

Informality Dynamics in Egypt: A Job Ladder Approach

Caroline Krafft, Ragui Assaad, Imane Helmy
and Carmen Armas-Montalvo

INFORMALITY DYNAMICS IN EGYPT: A JOB LADDER APPROACH

Caroline Krafft,¹ Ragui Assaad,² Imane Helmy³ and Carmen Armas-Montalvo⁴

Working Paper No. 1839

October 2026

***Acknowledgments:** The authors are grateful for the valuable comments and feedback provided by Trang Van Nguyen (Senior Economist) and Alan Fuchs (Lead Economist). Peer reviewers: Gary Fields, May Gadallah, Raed Safadi, Miguel Eduardo Sanchez (Lead Economist), Vladimir Hlasny, Obert Pimhidzai (Lead Economist), and Ahmed Elsayed. Financial support for this analysis was provided by the Strategic Partnership for Egypt's Inclusive Growth (SPEIG). This paper carries the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.*

This paper is an output of the World Bank-funded project "Rethinking Vulnerability and Informality in Egypt", presented at the ERF workshop Rethinking Vulnerability and Informality in Egypt: Mobility, Earnings, and Household Enterprise Dynamics in a Tiered Labor Market in May 2026.

Send correspondence to:

Caroline Krafft
University of Minnesota
kraff004@umn.edu

¹ Corresponding Author. Humphrey School of Public Affairs, University of Minnesota.

² Humphrey School of Public Affairs, University of Minnesota.

³ World Bank.

⁴ Department of Applied Economics, University of Minnesota.

First published in 2026 by
The Economic Research Forum (ERF)
21 Al-Sad Al-Aaly Street
Dokki, Giza
Egypt
www.erf.org.eg

Copyright © The Economic Research Forum, 2026

All rights reserved. No part of this publication may be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without permission in writing from the publisher.

The findings, interpretations and conclusions expressed in this publication are entirely those of the author(s) and should not be attributed to the Economic Research Forum, members of its Board of Trustees, or its donors.

Abstract

Pervasive employment informality is a defining feature of developing country labor markets. Informal employment is, however, heterogeneous, as it can act as a trap or a stepping stone to formal jobs and decent work. This paper explores the dynamics of employment informality in Egypt, using a job ladder approach that distinguishes among informal jobs. The work leverages five waves of panel data (1998, 2006, 2012, 2018, 2023) to explore how job ladder dynamics have changed over time, as well as who is able to move up, down, or laterally on the job ladder. The results show workers increasingly stuck on the lower tiers of the job ladder over time.

Keywords: Labor market, informality, Egypt

JEL Classifications: J46; J21; J24; J16

ملخص

يُعد انتشار العمالة غير الرسمية سمة بارزة في أسواق العمل بالدول النامية؛ غير أنها ليست نمطًا متجانسًا، إذ قد تُشكّل إمّا "مصييدة" تُحتجز فيها الطاقات، وإمّا "منصة انطلاق" نحو الوظائف الرسمية والعمل اللائق. يدرس هذا البحث ديناميكيات العمل غير الرسمي في مصر—اعتمادًا على منهجية "سلم الوظائف" التي تُفاضل بين أنماط التوظيف غير الرسمي المختلفة. ويستند البحث إلى بيانات المسوحات التتبعية ممتدة عبر خمس موجات (1998، 2006، 2012، 2018، 2023) لرصد تطور ديناميكيات الصعود والهبوط في سوق العمل عبر الزمن، وتحديد الفئات القادرة على التحرك صعودًا أو هبوطًا أو أفقيًا على هذا السلم. وتكشف النتائج عن تزايد حدة احتجاز العاملين في الدرجات الأدنى من سلم الوظائف بمرور الوقت.

1. Introduction

Informality is a defining feature of labor markets in low- and middle-income countries (LMICs) (La Porta & Shleifer, 2014; Ulyssea, 2020). The nature of informality is, however, heterogeneous. Informal workers range from highly vulnerable individuals engaged in survival activities to productive entrepreneurs and skilled workers with growth potential (Helmy & Roushdy, 2022; Krafft, Assaad, Rahman, et al., 2024; Krafft & Rizk, 2021). Workers may also move dynamically into and out of formality (Bosch & Maloney, 2010). This heterogeneity and dynamism challenge the traditional view of informality as a residual sector and call for a more nuanced understanding of how workers move across different types of jobs (Fields et al., 2023).

Informality in Egypt's labor market is a dominant form of employment and has grown steadily since 1998. Measured by the absence of social insurance coverage, there was a significant rise in informality among the employed from 1998 (48% informal) to 2023 (69% informal) (Krafft & Hannafi, 2023). This trajectory has been reinforced by structural factors: the inability of formal private sector firms to absorb the sustained growth of Egypt's working-age population, a contraction in public hiring, and a structure dominated by low-productivity sectors (Assaad & Mahmoud, 2024; El-Haddad & Zaki, 2025; Krafft, Assaad, & McKillip, 2024).

These labor market trends were further amplified by successive macroeconomic shocks (Assaad & Mahmoud, 2024). The informal sector increasingly absorbed workers who could not afford to remain unemployed, functioning as an employer of last resort rather than a pathway to better opportunities (Assaad et al., 2023; Assaad & Krafft, 2021). Reduced household resilience is directly tied to labor market conditions. For example, 16% of Egyptian households had been exposed to at least one shock in the year preceding 2018 (Helmy & Roushdy, 2022), with economic shocks — defined as reduced income or loss of employment — being the most frequently reported. Households in the poorest wealth quintile were considerably more vulnerable, with 23% reporting shock exposure compared to only 9% among those in the top quintile in 2018. By 2023, shock exposure had surged to 49% of households, reflecting the compounding effects of the COVID-19 pandemic, the 2022–2023 inflationary shock, and successive currency depreciations (Helmy & Ehab, 2024).

The labor market dimension of this vulnerability is particularly salient. Households with members in formal sector employment demonstrated substantially greater resilience to shocks, while those reliant on informal or self-employment — the predominant form of work in Egypt — faced both higher exposure and more limited coping capacity (Helmy & Ehab, 2024; Helmy & Roushdy, 2022). Employment status thus operates not only as a determinant of income but as a key structural buffer against welfare shocks.

A central insight from the literature is that informality in Egypt encompasses a wide spectrum of employment arrangements — from irregular day laborers and unpaid family workers engaged in subsistence activities, to own-account workers, micro-entrepreneurs, and skilled workers in informal firms with productive growth potential (Assaad & Mahmoud, 2024; Krafft, Assaad, Rahman, et al., 2024). This heterogeneity underscores the need for a tiered understanding of informality that distinguishes between upper- and lower-tier informal employment.

In this paper, we study labor market dynamics in Egypt from 1998 to 2023 using a job ladder framework that distinguishes not only between formal and informal employment, but also between an upper-tier and lower-tier among informal jobs (Fields et al., 2023).⁵ We further differentiate between wage and non-wage work and what we term lateral moves between these states. This approach allows us to examine both transitions into and out of informal employment and movements within informality, capturing upward, downward, and lateral mobility across the job ladder.

We focus on three central aspects of labor market dynamics. First, to what extent do workers move upward toward better employment opportunities? Second, how prevalent are downward movements? Third, how common are lateral moves? Additionally, we investigate where workers enter the job ladder as well as from whence they exit. We explore how these dynamics vary across key worker characteristics such as sex, age, education, and job characteristics. These questions are particularly relevant in the Egyptian context, where access to formal employment has become increasingly limited and unequal, and where informality encompasses both wage and non-wage forms of work across diverse industries and firm types (Assaad et al., 2023; Assaad & Krafft, 2021; Assaad & Mahmoud, 2024; El-Haddad & Zaki, 2025).

To address these questions, we use data from the Egypt Labor Market Panel Survey (ELMPS), a nationally representative longitudinal dataset with five waves over the period of 1998 to 2023. We construct a detailed job ladder that combines employment status (wage and non-wage), formality (based on social insurance coverage or enterprise registration), and a distinction between upper- and lower-tier informal work based on skill requirements and occupational characteristics. This classification allows us to track transitions across seven labor market states, including non-employment, and to analyze mobility patterns using both descriptive transition matrices and multivariate models.

Our contribution is threefold. First, we provide new evidence on the dynamics of informality by explicitly accounting for heterogeneity within the informal sector. Second, we highlight the importance of lateral movements, particularly transitions between wage and non-wage

⁵ Past work on Egypt for 1998-2018, also comparing to Jordan and Tunisia, looked at the dynamics of vulnerable employment, descriptively, but did not differentiate by tier (AlAzzawi & Hlasny, 2023).

employment, which are often overlooked but play a key role in shaping mobility. Third, we document how mobility patterns differ systematically across demographic and job characteristics, with a particular emphasis on gender disparities and the role of marriage in shaping women's labor market trajectories.

We demonstrate that workers are increasingly stuck at the bottom of the job ladder over time in Egypt. Not only has it become more difficult to obtain formal, socially insured work, it has also been more difficult to move into better and more skilled occupations within informality. Policies aimed at both improving job quality and facilitating transitions into more productive employment are essential.

2. Data

2.1. Surveys and samples

The ELMPS is a nationally representative survey with waves in 1998, 2006, 2012, 2018, and 2023 (Assaad & Krafft, 2024; OAMDI, 2024). The length – 25 years and five waves – of this panel data is noteworthy. Having panel data is rare in LMICs, and particularly so for multiple waves of panel data. Data from the Middle East and North Africa (MENA) are particularly valuable, as the region is a data desert and under-researched (Das et al., 2013; Ekhator-Mobayode & Hoogeveen, 2022). The ELMPS tracks households and individuals over time, even when individuals split to form new households. We limit the data to individuals aged 15-59 years at the time they were surveyed, since individuals typically retire at age 60. Among the 15-59 age group, the ELMPS has grown from 14,078 individuals in 1998 to 21,810 individuals in 2006, 26,868 individuals in 2012, 32,664 individuals in 2018, and 37,201 individuals in 2023.

For the dynamic analyses, including the multivariate models, we use panel samples across pairs of adjacent waves: 1998-2006, 2006-2012, 2012-2018, and 2018-2023. Individuals are restricted to ages 15-59 in the latter year of each pair of waves when undertaking dynamic analyses to focus on ages likely to be employed. The resulting number of individuals with job ladder category information and present in both years is 8,475 in 1998-2006, 14,026 in 2006-2012, 18,829 in 2012-2018, to 23,200 in 2018-2023.

To explore longer term dynamics, we also examine mobility patterns across three adjacent survey waves (1998–2006–2012, 2006–2012–2018, and 2012–2018–2023). The resulting number of individuals with job ladder category information in the three adjacent years is 7,107 in 1998-2006-2012, 12,641 in 2006-2012-2018, and 16,224 in 2012-2018-2023.

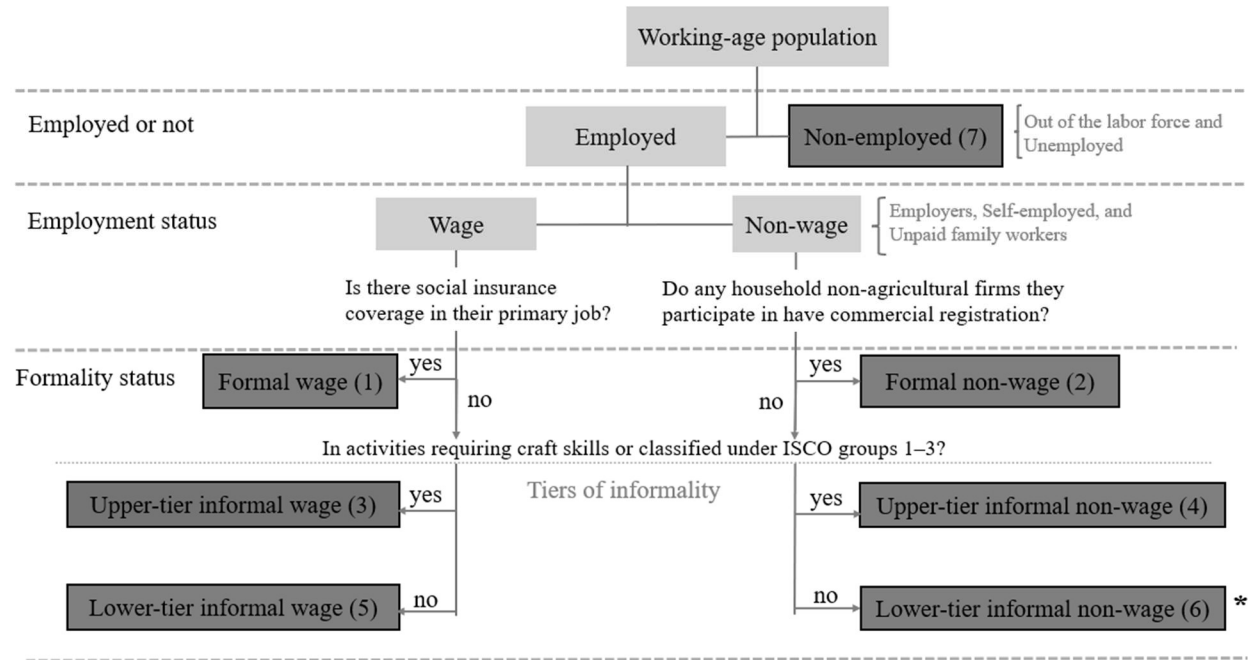
2.2. Outcomes

We construct a job-ladder variable that captures heterogeneity within informality (tiers) across employment statuses (wage and non-wage, where non-wage are employers, self-employed workers, or unpaid family workers). This classification yields a categorical variable with six values: formal non-wage, formal wage, upper-tier informal non-wage, upper-tier informal wage, lower-tier informal non-wage, and lower-tier informal wage. We add non-employment as a seventh category to examine transitions into and out of employment.

In Figure 1, we illustrate the job ladder categories of the labor market status classification. To distinguish formal and informal wage workers, we use information on social insurance coverage in the primary job. For non-wage workers, formality is defined as participating in at least one household non-agricultural enterprise with commercial registration. This approach follows international guidance on defining formality provided by the 21st International Conference of Labour Statisticians (International Labour Organization, 2023).

We further distinguish upper- versus lower-tier informal jobs using three criteria. A worker is classified as upper-tier informal if the worker responds yes to “Does your job require any craft skills?” or if the worker works as a manager, professional, technician, or associate professional (International Standard Classification of Occupations [ISCO] one-digit levels of 1, 2 or 3). Jobs that do not meet any of these criteria are classified as lower-tier informal. Additionally, non-wage workers in agriculture, forestry, and fishing are classified as lower-tier informal non-wage workers, since self-employed farmers are not required to register their businesses in Egypt. Testing this method against an alternative tier-classification approach based on performance measures (Fields et al., 2023), we find that both methods classify the majority of workers similarly (see Appendix 1).

Figure 1. Job ladder classification



Source: Authors' construction

Notes: * Including non-wage workers in agriculture, forestry, and fishing.

For our main analysis of movements across job ladder categories, we define a simplified job ladder with three categories (steps, combining wage and non-wage work): (i) formal employment; (ii) upper-tier informal employment; (iii) lower-tier informal employment. We examine as our main outcome movements up or down the steps of the job ladder. We focus on upward or downward movement in terms of job ladder categories, not their consequences for welfare (see Assaad et al., 2026 for an exploration of job ladder mobility and economic welfare). We also analyze the transitions into and out of employment. To analyze transitions into employment, we use the same simplified version of the job ladder with three categories plus non-employment as the outcomes, restricting to previously non-employed individuals.

For exits from employment into non-employment, we define a binary outcome that equals one if the individual is currently non-employed. With this outcome we explore transitions to non-employment from any employment state, and, separately, from each employment state in the simplified job ladder.

Finally, to analyze the relevance of green jobs in the context of the job ladder, we construct a dummy variable if the job is classified as green. We do this only using the 2023 ELMPS, as the first wave with such data. We follow the International Labour Organization (ILO)'s framework in that a green job is one that produces or uses environmental goods and services (Abou-Ali & Amer,

2024). The variables used to identify green jobs and their relationship with the job ladder are presented in Appendix 2.

2.3. Controls

We draw on the literature about informality dynamics to identify key covariates (Beccaria et al., 2024; Danquah et al., 2019; Tansel & Ozdemir, 2019). We classify covariates into dynamics, demographics, and previous wave job characteristics. The characteristics related to dynamics include a dummy indicating whether the individual switches between wage and non-wage employment (switch) or remains in the same employment status (stay). We also include the interaction between this dummy variable and the employment status of the previous period, in order to control the two possible lateral movements (wage to non-wage or non-wage to wage). We use this control only for the upward and downward mobility models, not for the lateral, exit, or entry models. Krafft et al. (2026) further explore the role of specifically household enterprise dynamics in job ladder mobility, an issue closely related to lateral movements.

Demographic characteristics, included in all models, are sex, marital status (ever-married and never married), the interaction between sex and marital status, age group (less than 15, 15-24, 25-29, 30-39, 40-49, and 50 or more), education level (illiterate, reads and writes, primary, preparatory, general secondary, vocational secondary, post-secondary, and university and above), geographic region (Greater Cairo, Alexandria, Suez Canal Area, Urban Upper, Lower Upper, Rural Lower, and Upper Egypt), and having parents with secondary education or higher (none, at least one, and both). We also include the main breadwinner status within the household⁶ as a control variable in the models, except for entry models, where the non-employed cannot be breadwinners. For the job characteristics in the previous wave, we include employment status (wage and non-wage), economic activity of the firm (agriculture, industry, trade and transport, and services⁷), a dummy for public sector, firm size (1-4, 5-9, 10-24, 25-99, or 100 or more), and a dummy for working outside an establishment. Appendix 3 presents the percentage distribution of these controls among individuals aged between 15 and 59 by survey wave.

Except for the dynamic characteristics, the other covariates are measured at the previous period ($t-1$) to avoid simultaneity with outcomes measured at the current period (t). We also incorporate

⁶ Defined as the household member with the highest monthly wage income or, where applicable, the primary person in the household's first enterprise (with ties broken first by age and then by household roster order).

⁷ The economic activity of the firm is categorized into 21 industry groups based on the International Standard Industrial Classification (ISIC), but we recategorize into four groups, of which two categories require clarification. The industry category includes mining and quarrying; manufacturing; electricity, gas, steam, and air conditioning; water supply, sewage, and waste management; and construction. Services include accommodation and food services; information and communication; financial and insurance activities; real estate activities; professional, scientific and technical services; administrative and support services; public administration and defense, education, human health and social work activities; arts, entertainment, and recreation; other services activities; activities of household as employer; and activities of extraterritorial organization.

adjacent wave fixed effects (1998-2006, 2006-2012, 2012-2018, and 2018-2023) to capture time trends.

3. Methods

As a starting point for our analysis, we describe the job ladder. Specifically, we present the shares of individuals aged 15-59 in all seven categories of the job ladder, disaggregated by sex and wave. To understand dynamics along the job ladder, our main analysis uses job ladder transition graphs and multivariate models that control for covariates potentially associated with these transitions. The transition graphs show the percentage of individuals making different transitions or remaining in the same status, conditional on the job status in the previous wave for each pair of adjacent waves. In additional figures, we split out relevant transitions, such as upward or downward movements, to focus on key dynamics.

Additionally, we examine job ladder dynamics across three adjacent survey waves. For these analyses, for each initial job ladder category (lower-tier informal, upper-tier informal, and formal), individuals are classified into four outcomes: stay, upward mobility, downward mobility, and churn, where churn denotes experiencing both upward and downward movements during the three-wave period.

Since our main goal is to analyze job ladder dynamics while accounting for their heterogeneity, we model upward and downward movements among the employed, as well as entry into and exit from employment, considering both formality status and the two different tiers within informality. For our main analysis of employment transitions, we estimate three multinomial logit models with job ladder states j as the outcomes for those who are employed in both waves (j = lower-tier informal, upper-tier informal, and formal). $S_{it} = j$ denotes the job ladder state of individual i in the current period t . We estimate models conditional on the job ladder state in the previous period. To do so, we separate the panel sample into workers who, in the previous period, were classified on the job ladder as $S_{i,t-1} = k$ (k = lower-tier informal, upper-tier informal, or formal). They can remain in the same category, move up (except for formal workers), or move down (except for lower-tier informal workers), conditional on their previous status. The reference category is always remaining in the same job ladder classification. We control for a set of covariates for individual i at the previous period $t-1$, $X_{i,t-1}$.

We therefore estimate a multinomial logit model of:

$$\Pr(S_{i,t} = j | X_{i,t-1}, S_{i,t-1} = k) = \frac{e^{X'_{i,t-1}\beta_{jk}}}{1 + \sum_l e^{X'_{i,t-1}\beta_{lk}}}$$

We conduct two additional analyses related to transitions between employment and non-employment and vice versa. For the analysis of entry into employment, we use a multinomial logit model conditional on being non-employed in the previous period:

$$\Pr(S_{i,t} = j | Z_{i,t-1}, S_{i,t-1} = \text{non-employed}) = \frac{e^{Z'_{i,t-1}\delta_j}}{1 + \sum_l e^{Z'_{i,t-1}\delta_l}}$$

Here, $S_{i,t}$ represents the possible outcomes conditional on being non-employed in the previous period: stay (non-employed) or move to employment (lower-tier informal, upper-tier informal, or formal). $Z_{i,t-1}$ is a subset of $X_{i,t-1}$ that includes only demographic covariates.

