in the textile industry or in call centres in Tunisia and Morocco.

The institutionalist approach (De Soto 1986) assumes that informality stems from inadequate regulation, and excessive bureaucracy and taxation, driving small firms and marginal workers to voluntarily step outside or being excluded from the formal economy. This is prevalent in Tunisia and other North African countries (De Soto 2012). Hence, this viewpoint advocates removing constraints on informal entrepreneurs, and diminishing the costs borne by start-ups. The emphasis from the World Bank on lowering barriers to entry and to business activity, and levelling the competitive field, is consistent with institutionalism together with structuralism, as they focus on the demand side of the labour market and the supply side of the goods market (i.e., businesses).

La Porta & Shleifer (2014) provide a convincing comparative analysis supporting Lewis' dualistic theory and dismissing the two other theories. The authors contend that the size of the informal economy, as measured by the share of self-employment in total employment, declines with per capita income. This rather optimistic view suggests a spillover effect of growth and development. However, it does not preclude the implementation of adequate formalising policies. Notably, their

definition of the informal economy is restricted to the employment in the informal sector and perhaps in households as well, but overlooks the component of informal employment within the formal economy.

3. Informal Employment in MENA Countries:

3.1. Stylised Facts at the Aggregate Level

At the aggregate level, three stylised facts about MENA labour markets are noteworthy. First, average (non-agricultural) informal employment is a structural phenomenon, standing around 50 per cent of the work force throughout the 2000s and the 2010s. Second, it has been countercyclical, rising with economic slowdowns until the late 2000s, contracting with upswings of economic growth, and experiencing a trend reversal in the early 2010s. The levels and trends of informal employment differ across countries, according to the impact of economic shocks and policies designed to absorb these. Throughout the 2010-2020 decade, the trend is rising in Egypt and Tunisia. Third, informal employment is related negatively to GDP per capita, due to low factor productivity in the informal sector (Charmes 2019).

Informality and unemployment are not distributed uniformly across the MENA population and industries. Youth unemployment and job informality, in particular, have been pervasive (Fehling et al 2016; Suleiman 2022). Fresh graduates, if they succeed at finding employment, land informal jobs leaving workers with limited prospects for transition to decent work later in their careers. The informal sector, and micro and small enterprises (MSEs) lag behind the formal sector in factor productivity, value-added and fiscal receipts, in part due to a mismatch between skill supply and demand, in a state where workers have few opportunities for upskilling or retraining, and employers fail to invest in them.

From the perspective of industry, job creation in the region has been biased toward manufacturing, building and construction, with an outsized share of informal workforce, while skilled services relying on formal workforce have stagnated. Public sector has also scaled down recruitment since a decade ago as part of macroeconomic and public-sector reforms (Shahen et al 2020).

3.2. Sources and Coverage of Informality in MENA Countries

Data on labour informality varies in quality across countries. Morocco is the only country with three representative surveys devoted to the informal sector (1999, 2007 and 2013). These surveys show that three out of four Moroccan businesses consist of own account micro-enterprises with only one worker (HCP, 2016; Lopez-Acevedo et al 2021). In Egypt, the Central Agency for Public

Mobilization and Statistics (CAPMAS) and the Economic Research Forum (ERF) surveyed representative samples of household firms in 2012 and 2018, 62.5 per cent in the 2018 sample of firms consist of the self-employed (one-person firms) and 31 per cent are micro-enterprises (two to four workers). In Tunisia, the threshold for microenterprises (below six employees) is inconsistent with the definition (below five) used by the International Labour Organisation (ILO) and the World Bank Enterprise Surveys (WBES). The absence of national household surveys dedicated to informal employment or enterprise surveys devoted to the informal sector is an ongoing challenge in Jordan, Lebanon and Palestine.

Table 1 reports figures of informal employment. Informal employment can be scoped from the national Labour Force Surveys (LFS) or LMPS using relevant questions regarding social protection coverage, although using disparate criteria across countries. In Table 1, the share of informal employment (including agriculture) has been highest in Morocco (77.22%) and lowest in Tunisia (44.8%), the two countries that do not avail of their LFS data through ILOSTAT.

Table 1. Informal employment including agriculture in six MENA countries (2019)

Country	Gender	Total (% informal)	Employees (% total)	Self-employed (% total)
Egypt (26,661)	Total	16,870 (63.27)	10,183 (60.33)	6,676 (39.57)
	Male	14,806	9,414	5,390
	Female	2,064	769	1,286
Jordan (2,648)	Total	1,205 (45.50)	1,054 (87.48)	151 (12.51)
	Male	1,107	964	143
	Female	98	90	8
Lebanon (1,590)	Total	880 (55.33)	553 (62.89)	327 (37.10)
	Male	611	339	272
	Female	269	215	54
Palestine (906)	Total	540 (59.58)	355 (65.78)	185 (34.23)
	Male	471	315	156
	Female	69	40	29
Morocco*		(77.22)		
Tunisia*		(44.80)		

Note: * Labour Force Surveys not provided to ILOSTAT. Figures in thousands for employed workers.

Source: Authors' analysis of Labour Force Surveys (2019).

Table 2 displays similar statistics by gender. Self-employment overlaps to a large extent with informal and most vulnerable forms of work, such as male own-account workers and female contributing family workers or casual/irregular workers.

Table 2. Distribution of workforce status and vulnerability in six MENA countries, by gender (2019)

Country	Self-Employed*			Wage Employees			Vulnerable**		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Egypt	<i>31.37</i>	30.18	30.43	68.63	69.82	<i>69.57</i>	<i>27.73</i>	15.41	17.97
Jordan	2.30	16.24	13.92	<i>97.70</i>	83.76	<i>86.08</i>	1.58	12.37	10.58
Lebanon	15.01	<i>44.39</i>	<i>37.48</i>	<i>84.99</i>	55.61	62.53	13.84	<i>35.73</i>	<i>30.58</i>
Morocco	<i>57.11</i>	<i>45.89</i>	<i>48.56</i>	42.89	54.11	51.44	<i>56.29</i>	<i>42.91</i>	<i>46.10</i>
Tunisia	14.27	28.61	25.16	<i>85.73</i>	<i>71.39</i>	<i>74.84</i>	11.47	21.29	18.93
Palestine	22.72	29.66	28.57	<i>77.28</i>	<i>70.34</i>	<i>71.44</i>	20.00	22.42	22.04
Average***	<i>23.80</i>	<i>32.49</i>	<i>30.69</i>	<i>76.20</i>	<i>67.50</i>	<i>69.32</i>	<i>21.82</i>	<i>25.02</i>	<i>24.37</i>

Notes: * includes employers, own-account workers and contributing family workers. ** Some self-employed (excluding employers) as a percentage of total employment. *** Figures in italics are above average.

Source: Authors' compilation of modelled estimates in the ILOSTAT.

Sahwa (2016), a youth survey funded by the European Union, was conducted in 2015 upon a sample including 7,816 individuals aged 15-29 from four MENA countries (Algeria, Morocco, Tunisia and Egypt). Although there is an even distribution for males and female, participation rate among 3,027 active people is over twice as high for males (54.5%) than for females (23.1%), whereas one quarter of the labour force is unemployed, affecting women disproportionately. Two out of three vs one out of three individuals are respectively informal workers vs formal workers. (Gherbi & Adair 2020). This high prevalence of informal employment among youths who do not enjoy social protection (Merouani et al 2018) is consistent with a U-shaped lifecycle pattern: informality declines from youth to maturity (Gatti et al 2014) and rises again among the older age group. See Figure 1 in the Appendix.

