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Labor Transitions between Formal and Informal Employment in Egypt

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Abstract

Informal employment is the hallmark of developing economies. Egypt is no exception to this trend. Those who are informally employed are exceptionally vulnerable as they lack social protection. Moreover, large informal sectors are symptomatic of underdevelopment and have negative repercussions on the economy. Few studies examine the determinants of labor market transitions in Egypt with a focus on transitions between formal and informal labor market states. This study focuses on determinants of labor market transitions in Egypt, relying on the Egyptian Labor Market Panel Surveys of 2012 and 2018. It develops four multinomial logistic regression models to achieve this goal. The main independent variables examined are education, gender, age group, father's level of education (a proxy for social class), and area of residence. The findings reveal the immobility of Egyptian women in the labor market except if they are moving to unemployment or inactivity. The youth seem to be particularly vulnerable as they are less likely to transition from informal to formal salaried employment. Moreover, self-employment is less accessible to the youth (hence they are less likely to transition to it), and youth in self-employment are less likely to remain/succeed there. This effectively means the youth are trapped in informal salaried employment. Moreover, educational attainment increases the odds of transition towards formal salaried employment and reduces flows out of it. The study also finds that non-employed, highly educated individuals are queuing in non-employment until they can find a position in formal salaried employment.

Keywords: Informal Employment – Informal Sector – Informality – Self-employment – labor market transitions – Entrepreneurship.

1 Introduction:

Informal employment is the hallmark of labor markets in developing economies. Even though there is no consensus over the definition of informal employment, a widely cited definition is the one developed by the International Council for Labor Statisticians (ICLS). Defining informal employment (informality) first requires defining the related concept of the informal sector. According to the 15th ICLS, the informal sector is the subset of household enterprises that is not registered according to national legislation(International Labor Office, 1993). In recognition of the fact that many workers employed in formal sector firms have an informal employment relationship, the ICLS 17th guidelines developed the concept of informal employment, including informal sector employees and informal salaried workers in the formal sector (ILO, 2004). The informality of the employment relationship for workers is widely measured in the empirical literature with reference to the possession of a written contract and/orsocial security registration.

In 2018, the ILO estimated the number of informal workers by two billion workers accounting for nearly 61% of employment worldwide. Africa has the highest rate of informal by far, nearly 86%, Asia and the Pacific and Arab states come in second place with 68% informal employment in each. Egypt is no exception to other developing economies. Estimates from the Egyptian Labor Market Panel Survey (ELMPS) indicate that the percentage of salaried workers between 15-64 years without a contract or social security registration increased from nearly 46% to 58% between 2012 and 2018. Moreover, the percentage of employed individuals not covered by social security increased from about 61% to almost 72% (ERF & CAPMAS, 2012, 2018).

There are many reasons why we should care about informal employment from a policy perspective. First, informal workers face overlapping vulnerabilities; they fall through the cracks of the social protection system(Maloney & Arias, 2007). Since informal employment is often defined in terms of lack of social security benefits, informal workers are uninsured against the risks of death, old age, sickness, unemployment, and disability. In addition to being uninsured against these risks, informal employees, especially those in the informal sector, are more prone to occupational hazards and injuries(International Labor Organization, 2009). They also earn less compared to workers in the formal sector, otherwise known as the informal wage penalty, largely reflecting their lower levels of human capital(Ohnsorge & Yu, 2022). Second, the existence of a large informal sector in the economy is indicative of underdevelopment. Economies with large informal sectors have higher rates of poverty, lower income per capita, and inefficient institutions.

Third, the informal sector has a negative impact on the economy as informal firms are less productive than their formal counterparts (Ohnsorge & Yu, 2022). Moreover, since informal firms do not pay taxes, they erode the government's revenue base and reduce its ability to provide public services(Jessen & Kluve, 2021).