The other additional analysis consists of four logit models in which the outcome is exiting employment. In the logit model using the full sample of employed individuals, we control for the previous job ladder state. The remaining three logit models are estimated separately for each previous wave job ladder state (lower-tier informal, upper-tier informal, and formal). The control variables for exiting employment include demographic characteristics, job characteristics, and adjacent waves.

We use the relevant panel weights for the period in all our analysis. We report relative risk ratios for the multinomial logit models, where the reference category remains in the same job ladder category, and odds ratios for the logit models. Because the labor market is strongly sex-differentiated, we also estimate separate models by sex and test for heterogeneity in the relationship between key covariates by sex. All analyses use standard errors clustered at the individual level.

4. Results

4.1. The job ladder and its characteristics

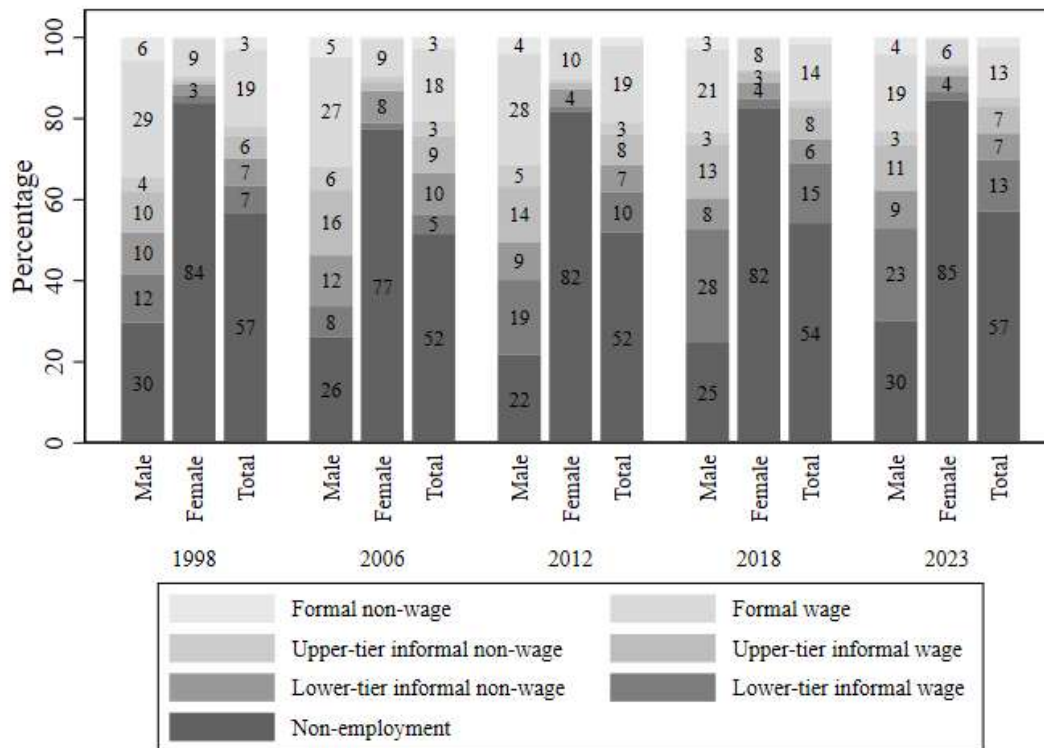
We begin by discussing the distribution of individuals across the job ladder states and non-employment in the five waves of the ELMPS. Over time, formal employment declined and lower-tier informal employment expanded, while upper-tier informal employment remained relatively stable. As shown in Figure 2, the share of individuals aged 15–59 in formal wage employment had fallen from 19% to 13% between 1998 and 2023, while the share in formal non-wage employment remained around 3%. Comparing 1998 and 2023, the share in upper-tier informal employment remained stable at around 8%, while the share in lower-tier informal employment increased from 14% in 1998 to 20% in 2023. Non-employment remained relatively stable over time at 57%.

The pattern for women mirrors the national trends in formal and lower-tier informal employment, while the share in upper-tier informal employment has increased. Appendix Figure A2 shows that

the share of women in upper-tier informal employment has increased from 13% to 21% when the non-employment category is excluded. The non-employment share for women is consistently and substantially higher than among men.

The most common employment status is wage employment. Between 2012 and 2023, the share of individuals aged 15–59 in lower-tier wage employment (10%-15%) has been larger than that in lower-tier non-wage employment (around 7%). Similarly, over the period 1998-2023, the share of workers in upper-tier wage employment (6-9%) has been higher than that in upper-tier non-wage employment (at most 3%). The pattern is even more pronounced in formal employment, where, over 1998-2023, the share in formal wage employment (13-19%) is substantially higher than that in formal non-wage employment (at most 3%). However, the pattern differs for women in lower-tier informal employment. Appendix Figure A2, focusing on the employed, shows that the share of women aged 15-59 in lower-tier informal non-wage employment (17%-35%) is higher than that in lower-tier wage employment (7%-14%), over the period 1998-2023.

Figure 2. Job-ladder classification (percentage), individuals aged 15-59, by sex and wave



Source: Authors' calculations based on the ELMPS waves (1998, 2006, 2012, 2018, and 2023)

Notes: Data labels are suppressed if less than 3%

Before turning to job ladder dynamics, we present the rewards and requirements associated with the different job ladder tiers to validate our approach. The upper tier of informality and formal

employment offer better earnings and working conditions as well as requiring a broader set of skills, verifying our differentiation. Table 1 presents median earnings and job benefits across formal, upper-tier informal, and lower-tier informal employment in 2023. There is a clear gradient in both earnings and job quality, with formal workers reporting the highest earnings and access to non-monetary benefits, followed by upper-tier informal workers and then lower-tier informal workers. The table also highlights substantial differences in skill requirements across job ladder categories. Lower-tier workers report using only four out of thirteen possible skills on average, compared to seven skills among upper-tier informal and eight skills among formal workers. Similarly, the share of workers with basic literacy and numeracy skills among lower-tier workers is approximately half that of upper-tier informal workers. Lower-tier workers are also substantially less likely to hold jobs requiring management, problem-solving, communication, or presentation skills. These patterns suggest that workers gain access to higher earnings and better working conditions by moving up the job ladder. Consistent with this interpretation, there is evidence in 2023 that lower-tier workers are slightly more likely than upper-tier workers to express a desire to change their employment situation (Appendix Figure A3). Further evidence that job ladder dynamics shape individual and household welfare is presented in Assaad et al. (2026), showing that moving up the job ladder improves outcomes such as income and wealth, while moving downward worsens economic status.

Table 1. Earnings (2023 Egyptian pounds), required skills, and non-wage benefits in 2023, individuals aged 15-59, by formality status and informality tier

	Formal	Upper-tier informal	Lower-tier informal
Earnings			
Monthly income (median)	4333	3250	2971
Real hourly wage (median)	24	17	15
Benefits			
Paid Sick Leave (%)	84	20	6
Medical insurance through work (%)	89	15	5
Required Skills			
Number required (mean, up to 13 possible)	8	7	4
Basic Literacy (%)	83	60	32
Mathematics (%)	57	47	24
Physical Fitness (%)	68	72	64
Manual Dexterity (%)	50	67	57
Management (%)	67	53	32
Problem Solving (%)	75	66	46
Communication and Presentation (%)	70	66	49
Team Work (%)	74	68	52

Source: Authors' calculations based on the 2023 ELMPS wave

4.2. Patterns of job ladder dynamics

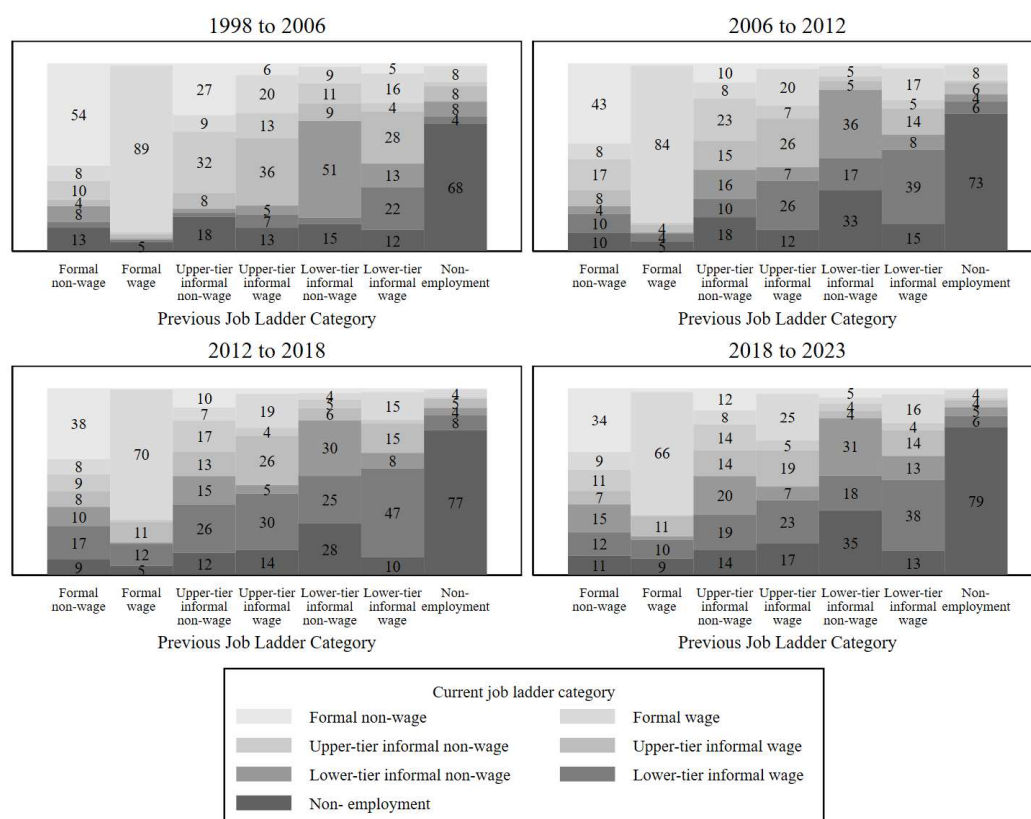
We next turn to job ladder dynamics, exploring current wave status by previous wave status across adjacent waves. The highest persistence is for formal wage employment (Figure 3). There is also high persistence among those who started in non-employment and formal non-wage employment. However, from 1998-2006 to 2018-2023, the persistence of formal employment declined (from

54% to 34% for non-wage employment and from 89% to 66% for wage employment), while the persistence of non-employment increased (from 68% to 79%).

Within the lower tiers of informality, lower-tier informal wage employment was more persistent over time (from 22% in 1998-2006 to 38% in 2018-2023), while lower-tier informal non-wage employment persistence decreased (51% in 1998-2006 to 31% in 2018-2023). Persistence declined similarly across upper-tier informal wage employment (36% in 1998-2006 to 19% in 2018-2023) and the upper-tier informal non-wage employment (32% in 1998-2006 to 14% in 2018-2023).

Exits from employment are more common among lower-tier informal non-wage workers (15% in 1998-2006 and 35% in 2018-2023). For the other categories, the share exiting does not exceed 18%. Formal wage employment has the lowest share transitioning to non-employment across all adjacent wave pairs (5-9%). Overall, persistence higher up the job ladder decreased, while persistence at the bottom of the job ladder and in non-employment increased over time.

Figure 3. Conditional transitions and persistence: Current wave job-ladder categories (percentage), individuals aged 15-59, by previous wave job ladder category and adjacent waves

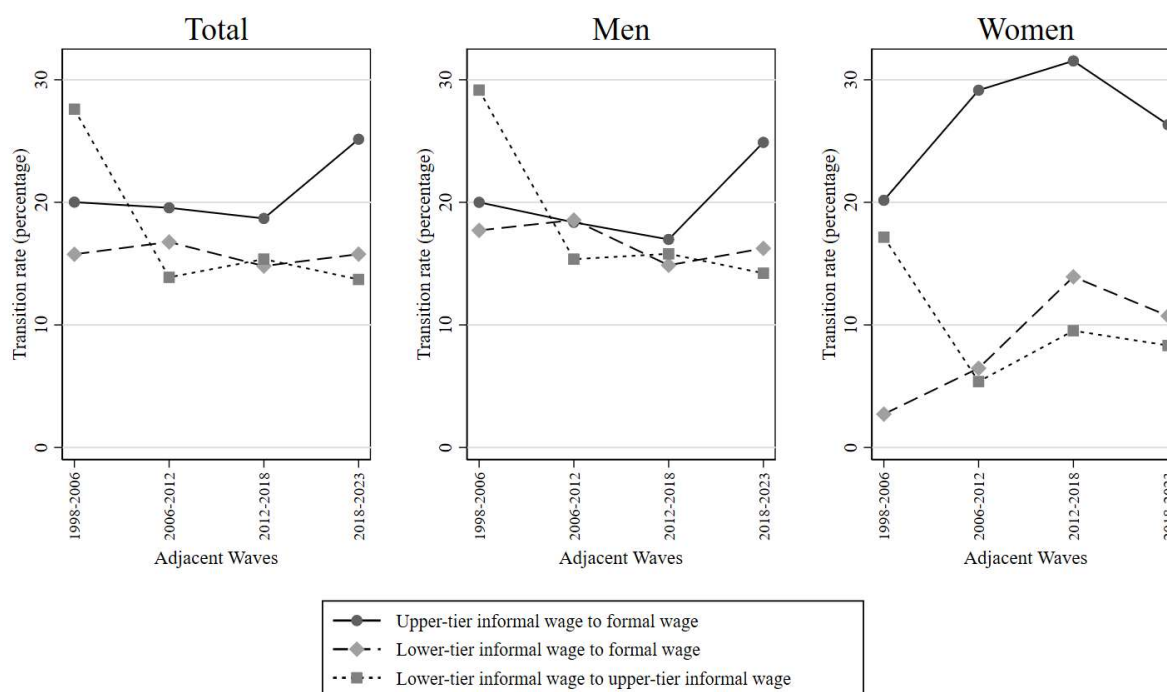


Source: Authors' calculations based on adjacent waves of the ELMPS (1998, 2006, 2012, 2018, and 2023)

Notes: Data labels are suppressed if less than 4%

In the following figures, we focus on particular types of transitions, such as upward mobility through wage work, and disaggregate time trends by sex. Upward mobility from informality within wage employment is possible and has generally been stable over time (Figure 4). The share of upper-tier informal wage workers moving to formal wage jobs was stable at around 20%, rising to 25% in 2018-2023. The share of lower-tier informal wage workers moving to formal wage employment was also stable at around 15%. The trend is similar among men, while this share among women has increased, except in 2018-2023 (10%). The share of lower-tier informal wage workers transitioning to upper-tier wage jobs was highest in 1998-2006 (28%) and remained around 15% in subsequent periods. Among women, upward mobility from upper-tier informal wage to formal wage jobs is more common (above 25% from 2006 onwards), but transitions are less frequent when starting in the lower tier. Thus, upward transitions into formality have been stable within wage employment but moving from lower-tier to upper-tier informal work is much lower since 2006 than it was in 1998-2006.

Figure 4. Upward job-ladder transitions (as a percentage of previous wave workers in a job ladder category) within wage employment, individuals aged 15-59, across adjacent waves, by sex

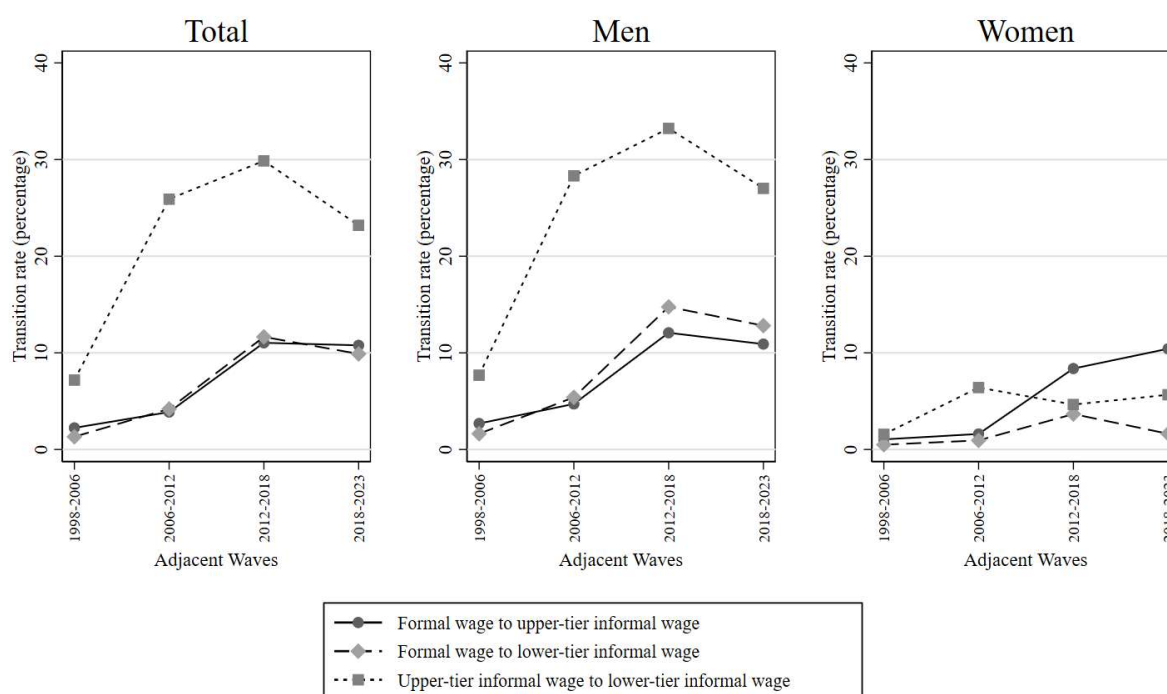


Source: Authors' calculations based on adjacent waves of the ELMPS (1998, 2006, 2012, 2018, and 2023)

Downward movements within wage employment have been increasing, particularly for men (Figure 5). The share of upper-tier informal wage workers transitioning to lower-tier informal work

increased from 7% in 1998-2006 to more than 20% since 2006-2012. Moreover, exits from formal wage employment to any informal tier follow a similar upward trend, although the overall share remains relatively small, at around 10% for each tier in 2018-2023. Among women, downward mobility remains stable at less than 10% for all wage transitions, except for transitions from formal to upper-tier informal wage employment, where there was an increase starting in 2012-2018. Thus, downward movements are a key driver of worsening job ladder positions for wage workers over time, a trend corroborated by other research showing specifically losses in social insurance as a key driver of declining formality (Krafft & Hannafi, 2023). The increase and high rate, particularly of upper tier informal wage work to lower tier informal wage work transitions, combined with higher probabilities of transitioning into formal work from the upper than lower tier (Figure 4) mean that wage workers are increasingly trapped in lower-tier informal work.

Figure 5. Downward job-ladder transitions (as a percentage of previous wave workers in a job ladder category) within wage employment, individuals aged 15-59, across adjacent waves, by sex

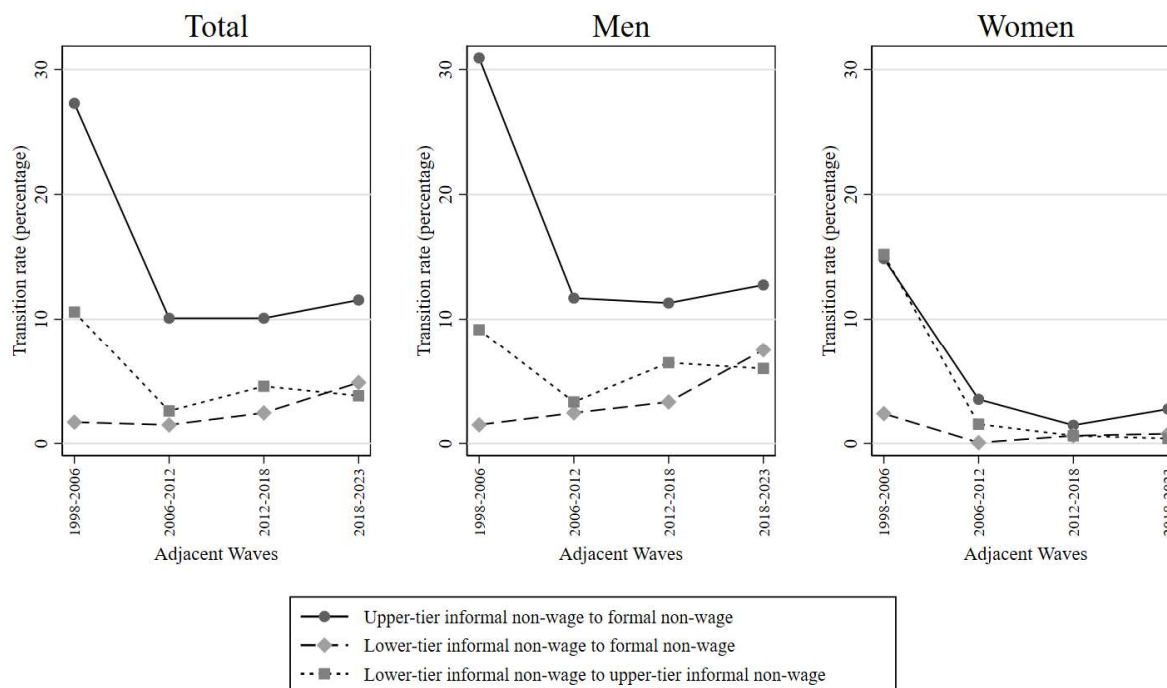


Source: Authors' calculations based on adjacent waves of the ELMPS (1998, 2006, 2012, 2018, and 2023)

Within non-wage employment, Figure 6 shows a sharp decline in upward movements over time. The share of upper-tier informal non-wage workers transitioning to formal non-wage employment declined from 27% in 1998-2006 to 10% in 2006-2012 and remained around 10% in subsequent periods. A similar trend is observed among women, albeit at a lower rate. The share of lower-tier informal non-wage workers moving to formal non-wage employment has increased slightly but remains very low (around 5% in 2018-2023). The share of lower-tier informal non-wage workers

transitioning to upper-tier non-wage employment was less than 10% in the last three pairs of adjacent waves and has declined for both men and women. Initially informal workers remaining in non-wage work have low chances of formalizing.