Evidence from the *Sahwa* survey also shows substantial income gaps between informal/formal jobs and across genders. This supports the segmentation theory. The formal/informal employee income ratio is similar for females and for males, just as the formal/informal self-employed ratio). In contrast, gender pay gap is lower among formal workers (21.82%) than among informal workers (24.05%), illustrating the absence of safeguard mechanisms in the informal sector (See Table A1 in the Appendix).

The World Bank database on the informal economy (Elgin et al 2021) is also devoted to enterprises, while the WBESs pay very little attention to micro-enterprises, even though these are the bulk of businesses. The limited data for informal (i.e., unregistered) firms are not conducive to a proper analysis. Hence, WBES in the six MENA countries as of 2019–2020 lacks representativeness, overlooking informal firms, and cannot scope the informal sector (Berguiga & Adair 2019).

This study relies on the LMPS, currently available for Egypt (2012 & 2018), Jordan (2010 & 2016) and Tunisia (2014). LMPS are harmonised and administered by national statistical offices in partnership with the Economic Research Forum (ERF), which made these available (OAMDI 2019). These surveys are suitable for examining the dynamics governing individual workers' employment statuses, in as much as they track the same workers and their employment status over the span of six years between survey waves. LMPSs also include recall modules screening workers' prior occupations, supplementing the information on workers' contemporaneous labour market statuses from across multiple survey waves, and providing multiple snapshots even in unbalanced-panel settings. The available surveys are deemed to be of adequate quality and representative of the labour market at large, and there is little indication that the data suffer from measurement errors or bias-inducing attrition of survey subjects. For example, in the 2018 Egyptian LMPS, attrition rate was 15 per cent, but this was concentrated primarily among disabled, retired and other economically inactive workers. While the Egyptian LMPS oversampled poor rural and high-migration communities, the stratified sample design and population expansion weights mitigated the consequences for survey representativeness (Assaad et al 2021). Finally, although the employment distribution among marginal demographic groups (such as rural subsistence workers, or female youths) showed some discrepancies against Labour Force Survey and Census figures, employment transitions and the determinants of these transitions are not thought to be biased.

LMPSs survey workers' current occupation type, status as (ir)regular and (in)formal in/out of establishment, and presence of contract and social insurance coverage. Some survey waves also cover the size and registration status of ones' employers. Table A2 (See Appendix) illustrates the surveys' coverage of formally and informally employed workers by gender.

3.3. Persistent Informality and Declining Occupational Mobility: Some Salient Facts

Assessments of the composition of labour force across subsequent survey waves reveal that occupational mobility has been deteriorating over time. For instance, it proved stronger in Egypt over 1996–2006 due to the contribution of the public sector (Woldemichael et al 2019), whereas most individuals remained in their initial labour market segments over 2006–2012 (Tansel & Ozdemir 2019). Over the past decade, employment vulnerability of youth rose in Egypt. In Jordan, while youth men's vulnerability dropped from 40 per cent to 34 per cent between 2010 and 2016,

that of youth women and non-youth men increased, for an overall increase in informality. In Tunisia as of 2014, the share of youth men in vulnerable employment was high at 63 per cent.

Dynamic analysis using LMPSs confirms that, across the three countries, youths starting in vulnerable jobs are unlikely to move to better quality jobs over time (AlAzzawi & Hlasny 2022).

Table A3, Table A4 and Table A5 (in the Appendix) display transition matrices for three age groups highlighting occupational mobility with distinct patterns according to gender.

In Egypt, as for youth (18-29), most young men (two out of three) being self-employed or informal in 2012, were far less (over one out of ten) likely to transition to formal jobs in 2018. Far less young women (almost one out of four) were self-employed or informal in 2012 and over one out of four was formal and most (almost three out of four) remain in this status. Young women are more likely to exit (transition out of) the labour force rather than stay self-employed/informal, or get a formal job.

Adult men (30-44), less than half being self-employed or informal in 2012, had a slightly higher chance of transitioning to formal jobs (over one out of six). Adult women (30-44), less than one out of three being self-employed or informal in 2012, had only a tiny chance of transitioning to formal jobs (less than one out of twenty). Women once again are far more likely to exit the labour force. Conversely, women formally employed in 2012 are most likely to remain in that status by 2018.

Among the older cohort (45-59), moving out of the labour force is far more prevalent among men than other cohorts and the most likely transition for women, regardless of their status in 2012. Men, over one out of four being self-employed or informal in 2012, had a smaller chance of transitioning to formal jobs (below one out of ten). Women, less than one third being self-employed or informal in 2012, had almost no chance of transitioning to formal jobs. Both men and women (roughly two out of three) formally employed in 2012 are most likely to remain in that status by 2018.

Hence, informality is strongly persistent although lessening from youth age groups to mature ones. Occupational mobility from informality towards formal jobs is rather modest and it shrinks from youth to maturity. Conversely, formal workers cling to their status. This threefold pattern is consistent with segmentation theory.

Unsurprisingly, the wage gap between formal and informal employees in Egypt favours the former at the expense of the latter. Hence, formal employment is attractive enough for formal employees

to remain within their status and for informal employees to move towards it. Table 3 reports that formal/informal average wage gap is usually wider for women than for men as of both 2012 and 2018. Without accounting for age groups, the formal/informal average wage gap stands below (2012) or beyond (2018) 33.33 per cent. This finding is consistent with that of North Africa according to the *Sahwa* survey (Gherbi & Adair, 2020).

Table 3. Egypt Formal/Informal Employees Real Monthly Wage and Wage Gap in Egypt (2012-2018)

Year	Informal Employees		Formal Employees		Formal/informal Wage Gap (2012)	Formal/informal Wage Gap (2018)
	2012	2018	2012	2018		
Youth men	2085	2267	2791	2894	(25.29)	(21.66)
Youth women	1376	2323	1979	2002	(30.46)	(-16.03)
Adult men, 30-44	2414	2180	3561	4812	(32.21)	(54.69)
Adult women, 30-44	1211	2757	2335	2629	(48.13)	(-4.86)
Adult men, 45-59	2452	2038	3671	3051	(33.20)	(33.20)
Adult women, 45-59	1360	1503	3179	2911	(57.22)	(48.36)
Total	2193	2224	3195	3582	(31.36)	(37.91)

Notes: All wages are in 2018 EGP currency, deflated using the CPI. Wage gap in percentage.

Source: Authors calculations from Egypt Labour Market Panel Surveys –ELMPS for 2012 and 2018.

In Jordan, for youth (18-29), one out of two young men were formally employed in 2010, and most of them (roughly two out of three) remained formal by 2016. Of those who did not, the majority (about one out of four) transitioned out of the labor market by 2016. Young men who were self-employed or informal in 2010 (about one out of four), were less (about one third) likely to transition to formal jobs in 2016. Once again, there was relatively high propensity to exit the labor force all together (about one fifth of the self-employed and slightly less of the informal). Far fewer young women (less than one in ten) were self-employed or informal in 2010 and almost one half were formal, the majority of whom (slightly less than one half) remained in this status. Young women are more likely to exit (transition out of) the labour force, or become unemployed rather than stay self-employed/informal, or get a formal job.