There are three theoretical views regarding the motives of workers in joining the informal sector. Labor market segmentation theory holds that the labor market is split into a formal market with good jobs (e.g., higher wages, social protection, and good working conditions) and an informal one with low-quality jobs (e.g., lower wages, lack of social protection). Workers are excluded from the formal sector and shoved into the informal counterpart because of barriers to entry. Contrarily, the second view holds that workers voluntarily exit the formal sector because they have a comparative advantage in the informal sector and because it offers many non-wage benefits to workers, such as flexibility. A third view contends that the informal sector is a mixture of both exclusion and exit(Maloney & Arias, 2007). Many empirical studies find evidence of the heterogeneity of the informal sector (e.g. (Harati, 2013; Nemoto & Zuo, 2017)

Another concern among scholars studying informal employment is understanding its macro determinants, such as labor market regulations (Besley & Burgess, 2004; Wahba, 2009b) and trade liberalization (Salem & Zaki, 2019; Selwaness & Zaki, 2015). Scholars have also highlighted the impacts of micro-determinants of informality(Angel-Urdinola & Tanabe, 2012; Danquah et al., 2019; Roushdy & Selwaness, 2019) and the determinants of transitions between formal and informal labor market states (Bernabè & Stampini, 2009; Tansel & Acar, 2017; Tansel & Ozdemir, 2019).

This study falls within the branch of the literature that focuses on transitions between formal and informal labor market states. Studies on labor market transitions in Egypt (Tansel & Ozdemir, 2019; Wahba, 2009a)use older versions of the Egyptian labor market panel survey (ELMPS). Wahba examines “graduation” from informal to formal employment by focusing on the impact of gender and education exclusively. (Tansel & Ozdemir, 2019) by contrast, define six labor market states and rely on a larger variety of independent variables and their interactions. The current study updates the knowledge on labor market transitions in Egypt by relying on the two latest versions of ELMPS (2012-2018). The main research question the thesis seeks to answer is as follows:

What are the determinants shaping labor market transitions, with a special focus on transitions between formal salaried employment and informal employment (including informal salaried employment and self-employment)?

This research question can further be divided into the following sub-questions:

1. How does the individual's level of educational attainment shape their labor market transitions?
2. How does age contribute to labor market transitions? Are some age groups faring better than others?
3. How do labor market transition patterns vary by gender?
4. How does social class affect transitions in the labor market?
5. How does the area of residence affect an individual worker's chances of moving from one state to the other in the labor market?

The research question is answered through a quantitative methodology relying on Egyptian labor market panel surveys for the years 2012 and 2018. Four labor market states are identified: formal salaried employment, informal salaried employment, self-employment, and non-employment. The sample will be split into four subsamples according to the labor market state in 2012, and a multinomial logistic regression will be estimated for each one of them. The dependent variable is the labor market state in 2018. It is a categorical variable composed of the same categories mentioned earlier. The independent variables of interest are age, education, father's level of education, gender, and area of residence. Other controls included in the four models are marital status and household size.

The findings of the study reveal that the youth are entrapped in informal salaried employment. On the one hand, they are less likely to transition from informal to formal salaried employment. On the other hand, they are less likely than older age groups to access self-employment and succeed

in it. Moreover, educational attainment increases the odds of transition towards formal salaried employment and reduces flows out of it. The study also finds that non-employed, highly educated individuals are queuing in non-employment until they can find a position in formal salaried employment. In conformity with the previous studies on MENA, Egyptian women are immobile except if they are moving into inactivity.

The thesis is divided as follows; the second section lays down the literature review, discussing research on developed and developing countries. The third section explains the contextual framework of the study, including a brief on the conditions of the economy and the labor market in Egypt, relevant legislative frameworks, and employment policies. The fourth section then presents the conceptual framework, focusing on the definitions of informal employment and the informal sector, various hypotheses about how informality relates to other variables, and the methodologies used by scholars to prove/disprove the existence of these relationships. The fifth section presents the data and methodology, while the sixth section highlights the empirical findings and the discussion. Finally, the seventh section concludes and provides some policy recommendations.