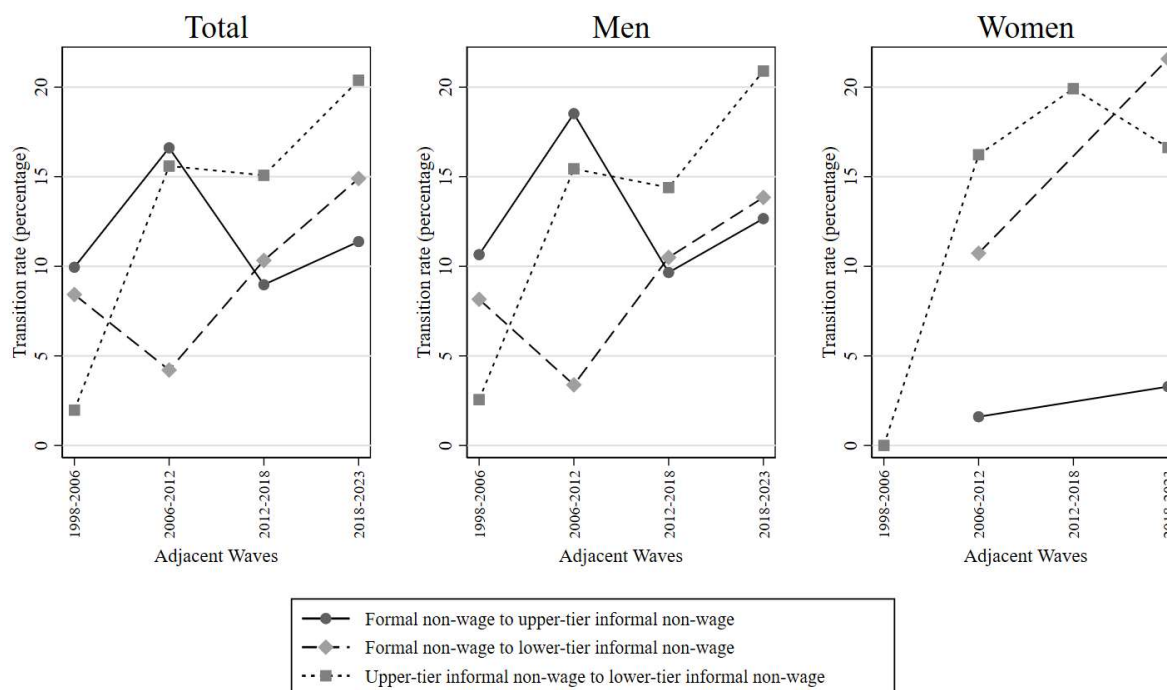
Figure 6. Upward job-ladder transitions (as a percentage of previous wave workers in a job ladder category) within non-wage employment, individuals aged 15-59, across adjacent waves, by sex



Source: Authors' calculations based on adjacent waves of the ELMPS (1998, 2006, 2012, 2018, and 2023)

Within non-wage employment, Figure 7 shows an increase in downward movement both from upper-tier to lower-tier positions, and as a rise in exits from formality. Similar to wage employment, the share of upper-tier informal non-wage workers transitioning to lower-tier non-wage employment increased over the 1998–2023 period, reaching nearly 20% in 2018–2023. Moreover, transitions from formal to informal non-wage employment have increased since 2012–2018, at 11% into the upper tier and 15% into the lower tier of non-wage work in 2018–2023. Downward movements have thus increased over time for both wage and non-wage workers, a concerning downward mobility trend.

Figure 7. Downward job-ladder transitions (as a percentage of previous wave workers in a job ladder category) within non-wage employment, individuals aged 15-59, across adjacent waves, by sex

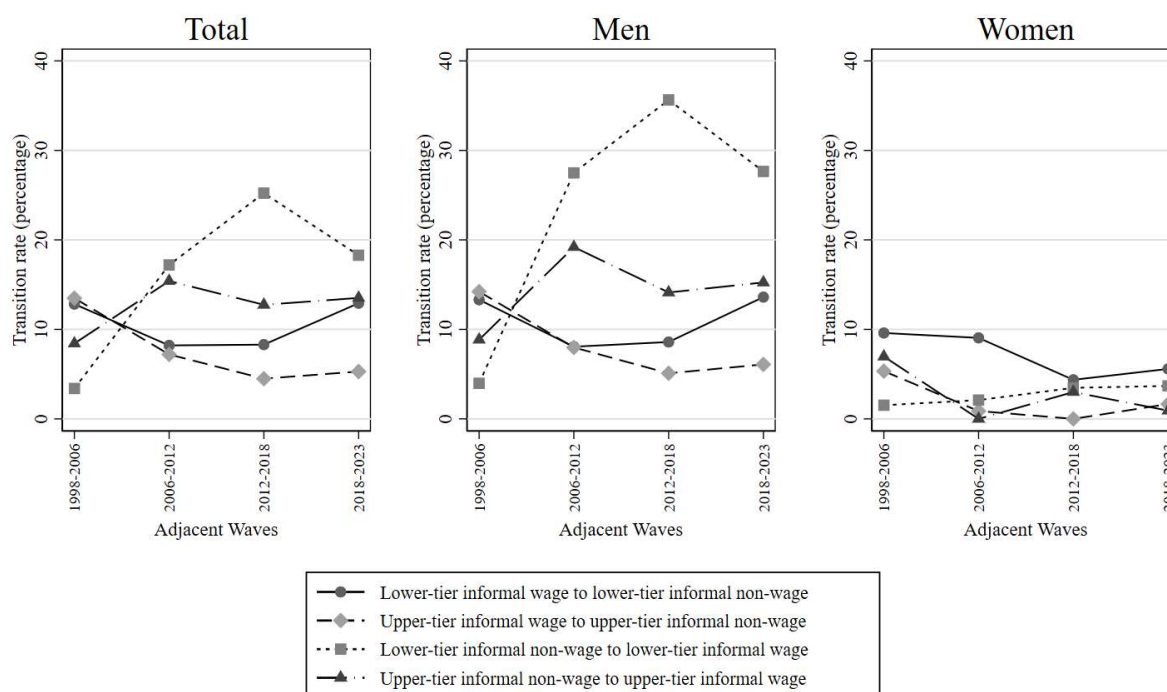


Source: Authors' calculations based on adjacent waves of the ELMPS (1998, 2006, 2012, 2018, and 2023)

Note: Percentages are suppressed when the previous job-ladder category in the adjacent waves has fewer than 30 observations.

Among lateral movements (Figure 8), the highest rate of mobility is for lower-tier informal non-wage workers transitioning to lower-tier informal wage employment (rising from 3% in 1998-2006 to 18% in 2018-2023). The share of upper-tier informal non-wage workers moving to upper-tier informal wage employment also increased, from 8% in 1998-2006 to 14% in 2018-2023. The share of lower-tier informal wage workers moving to lower-tier non-wage employment has remained stable (13% in 1998-2006 and 2018-2023). Within the upper tier, the share moving from wage to non-wage has declined over time. Among women, lateral movements are less common than for men. Overall, informal workers, particularly lower-tier ones, are increasingly moving laterally and especially towards wage work.

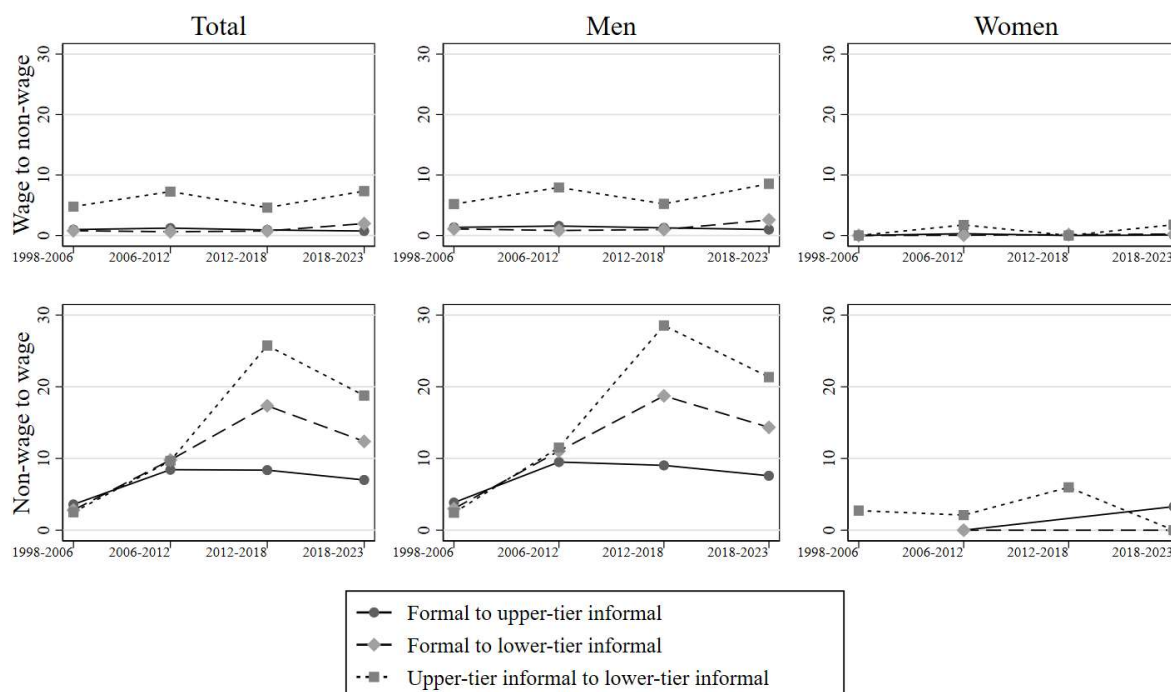
Figure 8. Lateral job-ladder movements (wage to non-wage and vice versa) (as a percentage of previous wave workers in a job ladder category), individuals aged 15-59 across adjacent waves, by sex



Source: Authors' calculations based on adjacent waves of the ELMPS (1998, 2006, 2012, 2018, and 2023)

Employment status changes are increasingly related to the downward movements, particularly from non-wage to wage employment. Figure 9 focuses on wage to non-wage downward movements, as well as non-wage to wage downward movements. The figure indicates an increase in downward movements that end in the lower tier of informality among individuals who switch from non-wage to wage employment. The share of upper-tier informal non-wage workers moving to lower-tier informal wage employment increased from 3% in 1998-2006 to 19% in 2018-2023. Similarly, the share of formal non-wage workers moving to lower-tier informal wage employment has also increased rose from 3% in 1998-2006 to 12% in 2018-2023. Appendix Figure A4 shows that lateral movements that are upward are rare and have declined over time, with most shares at or below 5%. Over time, downward movements have increased for those who switch as well as those who stay in both wage and non-wage work.

Figure 9. Lateral and downward job-ladder movements (as a percentage of previous wave workers in a job ladder category), individuals aged 15-59 across adjacent waves, by sex



Source: Authors' calculations based on adjacent waves of the ELMPS (1998, 2006, 2012, 2018, and 2023)

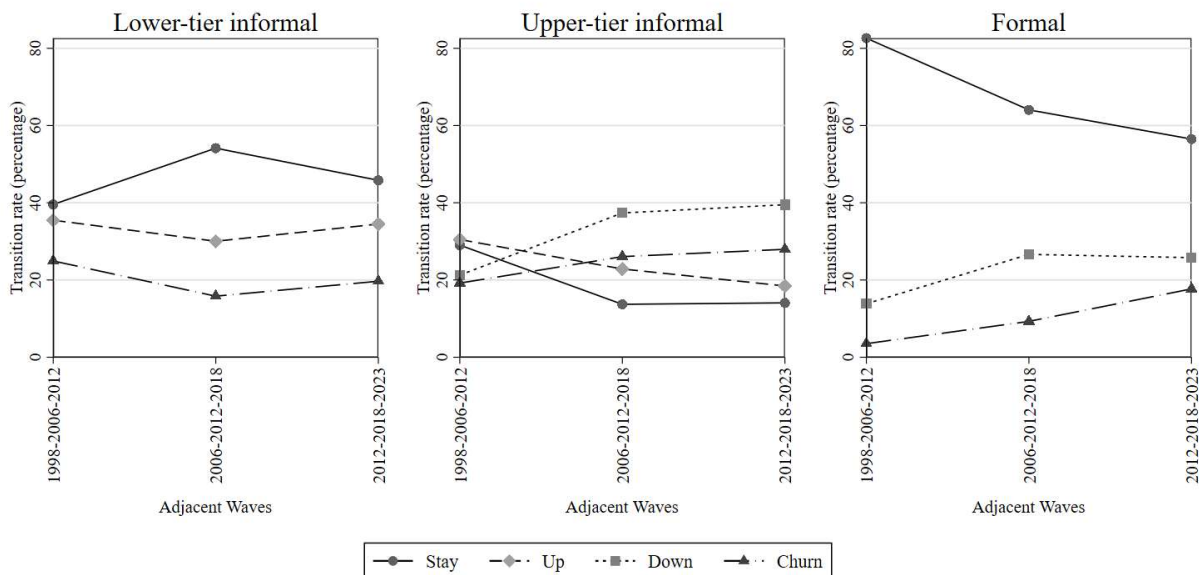
Note: Percentages are suppressed when the previous job-ladder category in the adjacent waves has fewer than 30 observations.

To assess whether the observed decline in upward mobility and increase in downward mobility persist over a longer horizon, as well as whether individuals churn, we examine individuals employed across three adjacent survey waves by informality tier and formal status. Upward mobility means an individual moved up relative to their initial position and did not move back down (could be up-up, up-stay, stay-up across the two periods in the three waves), while downward mobility means an individual moved down relative to their initial position and did not move back up (could be down-down, down-stay, or stay-down). Churn means an individual moved up or down but then reversed direction. Individuals are classified into one of stay, up, down, or churn.

Figure 10 shows that upward mobility from the lower tier of informality has stagnated, while upward mobility from the upper tier of informality has declined over time. Downward mobility has increased among upper-tier informal and formal workers. Persistence has increased and then remained relatively stable among lower-tier informal workers but has declined among formal workers. These results generally corroborate the two-period trends over a longer time horizon. Churn has also become more common among upper-tier informal and formal workers, such that around 20% of all groups experienced churn by 2012-2018-2023. Churn has particularly increased for initially formal workers from 1998-2006-2012 to 2012-2018-2023, showing workers increasingly move in and out of formality. Downward movements, however, remain more common

than churn, suggesting that workers who move down the job ladder are more likely to stay down than recover.

Figure 10. Job-ladder movements (as a percentage of initial wave workers in a job ladder category), individuals aged 15-59 who remained employed across three adjacent waves, by job-ladder tier



Source: Authors' calculations based on three adjacent waves of the ELMPs (1998, 2006, 2012, 2018, and 2023)

4.3. Models of job ladder dynamics

We next turn to our multivariate models of job ladder dynamics. We organize our results from the three multinomial logit models into upward and downward transitions across the three job ladder categories. It is important to keep in mind that these models are restricted to those who remain employed in both t and $t-1$; exits are explored later. Table 2 reports relative risk ratios (RRR) for the covariates associated with upward transitions. The first and second columns of Table 2 present the only two possible upward movements for lower-tier informal workers: to formal employment and to upper-tier informal employment (Model 1), while the third column shows the only upward movement from upper-tier informal workers to formal employment (Model 2). The remaining part of Model 2 is shown in Table 3 (on downward transitions).

There is no main effect of non-wage employment or switching on upward mobility. Only the interaction of switching from non-wage to wage employment is associated with increased upward mobility (interaction RRRs 1.523-1.640 for lower tier informal workers). However, this significant association disappears once the interaction effect is combined with the main effects. Changing employment statuses is thus only a marginal strategy for mobility.

The transitions that occur between 2006 and 2023 are associated with decreased upward mobility compared to those in 1998–2006, significantly so among lower-tier informal workers (RRRs of 0.220-0.351). This result demonstrates that declining upward mobility is not driven by changes in the composition of workers.

Working in larger firms and in the public sector are associated with a higher likelihood of upward movements into formal employment. Previously working in the public sector is associated with higher upward mobility into formal employment (RRR 4.700 for lower-tier informal workers and 1.986 for upper-tier informal workers). Previously working in larger firms (100 or more workers, relative to 1–4 workers) is associated with higher upward mobility from any informality tier to formal employment, and working in medium-sized firms (10–24 or 25–99 workers, relative to 1–4 workers) is associated with higher upward mobility among only upper-tier informal workers.

Upward movements into formal employment are less likely for economic activities of industry or agriculture, as well as for those working outside an establishment. Working outside an establishment is associated with lower upward mobility into formal employment. Working in industry (relative to services) is associated with decreased upward mobility among upper-tier informal workers, while working in agriculture (relative to services) is associated with a decreased likelihood of transitioning upwards among lower-tier informal workers. For upper-tier informal workers, trade and transport has significantly higher upward mobility into formality than services.

Upward mobility is highest among individuals in middle age groups, exhibiting a non-linear association. Younger individuals (aged 15–24, relative to ages 30–39) are significantly less likely to transition into formal employment, while older individuals (aged 50 and above) are significantly less likely to transition from the lower tier to the upper tier. In contrast, among upper-tier informal workers, individuals aged 40–49 are significantly more likely to experience upward mobility.

Illiteracy significantly reduces upward mobility, and university education increases it, but other education levels only sometimes shift upward mobility, relative to vocational secondary. Illiteracy is associated with decreased upward mobility across both informality tiers (RRR 0.316-0.643), while other levels below secondary (relative to vocational secondary) are also often, but not always significantly associated with decreased upward mobility. Attaining a university education is consistently associated with increased upward mobility (RRR 1.505-2.109), whereas attaining a general secondary education or post-secondary institute degree is associated with upward mobility only for those previously upper-tier informal workers. Parental education, a proxy for socioeconomic status, also drives upward mobility, but only for lower-tier informal workers into formality.

Upward mobility is less likely for ever-married women and residents in rural Upper Egypt, but more likely for the main breadwinner within the household. Residing in rural Upper Egypt (relative

to Greater Cairo) is associated with a significantly decreased likelihood of moving up from lower-tier informal work. Among lower-tier informal workers, being a woman (main effect for those never married in $t-1$) is associated with an increased likelihood of moving upward to upper-tier informal employment (RRR 1.859), while the interaction term for being an ever-married woman is associated with a decreased likelihood in the same transition (RRR 0.287). Thus, it is previously single women who remain employed who particularly move up, which is likely related to selection as previously single women marry. Being the main breadwinner is associated with an increased likelihood of moving upward from lower-tier to upper-tier informal employment (RRR 1.251).

Overall, over time, upward mobility has become less likely for lower-tier informal workers. For women starting in the lower tier, upward movement to the upper tier of informality is only associated with those who were never married at $t-1$, which may be driven by selection out of the labor market by t . Living in rural Upper Egypt is associated with a decreased likelihood of upward mobility. Prime ages and university education are associated with greater upward mobility. Previously working in the public sector, in larger firms, and in an establishment, all are associated with greater upward mobility, along with working in services or trade and transport.