Adult men (30-44), about one quarter being self-employed or informal in 2010, had a similar chance of transitioning to formal jobs (over one out of three), compared to young men. Adult women (30-44), less than one fifth being self-employed or informal in 2010, had only a tiny chance of transitioning to formal jobs (one out of twenty). Women once again are far more likely to exit the labour force. Conversely, women formally employed in 2010 are most likely to remain in that status by 2016.

Among the older cohort (45-59), moving out of the labour force is far more prevalent among men than other cohorts and the most likely transition for women, regardless of their status in 2010. Men, over one out of three being self-employed or informal in 2010, had small chance of transitioning to formal jobs (less than one out of ten). Women, less than one quarter being self-employed or informal in 2010, had no chance of transitioning to any job, with the vast majority exiting the labor force. Both men and women (roughly two out of five men and less than one fifth of women) formally employed in 2010 are most likely to remain in that status by 2016.

Labour supply behaviour differs in Jordan as compared with Egypt. Thus, for almost all initial employment statuses and regardless of adult cohort and gender, Jordanians workers were far more likely to exit the labour force than their Egyptian counterparts were. In 2016, Jordanians who are young (18-29) are also more likely to be formally employed than Egyptians are in 2018, and if they are not, they either exit the labor force or are unemployed.

As for Jordan, although the trend is shrinking from youth to maturity, informality is strongly persistent. Occupational mobility from informality towards formal jobs is rather modest and it lessens from youth age groups to mature ones. Conversely, formal workers cling to their status. Once again, this threefold pattern is consistent with segmentation theory⁴.

For Tunisia, we only have one round of the panel survey, but we were able to infer employment status using retrospective data on job characteristics from the survey. We examined employment status in 2008: 6 years before the survey year (2014) and how it evolved by 2014. The results are in Appendix Table A5. For youth (18-29), one out of four young men were formally employed in 2008, and most of them (roughly four out of five) remained formal by 2014. Young men, half being self-employed or informal in 2008, were very unlikely (less than one in ten) to transition to formal jobs in 2014. Far fewer young women (less than one in three) were self-employed or informal in 2008 and over one half were formal, whereas slightly less than one half remained in this status in 2014. Young women were more likely to exit (transition out of) the labour force, or become unemployed rather than stay self-employed/informal, or get a formal job.

Adult men (30-44), over one-half being self-employed or informal in 2008, had a very low chance of transitioning to formal jobs (less than one in ten). Adult women (30-44), less than one third being self-employed or informal in 2008, had only a tiny chance of transitioning to formal jobs

⁴ In contrast with Egypt, we were unfortunately unable to calculate the wage gap, because the average wage in 2016 proved unrealistic, due to some data entry error.

(one out of one hundred). Women once again were far more likely to exit the labour force. Conversely, women formally employed in 2008 were most likely to remain in that status by 2014. Among the older cohort (45-59), moving out of the labour force is far more prevalent among men than other cohorts and the most likely transition for women, regardless of their status in 2008. Men, over two out of five being self-employed or informal in 2008, had a small chance of transitioning to formal jobs (less than one out of ten). Women, about one in two being self-employed or informal in 2008, had no chance of transitioning to any other status, with the vast majority remaining in their status. Both men and women (roughly two out of five men and less than one fifth of women) formally employed in 2008 are most likely to remain in that status by 2014.

Thus, for Tunisia, the data suggests relatively lower occupational mobility at all age groups, by sex and regardless of 2008 status.

3.4. Drivers of Informality: Evidence from Multinomial Logistic Regressions

To investigate factors behind workers' employment status, and sources of the youth/non-youth gaps, we turn to multinomial logistic regressions. The regressions estimate the probability that a worker will attain a particular employment type (i.e., formal, informal/irregular, self-employed/unpaid family worker, unemployed) relative to the probability of the baseline option – remaining out of the labour force.

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. The estimates from the regression model allow us to calculate the (conditional) propensities of workers to attain each possible employment outcome. The model takes the values of explanatory variables (x), estimates the j -outcome specific coefficients on those explanatory variables (β_j) using maximum likelihood, and calculates 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 for clarity of presentation.

Workers' employment outcomes are made a function of workers' demographics (age, gender, education), household characteristics (gender of household head, highest education in household, location of residence), and father's social status (education, employment status). Three age cohorts

are distinguished: youth (15-29), ascending to prime working age (30-44), and prime working age (45-59). In equation (1), we thus use:

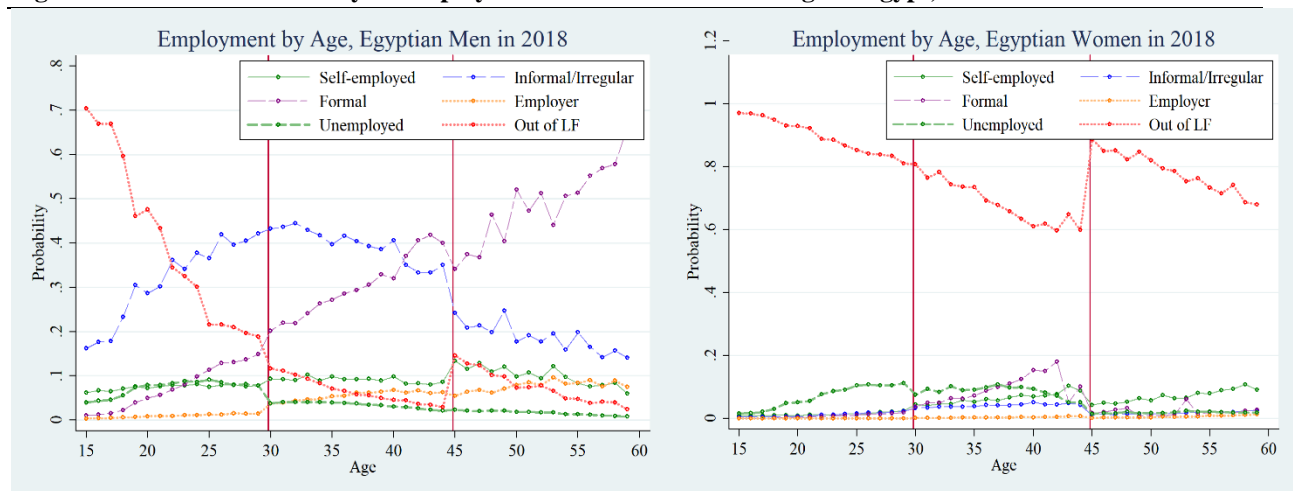
$$\beta x = \beta_0 + \beta_1 youth + \beta_2 ascending + \beta_3 age + \beta_4 age^2 + \beta_5 female + \sum_l \beta_l edu_l + \sum_m \beta_m edu_m \times female \quad (2)$$

$$+ \beta_6 wealth + \beta_7 HH\ head + \beta_8 HH\ highest\ ed + \sum_r \beta_r father\ ed_r + \sum_k \beta_k father\ employment_k + \beta_9 ru$$

Tables A6-A8 in the appendix present the full results. The main findings from these regressions are that family wealth, and father’s education and employment are important determinants of employment outcomes and these associations persist even after a long period of work experience. Opportunities for upward mobility deteriorated over the past decade in all three countries evaluated (Egypt, Jordan and Tunisia). Educational attainment in particular is a critical factor that allows workers’ transition to better employment statuses, and thus a crucial means for improving social mobility (AlAzzawi & Hlasny 2022).