2 Literature Review

This section reviews the literature on precarious employment in developed countries and informal in developing countries. Unlike the operational definition of informal employment, which usually focuses on the lack of a contract and/or social security, precarious employment encompasses multiple deprivations facing workers in the labor market, including low pay, disempowerment, and lack of protection under labor and social insurance laws. Given the dearth of research on informality in developed countries, studies on precarious employment in developed countries are included in this literature review. This section is structured around the following themes: determinants of informal/precarious employment, determinants of transition between informal(precarious) and formal(non-precarious) labor market states, labor market segmentation, macro-determinants of informality(precarity), and informal/precarious employment and gender. The analysis of each branch of the literature first proceeds with discussing the literature on developed economies, followed by the literature on developing countries, attempting to contrast them, and finally, the literature on Egypt/MENA whenever available.

2.1 Determinants of Informal/precarious Employment:

One branch of the literature discovers the variables associated with informal/precarious labor market states (the micro-determinants of informal/precarious employment). For example (Williams & Horodnic, 2018) discover the determinants of informal employment using European Working Conditions Survey. Other studies on the European union focus instead on the determinants of precarious employment (Kretsos & Livanos, 2016; Orfao et al., 2021). Studies on developing countries also share the concern with micro-determinants of informal employment such as (Danquah et al., 2019; Khamis, 2012; Lehmann & Zaiceva, 2013), which focus on sub-Saharan African countries, Mexico, and Russia, respectively. Similar studies on informal employment were conducted in the context of the MENA region (Angel-Urdinola & Tanabe, 2012; Ezzat et al., 2019), comparing the status of informal employment between the case studies. Others focused exclusively on Egypt, including (Assaad & Krafft, 2020; L. Fedi, 2019; Roushdy & Selwaness, 2019). The studies in this branch of the literature often rely on multinomial logistic or probit regression to answer their research questions depending on the number of labor market states specified in the empirical model.

2.2 Determinants of Labor Market Transitions:

The second group of studies focuses on determinants of transitions between formal/non-precarious and informal/precarious employment. In contrast to the first group of studies, this analysis is dynamic. In developed countries, the literature revolves around transitions from precarious employment using a multiplicity of methodologies such as event history analysis in Germany(Reichelt, 2015) and Multichannel sequence analysis combined with a multinomial logistic regression in the Netherlands(Mattijssen et al., 2020) and cluster analysis combined with multinomial logistic regressions in Spain(López-Andreu & Verd, 2016). These methodologies allow for a more fine-grained analysis of the trajectories of employment precarity and the factors affecting it and require a wealth of data that is lacking in developing country contexts. By contrast, studies on developing countries estimate the determinants of transitions between formal and informal states using multinomial logit regression ((Bernabè & Stampini, 2009; Gutierrez et al., 2019; Maciel & Oliveira, 2018; Tansel & Acar, 2017). Studies on Egypt follow the same analytical strategy applied in other developing countries(Tansel & Ozdemir, 2019; Wahba, 2009a). Dynamic studies on developing countries using multinomial logistic regression have the potential to reveal interesting trends in the labor market; however, specifying too many labor market states could lead to computational difficulties since a separate regression has to be run for each labor market state defined.

The independent variables considered in static and dynamic studies (branches 1&2 of the literature) include: (1) supply-side factors, namely gender, age, marital status, educational attainment, work experience, citizenship status and race, household size, and the existence of dependents. (2) Demand-side factors such as the sector of employment, occupation, firm size, and the level of occupational skill required for the job.