Table 2. Multinomial logit models of upward movements in the job ladder, individuals aged 15-59 in t , and employed in both t and $t-1$

Previous period ($t-1$): Transition to (t):	Multinomial logit (model 1)		Multinomial logit (model 2)
	Lower-tier informal Formal	Lower-tier informal Upper-tier informal	Upper-tier informal Formal
Employment status (Wage employment omit.)			
Non-wage employment	0.772 (0.149)	0.770 (0.125)	0.865 (0.154)
Movement between employment status (Staying omit.)			
Switching	0.866 (0.114)	0.928 (0.110)	0.794 (0.112)
Interaction between movement and employment status			
Switching from non-wage to wage	1.640* (0.438)	1.523* (0.336)	1.504 (0.384)
Time period (1998-2006 omit.)			
2006-2012	0.351*** (0.0748)	0.312*** (0.0601)	0.822 (0.148)
2012-2018	0.220*** (0.0466)	0.279*** (0.0476)	0.772 (0.143)
2018-2023	0.226*** (0.0460)	0.260*** (0.0461)	0.828 (0.167)
Public sector (Private sector omit.)	4.700*** (1.221)	1.130 (0.359)	1.986*** (0.456)
Economic activity (Services omit.)			
Agriculture	0.601** (0.124)	0.503*** (0.0940)	0.691 (0.231)
Industry	1.063 (0.204)	1.172 (0.195)	0.675*** (0.101)
Trade & transport	0.848 (0.158)	0.682** (0.108)	1.634*** (0.261)
Outside establishment (Inside omit.)	0.581***	1.109	0.634***

Table 2. Multinomial logit models of upward movements in the job ladder, individuals aged 15-59 in t , and employed in both t and $t-1$ (continued)

Previous period ($t-1$): Transition to (t):	Multinomial logit (model 1)		Multinomial logit (model 2)
	Lower-tier informal Formal	Lower-tier informal Upper-tier informal	Upper-tier informal Formal
	(0.0806)	(0.134)	(0.0861)
Firm size (1-4 omit.)			
5-9	0.728** (0.115)	0.860 (0.0962)	1.060 (0.156)
10-24	0.833 (0.157)	0.756 (0.186)	1.870*** (0.377)
25-99	1.057 (0.222)	0.963 (0.192)	1.700** (0.367)
100 or more	1.584*** (0.251)	0.857 (0.127)	2.737*** (0.584)
Region (Greater Cairo omit.)			
Alx. Sz C.	1.409 (0.413)	1.228 (0.307)	1.132 (0.230)
Urb. Lwr.	1.083 (0.285)	1.121 (0.247)	0.963 (0.172)
Urb. Upp.	0.794 (0.208)	0.891 (0.197)	1.275 (0.228)
Rur. Lwr.	0.982 (0.247)	0.895 (0.190)	1.006 (0.176)
Rur. Upp.	0.541** (0.134)	0.628** (0.129)	0.982 (0.184)
Age group (30-39 omit.)			
15-24	0.700* (0.138)	0.999 (0.157)	0.623** (0.126)
25-29	0.858 (0.127)	0.879 (0.105)	0.857 (0.130)
40-49	1.253 (0.225)	1.090 (0.145)	1.395** (0.224)
50+	1.358 (0.382)	0.521** (0.137)	1.342 (0.454)
Education (Voc. sec. omit.)			
Illiterate	0.316*** (0.0508)	0.643*** (0.0791)	0.432*** (0.0867)
Reads & Writes	0.463*** (0.0877)	0.831 (0.152)	0.715 (0.162)
Primary	0.893 (0.171)	0.968 (0.139)	0.764* (0.123)
Preparatory	0.572*** (0.120)	0.980 (0.157)	0.706* (0.145)
General secondary	1.515 (0.467)	1.278 (0.393)	2.011** (0.667)
Post-secondary institute	1.163 (0.405)	0.632 (0.215)	1.553* (0.409)
University and above	2.109*** (0.509)	1.505* (0.320)	1.636*** (0.265)
Sex (Male omit.)			
Female	0.484 (0.231)	1.859* (0.654)	1.148 (0.381)
Marital status (Never married omit.)			
Ever married	1.123 (0.189)	0.886 (0.126)	0.848 (0.161)
Interaction between sex and marital status			
Ever-married woman	1.347 (0.711)	0.287*** (0.120)	0.737 (0.308)
Number of parents with secondary or higher education (None omit.)			
One parent	1.595*** (0.281)	1.014 (0.185)	1.126 (0.185)
Both parents	1.563 (0.490)	1.533 (0.474)	1.024 (0.218)

Table 2. Multinomial logit models of upward movements in the job ladder, individuals aged 15-59 in t , and employed in both t and $t-1$ (continued)

Previous period ($t-1$): Transition to (t):	Multinomial logit (model 1)		Multinomial logit (model 2)
	Lower-tier informal Formal	Lower-tier informal Upper-tier informal	Upper-tier informal Formal
Main breadwinner in household (not breadwinner omit.)	1.081 (0.154)	1.251* (0.161)	1.102 (0.152)
Constant	2.565** (0.964)	1.950** (0.569)	0.964 (0.278)
Observations	7027	7027	5078
Pseudo R2	0.112	0.112	0.141

Source: Authors' calculations based on adjacent waves of the ELMPs (1998, 2006, 2012, 2018, and 2023)

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Cells are relative risk ratios, and the standard errors are clustered at the individual level. The reference category for the outcome is staying in the same job ladder category. All characteristics are at $t-1$, except for time periods and switching between wage and non-wage work.

While Table 2 reports the result for upward transitions, Table 3 presents the corresponding results for downward transitions. The first column of Table 3 shows the only downward movement among upper-tier informal workers (to lower-tier informal employment), whereas the second and third columns show downward movements among formal workers (to upper-tier informal employment and to lower-tier informal employment).

Starting in non-wage employment is associated with decreased downward movements, sometimes significantly, while switching employment statuses is generally associated with increased downward movements. Previously working in non-wage employment is associated with a decreased risk of downward mobility specifically from formal employment to the upper tier of informality (RRR 0.517 for the main effect). Switching is associated with an increased risk of exiting formality to the upper tier (RRR 3.282) or the lower tier (RRR: 4.049), with no significant interactions with previous employment status for these two transitions. For upper-tier informal to lower-tier movements, the main effects of previous employment status and switch are insignificant, but the interaction for switching from non-wage to wage is a significant increase in downward mobility.

Periods from 2006 onwards (relative to 1998-2006) are associated with a significantly increased risk of all three possible downward transitions (RRRs are large, ranging from 1.850-18.09). While downward mobility increased over time, it stabilized in the most recent period, as the coefficients for 2012–2018 and 2018–2023 are not statistically different.

Downward movements are less likely in large firms or in the public sector. Working in the public sector is associated with a decreased risk across all three possible downward transitions (RRR 0.348-0.459). Working in a larger firm (10 or more, relative to 1-4 workers) is associated with a decreased risk of downward mobility from formal to the upper-tier of informal employment, but an increased risk of mobility from the upper to lower tier of informality. In addition, working in a

small firm (5-9 workers, relative to 1-4 workers) is associated with an increased risk of downward mobility from upper-tier to lower-tier informality.

Downward movements are more likely when individuals work outside an establishment or in agriculture or in trade and transport, while the industry economic activity is associated with a decreased risk. Working outside of an establishment is associated with an increased risk of downward transitions from formal to the upper-tier informal employment or from upper-tier to the lower-tier of informal employment. Working in agriculture or in trade and transport (relative to services) is associated with an increased risk of downward mobility to lower-tier informality. Working in industry (relative to services) is associated with a decreased risk of downward mobility from formal to the upper-tier of informal employment.

Age has a non-linear association with downward movements into the lower tier lower of informality, but exiting formality is more likely among young workers. Being younger (aged 15-24 or 25-29 compared to aged 30-39) is associated with an increased risk of exiting formality, while being older (40 or above compared to 30-39) is associated with a decreased risk of such downward mobility. For the downward movement from upper-tier to lower tier of informality, being older (aged 50 or above, compared to aged 30-39) is associated with an increased risk.

Having preparatory education or less is associated with an increased risk of downward movements from formality to the lower tier of informality. Being illiterate (compared to having vocational secondary) is associated with an increased risk of downward mobility to the lower-tier of informality from the upper tier as well, while having a university degree is associated with a lower likelihood of such downward mobility. Having general secondary education or above (relative to vocational secondary) is associated with a decreased risk of downward movement from formal employment to lower-tier informality, and university education reduces the risk of movements from upper to lower tier informality. Education is not, however, significantly related to movements down from formal work to the upper tier of informality.

The main effects of being a woman (RRR 0.221) and being ever-married (RRR 0.458) are associated with a decreased risk of downward movement from formal to lower-tier informality, but this is the only downward movement with significant sex or marital status differences. The interaction for ever-married women somewhat offsets these two effects, but ever married women are still less likely to move downward than the reference single man (if they remain employed).

The presence of educated parents is associated with a reduced risk of downward mobility, while several areas, not just rural Upper Egypt, are associated with an increased risk of downward mobility. Specifically, having both parents with at least a secondary education is associated with a decreased risk of downward movement to lower-tier informality. Having only one parent with at least a high school level is also associated with a decreased risk of downward movement from

formal employment to lower-tier informality. Living in urban areas of Upper Egypt or rural Egypt (relative to Greater Cairo) is associated with an increased risk of downward mobility to the lower tier of informality, and living in urban Lower Egypt as well for downward movements from the upper tier of informality.

Overall, starting in non-wage employment is often associated with decreased downward mobility, while switching employment status is often associated with increased downward mobility. The periods 2006–2023 (relative to 1998–2006) are associated with an increased likelihood of all three downward transitions. Being prime-aged is associated with a decreased risk of exiting formality. Areas in addition to rural Upper Egypt are often associated with an increased likelihood of downward mobility. Education has protective effects against some forms of downward mobility. Likewise, having educated parents is associated with a reduced likelihood of downward mobility. Women and married individuals are less likely to move downward. In terms of job characteristics, working in the public sector, larger firms, and in an establishment tends to reduce downward mobility, with heterogeneous downward mobility patterns by economic activity.

Table 3. Multinomial logit model of downward movements in the job ladder, individuals aged 15-59 in t , and employed in both t and $t-1$

	Multinomial logit (model 2)		Multinomial logit (model 3)	
Previous period ($t-1$):	Upper-tier informal	Formal	Formal	
Transition to (t):	Lower-tier informal	Upper-tier informal	Lower-tier informal	
Employment status (Wage employment omit.)				
Non-wage employment	0.783 (0.118)	0.517*** (0.119)	0.707 (0.163)	
Movement between employment status (Staying omit.)				
Switching	0.970 (0.117)	3.282*** (0.742)	4.049*** (1.013)	
Interaction between movement and employment status				
Switching from non-wage to wage	1.596** (0.337)	0.906 (0.330)	1.081 (0.390)	
Time period (1998-2006 omit.)				
2006-2012	3.393*** (0.753)	1.850** (0.456)	5.581*** (2.191)	
2012-2018	5.970*** (1.363)	2.707*** (0.630)	17.32*** (6.723)	
2018-2023	6.952*** (1.642)	2.665*** (0.626)	18.09*** (7.253)	
Public sector (Private sector omit.)				
	0.459** (0.144)	0.409*** (0.0599)	0.348*** (0.0536)	
Economic activity (Services omit.)				
Agriculture	3.970*** (1.007)	0.382 (0.263)	3.415*** (1.336)	
Industry	0.881 (0.144)	0.734** (0.1000)	1.084 (0.160)	
Trade & transport	1.368* (0.234)	0.795 (0.128)	1.530** (0.258)	
Outside establishment (Inside omit.)				
	1.394*** (0.143)	1.698*** (0.301)	1.262 (0.228)	

Table 3. Multinomial logit model of downward movements in the job ladder, individuals aged 15-59 in t , and employed in both t and $t-1$ (continued)

	Multinomial logit (model 2)		Multinomial logit (model 3)	
Previous period ($t-1$):	Upper-tier informal	Formal	Formal	
Transition to (t):	Lower-tier informal	Upper-tier informal	Lower-tier informal	
Firm size (1-4 omit.)				
5-9	1.338** (0.158)	0.912 (0.207)	0.887 (0.195)	
10-24	1.290 (0.234)	0.485*** (0.105)	0.960 (0.216)	
25-99	0.868 (0.177)	0.446*** (0.0805)	0.797 (0.165)	
100 or more	1.373* (0.255)	0.381*** (0.0632)	0.807 (0.145)	
Region (Greater Cairo omit.)				
Alx. Sz C.	1.046 (0.216)	1.047 (0.195)	1.258 (0.331)	
Urb. Lwr.	1.341* (0.234)	1.097 (0.198)	1.270 (0.271)	
Urb. Upp.	2.128*** (0.376)	1.118 (0.190)	1.340 (0.266)	
Rur. Lwr.	1.330* (0.218)	1.210 (0.184)	1.692*** (0.318)	
Rur. Upp.	2.061*** (0.351)	1.086 (0.195)	1.470* (0.303)	
Age group (30-39 omit.)				
15-24	1.278 (0.200)	1.534* (0.386)	1.700* (0.512)	
25-29	1.101 (0.132)	1.104 (0.173)	1.416*** (0.227)	
40-49	1.080 (0.161)	0.944 (0.111)	0.795 (0.112)	
50+	1.812** (0.470)	0.887 (0.152)	0.582*** (0.111)	
Education (Voc. sec. omit.)				
Illiterate	1.351** (0.175)	0.826 (0.193)	1.654** (0.364)	
Reads & Writes	0.974 (0.174)	1.200 (0.291)	2.681*** (0.616)	
Primary	1.021 (0.140)	0.940 (0.204)	1.746*** (0.326)	
Preparatory	0.894 (0.147)	0.905 (0.215)	1.848** (0.550)	
General secondary	1.554 (0.429)	1.093 (0.299)	0.246*** (0.101)	
Post-secondary institute	0.772 (0.233)	0.834 (0.165)	0.599** (0.134)	
University and above	0.630** (0.123)	1.032 (0.125)	0.393*** (0.0652)	
Sex (Male omit.)				
Female	0.838 (0.274)	0.594 (0.215)	0.221*** (0.104)	
Marital status (Never married omit.)				
Ever married	0.875 (0.124)	0.793 (0.172)	0.458*** (0.118)	
Interaction between sex and marital status				
Ever-married woman	1.307 (0.529)	1.739 (0.661)	2.907** (1.519)	
Number of parents with secondary or higher education (None omit.)				
One parent	1.064 (0.199)	0.992 (0.142)	0.666** (0.118)	
Both parents	0.486*** (0.117)	1.032 (0.189)	0.408*** (0.106)	

Table 3. Multinomial logit model of downward movements in the job ladder, individuals aged 15-59 in t , and employed in both t and $t-1$ (continued)

	Multinomial logit (model 2)		Multinomial logit (model 3)	
Previous period (t-1):	Upper-tier informal	Formal	Formal	
Transition to (t):	Lower-tier informal	Upper-tier informal	Lower-tier informal	
Main breadwinner in household (not breadwinner omitted.)	1.017	1.188	1.098	
	(0.126)	(0.161)	(0.178)	
Constant	0.105***	0.256***	0.0384***	
	(0.0335)	(0.0925)	(0.0176)	
Observations	5078	6661	6661	
Pseudo R2	0.141	0.148	0.148	

Source: Authors' calculations based on adjacent waves of the ELMPS (1998, 2006, 2012, 2018, and 2023)

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Cells are relative risk ratios, and the standard errors are clustered at the individual level. The reference category for the outcome is staying in the same job ladder category. All characteristics are at $t-1$, except for time periods and switching between wage and non-wage work.

In addition to the movement across job ladder categories, we analyze the dynamics of entry into and exit from employment, distinguishing employment across the three job ladder states. Table 4 reports relative risk ratios for the covariates associated with entry to the job ladder, relative to remaining out of employment.

Relative to 1998–2006, 2006–2023 periods are all associated with a decreased likelihood of transitioning into formal or upper-tier informal employment, while only the 2006–2012 period is associated with a decreased likelihood of transitioning into lower-tier informal employment, but to a lesser extent than reductions in formal and upper-tier informal entries. In contrast, the 2012–2018 period is associated with an increased likelihood of entering lower-tier informal employment, while the 2018–2023 period is not different from 1998–2006 for the likelihood of entering lower-tier informal employment. Since other types of entry are declining, the non-employed are increasingly remaining non-employed or accepting lower-tier informal work.

Any age other than 30–39 is associated with decreased entry into employment. Being older than 50 (relative to ages 30–39) is associated with a decreased likelihood of entry into any job ladder category, while being younger than 24 (relative to ages 30–39) is associated with a decreased likelihood of transitioning into formal or lower-tier informal employment. Individuals aged 25–29 (relative to ages 30–39) are associated with a decreased likelihood of transitioning into formal employment, while those aged 40–49 (relative to ages 30–39) are associated with a decreased likelihood of transitioning into lower-tier formal employment.

Education shows a clear gradient in entry transitions. Lower levels of education, compared to vocational secondary, are associated with a reduced likelihood of entering formal or upper-tier informal employment. Illiteracy significantly increases entry into lower-tier informality, but primary and preparatory decrease it. At higher levels, having a general secondary education or above (relative to vocational secondary) is associated with an increased likelihood of entering formal or upper-tier informal employment. In addition, having higher education (post-secondary

or university, relative to vocational secondary) is associated with a decreased likelihood of transitioning from non-employment into lower-tier informal employment.

Women are less likely to enter employment, and this likelihood decreases further after marriage. Women are especially less likely to enter informal and especially lower-tier informal work. While the main effect of ever-married is an increase in the transition into employment, the interaction of being an ever-married woman is associated with a decreased likelihood of transitioning into formal or upper-tier informal employment.

Educated parents are associated with a decreasing likelihood of entering informal employment, while poorer areas of Egypt (rural areas and Upper Egypt) are associated with an increased likelihood of entering to lower-tier informal employment. Specifically, having at least one parent with secondary or higher education is associated with a decreased likelihood of transitioning from non-employment into informal employment, regardless of the tier. Relative to Greater Cairo, living in Upper Egypt or in rural areas of Lower Egypt is associated with an increased likelihood of entering lower-tier informal employment, while residing in Lower Egypt is associated with a decreased likelihood of transitioning into formal employment.

Overall, entry into employment over time is increasingly through lower-tier informal employment. The less educated are less likely to enter formal employment, and higher education protects against lower-tier informal work. Educated parents reduce informal work. Across the board, those aged 30-39 more readily enter all types of work. Men and especially ever-married men are more likely to work than women and ever-married women are particularly unlikely to enter employment. Entry into formal work is less common in Lower Egypt, and lower-tier informal work more common in marginalized regions.

Table 4. Multinomial logit model of job ladder transition for entry into employment, individuals aged 15-59 in t , and non-employed in $t-1$

Transition to (t):	Formal	Upper-tier informal	Lower-tier informal
Time period (1998-2006 omit.)			
2006-2012	0.610*** (0.0536)	0.569*** (0.0496)	0.851* (0.0746)
2012-2018	0.312*** (0.0313)	0.480*** (0.0453)	1.188* (0.109)
2018-2023	0.275*** (0.0306)	0.395*** (0.0379)	0.963 (0.0863)

Table 4. Multinomial logit model of job ladder transition for entry into employment, individuals aged 15-59 in t , and non-employed in $t-1$ (continued)

Transition to (t):	Formal	Upper-tier informal	Lower-tier informal
Region (Greater Cairo omit.)			
Alex. & Suez Canal	1.190 (0.146)	0.990 (0.137)	1.071 (0.162)
Urb. Lwr. Egypt	0.774** (0.0892)	0.959 (0.113)	1.138 (0.161)
Urb. Upp. Egypt	1.006 (0.113)	0.996 (0.113)	1.345** (0.179)
Rur. Lwr. Egypt	0.810* (0.0916)	0.951 (0.105)	1.625*** (0.209)
Rur. Upp. Egypt	0.924 (0.116)	0.978 (0.117)	2.017*** (0.266)
Age group (30-39 omit.)			
15-24	0.691*** (0.0902)	1.006 (0.131)	0.793** (0.0819)
25-29	0.790* (0.107)	0.961 (0.129)	0.916 (0.102)
40-49	0.918 (0.162)	0.889 (0.178)	0.615*** (0.0671)
50+	0.610* (0.169)	0.315*** (0.1000)	0.440*** (0.0699)
Education (Voc. sec. omit.)			
Illiterate	0.241*** (0.0499)	0.610*** (0.0800)	1.528*** (0.125)
Reads & Writes	0.331*** (0.0958)	0.816 (0.150)	1.067 (0.151)
Primary	0.328*** (0.0517)	0.457*** (0.0641)	0.714*** (0.0866)
Preparatory	0.341*** (0.0390)	0.507*** (0.0496)	0.574*** (0.0476)
General secondary	2.358*** (0.242)	1.491*** (0.157)	0.945 (0.104)
Post-secondary institute	1.505** (0.269)	1.131 (0.241)	0.671** (0.120)
University and above	3.628*** (0.424)	2.100*** (0.263)	0.786* (0.104)
Sex (Male omit.)			
Female	0.127*** (0.0110)	0.106*** (0.00933)	0.0491*** (0.00486)
Marital status (Never married omit.)			
Ever married	1.611** (0.347)	1.740*** (0.351)	1.352* (0.220)
Interaction between sex and marital status			
Ever-married woman	0.249*** (0.0547)	0.238*** (0.0507)	0.908 (0.159)
Number of parents with secondary or higher education (None omit.)			
One parent	1.068 (0.105)	0.712*** (0.0660)	0.639*** (0.0648)
Both parents	1.147 (0.105)	0.610*** (0.0588)	0.431*** (0.0414)
Constant	1.720*** (0.292)	1.423** (0.240)	1.074 (0.180)
Observations	34705	34705	34705
Pseudo R2	0.206	0.206	0.206

Source: Authors' calculations based on adjacent waves of the ELMPS (1998, 2006, 2012, 2018, and 2023)

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Cells are relative risk ratios, and the standard errors are clustered at the individual level. The reference category for the outcome is staying in non-employment. All characteristics are at $t-1$.

In addition to the covariates associated with entry into employment, we analyze those associated with exit from it. Table 5 reports odds ratios for exiting employment (column 1, for all the employed) and for exiting a job ladder category (columns 2 to 4, for those previously in the job category). Non-wage employment status is associated with an increased risk of exiting employment overall, but this pattern does not remain significant when splitting by previous job ladder type of employment. Formal wage workers (OR 0.686) have a decreased risk of exiting employment. There is a significant interaction between upper-tier informal work and non-wage worker in the overall employed model that reduces the risk of exit, largely washing out the non-wage effect for this group.