Figure 1 shows the estimated probabilities of workers’ employment status – separately by gender – derived from these regressions. Among men, the prospects of formal employment are found to increase monotonically with age in Egypt and Tunisia, but have an inverse-U dynamic in Jordan, peaking in the 30-44 age group. Formal employment is the predominant employment category among higher age groups - above the age of 40 in Egypt, above 30 in Tunisia, and only in Jordan, they show a temporary dip in the 45-52 year age group. Youth workers – in their early twenties in Egypt and Jordan, but as far as until 30 in Tunisia – are predominantly economically inactive.

Figure 1. Predicted Probability of Employment Status: Gender and Age in Egypt, Jordan and Tunisia





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

Unemployment is also notably high among youth in all three countries. Informality and irregular employment takes the highest share of all employment among Egyptian men aged 22–40, is a consistent risk among Tunisian men of all ages (around 15% in Tunisian men's twenties, 20% in their thirties, and again 15% in the 45–59 year age group).

Among women, being economically inactive is the singly predominant status across all ages. In all three countries, the probability of being inactive starts very high in women's youth gradually declines to the age of 45, and jumps up again among the 45–59 year age cohort. Being unemployed and searching for jobs is the second most dominant status among young women up to their late 20s in Jordan and Tunisia, and as far as late 30s in Egypt. In all three countries, women in their thirties and early forties then have a moderate chance, 10–20%, of holding formal employment, before this prospect again fades away.

4. The Root Causes of Informalisation, and the Formalisation Drive

The first main cause of persistent or rising informality is the inability of the formal economy (including the public sector) to absorb increasing labour force (Chen & Harvey 2017). The IMF (Balima 2021) suggests that 85 per cent of all informal workers are in precarious employment not through choice, but due to lacking opportunities in formal (private or public) employment. The other main cause is inadequacy of regulatory frameworks and weak enforcement of labour contracts and social security inspectorate, including corruption, which push the informal sector and microenterprises to operate outside the purview of regulations.

In the 2010s, the International Labour Organisation (ILO 2013) provided a comprehensive overview of the informal economy and recommended policy approaches to achieve transition and integration into the formal economy. The World Bank has advocated and assessed formalisation policies targeting the inefficiencies and inequities in the informal sector (Benjamin et al 2014). The persistence of informality reveals contradictory patterns of narrow short-term advantages and general disadvantages. Unfair bare-knuckles competition in prices from informal micro and small sized enterprises *vis-à-vis* formal firms; erosion of the fiscal tax base; entrapment of (most) informal workers in subsistence jobs without employment protection; the lack of standards and guarantees of equal treatment across different classes of workers; and the loss of incentives for investment in human capital, technology and infrastructure. The formalisation drive would ideally reconcile the promotion of sustainable entrepreneurship advocated by the World Bank, with the ILO-supported organic expansion of social protections for informal and other non-covered workers (Adair 2022b).

A broad range of formalisation policies have been proposed to address the heterogeneity of informality, but impact assessments provide mixed evidence. A relevant distinction is between policies explicitly tackling informality vs. policies that prove influential though without explicitly aiming at formalisation, such as Active Labour Market Policies (ALMPs). The former policies target categories of businesses (e.g. microenterprises), or workers (e.g. domestic work), and the component of informality (e.g. undeclared work in formal enterprises). ALMPs address the following: (i) skills training in Tunisia (Almeida et al 2012) and in Morocco (Kluve et al 2014) and (ii) support for enterprise development including microfinance services. (iii) Employment services had no impact on employment outcomes in Jordan (Groh et al 2012); and (iv) subsidised

employment (public employment and wage subsidies) in Jordan and Tunisia (Barcucci & Mryyan 2014) did not create jobs in the long run (ILO 2017b).

Microcredit has had some significant positive impacts in the short-term, mainly upon already established businesses in Egypt (Amer & Selwaness 2021), as well as in Morocco (Crépon et al 2015), while there is no impact on the probability of establishing new businesses. Positive effects vanish in the long run, perhaps because loan amount is too small to spur investment, thus calling for a more sustainable approach (ILO 2017b).

Formalisation policies address the informal sector more than the informal sector, although formalisation targeting the latter proves more effective than targeting the former (Jessen & Kluge 2019). Enacting laws alone does not ensure the transition of workers from informal to formal jobs; beyond design and implementation, monitoring and assessment are crucial steps in the policy cycle (ILO 2017a). This applies to the law on self-employed entrepreneur and the law on domestic employment Morocco respectively adopted in 2015 and 2016 (Cherkaoui & Benkaraach 2021).

Formalising businesses using incentives (carrot) is threefold. First, information campaigns on the procedures and benefits of registration, alone, remain ineffective. Second, one-stop shops bring together several procedures and relevant agencies simplifying business registration, and incentives to reduce taxes as well as social security contributions prove effective. Third, the impact of shrinking of registration costs for start-ups and providing of bonuses to businesses willing to register depends on the scale of support. Eliminating one-half of the entry cost was projected to decrease the informal sector by five per cent, whereas shrinking the payroll tax by one-half would lower informal employment by 13 per cent (Balima 2021).

Formalising businesses using penalty (stick) includes, as a fourth approach, law enforcement by the labour inspectorate, which has a minor but significant impact on the formal employment of workers persisting for several years (Gaarder & van Doorn 2021).

We contend that a concerted effort toward labour-market formalisation would increase firms' factor productivity and performance, which would in turn encourage retention of high-quality workers and acquisition of complementary capital, leading to further performance gains and incentives to curtail labour turnover. The availability of the bulk of currently underutilized youths (in the informal sector, or unemployed) and women (economically inactive) presents an untapped opportunity to for-profit as well as social entrepreneurs.

5. Conclusions

As emphasized in this study, informality is a dynamic concept that looks to the future while remaining grounded on achievements made so far. Informality remains more topical than ever, conceptually (linking informality to value added), metrically (calculating its scope and trend) and politically (better integrating and formalising it). Informality requires both ongoing thorough investigation and taking stock of evolving stylised facts. Quarterly surveys that were disrupted in several countries by the Covid-19 pandemic must resume data collection for assessment. This is a pre-requisite for policies addressing the formalisation of informality.

Formalisation policies should be judged by the minimal standards of whether they increase employment and general welfare. Their major component of promoting job creation should take place within formal sustainable organisations. In this respect, for-profit cooperatives and not-for-profit social and sustainable institutions (SSEs) including microfinance institutions (MFIs) could play a key role (Adair et al 2022a and b; 2023). In the MENA region, SSEs were spearheaded in Morocco decades ago, and were recently adopted by Tunisian, Egyptian and other governments (Prince et al 2018). Female workers, being typically disadvantaged compared to their male counterparts, should be assigned priority.

Formalisation should target both informal businesses and workers, using incentives and penalties. Specific tax and public procurement policies addressing informal workers who are establishing or joining formal sustainable organisations should be promoted (Kiaga & Leung 2020).

MFIs will enable formalisation by supporting and incentivizing informal businesses and workers to take steps toward inclusivity and sustainability. According to Adair et al (2022a and b), as a paragon to emulate and to benchmark against, the Alexandria Business Association (ABA), an Egyptian MFI, tripled the number of fully formalised clients between 2004 (6%) and 2016 (18%). In sum, innovative formalization approaches are recommended to stimulate decent job creation, tackle the fragmentation of MENA labour markets, and promote occupational mobility and human capital development. This will lead to a better matching of employer needs and worker skills, and productivity growth across various sectors of the regional labour markets and underrepresented segments of society. Ultimately this will foster a more sustainable and inclusive trajectory of development.