2.3 Labor Market Segmentation:

Labor market segmentation studies in developed countries are focused on discovering the number of segments into which the labor market is divided. For example(Lukac et al., 2019; Seo, 2021; Yoon & Chung, 2016) use latent class analysis in order to discern labor market divisions in a number of European economies instead of making assumptions about the factors/dimensions

dividing the labor market into insiders and outsiders, such as the case in (Häusermann & Schwander, 2012; Schwander & Häusermann, 2013). Interestingly, the literature on developed countries is not concerned with verifying whether barriers to entry exist between the different segments of the labor market, an important condition for proving the existence of segmentation. In sum, these studies seem to indicate that precarity is a multifaceted concept. Moreover, the market is not exactly dual; it could be divided into a core market of insiders existing alongside several outsider markets characterized by varying degrees of precarity.

In studies on developing countries, scholars used a myriad of methodologies to gauge the existence of barriers to entry and hence to labor market segmentation. They can generally be classified into three categories.

- Calculating transition probabilities: A practical implication of labor market segmentation is that the flows from the informal to the formal sector are higher than the flows in the other ways around. This indicates that workers enter the informal sector and queue in it- because of barriers to entry- until they manage to find a position in the formal sector. (Bernabè & Stampini, 2009; Bosch & Maloney, 2010; Pagés & Stampini, 2009);
- Estimating the formal/informal wage gap: Some scholars contend that barriers to entry exist if there is a wage gap between equally endowed individuals in the formal and informal sectors. By using OLS and Quantile regressions with fixed effects, it is possible to determine the wage gap between the two sectors while taking time-invariant unobserved heterogeneity into account. The use of quantile regressions also allows for quantifying the gap across the income distribution. (Bargain & Kwenda, 2014; Nguyen et al., 2013; Nordman et al., 2016; Tansel et al., 2020; Tansel & Acar, 2016) and.
- Estimating finite mixture models: According to (Günther & Launov, 2012; Nemoto & Zuo, 2017), entry barriers exist if the workers are under-represented in the sector that maximizes their wages given their human capital. This can be gauged by using finite mixture models.

Increasingly, however, many studies on developing countries find empirical evidence to support the heterogeneity of the informal sector rather than lending support to the segmentation or competitive market hypotheses.

Studies on Egypt share the concerns of the literature on developing countries, such as understanding the informal market through finite mixture models (Harati, 2013) and estimating the informal wage penalty (Tansel et al., 2020). One last study that deals with the wage gap between the formal and informal sector is that of (El-haddad & Gadallah, 2020), which shows that informal employment in the private sector has contributed to increasing wage inequality between 2006 and 2012 in Egypt; During this period, the influx of workers from the public sector and the lack of minimum wage in the informal sector were responsible for the reduction of the wage level in the informal sector and consequently increasing wage inequality. Nonetheless, this study does not aim to prove/disprove the segmentation hypothesis (barriers to entry).

2.4 Macro-determinants of Informal/precarious Employment:

2.4.1 Labor Market Regulations:

A fourth branch of the literature investigates the macro-determinants or causes of informal/precarious employment. Labor market regulation is one potential determinant.

In the empirical literature on developed countries, there is disagreement as to the impact of labor market regulations on the rise of precarious employment. While the recommendations of international organizations push towards the flexibilization of labor market regulations in order to put an end to labor market precarity and dualization(European Commission, 2012), there is fear that labor market flexibility ushered as a solution to the ills of labor markets is no more than a myth. As a matter of fact, it resulted in higher labor precarity and labor market segmentation, the opposite of what it was intended to achieve (Piasna & Myant, 2017; Rubery et al., 2016).

The evidence from developing countries, however, supports the hypothesis that labor market reforms (flexibilization) reduce informal employment while strict labor market regulations increase informality; A classic study in this regard is (Besley & Burgess, 2004) study on India, in which they estimate the impact of amendments to the industrial disputes act, on various manufacturing sector outcomes in India. The authors ultimately find that pro-worker amendments (more strict regulations) resulted in lower output and employment in the formal manufacturing sector as well as higher output in the informal sector and a rise in urban poverty. Other literature on India supports this finding. (Sapkal, 2016) finds evidence that strict employment protection laws and intense enforcement thereof raise the incidence of informal employment, while (Goldar & Aggarwal, 2012) indicate that increasing flexibility lowers the probability of being informally employed in the manufacturing sector. Studies on Brazil (Bosch et al., 2012; Bosch & Esteban-

Pretel, 2012) similarly conclude that reducing hiring and/or firing costs lead to a decline in informal employment.