All three periods 2006-2023 are associated with an increased likelihood of exiting employment in the overall model. The 2018-2023 period is associated with an increased risk of exiting formal employment, compared to 1998-2006 (OR 2.886) as is the 2006-2012 period (OR 2.121). The period 2018-2023 is associated with increasing exit from lower-tier informal employment specifically as well.

Employment in larger firms and in the public sector is associated with a lower likelihood of exiting employment, but only the public sector is associated with fewer exits from formal employment. Working in the public sector is associated with a decreased likelihood of exiting formal or upper-tier informal employment. Working in a firm with 25–99 workers (relative to 1–4 workers) is associated with a decreased likelihood of exiting upper-tier informal employment, while working in firms with 10–24 or 100 or more workers is associated with a decreased likelihood of exiting lower-tier informal employment. There are not significant exit differences by economic activity or whether working in an establishment.

There is an inverted-U, non-linear relationship between age and exiting employment, which is particularly strong for informal employment. Being older than 50 (relative to ages 30–39) is associated with an increased likelihood of exiting employment across all job ladder categories. Being aged 40–49 is associated with an increased likelihood of exiting upper-tier informal employment, while being in the youngest age group (15–24) is associated with an increased likelihood of exiting both types of informal employment.

University education is associated with a reduced risk of exiting employment overall. Compared to vocational secondary, most other non-higher education levels of education, except reads and writes, are associated with more exit overall, with heterogeneous patterns across types of previous employment in terms of significance, but consistently higher odds ratios of exit.

Moving down the job ladder, women are more likely to exit employment. The relative risk ratios rise markedly along the job ladder: for formal female workers, the OR is 7.321, while for upper-tier informal female workers it is 15.41, and for lower-tier informal female workers it reaches

25.48. This indicates that women face a disproportionately higher risk of job exit in more vulnerable segments of the labor market. Being ever-married in the previous period reduces the risk of exit, but there is not a significant interaction for ever-married and women. This result is consistent with other research showing women exiting prior to marriage but not differentially once married (Assaad et al., 2022; Selwaness & Krafft, 2020).

Parental education, main breadwinner status, and region are important correlates of exits from employment. Having at least one parent with secondary or higher education is associated with increased exits from employment, particularly from formal employment. Being the main breadwinner in the household is associated with a decreased likelihood of exiting employment overall, primarily driven by workers in the lower-tier of informal employment. Living in Lower or Upper Egypt (relative to Greater Cairo) is associated with a decreased likelihood of exiting employment. This pattern appears to be driven by formal employment, and Lower Egypt is also associated with a decreased likelihood of exiting upper-tier informal employment.

Overall, employment exits have been increasing over time and are lower for formal workers, but higher for lower tier informal non-wage workers. The educated are least likely to exit employment, and there is the expected inverted-U relationship between age and exit. Women are more likely to exit employment than men, and the ever-married are less likely to exit than single individuals. A better socioeconomic background (as measured by parental education) increases exit, while Upper and Lower Egypt have less exit. Working in the public sector or a larger firm reduces exit, but there are not differences by economic activity or working in an establishment in exit.

Table 5. Logit models of probability of exit from employment, overall and by previous job ladder status, individuals aged 15-59 in t , and employed (in status) in $t-1$

Previous period ($t-1$):	Employed	Formal	Upper-tier informal	Lower-tier informal workers
Transition to (t):	Non-employment			
Previous job ladder category (Lower-tier informal omit.)				
Formal	0.686*** (0.0948)			
Upper-tier informal	1.144 (0.104)			
Employment status (Wage employment omit.)				
Non-wage employment	1.414*** (0.162)	1.256 (0.316)	0.823 (0.126)	1.201 (0.167)
Interaction between employment status and previous job ladder category				
Formal non-wage	0.729 (0.174)			
Upper-tier informal non-wage	0.653** (0.110)			

Table 5. Logit models of probability of exit from employment, overall and by previous job ladder status, individuals aged 15-59 in t , and employed (in status) in $t-1$ (continued)

Previous period ($t-1$):	Employed	Formal	Upper-tier informal	Lower-tier informal workers
Time period (1998-2006 omit.)				
2006-2012	1.294* (0.200)	2.121** (0.760)	1.035 (0.250)	1.326 (0.328)
2012-2018	1.358** (0.207)	1.588 (0.519)	1.351 (0.329)	1.445 (0.351)
2018-2023	1.885*** (0.287)	2.886*** (0.932)	1.423 (0.354)	2.020*** (0.498)
Public sector (Private sector omit.)	0.279*** (0.0488)	0.410*** (0.0919)	0.197*** (0.0644)	0.628 (0.253)
Economic activity (Services omit.)				
Agriculture	1.137 (0.152)	0.485 (0.274)	0.825 (0.240)	1.072 (0.211)
Industry	1.075 (0.122)	1.029 (0.217)	0.901 (0.166)	1.000 (0.187)
Trade & transport	0.967 (0.111)	0.861 (0.191)	0.824 (0.157)	0.978 (0.183)
Outside establishment (Inside omit.)	0.965 (0.0950)	1.212 (0.426)	0.907 (0.124)	1.075 (0.162)
Firm size (1-4 omit.)				
5-9	0.888 (0.0890)	1.050 (0.344)	0.889 (0.148)	0.876 (0.122)
10-24	0.832 (0.109)	1.294 (0.429)	0.853 (0.209)	0.734* (0.127)
25-99	0.630*** (0.0900)	0.773 (0.224)	0.533** (0.142)	0.892 (0.206)
100 or more	0.778** (0.0986)	0.883 (0.264)	1.196 (0.234)	0.517*** (0.114)
Region (Greater Cairo omit.)				
Alx. Sz C.	1.039 (0.150)	0.890 (0.189)	1.258 (0.290)	1.061 (0.338)
Urb. Lwr.	0.647*** (0.0863)	0.475*** (0.110)	0.615** (0.131)	0.980 (0.272)
Urb. Upp.	0.785* (0.101)	0.479*** (0.101)	1.007 (0.209)	1.141 (0.300)
Rur. Lwr.	0.625*** (0.0762)	0.383*** (0.0807)	0.695* (0.131)	0.873 (0.229)
Rur. Upp.	0.796* (0.104)	0.512** (0.153)	0.887 (0.178)	1.119 (0.298)
Age group (30-39 omit.)				
15-24	1.436*** (0.165)	1.453 (0.455)	1.626** (0.314)	1.343* (0.210)
25-29	0.858 (0.0879)	0.861 (0.198)	0.861 (0.155)	0.849 (0.126)
40-49	1.224** (0.125)	1.010 (0.205)	1.770*** (0.353)	1.181 (0.176)
50+	3.319*** (0.430)	2.193*** (0.469)	6.844*** (1.712)	3.933*** (0.870)
Education (Voc. sec. omit.)				
Illiterate	1.236** (0.116)	1.964** (0.562)	1.280 (0.232)	0.996 (0.131)
Reads & Writes	1.158 (0.172)	1.182 (0.410)	1.401 (0.332)	0.886 (0.204)
Primary	1.381*** (0.151)	1.031 (0.371)	1.331 (0.234)	1.459** (0.227)
Preparatory	1.481*** (0.184)	1.184 (0.423)	1.429 (0.320)	1.616*** (0.266)
General secondary	1.468** (0.272)	1.747 (0.615)	1.532 (0.473)	1.419 (0.410)
Post-secondary institute	0.955 (0.228)	0.793 (0.216)	0.811 (0.353)	1.723 (0.925)
University and above	0.801* (0.0996)	0.783 (0.151)	0.695 (0.155)	0.908 (0.235)

Table 5. Logit models of probability of exit from employment, overall and by previous job ladder status, individuals aged 15-59 in t , and employed (in status) in $t-1$ (continued)

Previous period ($t-1$):	Employed	Formal	Upper-tier informal	Lower-tier informal workers
Sex (Male omit.)				
Female	15.47*** (2.181)	7.321*** (2.501)	15.41*** (3.342)	25.48*** (5.109)
Marital status (Never married omit.)				
Ever married	0.594*** (0.0698)	0.642 (0.196)	0.525*** (0.0959)	0.515*** (0.0826)
Interaction between sex and marital status				
Ever-married woman	1.065 (0.176)	0.996 (0.384)	1.464 (0.402)	0.973 (0.235)
Number of parents with secondary or higher education (None omit.)				
One parent	1.351** (0.165)	1.518** (0.307)	1.322 (0.328)	1.246 (0.219)
Both parents	1.361** (0.213)	1.705** (0.400)	1.115 (0.280)	1.150 (0.346)
Main breadwinner in household (not breadwinner omit.)	0.798*** (0.0640)	0.803 (0.129)	0.834 (0.109)	0.746** (0.0944)
Constant	0.0838*** (0.0187)	0.0618*** (0.0300)	0.106*** (0.0360)	0.0640*** (0.0218)
Observations	21552	7109	5823	8620
Pseudo R2	0.269	0.176	0.239	0.323

Source: Authors' calculations based on adjacent waves of the ELMPS (1998, 2006, 2012, 2018, and 2023)

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Cells are odd ratios, and the standard errors are clustered at the individual level. All characteristics are at $t-1$.

4.4. Heterogeneity in models of job ladder dynamics by sex

In this section, we examine whether job ladder movements and transitions into and out of employment differ by sex. Because relatively few women remain employed across waves, the results should be interpreted with caution. We focus our discussion on differences in time trends and by employment status and switching and undertake Wald tests for whether coefficients are equivalent. Appendix Table A3 presents the results for upward mobility in both models, estimated separately for men and women.

Appendix Table A3 shows that the main pattern of decreased upward mobility from lower-tier informality after 1998-2006 is visible for men and, in the most recent period, for women as well. In contrast, women starting in upper-tier informality have an increased likelihood of moving into formal employment in 2018-2023 (if they remain employed), while there is no comparable time-period effect for men. There are significant differences by sex for the 2012-2018 and 2018-2023 periods in the transition from upper-tier informal to formal employment.

Upward mobility among female workers is strongly associated with employment status and switching employment statuses. Non-wage employment is associated with significantly decreased upward movement from lower-tier informal employment to formal employment and to upper-tier informal employment for women, but not for men. The equivalence tests confirm significant

gender differences for non-wage employment in both upward transitions among lower-tier informal workers.

Switching's association with mobility also differs by sex. For women, switching is associated with decreased upward mobility, but the interaction of switching from non-wage to wage employment is associated with an increased likelihood of upward movement. For men, switching is associated with significantly lower upper-tier informal to formal mobility, but switching from non-wage to wage largely cancels out that relationship. Only for lower-tier informal to upper-tier informal are switching and the interaction between switching and employment status significantly different by sex.

Appendix Table A4 reports all potential downward movements by sex. Downward mobility, which was more likely after 1998-2006, increased for both men and women. The coefficients are often larger for women, although the equivalence tests only indicate a difference in 2006-2012 at the ten percent level for upper-tier informal to lower-tier informal, as well as all three periods for formal to lower-tier informal.

The non-wage and switching coefficients in Appendix Table A4 qualify the pooled results. In the pooled model, starting in non-wage employment is often associated with decreased downward mobility, while switching employment status is associated with increased downward mobility. By sex, the decreased association with non-wage employment is clearer for men, particularly for movements from formal employment to upper-tier informality and from formal employment to lower-tier informality. For women, the non-wage coefficients are not consistently significant, but the equivalence tests do not show significant sex differences on the non-wage main effect. For switching and the switching non-wage interaction, there are significant differences only for the formal to lower-tier informal model.

Appendix Table A5 is the multinomial model for entry into employment, showing more heterogeneous results than movement across the job ladder. The pooled model indicates that entry into employment has increasingly occurred through lower-tier informality. By sex, this pattern is driven by men. For men, the likelihood of entry into lower-tier informal employment increases in all later periods, especially in 2012-2018, while entry into formal and upper-tier informal employment decreases. For women, entry into formal employment and upper-tier informal employment also decreases over time, but entry into lower-tier informal employment decreases as well, although more so in 2006-2012 than the latter two periods. The equivalence tests confirm significant sex differences for lower-tier entry in all post-1998-2006 periods, as well as for upper-tier informal entry in 2018-2023. Thus, women are more likely to remain out of employment rather than enter through the lower tier.

Appendix Table A6 examines exits from job ladder categories into non-employment. Compared to lower-tier informal work, men and women with formal work previously are both significantly less likely to exit, but only for men is there a pattern of higher exit for upper-tier informal work (for wage work primarily; largely cancels out in interaction with non-wage work), but equivalence tests show gender differences by previous type of work are not significant. The non-wage main effects are not significant for either men or women in the overall exit model, nor in most job-ladder-specific exit models, and the equivalence tests do not indicate sex differences in the non-wage coefficients.

Appendix Table A6 shows increased exits in the most recent period, especially for women exiting formal employment. In the overall model, 2018-2023 is associated with increased exit for both men and women. When the models are split by previous job ladder category, the strongest sex difference is among formal workers: female formal workers have increased odds of exit in 2006-2012, 2012-2018, and especially 2018-2023, while the corresponding male coefficients are not significant. The equivalence tests confirm sex differences for formal-worker exits in 2012-2018 and 2018-2023, but no significant differences by sex in time trends for other types of previous work.

Overall, results estimated by sex show that the main job ladder story is broadly consistent but uneven across men and women. Upward mobility remains less common after 1998-2006, especially from the lower tier, and downward mobility has become more common. However, the most important heterogeneity is in the non-wage, time-period, and switching margins. Non-wage employment is particularly associated with decreased upward mobility for women starting in the lower tier, while switching from non-wage to wage employment is the main upward channel for these women. Downward movement from formal employment to lower-tier informality is much more strongly associated with later periods and switching among women, although the size of the coefficients requires caution. Entry into employment through lower-tier informality is primarily a male phenomenon, while women in later periods are less likely to enter employment and more likely to exit formal employment.

5. Conclusions

It has become increasingly difficult to move up the job ladder in Egypt over 1998-2023. Upward transitions have become less likely in recent periods, specifically for lower-tier informal workers, while downward transitions have become more likely. Although upper-tier informal workers have had relatively stable chances of formalizing, it has been more difficult to enter or stay in the upper tier over time. Entry into employment has declined and is increasingly concentrated in lower-tier informal jobs, whereas exits from employment have risen, including higher exits from formal employment in 2018-2023. These patterns are consistent with other research on Egypt underscoring declines in social insurance coverage, the key marker of formality for wage workers,

as well as rising household enterprise informality (Assaad & Wahby, 2023; El-Haddad & Zaki, 2025; Krafft & Hannafi, 2023).

There are not differences in upward mobility between wage and non-wage workers, and the (rare) non-wage formal workers may be protected against some downward movements. Switching behavior drives some mobility patterns. Switching is associated with increased downward mobility in many cases, which may be a case of switches happening out of necessity (with business failure or job loss). It is important to acknowledge that our panel data, five to eight years apart between waves, may miss additional switching or dynamics that occur between waves; for example, when we analyze three waves rather than two, we do see a substantial degree of churn. Our point-in-time dynamic comparisons nonetheless capture key trends when comparing over time. For entry, employment occurs increasingly through lower-tier informal jobs, and non-wage employment status is associated with an increased risk of exiting employment.

There are not strong differences in most upward or downward movements by sex, and this may be driven by selection into remaining employed. For instance, the previously single women who remain employed are less likely to move from formal to lower-tier informal work. The likelihood of entry is lower for women, particularly for lower-tier informal work. Women are much more likely to exit work, increasingly so if they are lower on the job ladder. This finding aligns with past research underscoring women increasingly selecting out of work as employment options are more limited (Assaad et al., 2023; Assaad & Krafft, 2021). Other research shows women are also strongly segmented into particular occupations within the labor market, such as teaching and nursing, to an increasing degree over time (AlAzzawi & Hlasny, 2025).

In terms of demographic patterns of mobility, education, particularly higher education, promotes upward mobility and protects somewhat against downward mobility. So too does *parental* education, which is likely a function of socioeconomic status, familial connections, and resources. Thus, over time, individuals become increasingly segmented by education and socioeconomic status. Patterns by age are largely as expected, showing that prime-age workers fare the best on the job ladder. Regional disparities show more limited opportunities for upward mobility in disadvantaged areas such as rural Upper Egypt.

Where workers start – in terms of their job characteristics – shapes their trajectories. Those who work in the public sector and in establishments face better prospects for mobility, along with those in larger firms. These patterns may reflect firm formality, which in turn shapes worker formality (Krafft, Assaad, Rahman, et al., 2024; Wahba & Assaad, 2017). There are heterogeneous patterns across economic activities.

Taken together, these findings point to an increasingly segmented labor market in which lower-tier informal employment serves as both the main entry point and a space of constrained mobility,

limiting upward transitions and increasing exit. Over time, mobility has become more restricted, with declining upward movements, rising downward transitions, and higher exit rates. It is becoming harder to climb the job ladder over time in Egypt.

These trends are a function of the decline of the public sector, which historically offered a route to job formality and the middle class, a route which has narrowed with structural reforms and privatization (Assaad, 1997, 2014; Ibrahim, 2021). The job growth that has occurred in the private sector segment has been driven by industries such as construction, with limited labor demand for educated workers (Assaad et al., 2019) and thus little upper-tier job creation, even as the supply of educated workers has continued to expand (Krafft, Assaad, & McKillip, 2024). Our results are also consistent with research showing limited and even falling income inequality over time in Egypt – because of the decline of the middle class (Assaad et al., 2018, 2023; Assaad & Krafft, 2021; Krafft et al., 2025). Moving up the job ladder is an important, and decreasingly available route to increasing incomes and joining the middle class (Assaad et al., 2026).

What can be done to address labor market segmentation and move workers up the job ladder? There are two clear axes along which improvements can be made, in terms of moving workers into the upper tier of informality and movements into formal employment. First, it is important to underscore that, in the near and medium term, it may not be possible to formalize all workers. Egypt has, in fact, been heading in the opposite direction in terms of employment formality trends, although there is some evidence of stabilization since the new Micro, Small, and Medium Enterprise (MSME) law (No. 152 of 2020) and the 2019 reforms to the social insurance system (Assaad & Wahby, 2023; Barsoum & Selwaness, 2022; Krafft & Hannafi, 2023; Shehata & Partners, 2020). Enterprises may not be able to afford the costs of formality themselves (Krafft, Assaad, Rahman, et al., 2024). However, moving informal workers into the upper tier of informality can still improve their economic welfare and leverage their human capital productively.

Increasing movements from the lower to the upper tier might be done through occupational upgrading for wage workers or entrepreneurship. Entrepreneurship is not a cure-all for labor market woes, and especially for solving youth unemployment (Krafft & Rizk, 2021). However, self-employment may be a particular effective option for women, including those from poorer socioeconomic backgrounds, to enter work and experience socioeconomic mobility (Elsayed et al., 2018; Elsayed & Roushdy, 2017; JPAL, 2024).

Occupational upgrading depends on the structure of the economy and job creation. Egypt's job creation has been primarily driven by sectors with limited labor demand for educated workers (Assaad et al., 2019), although there are some bright spots in recent years, such as rapid growth in the ICT sector (Yasser et al., 2024). Investing in the care economy can also create decent jobs, particularly for women, but the sector has been increasingly privatized with public sector

retrenchment (Economic Research Forum & UN Women, 2020; Krafft & Ehab, 2023). A lack of competition in numerous economic activities broadly constrains job creation in Egypt, an issue seen elsewhere in the region as well (Chekir & Diwan, 2015; Diwan & Haidar, 2021; Rijkers et al., 2017).

Increasing formality depends on addressing the costs and benefits of formality on both the worker and firm margins. Wage subsidies, tax simplification, information campaigns, and enrollment assistance are helpful policy options (Abel et al., 2022; Asik et al., 2022; Canelas & Niño-Zarazúa, 2022; Fajnzylber et al., 2011). Sustained employment growth can also promote social insurance coverage, but depends on the policy environment and economic policies (Ghorpade et al., 2024; Maurizio & Vásquez, 2019).

Policy reforms to social insurance are needed as well. Workers may not value formality, particularly given the regressive nature of social insurance contributions (Barsoum & Selwaness, 2022). The unemployed have, on average, the same reservation (minimum acceptable) wages for jobs with and without social insurance (Krafft & Armas-Montalvo, 2026; Krafft & Hannafi, 2023). Global evidence on insurance shows workers are more willing to pay for less expensive and more flexible contributions, higher-quality benefits, and easier administration (Miti et al., 2021).

The new and frequently increased minimum wage and using the minimum wage as the minimum social insurable wage for regular workers compound the regressivity of social insurance (Selwaness & Barsoum, 2025). While casual and non-wage workers are included in the social insurance system, documentation barriers to social insurance coverage make enrolment impractical (Selwaness & Barsoum, 2025). Pairing reforms to social insurance with occupational upgrading and employment generation would be a strong push to revitalize upward mobility in Egypt.