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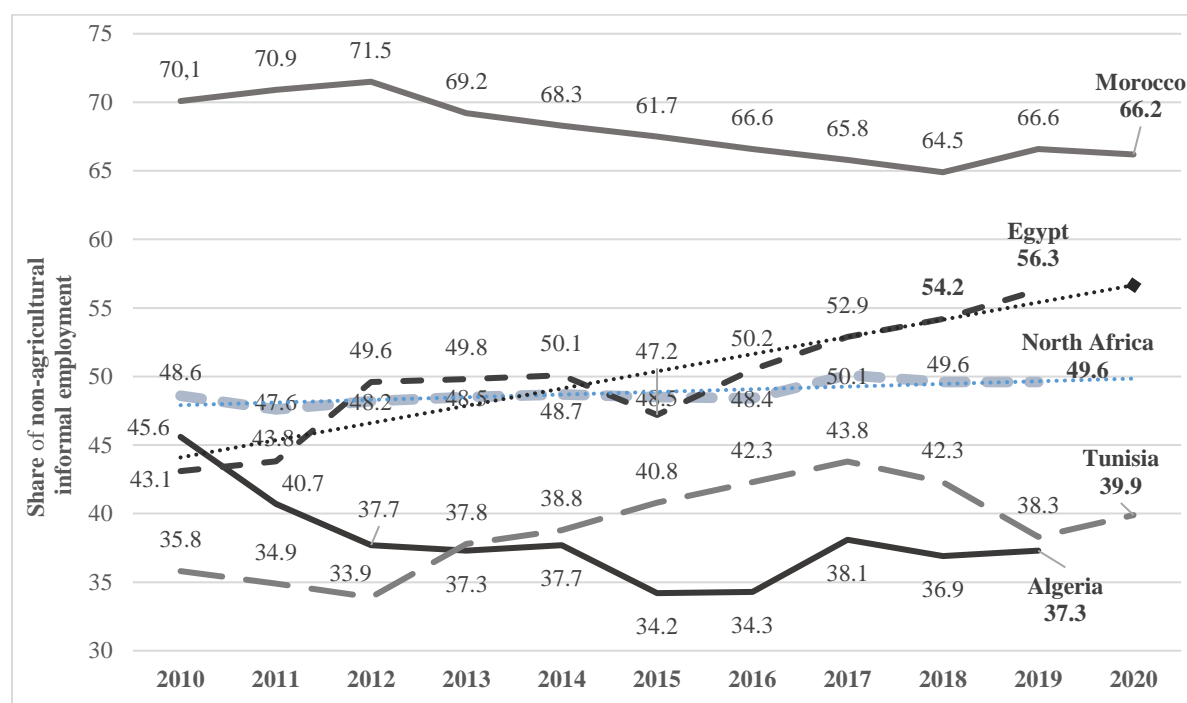
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Appendix

Figure A1. Informal employment in non-agricultural employment: North Africa 2010-2020



Notes: Non-weighted arithmetical mean.

Source: Charmes & Adair (2022). Data on informal employment: national employment surveys provided by official statistical offices (Algeria, Morocco and Egypt) and estimates from national employment survey and microenterprises five-year survey (Tunisia).

Table A1. Average monthly incomes of youths: North Africa as of 2015

	Females	Males	Gender pay gap (%)
Formal employee	742.35	868.36	14.51%
Formal self-employed	859.82	1,429.25	39.84%
Formal workers (employees + self-employed)	751.49	961.32	21.82%
Informal employee	417.42	489.28	14.68%
Informal self-employed	380.73	650.18	41.44%
Informal workers (employees + self-employed)	407.51	536.56	24.05%
Formal /Informal employee ratio	1.778	1.774	
Formal /Informal self-employed ratio	2.258	2.198	

Notes: 1,941 youths (aged 15-29) in North Africa holding jobs in 2015. Income in \$ PPP (Purchasing Power Parity Adjusted). North Africa: Algeria, Egypt, Morocco, Tunisia.

Source: Gherbi & Adair (2020).

Table A2. Informal employment in three MENA countries: Egypt, Jordan and Tunisia, LMPS

	Country	Wave	Employed (#)			Informally employed (%)	
			Men	Women	Total	Men	Women
LMPS	Egypt	2006	9,206	2,751	11,957	57.39	58.32
		2012	11,788	2,742	14,530	60.98	43.91
		2018	13,659	3,011	16,670	66.09	52.11
	Jordan	2010	4,939	1,018	5,957	42.26	21.34
		2016	5,317	1,025	6,342	52.76	19.44
	Tunisia	2014	2,827	863	3,690	45.31	43.21

Notes: Informality shares account for survey sampling weights. Non-employed workers are excluded from the counts, which explains the disproportionately low counts of women compared to men.

Source: Authors' analysis of LMPS.

Table A3. Egypt: Transition Matrices by age, gender and Employment Status from 2012 to 2018

2012 Employment Status	2018 Employment Status					
	Self-Employ	Informal	Formal	Employer	Unemployed	OLF
Youth Men 18-29						
Self-Employ. (N=649)	26.27	46.05	6.59	11.75	5.48	3.87
Informal (N=2,218)	8.78	63.44	12.93	3.76	5.89	5.2
Formal (N=819)	2.99	26.28	64.75	2.28	2.55	1.14
Employer (N=200)	12.34	52.38	7.25	25.66	1.51	0.86
Unemployed (N=357)	4.1	44.81	27.93	3.44	11.54	8.18
OLF (N=566)	10.51	52.62	17.84	4.4	4.45	10.18
Total (N=4,809)	10.18	51.46	22.51	5.57	5.33	4.95
Youth Women 18-29						
Self-Employ. (N=220)	22.93	4.58	1.71	0	4.6	66.18
Informal (N=114)	2.76	12.34	6.96	1.18	15.55	61.22
Formal (N=420)	0.19	4.59	72.18	0	3.61	19.43
Employer (N=10)	50.97	2.72	0	0	0	46.31
Unemployed (N=655)	2.36	3.77	4.77	0.35	25.89	62.86
OLF (N=4,178)	5.5	2.96	1.67	0.26	7.86	81.74
Total (N=5,597)	5.48	3.42	7.33	0.26	9.68	73.82
Adult men 30-44						
Self-Employ. (N=560)	28.78	38.77	8.21	19.89	2.55	1.81
Informal (N=1,570)	11.21	54.23	18.28	7.07	5.74	3.46
Formal (N=1,724)	2.28	12.59	81.67	1.02	1.34	1.09
Employer (N=568)	26.6	27.78	6.03	33.93	2.42	3.24
Unemployed (N=136)	8.64	51.55	26.69	3.41	6.48	3.23
OLF (N=55)	11.28	20.07	28.9	6.6	12.87	20.28
Total (N=4,613)	11.45	32.49	41.18	9.16	3.31	2.42
Adult women 30-44						
Self-Employ. (N=282)	25.99	2.97	1.3	3.28	5.46	61.01
Informal (N=100)	4.01	31.44	15.32	0.46	7.08	41.69
Formal (N=556)	0.48	2.2	82.64	0	1.2	13.49
Employer (N=35)	60.51	0	0.4	5.28	0	33.81
Unemployed (N=298)	2.18	2.73	9.93	0	18.89	66.27
OLF (N=2,847)	6.39	2.54	5.29	0.67	6.13	78.98
Total (N=4,118)	6.86	3.2	15.62	0.72	6.41	67.19
Adult men 45-59						
Self-Employ. (N=266)	36.55	17.45	7.55	17.79	2.35	18.32
Informal (N=413)	12.8	45.8	9.54	8.28	4.8	18.79
Formal (N=1,287)	2.86	4.34	63.36	3.73	1.09	24.61
Employer (N=442)	24.95	19.86	4.1	37.6	1.86	11.63
Unemployed (N=28)	23.31	28.26	0	11.73	2.8	33.9
OLF (N=179)	8.66	15.41	4.56	10.1	1.46	59.82
Total (N=2,615))	11.96	15.28	35.94	11.76	1.94	23.13
Adult women 45-59						
Self-Employ. (N=226)	20.21	0.62	0	3.33	0	75.84
Informal (N=27)	6.98	32.95	9.92	0	0	50.15
Formal (N=518)	0.15	0.67	68.25	0.48	0	30.45
Employer (N=31)	22.84	4.49	0	8.62	0	64.05
Unemployed (N=7)	22.51	0	0	0	0	77.49
OLF (N=2,132)	3.85	1.5	0.86	0.81	0.68	92.3
Total (N=2,941))	4.82	1.64	13.16	1.03	0.49	78.86