In the case of Egypt (Wahba, 2009b; Wahba & Assaad, 2017; Yassin & Langot, 2018) found that the introduction of the 2003 labor law, which reduced the costs of hiring and firing, decreased informal employment. Interestingly, Yassin and & Langot (2018) find that the public sector's higher wages "tends to cancel out the positive effect on the private formal sector's job creation and may even reduce it."

2.4.2 Trade Liberalization:

Within this branch of the literature, trade liberalization as measured by trade tariffs or import penetration is another important macro-driver of informal employment. This strand of the literature is specific to developing countries that shifted from a socialist economic strategy based on import substitution toward liberal export-based economies. The empirical evidence on the impact of trade liberalization has been inconclusive. Paz finds evidence that a decrease in import tariffs in Brazil increases informal employment, but the evidence is not robust to different specifications(Paz, 2014). Similarly, (Goldar & Aggarwal, 2012) find that the impact of import penetration on informal employment in India is positive and statistically significant for workers with primary to less than higher education only. Likewise, (Dix-Carneiro & Kovak, 2017) exploit the regional differences in tariff reductions in Brazil and find that tariff reductions reduce formal employment and earnings and that the impact grows through time. Interestingly, (Ponczek & Ulyssea, 2021) consider the role of tariff reduction in Brazil while accounting for the degree of strictness in enforcing labor regulations which vary regionally. They find that trade liberalization in the presence of strict enforcement of labor laws does not lead to increased informal employment but increases unemployment. Meanwhile, regions that are laxer in the application of labor laws didn't face rising unemployment but instead witnessed a surge of informal employment in the wake of trade liberalization. Findings from Mexico (Ben Yahmed & Bombarda, 2020) are more nuanced as they suggest that the impact of trade liberalization varies across gender, skill level and sector of employment.

Studies on the impact of trade liberalization in Egypt (Selwaness & Zaki, 2015) find that trade openness reduced informal employment even after controlling for the possible impacts of other simultaneous policy measures such as public sector privatization and the ensuing

employment reductions. A later study(Salem & Zaki, 2019) interacts the effect of the tariff reductions with that of the labor market flexibility introduced by the labor law of 2003. The findings remain unchanged.

2.4.3 Other Determinants:

Other macro-determinants discovered by the literature in the MENA region are the impact of political stability (Elsayed & Wahba, 2019) and institutional context (Ezzat et al., 2019). The authors conclude that political stability ensuing from the Arab spring has contributed to rising informal employment for high and low educated groups alike, while a corrupt institutional environment is associated with a higher probability of informality.

2.5 Informal Employment and Gender:

Another branch of the literature discovers the interaction between informal/precarious employment and gender. The literature on developed countries recognizes the connections between precarity and gender. A recent EU commissioned qualitative report discovers the different aspects of female precarity, taking an intersectional approach that incorporates age and race(European Union, 2020). Other studies consider the patterns of precarious work quantitatively, either generally (Cranford et al., 2004)or with reference to female-dominated sectors(Jokela, 2019). These studies point to the fact that precarity has a feminine face indeed. Another prominent concern is explaining gender differences in precarity. For example, (C. Young, 2010) examines gender differences precarity and ultimately finds that discrepancies are explained by human capital differences between men and women as well as discrimination. Similarly,(Fuller & Vosko, 2008) find that a great portion of the wage gap between males and females in permanent jobs and males and females in precarious jobs is explained by human capital factors though a small portion remains unexplained. Another important strand within this literature focuses on the relationship between employment precarity and fertility intentions and indicates that females in precarious employment relations tend to delay having children because precarity translates into inability to provide adequately for their children (Modena et al., 2014; Schmitt, 2021).