References

- Abel, M., Carranza, E., Geronimo, K., & Ortega, M. (2022). Can Temporary Wage Incentives Increase Formal Employment? Experimental Evidence from Mexico. *IZA Discussion Paper Series, No. 15740*. <https://doi.org/10.2139/ssrn.4285837>
- Abou-Ali, H., & Amer, M. (2024). Analyzing Labor Market Shifts in the Transition to Green Jobs: Mapping Egypt's Green Jobs. *Economic Research Forum Working Paper Series, No. 1761*.
- AlAzzawi, S., & Hlasny, V. (2023). The evolution of vulnerable employment in Egypt, Jordan, and Tunisia. In G. S. Fields, T. H. Gindling, K. Sen, M. Danquah, & S. Schotte (Eds.), *The Job Ladder* (1st ed., pp. 309–346). Oxford University Press. <https://doi.org/10.1093/oso/9780192867339.003.0013>
- AlAzzawi, S., & Hlasny, V. (2025). Occupational Segregation and the Gender Wage Gap in Egypt, 1998–2023. *Economic Research Forum Working Paper Series, No. 1773*.
- Asik, G., Bossavie, L., Kluve, J., Nas-Ozen, E., Nebiler, M., & Oviedo, A. M. (2022). The effects of subsidizing social security contributions: Job creation or informality reduction? *World Bank Policy Research Working Paper Series, No. 9904*.
- Assaad, R. (1997). The effects of public sector hiring and compensation policies on the Egyptian labor market. *The World Bank Economic Review, 11*(1), 85–118.
- Assaad, R. (2014). Making sense of Arab labor markets: The enduring legacy of dualism. *IZA Journal of Labor & Development, 3*(6), 1–25.
- Assaad, R., & Krafft, C. (2021). Excluded Generation: The Growing Challenges of Labor Market Insertion for Egyptian Youth. *Journal of Youth Studies, 24*(2), 186–212. <https://doi.org/10.1080/13676261.2020.1714565>
- Assaad, R., & Krafft, C. (2024). Introducing the Egypt Labor Market Panel Survey 2023. *Economic Research Forum Working Paper Series, No. 1748*.
- Assaad, R., Krafft, C., Helmy, I., & Li, R. (2026). Labor Market Dynamics and Economic Mobility: An Analysis of Egyptian Panel Data. *Economic Research Forum Working Paper Series (Forthcoming)*.
- Assaad, R., Krafft, C., Rahman, K. W., & Selwaness, I. (2019). *Job Creation in Egypt: A Sectoral and Geographical Analysis Focusing on Private Establishments, 1996-2017*. Economic Research Forum.
- Assaad, R., Krafft, C., Roemer, J., & Salehi-Isfahani, D. (2018). Inequality of Opportunity in Wages and Consumption in Egypt. *Review of Income and Wealth, 64*(S1), S26–S54. <https://doi.org/10.1111/roiw.12289>
- Assaad, R., Krafft, C., & Salemi, C. (2023). Socioeconomic Status and the Changing Nature of School-to-Work Transitions in Egypt, Jordan, and Tunisia. *ILR Review, 76*(4), 697–723.
- Assaad, R., Krafft, C., & Selwaness, I. (2022). The Impact of Marriage on Women's Employment in The Middle East and North Africa. *Feminist Economics, 28*(2), 247–279.
- Assaad, R., & Mahmoud, E. (2024). Evolution of the Structure and Quality of Employment in Egypt, 2012-2023. *Economic Research Forum Working Paper Series, No. 1750*.

- Assaad, R., & Wahby, S. (2023). Why is social insurance coverage falling in Egypt? A Decomposition analysis. *Economic Research Forum Working Paper Series*, No. 1658.
- Barsoum, G., & Selwaness, I. (2022). Egypt's reformed social insurance system: How might design change incentivize enrolment? *International Social Security Review*, 75(2), 47–74.
- Beccaria, L., Mura, N., & Filippeto, S. (2024). Transitions from the formal to the informal sector in Latin America. *Revista de Economía Laboral*, 2024(1), 35–72. <https://doi.org/10.21114/REL.2024.01.02>
- Bosch, M., & Maloney, W. (2010). Comparative analysis of labor market dynamics using Markov processes: An application to informality. *Labour Economics*, 17(4), 621–631. <https://doi.org/10.1016/j.labeco.2010.01.005>
- Canelas, C., & Niño-Zarazúa, M. (2022). *Social protection and the informal economy: What do we know?* United Nations ESCAP, Social Development Division.
- Chekir, H., & Diwan, I. (2015). Crony Capitalism in Egypt. *Journal of Globalisation and Development*, 5(2), 177–211. <https://doi.org/10.1515/jgd-2014-0025>
- Danquah, M., Schotte, S., & Sen, K. (2019). Informal work in sub-Saharan Africa: Dead end or steppingstone? *UNU-WIDER Working Paper Series*, No. 107/2019. <https://doi.org/10.35188/UNU-WIDER/2019/743-9>
- Das, J., Do, Q.-T., Shaines, K., & Srikant, S. (2013). U.S. and them: The geography of academic research. *Journal of Development Economics*, 105(1), 112–130.
- Diwan, I., & Haidar, J. I. (2021). Political Connections Reduce Job Creation: Firm-level Evidence from Lebanon. *The Journal of Development Studies*, 57(8), 1373–1396. <https://doi.org/10.1080/00220388.2020.1849622>
- Economic Research Forum & UN Women. (2020). *Progress of Women in the Arab States 2020: The role of the care economy in promoting gender equality*. UN Women.
- Ekhatior-Mobayode, U. E., & Hoogeveen, J. (2022). Microdata collection and openness in the Middle East and North Africa. *Data & Policy*, 4(e31).
- El-Haddad, A., & Zaki, C. (2025). Household Micro and Small Enterprises in Egypt: Overview and Developments through 2023. *Economic Research Forum Working Paper Series*, No. 1772.
- Elsayed, A., Hempel, K., & Osman, A. (2018). *Overcoming Youth Unemployment in Egypt: Randomized Evaluations Showcase the Promise of Active Labor Market Programs*.
- Elsayed, A., & Roushdy, R. (2017). Empowering Women under Social Constraints: Evidence from a Field Intervention in Rural Egypt. *IZA Discussion Paper Series*, No. 11240.
- Fajnzylber, P., Maloney, W. F., & Montes-Rojas, G. V. (2011). Does formality improve micro-firm performance? Evidence from the Brazilian SIMPLES program. *Journal of Development Economics*, 94(2), 262–276. <https://doi.org/10.1016/j.jdeveco.2010.01.009>
- Fields, G. S., Gindling, T. H., Sen, K., Danquah, M., & Schotte, S. (Eds.). (2023). *The Job Ladder: Transforming Informal Work and Livelihoods in Developing Countries* (1st ed.). Oxford University Press. <https://doi.org/10.1093/oso/9780192867339.001.0001>

- Ghorpade, Y., Franco Restrepo, C., & Castellanos, L. E. (2024). Social Protection and Labor Market Policies for the Informally Employed: A Review of Evidence from Low- and Middle-Income Countries. *World Bank Social Protection & Jobs Discussion Paper, No. 2403*. <https://doi.org/10.1596/41328>
- Grimm, M., Knorringer, P., & Lay, J. (2012). Constrained Gazelles: High Potentials in West Africa's Informal Economy. *World Development, 40*(7), 1352–1368. <https://doi.org/10.1016/j.worlddev.2012.03.009>
- Günther, I., & Launov, A. (2012). Informal employment in developing countries. *Journal of Development Economics, 97*(1), 88–98. <https://doi.org/10.1016/j.jdeveco.2011.01.001>
- Helmy, I., & Ehab, A. A. (2024). From Vulnerability To Resilience: Households' Exposure to Shocks and Coping Mechanisms in Egypt. *Economic Research Forum Working Paper Series, No. 1767*.
- Helmy, I., & Roushdy, R. (2022). Household Vulnerability and Resilience to Shocks in Egypt. In C. Krafft & R. Assaad (Eds.), *The Egyptian Labor Market: A Focus on Gender and Economic Vulnerability*. Oxford University Press. <https://doi.org/10.1093/oso/9780192847911.003.0011>
- Ibrahim, S. (2021). The dynamics of the Egyptian social contract: How the political changes affected the poor. *World Development, 138*, 105254.
- International Labour Organization. (2023). *Resolution concerning statistics on the informal economy: 21st International Conference on Labour Statisticians (ICLS/21/2023/RES. I)*.
- JPAL. (2024). *Scaling Up Bab Amal*. Abdul-Latif Jameel Poverty Action Lab (MENA), American University in Cairo.
- Krafft, C., & Armas-Montalvo, C. (2026). Mismatch in the Egyptian labor market. *GLO Discussion Paper, No. 1739*.
- Krafft, C., Assaad, R., Helmy, I., & Avendano, P. (2026). Do Household Enterprise Dynamics Help Workers Climb the Job Ladder? Evidence from Egyptian Panel Data. *Economic Research Forum Working Paper Series (Forthcoming)*.
- Krafft, C., Assaad, R., & Li, R. (2025). How do childhood environments contribute to intergenerational economic mobility?: Evidence from 25 years of panel data in Egypt. *UNU-WIDER Working Paper Series*. <https://doi.org/10.35188/UNU-WIDER/2025/654-4>
- Krafft, C., Assaad, R., & McKillip, Z. (2024). The Evolution of Labor Supply in Egypt through 2023. *Economic Research Forum Working Paper Series, No. 1749*.
- Krafft, C., Assaad, R., Rahman, K. W., & Cumanzala, M. (2024). How do small formal and informal firms in Egypt compare? An analysis of firm characteristics and implications for formalization efforts. *Review of Development Economics, 28*(3), 1292–1315. <https://doi.org/10.1111/rode.13101>
- Krafft, C., & Ehab, M. (2023). Working Conditions in the Paid Care Economy in Egypt: Improvement or Deterioration? *Economic Research Forum Working Paper Series, No. 1657*.

- Krafft, C., & Hannafi, C. (2023). The Dynamics of Social Insurance in Egypt. *Economic Research Forum Working Paper Series*, No. 1655.
- Krafft, C., & Rizk, R. (2021). The promise and peril of youth entrepreneurship in the Middle East and North Africa. *International Journal of Manpower*, 42(8), 1500–1526. <https://doi.org/10.1108/IJM-05-2020-0200>
- La Porta, R., & Shleifer, A. (2014). Informality and Development. *Journal of Economic Perspectives*, 28(3), 109–126. <https://doi.org/10.1007/s41027-017-0080-5>
- Maurizio, R., & Vásquez, G. (2019). Formal salaried employment generation and transition to formality in developing countries. The case of Latin America. *ILO Employment Working Paper*, No. 251.
- Miti, J. J., Perkio, M., Metteri, A., & Atkins, S. (2021). Factors associated with willingness to pay for health insurance and pension scheme among informal economy workers in low- and middle-income countries: A systematic review. *International Journal of Social Economics*, 48(1), 17–37. <https://doi.org/10.1108/IJSE-03-2020-0165>
- OAMD. (2024). *Labor Market Panel Surveys (LMPS). Version 1.0 of Licensed Data Files; ELMPS 2023*.
- Rijkers, B., Baghdadi, L., & Raballand, G. (2017). Political Connections and Tariff Evasion: Evidence from Tunisia. *World Bank Economic Review*, 31(2), 459–482.
- Selwaness, I., & Barsoum, G. (2025). When Formality Is Costly and Informality Is Legal: Understanding the Administrative Burden of Social Insurance System Design in Low and Middle-Income Countries. *Public Administration and Development*, pad.70042. <https://doi.org/10.1002/pad.70042>
- Selwaness, I., & Krafft, C. (2020). The Dynamics of Family Formation and Women’s Work: What Facilitates and Hinders Female Employment in the Middle East and North Africa? *Population Research and Policy Review*, 40(3), 533–587.
- Shehata & Partners. (2020, September). *Overview of the New SMEs law*. <https://www.lexology.com/library/detail.aspx?g=964f9b2b-94b1-4b98-852e-f2ad1d52d712>
- Tansel, A., & Ozdemir, Z. A. (2019). Transitions across labor market states including formal/informal division in Egypt. *Review of Development Economics*, 23(4), 1674–1695. <https://doi.org/10.1111/rode.12620>
- Ulyssea, G. (2020). Informality: Causes and Consequences for Development. *Annual Review of Economics*, 12(1), 525–546. <https://doi.org/10.1146/annurev-economics-082119-121914>
- Wahba, J., & Assaad, R. (2017). Flexible Labor Regulations and Informality in Egypt. *Review of Development Economics*, 21(4), 962–984. <https://doi.org/10.1111/rode.12288>
- Yasser, R., Selwaness, I., & Poggi, C. (2024). The Use of Information and Communication Technology in the workplace in Egypt. *Economic Research Forum Working Paper Series*, No. 1754.

Appendices

Appendix 1. Sensitivity analysis for the definition of informality tiers in the job ladder

To distinguish the lower from the upper tier in informal employment, there are three main methods in the literature (Fields et al., 2023). The most direct would be to ask about the voluntary nature of engagement in informal work; however, this information is not typically collected in surveys. The two more feasible classifications are based on performance measures (e.g., earnings) and costs of entry (e.g., professional training for some occupations), the latter being the method used in our main analysis. This appendix shows how consistent our informality tiers are compared with the performance-based method.

We define two performance-based specifications, as there is no single standard job ladder approach based on performance measures (Grimm et al., 2012; Günther & Launov, 2012). Both specifications require defining a threshold that separates upper-tier from lower-tier informal workers. The first specification identifies the minimum earnings threshold for upper-tier informal workers such that their mean earnings are equal to those of formal workers, following the assumption that upper-tier workers behave similarly to formal workers (Grimm et al., 2012). We define equality as the case in which the difference between means is not statistically different from zero; if this condition is not met, we require the difference to be smaller than a predefined quantity (1 for hourly wages and 30 for income). Since mean values are sensitive to outliers, we restrict the sample by excluding observations above the 99th percentile of earnings within each formality status. Our second specification uses the median earnings of the informal sector as the threshold.

Both approaches are restricted to individuals aged 15–59 in each wave and use individual-level weights. We consider real hourly wages (deflated using the 2023 CPI) and monthly individual income before transfers. Hourly wages are available for all waves but apply only to wage workers, whereas monthly individual income is available for both wage and non-wage workers, although only from the 2012 wave onward. We define formality status and employment status consistently with our main analysis, so any potential misclassification would occur only across tiers within the same employment and formality status.

The following table presents the share of observations classified in the same category under the performance-based method as with the tiers defined using our main cost-of-entry method, as a percentage of observations in our main method. For most measures, the majority of individuals are classified in the same fashion.

Appendix Table A1. Classification agreement between the performance-based and cost-of-entry methods (percentage of workers classified in the same tier under the alternative performance-based method as with the main cost-of-entry method (as a percentage of the main cost-of-entry method), by performance-based specification, earnings indicator, and wave

	Earnings indicator	Upper-tier informal non-wage	Lower-tier informal non-wage	Upper-tier informal wage	Lower-tier informal wage
First Specification (Mean formal wage cutoff for upper tier):					
1998	Hourly wage			64.8	51.1
2006	Hourly wage			41.1	73.8
2012	Hourly wage			43.7	64.8
2012	Individual income	51.7	62.7	49.0	61.4
2018*	Hourly wage			54.0	51.5
2018*	Individual income	64.0	55.3	67.2	34.0
2023	Hourly wage			47.1	64.9
2023*	Individual income	60.0	46.1	64.7	37.1
Second Specification (Median informal wage cutoff):					
1998	Hourly wage			59.5	57.3
2006	Hourly wage			58.0	57.4
2012	Hourly wage			56.6	50.5
2012	Individual income	56.8	56.9	57.1	52.6
2018	Hourly wage			59.4	46.9
2018	Individual income	57.2	64.4	53.7	48.4
2023	Hourly wage			63.6	45.2
2023	Individual income	53.0	53.4	54.5	50.7

Source: Authors' calculations based on ELMPS 1998, 2006, 2012, 2018, and 2023

*Notes: * The thresholds used ensure that the difference between the means of upper-tier and formal workers is statistically different from zero at the 5% level. For the remaining years and earnings indicators, we use an epsilon equal to 1 for hourly wages and 30 for individual income.*

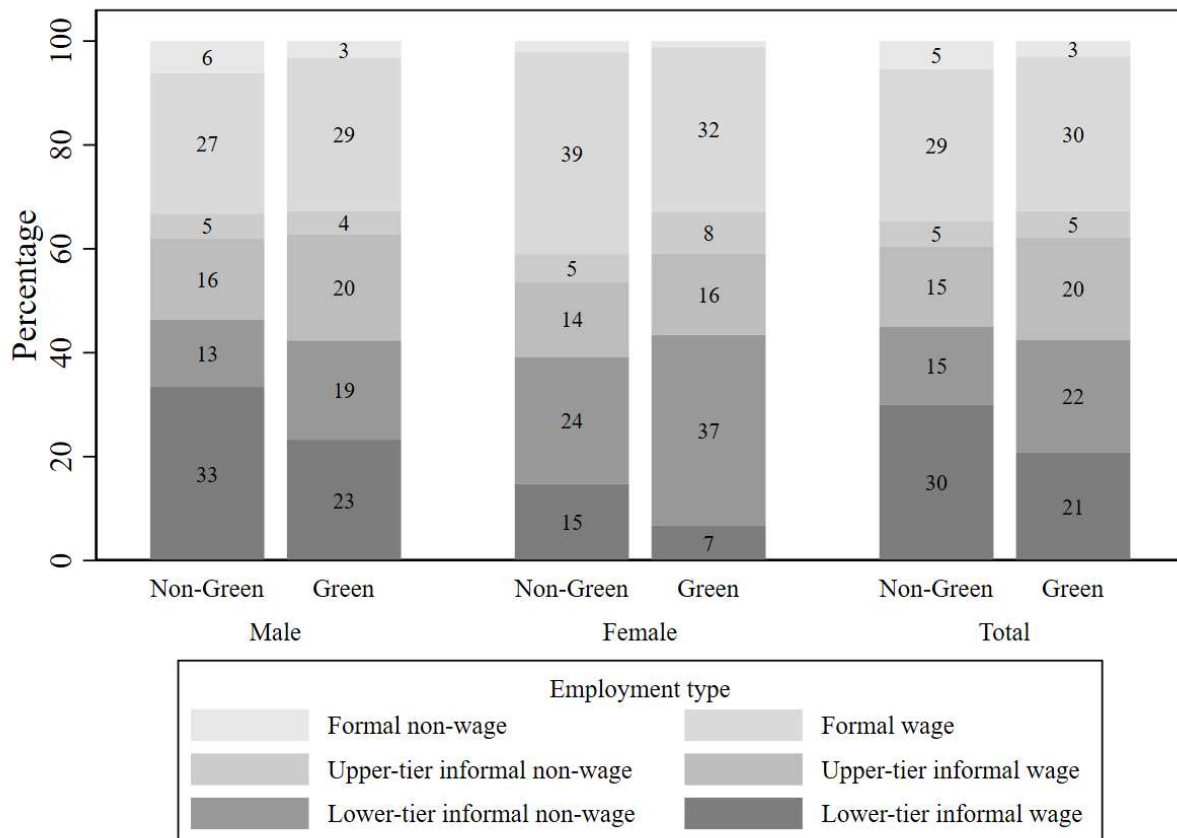
Appendix 2. Green jobs and the job ladder in the 2023 ELMPS

Based on the ILO's framework, a green job produces or uses environmental goods and services. In the 2023 ELMPS, a green job is defined as a job that produces or uses at least one of the ten identified green activities (Abou-Ali and Amer 2024)⁸:

1. Energy from renewable sources
2. Energy efficient goods and technologies
3. Water efficient goods and technologies
4. Recycling and reuse of resources and/or substitution of natural resources
5. Sustainable agriculture, fisheries or forestry
6. Prevention, reduction and removal of pollution and air emission
7. Environmental protection and natural resources conservation
8. Environmental compliance, education and training, or public awareness
9. Research, planning, maintenance, and control of environmental technologies
10. Other environmental technologies and practices or goods and services (specify)

⁸ When replicating the total numbers in Figure 2 (Abou-Ali & Amer, 2024), we obtain 2,133 thousand workers with green jobs, compared to the 2,072 thousand reported in the reference, for individuals aged between 15-64. Replicating the distribution by sex in Figure 3 (Abou-Ali & Amer, 2024), our estimates are higher by only 0.1 percentage points (men: 8.2% vs 8.1%; women: 6.3% vs 6.2%; and total: 7.9% vs 7.8%).