Notes: 'Self-Employment' category includes both the self-employed and unpaid family workers. Informal workers are those without social security or a contract. OLF' is out of the labour force.

Source: Authors calculations from Egypt Labour Market Panel Surveys -ELMPS for 2012 and 2018.

Table A4. Jordan: Transition Matrices by age, gender and Employment Status from 2010 to 2016

2010 Employment Status	2016 Employment Status					
	Self-Employ.	Informal	Formal	Employer	Unemployed	OLF
Youth Men 18-29						
Self-Employ. (N=100)	23.66	15.68	12.77	5.12	22	20.78
Informal (N=473)	11.29	42.74	21.5	2.08	6.04	16.35
Formal (N=1,158)	1.63	4.83	59.71	2.1	4.65	27.08
Employer (N=34)	9.6	37.77	23.18	17.29	0	12.16
Unemployed (N=366)	7.71	10.78	33.02	2.45	22.43	23.62
OLF (N=205)	6.86	10.42	29.12	0.33	23.9	29.37
Total (N=2,336)	6.62	17.28	40.53	2.43	9.79	23.35
Youth Women 18-29						
Self-Employ. (N=12)	0	9.8	12.11	0	0	78.09
Informal (N=42)	0	31.51	2.95	0	31.26	34.29
Formal (N=300)	0.74	3.2	45.5	0	8.11	42.45
Employer (N=2)	0	0	0	0	0	100
Unemployed (N=252)	1.14	0.55	22.28	0.72	23.08	52.23
OLF (N=1,546)	0.88	1.52	4.46	0	9.52	83.62
Total (N=2,154)	0.87	2.17	11.05	0.07	10.97	74.87
Adult men 30-44						
Self-Employ. (N=241)	28.97	16.43	17.27	3.17	3.44	30.73
Informal (N=337)	12.2	42.42	13.08	6.92	7.74	17.65
Formal (N=1,325)	4.61	5.44	54.96	1.4	3.63	29.95
Employer (N=155)	29.14	21.93	4.2	24.28	0.38	20.07
Unemployed (N=130)	9.75	22.74	15.14	2.57	8.59	41.22
OLF (N=147)	10.74	7.31	9.66	5.59	8.86	57.84
Total(N=2,335)	11.21	15.72	35.41	4.45	4.57	28.63
Adult women 30-44						
Self-Employ. (N=40)	5.78	5.76	0	0	14.82	73.65
Informal (N=39)	0	17.9	5.62	2.8	0	73.68
Formal (N=407)	0.25	3.04	61.26	0	1.63	33.81
Employer (N=8)	9.08	4.9	0	0	0	86.02
Unemployed (N=78)	3.43	0	14.78	0	22.79	59
OLF(N=1,865)	0.33	0.4	3.33	0.18	3.15	92.62
Total (N=2,437)	0.5	1.26	11.8	0.2	3.48	82.76
Adult men 45-59						
Self-Employ. (N=175)	26.83	5.16	6.63	2.15	5.48	53.75
Informal (N=98)	21.5	43.39	4.5	7.87	6.22	16.52
Formal (N=391)	1.01	2.48	42.23	0	3.54	50.75
Employer (N=104)	12.12	6.34	11.77	29.34	0	40.43
Unemployed (N=47)	0	4.36	5.17	11.15	16.55	62.77
OLF (N=318)	3.16	1.38	6.68	1.2	5.47	82.12
Total (N=1,133)	9.4	8.63	18.64	5.18	4.73	53.42
Adult women 45-59						
Self-Employ. (N=16)	0	0	0	0	0	100
Informal (N=13)	0	0	0	0	0	100
Formal (N=74)	0	0	15.96	0	4.15	79.88
Employer (N=8)	0	0	0	0	0	100
Unemployed (N=5)	0	0	0	0	0	100
OLF (N=1,089)	1.02	0.82	1.81	0	2.9	93.45
Total (N=1,205)	0.94	0.76	2.47	0	2.89	92.94

Notes: 'Self-Employment' category includes both the self-employed and unpaid family workers. Informal workers are those without social security or a contract. 'OLF' is out of the labour force.

Source: Authors calculations from Jordan Labour Market Panel Surveys – JLMPS for 2010 and 2016.

Table A5. Tunisia: Transition Matrices by age, gender and Employment Status from 2008 to 2014