The concern with the gender of precarity in developed countries literature is mirrored by concern for the feminization of informal employment in developing countries especially following the implementation of structural adjustment policies(Cerrutti, 2000; Floro & Schaefer, 1998). More recently, researchers have compared the gender wage gap between the formal and the

informal sector. (Ben Yahmed, 2018)finds evidence that the gender wage gap in the informal sector in Brazil ceases to be statistically significant when observed and unobserved characteristics are accounted for while it remains statistically significant and increases with educational level in the formal sector. The empirical evidence from India suggests that the unexplained component of the wage gap is higher for the informal sector compared to the formal sector (Deininger et al., 2013; Duraisamy & Duraisamy, 2016).

Others, such as (Berniell et al., 2021), focused on the impact of the birth of the first child on female employment in Chile and found that it increases the probability of female employment in informal jobs. Likewise, (Herrera et al., 2019) find evidence of the increased likelihood of teen moms to participate in informal work compared to non-mothers, but the results are not robust to different specifications.

I was able to detect one study relating gender to informality in Egypt; (Assaad & Arntz, 2005) which attempts to understand why the informalization of employment unleashed by the adoption of SAP was coupled with defeminization of the labor market. The study proposed two reasons behind this paradox; the first reason is the impact of "oil-related revenues on the structure of labor demand." That is, oil revenues negatively impacted sectors that employ women (e.g., export-oriented manufacturing) while increasing the growth of industries and sectors that employ men more frequently. The second reason is the limited geographical mobility (commuting) for women in comparison to men.

This study falls within the branch of the literature that focuses on transitions between formal and informal labor market states. Of the studies reviewed herein on labor market transitions, only two are about Egypt (Tansel & Ozdemir, 2019; Wahba, 2009a). These studies use older versions of ELMPS (2006 and 2012). (Wahba, 2009a) examines the transition from informal to formal employment exclusively using two regressors only, education and gender, while (Tansel & Ozdemir, 2019) take a more holistic approach and examine transitions between six labor market states. They develop a multinomial logistic model with more independent variables. The current study updates the knowledge on labor market transitions in Egypt by relying on the latest version of ELMPS dating to 2018. It specifies more labor market states than in (Wahba, 2009a) but less than those specified in (Tansel & Ozdemir, 2019), thereby providing a holistic view of the labor market while keeping the focus on the most important transitions instead of fragmenting the

analysis, especially that the sample size is already too small. Even though this study relies on a smaller number of regressors compared to (Tansel & Ozdemir, 2019) due to a large number of missing observations in some variables and the computational difficulties due to the small sample size, it still includes the most important and policy-relevant variables in addition to a variable not used in earlier studies on labor market transitions which is father's level of educational attainment.

3 Contextual and Legislative Frameworks

3.1 Historical Background and Macro-Economic Causes of Informality

During the 1960s, Egypt adopted a state-centric development model, which included offering guaranteed employment to high school and university graduates(Barsoum, 2015). In 1974, under the leadership of Anwar Al-Sadat, the country shifted to an "open door" policy which included trade liberalization, involving the private sector in the economy, and welcoming foreign investments. During this time, the Egyptian economy prospered due to the rise in the oil prices which Egypt exported, the inflow of remittances from Egyptians working abroad, thriving tourism, and the re-opening of the Suez Canal(Assaad & Arntz, 2005; Barsoum, 2015). The additional revenue made it possible for the government to expand government employment, nonetheless with some delay in hiring cohorts, all while maintaining a liberalized economy. Between 1960 and 1990, the government was the main employer, which resulted in the development of an "over-staffed and inefficient public sector"(Elsayed & Wahba, 2019). Government employment is used by authoritarian governments in MENA to win over politically significant groups, such as the educated middle class in the case of Egypt. (Assaad, 2014).