Appendix Figure A1. Job-ladder classification (percentage), individuals aged 15-59, by sex and green job classification



Source: Authors' calculations based on 2023 ELMPS

Notes: Data labels are suppressed if less than 3%

Appendix 3. Distribution of covariates by survey wave

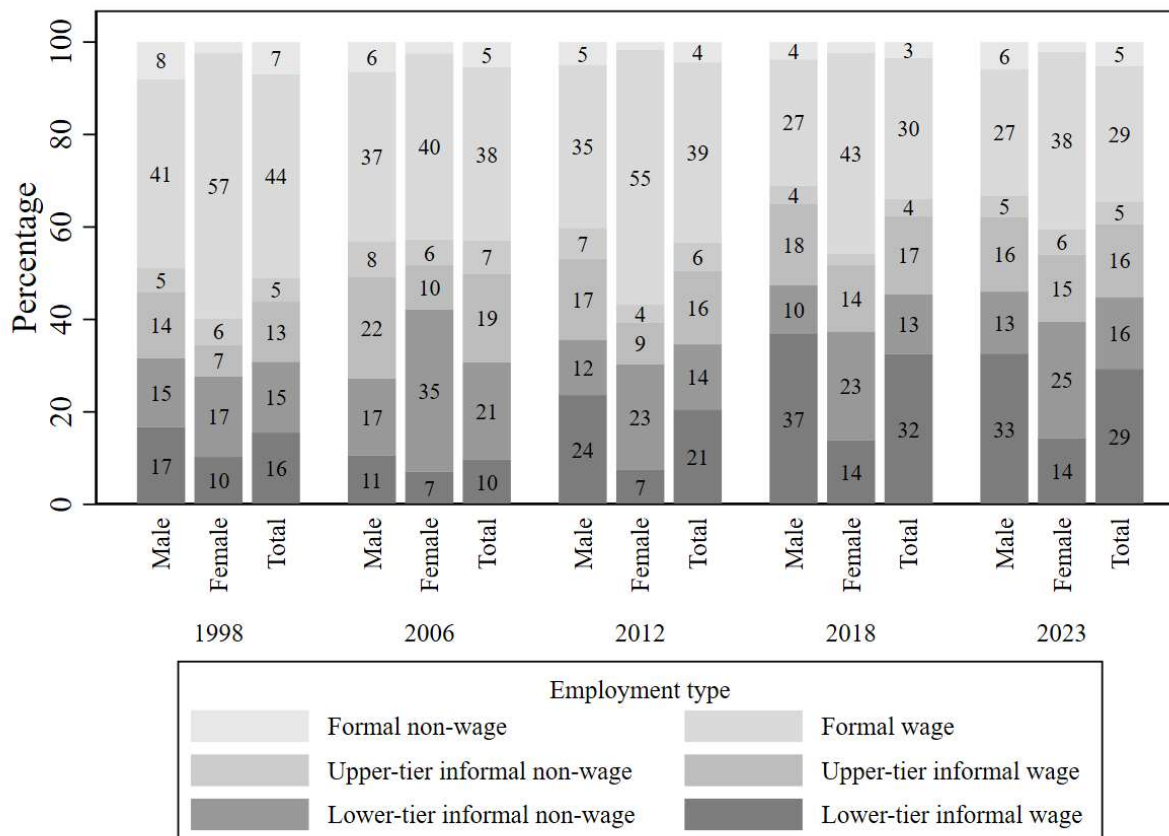
Appendix Table A2. Distribution (percentage) of covariates by survey wave

	1998	2006	2012	2018	2023
Female	50	50	50	51	50
Ever married	59	61	69	69	64
Main breadwinner	29	31	37	38	37
Public sector	38	31	31	26	22
Working inside an establishment	50	49	55	50	55
Region					
Greater Cairo	18	18	19	16	17
Alexandria and Suez Canal	8	8	8	8	8
Urban Lower	11	10	10	9	10
Urban Upper	7	7	7	8	9
Rural Lower	32	32	31	33	31
Rural Upper	23	24	25	26	25
Age group					
15-24	38	38	31	29	32
25-29	11	14	17	13	12
30-39	20	19	24	27	24
40-49	17	16	15	18	20
50+	13	13	12	13	13
Education Level					
Illiterate	30	26	20	19	13
Reads & Writes	8	5	3	5	3
Primary	10	9	11	10	8
Preparatory	14	10	12	12	14
General secondary	6	6	6	7	10
Vocational secondary	18	28	28	29	29
Post-secondary institute	4	4	3	2	2
University and above	9	12	15	15	19
Number of parents with secondary or higher education					
None	85	82	78	73	65
One	10	9	11	13	16
Both	5	8	11	14	19
Economic activity					
Agriculture	39	37	27	30	22
Industry	19	20	24	23	25
Trade & transport	14	17	19	20	25
Services	28	26	30	27	28
Firm size					
1-4	47	58	43	39	40
5-9	20	15	11	14	13
10-24	11	8	7	10	10
25-99	7	6	13	11	13
100 or more	15	12	26	27	23
Total	100	100	100	100	100
N (Observations)	14,078	21,810	26,898	32,664	37,201

Source: Authors' calculations based on ELMPS 1998, 2006, 2012, 2018, and 2023

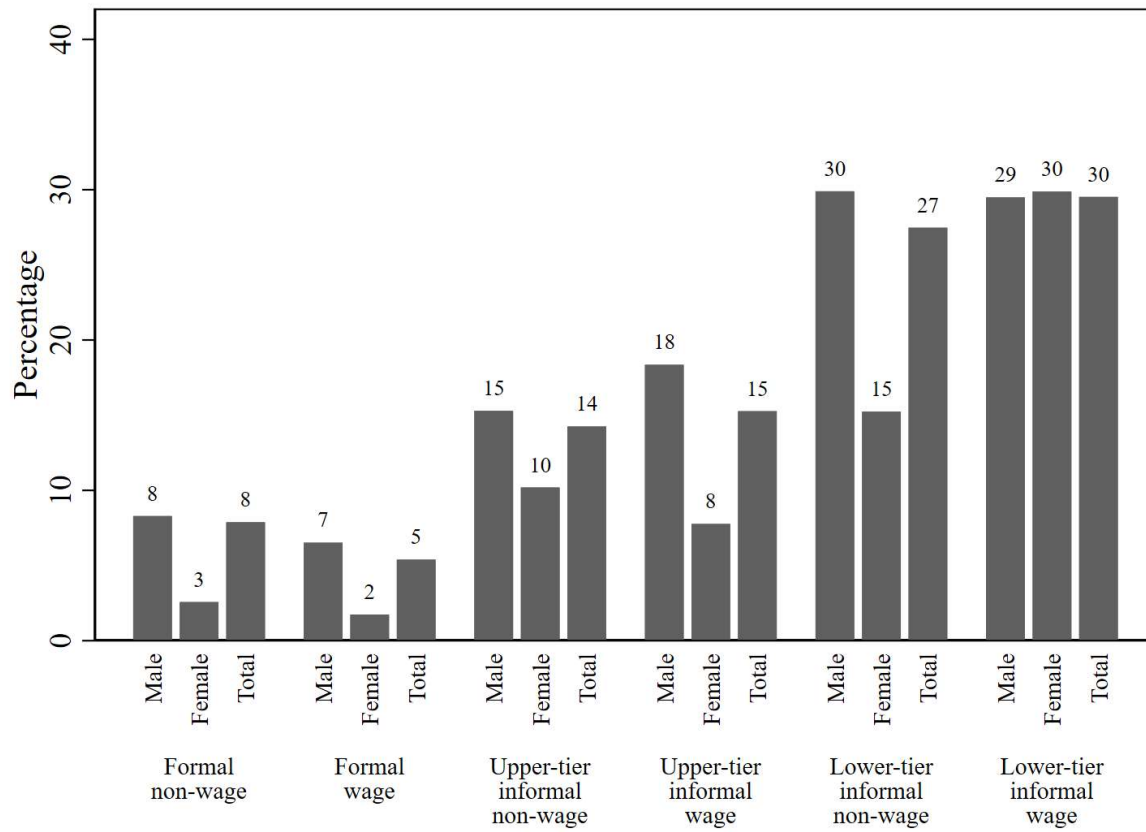
Appendix 4. Additional figures

Appendix Figure A2. Job-ladder classification (excluding non-employment) among individuals aged 15-59 (percentage), by sex and wave



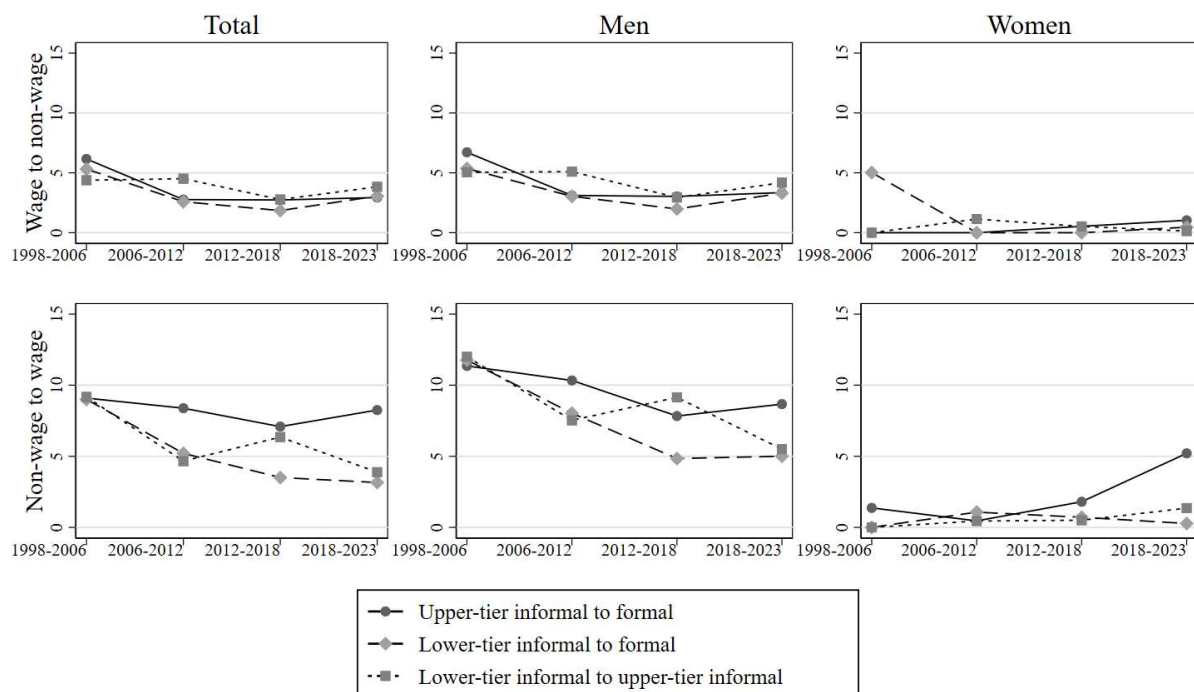
Source: Authors' calculations based on the ELMPS (1998, 2006, 2012, 2018, and 2023)

Appendix Figure A3. Percentage of individuals aged 15-59 who want to change their employment situation, by sex and job ladder category, 2023



Source: Authors' calculations based on the 2023 ELMPS wave

Appendix Figure A4. Lateral and upward job-ladder movements (as a percentage of previous wave workers in a job ladder category), individuals aged 15-59, across adjacent waves, by sex



Source: Authors' calculations based on adjacent waves of the ELMPS (1998, 2006, 2012, 2018, and 2023)

Appendix 5. Additional tables

Appendix Table A3. Multinomial logit models of upward movements in the job ladder, individuals aged 15-59 in t , and employed in both t and $t-1$, by sex

Previous period (t-1): Transition to (t):	Multinomial logit (model 1)		Multinomial logit (model 2)			
	Lower-tier informal		Lower-tier informal		Upper-tier informal	
	Formal		Upper-tier informal		Formal	
	Male	Female	Male	Female	Male	Female
Employment status (Wage employment omit.)						
Non-wage employment	0.928 (0.181)	0.185** (0.150)	0.861 (0.145)	0.151** (0.111)	0.869 (0.156)	0.677 (0.853)
Movement between employment status (Staying omit.)						
Switching	0.869 (0.115)	1.277 (1.050)	0.962 (0.116)	0.125** (0.121)	0.748** (0.105)	0.572 (0.527)
Interaction between movement and employment status						
Switching from non-wage to wage	1.334 (0.368)	6.033* (6.357)	1.284 (0.293)	24.70*** (28.23)	1.559* (0.404)	11.51 (21.07)
Time period (1998-2006 omit.)						
2006-2012	0.354*** (0.0763)	0.207 (0.278)	0.305*** (0.0611)	0.515 (0.474)	0.805 (0.148)	3.438 (2.977)
2012-2018	0.214*** (0.0461)	0.148 (0.207)	0.275*** (0.0481)	0.263 (0.238)	0.741 (0.141)	4.146 (3.638)
2018-2023	0.228*** (0.0469)	0.0645* (0.0908)	0.259*** (0.0469)	0.191* (0.173)	0.807 (0.164)	4.986* (4.344)
Public sector (Private sector omit.)	4.614*** (1.296)	3.279 (2.441)	1.077 (0.372)	1.844 (1.812)	2.282*** (0.613)	4.310*** (2.247)
Economic activity (Services omit.)						
Agriculture	0.571*** (0.123)	2.747 (2.401)	0.528*** (0.102)	0.362 (0.307)	0.687 (0.223)	0.290 (0.498)
Industry	1.025 (0.203)	8.008** (6.647)	1.190 (0.205)	3.705 (2.960)	0.707** (0.110)	0.518 (0.370)
Trade & transport	0.851 (0.165)	2.193 (1.706)	0.676** (0.112)	2.733 (1.964)	1.706*** (0.287)	1.484 (1.011)
Outside establishment (Inside omit.)	0.610*** (0.0858)	0.137*** (0.0989)	1.098 (0.135)	2.287 (1.364)	0.599*** (0.0807)	0.572 (0.566)
Firm size (1-4 omit.)						
5-9	0.726** (0.117)	0.899 (0.691)	0.859 (0.0979)	1.004 (0.610)	1.074 (0.160)	0.586 (0.336)
10-24	0.828 (0.160)	0.683 (0.559)	0.767 (0.193)	0.280 (0.226)	2.405*** (0.477)	0.539 (0.344)
25-99	1.060 (0.227)	4.504 (4.932)	0.947 (0.187)	2.128 (3.295)	1.639** (0.398)	1.470 (0.859)
100 or more	1.617*** (0.262)	1.677 (1.059)	0.833 (0.128)	1.455 (0.938)	2.555*** (0.577)	2.347 (1.420)
Region (Greater Cairo omit.)						
Alx. Sz C.	1.343 (0.415)	1.835 (1.923)	1.168 (0.306)	0.965 (0.849)	1.150 (0.249)	0.852 (0.648)
Urb. Lwr.	1.097 (0.301)	0.252 (0.316)	1.099 (0.253)	1.067 (0.932)	1.006 (0.187)	0.402 (0.255)
Urb. Upp.	0.746 (0.205)	3.667 (3.302)	0.830 (0.190)	4.382* (3.766)	1.342 (0.251)	0.295* (0.214)
Rur. Lwr.	0.944 (0.249)	1.212 (1.062)	0.844 (0.187)	2.066 (1.434)	1.147 (0.209)	0.157*** (0.0894)
Rur. Upp.	0.531** (0.138)	0.725 (0.670)	0.598** (0.128)	1.417 (1.077)	1.077 (0.209)	0.221** (0.140)

Appendix Table A3. Multinomial logit models of upward movements in the job ladder, individuals aged 15-59 in t , and employed in both t and $t-1$, by sex (continued)

	Multinomial logit (model 1)				Multinomial logit (model 2)	
Previous period (t-1):	Lower-tier informal		Lower-tier informal		Upper-tier informal	
Transition to (t):	Formal		Upper-tier informal		Formal	
	Male	Female	Male	Female	Male	Female
Age group (30-39 omit.)						
15-24	0.699*	0.792	1.018	0.462	0.575**	0.651
	(0.142)	(0.679)	(0.165)	(0.370)	(0.125)	(0.341)
25-29	0.842	0.986	0.885	0.855	0.802	0.795
	(0.128)	(0.717)	(0.108)	(0.498)	(0.129)	(0.365)
40-49	1.208	3.940**	1.113	0.753	1.407**	1.001
	(0.229)	(2.372)	(0.153)	(0.397)	(0.226)	(0.640)
50+	1.229	6.657**	0.467***	1.420	1.337	18595538.2***
	(0.368)	(5.242)	(0.131)	(0.993)	(0.459)	(22605390.9)
Education (Voc. sec. omit.)						
Illiterate	0.329***	0.0777***	0.651***	0.498	0.410***	0.000000226**
	(0.0554)	(0.0560)	(0.0820)	(0.286)	(0.0813)	(0.000000188)
Reads & Writes	0.487***	0.0890**	0.855	0.421	0.676*	7.30e-08***
	(0.0943)	(0.0865)	(0.160)	(0.349)	(0.152)	(9.83e-08)
Primary	0.950	0.129**	0.983	0.533	0.686**	1.886
	(0.188)	(0.118)	(0.143)	(0.409)	(0.114)	(2.116)
Preparatory	0.587**	0.238	0.998	0.570	0.732	3.98e-08***
	(0.126)	(0.228)	(0.161)	(0.569)	(0.147)	(4.74e-08)
General secondary	1.549	3.367	1.158	49.27***	1.841*	8.236*
	(0.481)	(4.768)	(0.372)	(61.38)	(0.623)	(9.436)
Post-secondary institute	1.293	0.231	0.654	0.509	1.654*	0.875
	(0.478)	(0.421)	(0.239)	(0.580)	(0.449)	(0.627)
University and above	2.058***	6.098	1.334	36.96**	1.624***	1.462
	(0.507)	(8.457)	(0.296)	(52.57)	(0.279)	(0.683)
Marital status (Never married omit.)						
Ever married	1.118	10.66**	0.876	0.555	0.864	0.504
	(0.191)	(12.54)	(0.127)	(0.428)	(0.155)	(0.238)
Number of parents with secondary or higher education (None omit.)						
One parent	1.640***	0.538	1.031	0.648	1.036	1.207
	(0.294)	(0.681)	(0.194)	(0.581)	(0.181)	(0.711)
Both parents	1.472	9.471	1.565	1.029	0.795	2.633*
	(0.477)	(14.80)	(0.499)	(1.497)	(0.192)	(1.401)
Main breadwinner in household (not breadwinner omitted.)						
	1.076	1.200	1.277*	0.791		
	(0.162)	(0.585)	(0.172)	(0.364)		
Constant						
	2.589**	0.517	1.988**	1.227	1.052	0.767
	(1.004)	(0.732)	(0.602)	(1.368)	(0.312)	(0.683)
Observations	6531	496	6531	496	4884	346
Pseudo R2	0.100	0.382	0.100	0.382	0.131	0.432
Tests of Equality Between Male and Female Coefficients (p-values)						
Wald test: men = women, 2006-2012						
		0.693		0.578		0.100
Wald test men = women: 2012-2018						
		0.793		0.960		0.055
Wald test men = women: 2018-2023						
		0.374		0.741		0.042
Wald test men = women: non-wage						
		0.052		0.021		0.844
Wald test men = women: switching						
		0.645		0.036		0.773
Wald test men = women: non-wage × switching						
		0.166		0.011		0.279

Source: Authors' calculations based on adjacent waves of the ELMPS (1998, 2006, 2012, 2018, and 2023)

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Cells are relative risk ratios, and the standard errors are clustered at the individual level. The reference category for the outcome is staying in the same job ladder category. All characteristics are at $t-1$, except for time periods and switching between wage and non-wage work.