2008 Employment Status	2014 Employment Status					
	Self-Employ.	Informal	Formal	Employer	Unemployed	OLF
Youth Men 18-29						
Self-Employ. (N=131)	85.36	3.77	4.46	0	5.35	1.06
Informal (N=212)	2.46	74.18	7.17	0.62	12.58	2.99
Formal (N=154)	2.11	7.97	85.96	1.91	1.67	0.37
Employer (N=21)	0	0	0	100	0	0
Unemployed (N=101)	2.72	7.39	27.1	0.49	51.1	11.19
OLF (N=848)	0	0	0	0	0	100
Total (N=1467)	15.4	29.21	30.67	5.1	15.85	3.77
Youth Women 18-29						
Self-Employ. (N=40)	67.81	0	0	-	8.56	23.62
Informal (N=43)	4.46	34.93	8.13	-	6.13	46.35
Formal (N=90)	0.75	3.05	61.07	-	5.24	29.89
Employer (N=0)	-	-	-	-	-	-
Unemployed (N=87)	3.65	13.81	20.22	-	40.51	21.82
OLF (N=1540)	0	0	0	-	4.84	95.16
Total (N=1800)	8.18	10.71	29.77	-	16.47	34.87
Adult men 30-44						
Self-Employ. (N=231)	84.88	3.79	5.7	1.79	1.48	2.37
Informal (N=299)	8.35	70.64	10.56	1.01	5.92	3.51
Formal (N=441)	1.28	6.84	88.91	0.21	1.16	1.58
Employer (N=61)	2.73	0	0	96.51	0.75	0
Unemployed (N=22)	0	8.21	31.25	12.74	34.5	13.29
OLF (N=358)	0	0	0	0	0	100
Total (N=1412)	17.36	22.4	46.9	7.26	3.01	3.06
Adult women 30-44						
Self-Employ. (N=96)	79.55	0	1.31	0	1.58	17.57
Informal (N=59)	4.82	51.06	0	0	14.95	29.17
Formal (N=130)	0.44	0	70.9	0	1.13	27.54
Employer (N=8)	0	0	0	94.31	0	5.69
Unemployed (N=45)	3.28	8.04	15.23	0	29.97	43.48
OLF (N=1357)	0.82	2.03	3.64	0	4.25	89.27
Total (N=1695)	13.59	9.04	32.76	1.56	6.12	36.93
Adult men, 45-59						
Self-Employ. (N=209)	84.26	0.86	3.54	2.07	1.13	8.13
Informal (N=154)	2.57	67.77	5.01	0	6.46	18.18
Formal (N=378)	2.48	3.71	57.66	0.75	0.61	34.8
Employer (N=56)	2.44	0	0	84.6	2.73	10.23
Unemployed (N=18)	0	0	4.9	0	29.83	65.27
OLF (N=348)	0	0	0	0	0	100
Total (N=1163)	19.97	12.89	30.38	7.83	2.37	26.56
Adult women 45-59						
Self-Employ. (N=77)	84.07	0	0	0	1.7	14.23
Informal (N=33)	0	68.96	0	0	1.67	29.37
Formal (N=59)	0	0	39.07	0	0	60.93
Employer (N=2)	0	0	0	100	0	0
Unemployed (N=6)	40.43	0	0	0	42.97	16.61
OLF (N=1105)	1.53	0.9	0	0	0	97.58
Total (N=1282)	20.97	11.61	13.18	0.34	3.14	50.76

Notes: 'Self-Employment' category includes both the self-employed and unpaid family workers. Informal workers are those without social security or a contract. 'OLF' is out of the labour force.

Source: Authors calculations from Tunisia Labour Market Panel Surveys – TLMPS 2014.

Table A6. Multinomial logit regressions in Egypt 2018, all age cohorts and sexes

	Self-employed.	Informal	Formal	Employer	Unemployed
Youth=1 (15-29)	-1.665*** (0.115)	-1.091*** (0.107)	-4.028*** (0.119)	-3.652*** (0.196)	0.027 (0.165)
Ascending to prime working age=1 (30-44)	0.006 (0.099)	0.616*** (0.096)	-0.766*** (0.093)	-0.290** (0.128)	0.618*** (0.149)
Age (minus the lower age cutoff in cohort)	0.083*** (0.029)	0.081*** (0.026)	0.173*** (0.028)	0.181*** (0.045)	0.107*** (0.036)
Age squared	-0.000 (0.002)	0.000 (0.002)	0.000 (0.002)	-0.003 (0.003)	-0.003 (0.002)
Female=1	-3.001*** (0.146)	-5.339*** (0.172)	-6.168*** (0.312)	-5.212*** (0.268)	-3.076*** (0.224)
Reads and writes	0.343** (0.161)	0.211 (0.174)	0.816*** (0.230)	0.304 (0.218)	0.606*** (0.227)
Below intermediate education	-0.545*** (0.167)	-0.689*** (0.148)	0.345 (0.212)	-0.713*** (0.199)	-0.857*** (0.271)
Secondary education.	-0.214 (0.160)	-0.006 (0.148)	1.427*** (0.200)	-0.165 (0.193)	0.074 (0.242)
University+	0.602*** (0.220)	0.661*** (0.201)	2.892*** (0.247)	0.534** (0.262)	1.407*** (0.286)
Basic education. × Female	0.762*** (0.239)	1.426*** (0.250)	2.406*** (0.457)	0.758 (0.516)	1.878*** (0.309)
Secondary education. × Female	0.341* (0.193)	0.925*** (0.218)	3.003*** (0.329)	-0.425 (0.444)	2.213*** (0.249)
University+ × Female	-0.536* (0.303)	2.115*** (0.277)	3.704*** (0.343)	-0.028 (0.499)	2.376*** (0.282)
Household wealth	-0.153*** (0.053)	-0.351*** (0.045)	0.058 (0.042)	0.457*** (0.068)	-0.267*** (0.051)
Household size	0.077*** (0.024)	-0.025 (0.019)	-0.081*** (0.024)	0.113*** (0.030)	0.000 (0.022)
Female-headed household	-0.005 (0.100)	0.092 (0.079)	0.188* (0.102)	0.561*** (0.138)	-0.002 (0.094)
Highest years of education in household	-0.059*** (0.012)	-0.122*** (0.012)	-0.064*** (0.017)	-0.072*** (0.019)	-0.069*** (0.018)
Father reads and writes	-0.094 (0.114)	-0.045 (0.093)	0.204* (0.112)	-0.006 (0.157)	0.252** (0.121)
Father below intermediate education	-0.239** (0.120)	-0.146 (0.098)	0.025 (0.107)	-0.108 (0.184)	-0.017 (0.119)
Father intermediate education	-0.417*** (0.119)	-0.581*** (0.100)	-0.036 (0.102)	-0.260 (0.205)	-0.146 (0.113)
Father university+	-0.984*** (0.231)	-0.526*** (0.156)	-0.064 (0.149)	-0.429 (0.303)	-0.190 (0.157)
Father employer	0.853*** (0.099)	0.097 (0.097)	0.249** (0.120)	1.717*** (0.128)	-0.090 (0.138)
Father self-employed	0.494*** (0.087)	-0.240*** (0.087)	-0.245** (0.100)	-0.034 (0.156)	-0.080 (0.115)
Father non-employed	0.836*** (0.122)	1.308*** (0.104)	1.267*** (0.146)	0.942*** (0.214)	0.367*** (0.126)
Rural residence	0.472*** (0.084)	0.004 (0.067)	0.300*** (0.076)	0.717*** (0.113)	0.086 (0.080)
Constant	-0.190 (0.222)	2.026*** (0.205)	0.455* (0.250)	-1.084*** (0.274)	-1.320*** (0.306)
Observations; Chi ² ; Pseudo R ²	24,593;		6,738***;		0.314
Observations with y _k =1	1,943	4,444	4,005	783	1,536

Notes: Samples weighted using individual-level weights. Standard errors robust to arbitrary heteroskedasticity in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations based on ELMPS 2018.