Appendix Table A4. Multinomial logit model of downward movements in the job ladder, individuals aged 15-59 in t , and employed in both t and $t-1$, by sex

	Multinomial logit (model 2)		Multinomial logit (model 3)			
Previous period ($t-1$):	Upper-tier informal		Formal		Formal	
Transition to (t):	Lower-tier informal		Upper-tier informal		Lower-tier informal	
	Male	Female	Male	Female	Male	Female
Employment status (Wage employment omit.)						
Non-wage employment	0.731** (0.114)	1.704 (1.479)	0.565** (0.134)	0.176* (0.181)	0.598** (0.138)	2.486 (2.786)
Movement between employment status (Staying omit.)						
Switching	0.922 (0.111)	1.062 (1.079)	3.278*** (0.719)	8.489* (10.55)	3.515*** (0.849)	254.1*** (332.5)
Interaction between movement and employment status						
Switching from non-wage to wage	1.780*** (0.386)	3.430 (5.585)	0.818 (0.297)	5.748 (12.64)	1.418 (0.508)	9.52e-10*** (2.25e-09)
Time period (1998-2006 omit.)						
2006-2012	3.258*** (0.728)	22.92*** (25.95)	1.828** (0.458)	2.966 (2.930)	5.242*** (2.097)	3.07e+05*** (3.04e+05)
2012-2018	5.735*** (1.320)	25.31** (33.61)	2.901*** (0.685)	1.750 (1.684)	17.00*** (6.746)	2.60e+06*** (1.59e+06)
2018-2023	6.481*** (1.544)	36.13*** (45.10)	2.586*** (0.616)	2.379 (2.272)	17.63*** (7.240)	1.09e+06*** (6.55e+05)
Public sector (Private sector omit.)	0.745 (0.247)	0.0818** (0.102)	0.424*** (0.0672)	0.312*** (0.116)	0.368*** (0.0577)	0.0672*** (0.0326)
Economic activity (Services omit.)						
Agriculture	3.540*** (0.916)	1.379 (2.020)	0.581 (0.367)	4.38e-07*** (2.65e-07)	3.954*** (1.594)	6.16e-07*** (5.77e-07)
Industry	0.852 (0.140)	0.374 (0.250)	0.771* (0.110)	0.848 (0.374)	1.005 (0.150)	3.100* (1.917)
Trade & transport	1.354* (0.235)	1.895 (1.464)	0.842 (0.139)	0.463 (0.289)	1.400** (0.238)	2.223 (1.120)
Outside establishment (Inside omit.)	1.411*** (0.143)	0.548 (0.537)	1.627*** (0.292)	1.210 (1.428)	1.203 (0.211)	6.784** (5.113)
Firm size (1-4 omit.)						
5-9	1.335** (0.162)	0.581 (0.525)	0.870 (0.209)	0.922 (0.686)	0.906 (0.200)	2.671 (6.391)
10-24	1.487** (0.276)	0.760 (0.694)	0.384*** (0.0933)	0.695 (0.451)	0.859 (0.196)	12.05* (15.35)
25-99	0.942 (0.196)	0.140* (0.144)	0.470*** (0.0899)	0.313* (0.194)	0.690* (0.147)	9.197* (10.92)
100 or more	1.232 (0.228)	8.453** (8.208)	0.351*** (0.0603)	0.455 (0.284)	0.726* (0.129)	5.005 (5.639)
Region (Greater Cairo omit.)						
Alx. Sz C.	1.056 (0.235)	0.862 (0.911)	0.956 (0.195)	1.189 (0.632)	1.185 (0.321)	3.984 (3.466)
Urb. Lwr.	1.373* (0.247)	0.393 (0.342)	0.817 (0.162)	2.602* (1.314)	1.175 (0.258)	9.144** (8.352)
Urb. Upp.	2.155*** (0.389)	2.426 (2.767)	0.964 (0.180)	2.179 (1.066)	1.305 (0.266)	6.503** (5.939)
Rur. Lwr.	1.448** (0.243)	0.429 (0.333)	1.077 (0.177)	2.605** (1.230)	1.515** (0.292)	15.20*** (13.04)
Rur. Upp.	2.211*** (0.384)	0.548 (0.582)	0.974 (0.185)	2.576* (1.355)	1.372 (0.289)	10.03** (9.601)
Age group (30-39 omit.)						
15-24	1.330* (0.207)	1.377 (1.099)	1.497 (0.430)	0.955 (0.461)	1.879** (0.590)	0.0996* (0.122)
25-29	1.093 (0.132)	0.412 (0.307)	1.047 (0.186)	1.149 (0.357)	1.422** (0.242)	1.035 (0.593)
40-49	1.065 (0.163)	0.538 (0.407)	1.008 (0.129)	0.682 (0.179)	0.825 (0.121)	0.754 (0.320)
50+	1.607* (0.420)	5.91e+07*** (6.69e+07)	1.026 (0.197)	0.788 (0.320)	0.613** (0.124)	0.859 (0.446)

Appendix Table A4. Multinomial logit model of downward movements in the job ladder, individuals aged 15-59 in t , and employed in both t and $t-1$, by sex (continued)

	Multinomial logit (model 2)		Multinomial logit (model 3)			
Previous period ($t-1$):	Upper-tier informal		Formal		Formal	
Transition to (t):	Lower-tier informal		Upper-tier informal		Lower-tier informal	
	Male	Female	Male	Female	Male	Female
Education (Voc. sec. omit.)						
Illiterate	1.265*	12.44***	0.883	4.97e-07***	1.590**	4.119**
	(0.167)	(11.14)	(0.211)	(2.99e-07)	(0.356)	(2.968)
Reads & Writes	0.920	4.488	1.257	2.28e-07***	2.819***	2.15e-07***
	(0.163)	(5.971)	(0.306)	(1.97e-07)	(0.641)	(2.80e-07)
Primary	0.948	3.519	0.954	1.552	1.714***	12.58**
	(0.136)	(3.130)	(0.210)	(2.338)	(0.314)	(16.13)
Preparatory	0.896	0.472	0.880	0.976	1.833*	3.000
	(0.147)	(0.499)	(0.219)	(0.660)	(0.578)	(2.177)
General secondary	1.272	81.08**	1.052	0.817	0.259***	1.002
	(0.353)	(171.8)	(0.316)	(0.483)	(0.104)	(0.932)
Post-secondary institute	0.853	0.406	0.864	0.811	0.588**	0.652
	(0.261)	(0.443)	(0.194)	(0.349)	(0.141)	(0.491)
University and above	0.699*	0.0520***	1.020	1.097	0.402***	0.303***
	(0.139)	(0.0561)	(0.138)	(0.289)	(0.0711)	(0.137)
Marital status (Never married omit.)						
Ever married	0.911	1.068	0.761	1.273	0.461***	0.672
	(0.123)	(0.666)	(0.160)	(0.442)	(0.114)	(0.349)
Number of parents with secondary or higher education (None omit.)						
One parent	1.034	2.692	1.048	0.857	0.644**	0.750
	(0.194)	(3.140)	(0.171)	(0.239)	(0.119)	(0.334)
Both parents	0.491***	1.361	1.049	0.825	0.402***	0.352
	(0.117)	(1.507)	(0.230)	(0.248)	(0.111)	(0.257)
Constant	0.108***	0.0453**	0.317***	0.209	0.0503***	7.90e-09***
	(0.0342)	(0.0568)	(0.120)	(0.222)	(0.0232)	(1.26e-08)
Observations	4884	346	5461	1500	5461	1500
Pseudo R2	0.131	0.432	0.138	0.176	0.138	0.176
Tests of Equality Between Male and Female Coefficients (p-values)						
Wald test: men = women, 2006-2012				0.635		0.000
Wald test men = women: 2012-2018		0.270		0.610		0.000
Wald test men = women: 2018-2023		0.176		0.933		0.000
Wald test men = women: non-wage		0.337		0.268		0.213
Wald test men = women: switching		0.890		0.451		0.001
Wald test men = women: non-wage × switching		0.689		0.381		0.000

Source: Authors' calculations based on adjacent waves of the ELMPS (1998, 2006, 2012, 2018, and 2023)

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Cells are relative risk ratios, and the standard errors are clustered at the individual level. The reference category for the outcome is staying in the same job ladder category. All characteristics are at $t-1$, except for time periods and switching between wage and non-wage work.

Appendix Table A5. Multinomial logit model of job ladder transition for entry into employment, individuals aged 15-59 in t , and non-employed in $t-1$, by sex

Transition to (t):	Formal		Upper-tier informal		Lower-tier informal	
	Male	Female	Male	Female	Male	Female
Time period (1998-2006 omit.)						
2006-2012	0.622*** (0.0821)	0.788* (0.104)	0.642*** (0.0808)	0.614*** (0.0922)	1.466*** (0.199)	0.501*** (0.0576)
2012-2018	0.420*** (0.0626)	0.335*** (0.0501)	0.604*** (0.0791)	0.574*** (0.0905)	2.326*** (0.317)	0.787** (0.0946)
2018-2023	0.311*** (0.0495)	0.267*** (0.0439)	0.348*** (0.0460)	0.566*** (0.0890)	1.314** (0.180)	0.790** (0.0865)
Region (Greater Cairo omit.)						
Alex. & Suez Canal	1.202 (0.208)	1.245 (0.221)	1.026 (0.176)	1.004 (0.216)	1.314 (0.233)	0.886 (0.222)
Urb. Lwr. Egypt	0.714** (0.115)	0.978 (0.161)	1.190 (0.175)	0.728 (0.142)	1.319* (0.213)	0.994 (0.232)
Urb. Upp. Egypt	0.849 (0.132)	1.371* (0.222)	1.119 (0.162)	0.850 (0.153)	1.693*** (0.271)	1.000 (0.215)
Rur. Lwr. Egypt	0.771* (0.120)	0.922 (0.157)	1.033 (0.143)	0.861 (0.154)	1.787*** (0.262)	1.442* (0.300)
Rur. Upp. Egypt	0.981 (0.166)	0.942 (0.186)	1.203 (0.178)	0.790 (0.159)	2.523*** (0.373)	1.592** (0.339)
Age group (30-39 omit.)						
15-24	1.436 (0.423)	0.556*** (0.0832)	1.740** (0.486)	0.879 (0.152)	1.084 (0.280)	0.862 (0.103)
25-29	2.262** (0.757)	0.596*** (0.101)	2.255** (0.742)	0.880 (0.142)	1.706* (0.536)	0.929 (0.119)
40-49	0.490 (0.250)	0.937 (0.181)	0.362*** (0.142)	0.979 (0.227)	0.185*** (0.0645)	0.630*** (0.0725)
50+	0.367* (0.200)	0.619 (0.202)	0.127*** (0.0680)	0.428** (0.165)	0.185*** (0.0691)	0.448*** (0.0769)
Education (Voc. sec. omit.)						
Illiterate	0.275*** (0.110)	0.213*** (0.0505)	0.545** (0.132)	0.687* (0.137)	0.715 (0.166)	2.076*** (0.221)
Reads & Writes	0.312*** (0.121)	0.281*** (0.138)	0.669 (0.195)	0.872 (0.264)	0.555* (0.177)	1.464** (0.243)
Primary	0.153*** (0.0287)	0.477** (0.140)	0.218*** (0.0352)	0.662 (0.210)	0.274*** (0.0374)	1.460** (0.266)
Preparatory	0.176*** (0.0265)	0.617*** (0.114)	0.238*** (0.0314)	1.156 (0.194)	0.300*** (0.0349)	0.874 (0.119)
General secondary	1.325* (0.201)	3.295*** (0.482)	0.781* (0.117)	2.522*** (0.439)	0.537*** (0.0776)	1.045 (0.240)
Post-secondary institute	2.024* (0.795)	1.245 (0.289)	1.025 (0.366)	1.686* (0.522)	0.934 (0.344)	0.454*** (0.124)
University and above	3.450*** (0.781)	3.579*** (0.570)	1.795*** (0.397)	2.402*** (0.446)	0.971 (0.234)	0.473*** (0.104)
Marital status (Never married omit.)						
Ever married	2.672*** (0.956)	0.518*** (0.0625)	3.146*** (0.898)	0.547*** (0.0753)	2.530*** (0.678)	1.508*** (0.198)
Number of parents with secondary or higher education (None omit.)						
One parent	0.793* (0.108)	1.229 (0.181)	0.527*** (0.0620)	0.902 (0.140)	0.456*** (0.0499)	0.818 (0.171)
Both parents	0.607*** (0.0764)	2.136*** (0.270)	0.369*** (0.0430)	1.133 (0.182)	0.283*** (0.0324)	0.699* (0.128)
Constant	1.643 (0.531)	0.133*** (0.0293)	1.485 (0.456)	0.0857*** (0.0219)	0.945 (0.282)	0.0515*** (0.0140)

Appendix Table A5. Multinomial logit model of job ladder transition for entry into employment, individuals aged 15-59 in t , and non-employed in $t-1$, by sex (continued)

Transition to (t):	Formal		Upper-tier informal		Lower-tier informal	
	Male	Female	Male	Female	Male	Female
Observations	7877	26828	7877	26828	7877	26828
Pseudo R^2	0.109	0.0814	0.109	0.0814	0.109	0.0814
Tests of Equality Between Male and Female Coefficients (p-values)						
Wald test men = women: 2006-2012		0.206		0.817		0.000
Wald test men = women: 2012-2018		0.280		0.804		0.000
Wald test men = women: 2018-2023		0.505		0.018		0.004

Source: Authors' calculations based on adjacent waves of the ELMPS (1998, 2006, 2012, 2018, and 2023)

*Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Cells are relative risk ratios, and the standard errors are clustered at the individual level. The reference category for the outcome is staying in non-employment. All characteristics are at $t-1$.*

Appendix Table A6. Logit models of probability of exit from employment, overall and by previous job ladder status, individuals aged 15-59 in t , and employed (in status) in $t-1$, by sex

Previous period ($t-1$):	Employed		Formal		Upper-tier informal		Lower-tier informal	
	Male	Female	Male	Female	Male	Female	Male	Female
Previous job ladder category (Lower-tier informal omit.)								
Formal	0.751*	0.567***						
	(0.125)	(0.121)						
Upper-tier informal	1.224*	0.900						
	(0.131)	(0.174)						
Employment status (Wage employment omit.)								
Non-wage employment	1.162	1.189	1.223	0.951	0.716*	0.983	1.096	1.372
	(0.196)	(0.257)	(0.397)	(0.593)	(0.128)	(0.375)	(0.201)	(0.326)
Interaction between employment status and previous job ladder category								
Formal # non-wage	0.781	0.808						
	(0.236)	(0.328)						
Upper-tier informal # non-wage	0.626**	1.037						
	(0.149)	(0.336)						
Time period (1998-2006 omit.)								
2006-2012	1.216	1.480	1.558	3.172**	1.051	1.495	1.384	1.054
	(0.235)	(0.410)	(0.671)	(1.808)	(0.277)	(0.804)	(0.498)	(0.456)
2012-2018	1.317	1.686*	1.059	3.186**	1.317	2.256	1.605	1.229
	(0.242)	(0.479)	(0.419)	(1.719)	(0.350)	(1.263)	(0.542)	(0.538)
2018-2023	1.692***	2.520***	1.577	7.352***	1.316	2.619*	2.335**	1.529
	(0.312)	(0.711)	(0.611)	(3.828)	(0.357)	(1.451)	(0.793)	(0.676)
Public sector (Private sector omit.)								
	0.498***	0.274***	0.495***	0.333***	0.369*	0.171***	0.990	0.364**
	(0.113)	(0.0568)	(0.133)	(0.106)	(0.190)	(0.0637)	(0.487)	(0.159)
Economic activity (Services omit.)								
Agriculture	0.877	1.266	0.502	0.414	0.651	2.078	0.930	0.897
	(0.151)	(0.292)	(0.361)	(0.408)	(0.232)	(1.375)	(0.238)	(0.285)
Industry	0.966	1.144	0.924	1.294	0.895	0.894	0.900	1.130
	(0.132)	(0.234)	(0.243)	(0.431)	(0.201)	(0.290)	(0.220)	(0.401)
Trade & transport	0.959	0.799	1.041	0.472*	0.756	1.163	1.058	0.664
	(0.136)	(0.155)	(0.275)	(0.198)	(0.176)	(0.398)	(0.247)	(0.201)
Outside establishment (Inside omit.)								
	1.016	1.189	1.351	1.732	0.875	1.544	1.164	1.155
	(0.120)	(0.224)	(0.569)	(1.208)	(0.134)	(0.572)	(0.207)	(0.273)

Appendix Table A6. Logit models of probability of exit from employment, overall and by previous job ladder status, individuals aged 15-59 in t , and employed (in status) in $t-1$, by sex (continued)

Previous period ($t-1$):	Employed		Formal		Upper-tier informal		Lower-tier informal	
	Male	Female	Male	Female	Male	Female	Male	Female
Firm size (1-4 omit.)								
5-9	0.990 (0.122)	0.695* (0.137)	1.380 (0.554)	0.430 (0.264)	0.909 (0.170)	0.858 (0.329)	0.986 (0.163)	0.754 (0.186)
10-24	0.944 (0.154)	0.636* (0.151)	1.792 (0.835)	0.438 (0.223)	1.025 (0.269)	0.738 (0.339)	0.766 (0.163)	0.724 (0.224)
25-99	0.580*** (0.117)	0.573** (0.131)	0.797 (0.315)	0.385** (0.179)	0.378** (0.186)	0.766 (0.302)	0.844 (0.243)	1.102 (0.493)
100 or more	0.949 (0.136)	0.523*** (0.119)	1.487 (0.558)	0.267*** (0.130)	1.287 (0.291)	1.056 (0.399)	0.675* (0.149)	0.419** (0.144)
Region (Greater Cairo omit.)								
Alx. Sz C.	1.122 (0.198)	0.865 (0.209)	0.917 (0.289)	0.731 (0.222)	1.426 (0.371)	0.832 (0.336)	1.103 (0.379)	1.002 (0.469)
Urb. Lwr.	0.676** (0.116)	0.617** (0.138)	0.619 (0.197)	0.343*** (0.114)	0.643* (0.170)	0.699 (0.256)	0.872 (0.291)	1.341 (0.522)
Urb. Upp.	0.878 (0.139)	0.727 (0.158)	0.679 (0.204)	0.321*** (0.0943)	1.123 (0.271)	0.921 (0.394)	0.943 (0.288)	2.060* (0.788)
Rur. Lwr.	0.695** (0.106)	0.516*** (0.106)	0.580* (0.173)	0.206*** (0.0634)	0.710 (0.161)	0.754 (0.257)	0.835 (0.247)	1.139 (0.410)
Rur. Upp.	0.973 (0.159)	0.579** (0.129)	1.122 (0.437)	0.104*** (0.0444)	0.967 (0.227)	0.883 (0.373)	1.105 (0.336)	1.371 (0.507)
Age group (30-39 omit.)								
15-24	1.027 (0.158)	2.251*** (0.441)	0.701 (0.259)	3.096** (1.418)	1.194 (0.275)	2.997*** (1.069)	1.055 (0.227)	1.638** (0.404)
25-29	0.595*** (0.0969)	1.235 (0.190)	0.512* (0.201)	1.180 (0.343)	0.661* (0.158)	1.424 (0.438)	0.596** (0.137)	1.221 (0.281)
40-49	1.550*** (0.225)	0.972 (0.148)	1.189 (0.356)	0.792 (0.236)	2.126*** (0.489)	1.079 (0.365)	1.571** (0.320)	1.001 (0.200)
50+	6.010*** (0.915)	1.432** (0.258)	5.573*** (1.657)	0.772 (0.239)	8.490*** (2.273)	2.436** (1.081)	5.646*** (1.399)	2.095** (0.611)

Appendix Table A6. Logit models of probability of exit from employment, overall and by previous job ladder status, individuals aged 15-59 in t , and employed (in status) in $t-1$, by sex (continued)

Previous period ($t-1$):	Employed		Formal		Upper-tier informal		Lower-tier informal	
	Male	Female	Male	Female	Male	Female	Male	Female
Education (Voc. sec. omit.)								
Illiterate	1.275*	0.970	1.622	2.246	1.539**	0.519	1.035	0.872
	(0.171)	(0.162)	(0.658)	(1.178)	(0.319)	(0.209)	(0.205)	(0.183)
Reads & Writes	1.243	0.979	1.094	1.539	1.538	1.343	0.997	0.704
	(0.215)	(0.340)	(0.440)	(1.781)	(0.424)	(0.862)	(0.243)	(0.312)
Primary	1.634***	0.821	1.216	0.227	1.630**	0.574	1.723***	0.981
	(0.200)	(0.210)	(0.448)	(0.214)	(0.321)	(0.290)	(0.308)	(0.275)
Preparatory	1.572***	1.161	1.431	0.479	1.638**	0.937	1.658***	1.668
	(0.235)	(0.337)	(0.586)	(0.360)	(0.394)	(0.579)	(0.320)	(0.658)
General secondary	1.573**	1.374	1.515	1.436	1.584	1.145	1.619	0.928
	(0.339)	(0.517)	(0.714)	(0.696)	(0.583)	(0.739)	(0.494)	(0.711)
Post-secondary institute	1.341	0.580*	0.815	0.658	1.135	0.308**	2.398*	0.636
	(0.394)	(0.172)	(0.291)	(0.280)	(0.533)	(0.174)	(1.264)	(0.320)
University and above	0.847	0.792	0.592*	0.742	0.739	0.597	1.122	0.659
	(0.149)	(0.131)	(0.189)	(0.182)	(0.228)	(0.193)	(0.322)	(0.318)
Marital status (Never married omit.)								
Ever married	0.388***	0.806	0.380***	1.023	0.430***	0.917	0.367***	0.486***
	(0.0561)	(0.142)	(0.120)	(0.334)	(0.0913)	(0.298)	(0.0727)	(0.127)
Number of parents with secondary or higher education (None omit.)								
One parent	1.634***	1.037	2.397***	1.124	1.640*	0.649	1.269	1.395
	(0.248)	(0.198)	(0.771)	(0.297)	(0.473)	(0.227)	(0.251)	(0.500)
Both parents	2.104***	0.786	4.279***	0.896	1.675*	0.594	1.555	0.510
	(0.394)	(0.188)	(1.396)	(0.269)	(0.480)	(0.232)	(0.466)	(0.308)
Main breadwinner in household	0.810**	0.883	0.907	0.840	0.757*	1.050	0.788	0.826
	(0.0871)	(0.107)	(0.247)	(0.176)	(0.121)	(0.245)	(0.121)	(0.159)
Constant	0.0918***	1.565	0.0550***	0.895	0.121***	0.911	0.0638***	2.120
	(0.0252)	(0.566)	(0.0345)	(0.628)	(0.0465)	(0.628)	(0.0281)	(1.141)
Observations	17695	3857	5429	1680	5163	660	7103	1517
Pseudo R2	0.0913	0.230	0.113	0.174	0.0916	0.156	0.0807	0.0688
Tests of Equality Between Male and Female Coefficients (p-values)								
Wald test men = women: 2006-2012		0.560		0.319		0.557		0.628
Wald test men = women: 2012-2018		0.465		0.100		0.385		0.629
Wald test men = women: 2018-2023		0.237		0.018		0.264		0.448
Wald test men = women: non-wage		0.935		0.720		0.453		0.455
Wald test men = women: formal		0.296						
Wald test men = women: non-wage x formal		0.948						
Wald test men = women: upper-tier		0.164						
Wald test men = women: non-wage x upper-tier		0.209						

Source: Authors' calculations based on adjacent waves of the ELMPS (1998, 2006, 2012, 2018, and 2023)

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Cells are odd ratios, and the standard errors are clustered at the individual level. All characteristics are at $t-1$.