Table A7. Multinomial logit regressions in Jordan 2016, all age cohorts and sexes

	Self-employed.	Informal	Formal	Employer	Unemployed
Youth=1 (15-29)	-1.748*** (0.236)	-0.670*** (0.179)	-0.262** (0.113)	-2.665*** (0.335)	1.215*** (0.189)
Ascending to prime working age=1 (30-44)	0.569*** (0.190)	0.644*** (0.173)	1.219*** (0.117)	0.441* (0.247)	1.224*** (0.200)
Age (minus the lower age cutoff in cohort)	0.141** (0.065)	0.190*** (0.055)	0.109*** (0.031)	0.079 (0.094)	0.235*** (0.051)
Age squared	-0.003 (0.005)	-0.006* (0.004)	-0.002 (0.002)	0.004 (0.006)	-0.012*** (0.003)
Female=1	-5.415*** (0.546)	-4.385*** (0.437)	-4.002*** (0.286)	-4.516*** (0.962)	-2.643*** (0.346)
Reads and writes	0.786** (0.386)	-0.225 (0.283)	0.507** (0.258)	1.292** (0.633)	-0.316 (0.291)
Below intermediate education	0.600 (0.398)	0.354 (0.278)	1.284*** (0.259)	1.175* (0.657)	0.081 (0.270)
Secondary education	-0.052 (0.437)	0.054 (0.308)	1.292*** (0.269)	0.870 (0.705)	-0.401 (0.310)
University+	0.342 (0.516)	0.145 (0.384)	2.143*** (0.298)	0.976 (0.807)	0.853** (0.346)
Basic education × Female	0.904 (0.659)	0.490 (0.532)	-0.009 (0.330)	-3.651*** (1.187)	0.549 (0.383)
Secondary education × Female	0.455 (0.839)	1.525*** (0.514)	1.231*** (0.313)	-1.172 (1.196)	1.593*** (0.400)
University+ × Female	1.732* (0.899)	2.299*** (0.587)	2.605*** (0.330)	0.458 (1.311)	2.516*** (0.404)
Household wealth	0.209* (0.112)	-0.181** (0.079)	0.055 (0.053)	0.783*** (0.170)	-0.039 (0.073)
Household size	-0.069* (0.039)	-0.087*** (0.030)	-0.106*** (0.019)	-0.085 (0.054)	0.025 (0.022)
Female-headed household	-0.317 (0.457)	0.499** (0.209)	0.005 (0.145)	1.134*** (0.415)	0.282 (0.231)
Highest years of education in household	-0.067** (0.029)	-0.112*** (0.025)	-0.032* (0.016)	-0.141*** (0.038)	-0.052** (0.024)
Father reads and writes	0.010 (0.183)	0.039 (0.156)	-0.004 (0.100)	0.224 (0.260)	-0.012 (0.141)
Father below intermediate education	-0.216 (0.263)	0.175 (0.189)	-0.070 (0.119)	-0.271 (0.340)	0.147 (0.179)
Father intermediate	0.296 (0.299)	0.127 (0.209)	-0.430*** (0.129)	-0.101 (0.420)	-0.092 (0.165)
Father university+	-0.013 (0.362)	0.286 (0.257)	-0.645*** (0.167)	0.578 (0.443)	-0.529** (0.220)
Father employer	0.551* (0.298)	0.209 (0.253)	-0.437** (0.176)	1.109*** (0.344)	-0.298 (0.248)
Father self-employed	0.645*** (0.193)	0.215 (0.164)	-0.350*** (0.115)	0.093 (0.275)	-0.371** (0.157)
Father non-employed	-0.476** (0.199)	-0.234 (0.144)	-0.402*** (0.088)	-0.524* (0.289)	-0.269** (0.132)
Rural residence	-0.791*** (0.205)	-1.228*** (0.192)	0.139* (0.082)	-0.717** (0.321)	-0.064 (0.102)
Constant	-1.084** (0.507)	0.017 (0.411)	-0.689** (0.332)	-1.576** (0.794)	-2.452*** (0.426)
Observations; Chi ² ; Pseudo R ²	15,929;		2,653***;		0.249
Observations with y _k =1	459	774	3,892	203	1,408

Notes: Samples weighted using individual-level weights. Standard errors robust to arbitrary heteroskedasticity in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations based on JLMPS 2016.

Table A8. Multinomial logit regressions in Tunisia 2014, all age cohorts and sexes

	Self-employed.	Informal	Formal	Employer	Unemployed
Youth=1 (15-29)	-1.247*** (0.224)	-0.200 (0.196)	-1.660*** (0.179)	-2.004*** (0.477)	1.250*** (0.269)
Ascending to prime working age=1 (30-44)	0.134 (0.165)	0.731*** (0.166)	0.201 (0.137)	0.575** (0.287)	1.665*** (0.262)
Age (minus the lower age cutoff in cohort)	0.031 (0.055)	0.129** (0.054)	0.073 (0.046)	0.260** (0.112)	0.099 (0.068)
Age squared	0.003 (0.004)	-0.006 (0.004)	0.001 (0.003)	-0.010 (0.008)	-0.003 (0.004)
Female=1	-2.953*** (0.194)	-3.528*** (0.218)	-3.835*** (0.241)	-4.698*** (0.830)	-3.340*** (0.265)
Reads and writes	0.487*** (0.186)	0.533*** (0.191)	0.977*** (0.224)	0.505 (0.503)	0.231 (0.266)
Below intermediate education	0.548** (0.247)	0.345 (0.227)	0.800*** (0.267)	1.035** (0.516)	-0.105 (0.282)
Secondary education	0.154 (0.276)	-0.365 (0.259)	0.706** (0.288)	0.458 (0.589)	-0.645* (0.332)
University+	-1.045*** (0.338)	-1.560*** (0.326)	0.930*** (0.287)	-0.402 (0.635)	-0.868*** (0.320)
Secondary education × Female	-0.073 (0.297)	0.371 (0.314)	1.468*** (0.303)	-0.161 (1.018)	0.970*** (0.343)
University+ × Female	1.008** (0.441)	2.244*** (0.421)	2.428*** (0.293)	1.490 (1.090)	2.958*** (0.333)
Household wealth	-0.311*** (0.106)	-0.612*** (0.125)	0.050 (0.067)	0.594*** (0.156)	-0.476*** (0.108)
Household size	0.029 (0.040)	-0.044 (0.041)	-0.086** (0.037)	-0.119 (0.077)	-0.012 (0.041)
Female-headed household	0.083 (0.330)	-0.029 (0.261)	-0.116 (0.269)	-0.875 (0.802)	0.153 (0.243)
Highest years of education in household	0.001 (0.020)	-0.004 (0.017)	0.006 (0.016)	0.026 (0.033)	0.064*** (0.020)
Father reads and writes	-0.080 (0.276)	0.030 (0.224)	-0.267 (0.257)	-21.611*** (0.385)	0.552*** (0.211)
Father below intermediate education	-0.084 (0.180)	0.127 (0.154)	0.126 (0.135)	0.191 (0.300)	-0.175 (0.182)
Father intermediate education +	-0.012 (0.329)	0.053 (0.280)	-0.071 (0.184)	0.013 (0.502)	-0.179 (0.219)
Father employer	0.752*** (0.234)	-0.499* (0.277)	-0.666*** (0.223)	1.241*** (0.321)	-0.882*** (0.305)
Father self-employed	0.978*** (0.145)	-0.200 (0.139)	-0.250* (0.139)	-0.272 (0.318)	-0.209 (0.170)
Father non-employed	0.178 (0.258)	-0.606*** (0.223)	-0.625*** (0.209)	-1.271** (0.594)	-0.264 (0.199)
Rural residence	0.431*** (0.150)	-0.199 (0.132)	-0.056 (0.117)	0.050 (0.257)	-0.147 (0.129)
Constant	-1.294*** (0.325)	-0.259 (0.315)	-0.013 (0.355)	-2.708*** (0.713)	-2.536*** (0.458)
Observations; Chi ² ; Pseudo R ²	6,917 ; 10,337*** ; 0.232				
Observations with y _k =1	643	752	1,154	134	572

Notes: Samples weighted using individual-level weights. Standard errors robust to arbitrary heteroskedasticity in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations based on TLMPS 2014.