The plunge in the oil prices in the 1980s forced Egypt to resort to International Financial Institutions. However, the stabilization efforts attempted in the decade were unsuccessful (Assad,2002). The gulf war and the subsequent decline in worker remittances and tourism revenue exacerbated the economic turmoil. In 1991 Egypt implemented the economic reform and structural adjustment program (ERSAP), which resulted in a decline in public sector investments, privatization of state enterprises, and abandoning the guaranteed employment scheme(Barsoum, 2015). Governments of the MENA region, in general, did not resort to laying off existing government/public sector workers but instead slowed hiring, thereby laying the burden of government apparatus cuts on the shoulders of newcomers to the labor market (outsiders) who, to their discontent, are forced to queue for jobs in the public sector or resort to the informal sector temporarily until they manage to land a job in the formal sector(Assaad, 2014). Hence, the re-orientation of government policy from socialism to an open-market economy was especially damaging for the youth contemporaries of structural adjustment(Barsoum, 2015). Despite the reduction in the public sector and government employment, it is still utilized every now and then as a "political tool to address youth unemployment. The increase in government hiring following the revolution is a case in point(Barsoum, 2017). The reforms were, however, not successful in

deregulating the labor market nor in establishing a competition authority or reforming the tax system. As a result, the growth of the formal private sector and formal private employment were thwarted while informal employment flourished.(El-haddad & Gadallah, 2020).

It wasn't until the mid-2000s that the government passed a new tax law (91/2005), competition law (3/2005), and a new labor law (Law 12 of 2003). Nonetheless, they were unsuccessful in substantially increasing the size of the private sector and its share of employment due to policy capture and corruption of crony businessmen close to the political regime(El-haddad & Gadallah, 2020). Policy capture, another component of the so-called authoritarian bargain, created an unfriendly business environment and consequently an economic landscape dominated by micro firms – which are less likely to be formal- and a lack of medium-sized firms, otherwise known as the "missing middle." (Krafft & Assaad, 2015) low demand for labor ensuing from policy capture is responsible for high levels of unemployment, especially among the uneducated female youth, underemployment (including involuntarily working for fewer hours as well as the mismatch between jobs and qualification), female inactivity and labor informalization. (Assaad, Krafft, et al., 2020).

The 2008 International economic crisis further decreased employment in export-oriented industries and contributed to the increase in informal employment. Another contributing factor to the increase in informality was the freeze in public sector hiring since 2003(El-haddad & Gadallah, 2020). The neoliberal orientation of the government that started with ERSAP intensified during the 2000s under the leadership of Ahmad Nazif. The official narrative showcased the government's macroeconomic achievements exemplified by sustained economic growth while ignoring the brewing realities of heightened poverty, inequality, and worsening living conditions created by the government's economic policies. The latter eventually culminated in the 25th of January uprising (Barsoum, 2015). The political instability ensuing from the uprising further contributed to increasing informal employment for the educated and uneducated alike (Elsayed & Wahba, 2019)

Moreover, the revolution resulted in economic turmoil. The GDP dropped while the budget deficit rose significantly as a percentage of the GDP due to the elevated government expenditure (driven largely by salaries and interest payments) coupled with a reduction in government revenue. The result was a situation where the country was highly indebted. To make matters worse, the already existing trade deficit increased after the revolution. Additionally, foreign currency sources,

namely exports, remittances, foreign direct investments, tourism, and Suez Canal revenues, were hit severely. In the light of the increased economic vulnerability, Egypt signed an agreement with the International Monetary fund in November 2016 to receive 12 billion dollars, provided it implemented several structural and stabilization reforms. The reform measures can be classified into three broad categories(Eldeep and Zaki 2021; The Tahrir Institute for Middle East Policy 2018):

- Internal stabilization reforms geared towards minimizing government expenditures: including employment reduction in the public sector, freezing wage adjustments for public sector employees, and cutting fuel, electricity, and water subsidies. To enhance revenues, the government enacted the value-added tax law (67/2016), which replaced the sales tax.
- External stabilization, including devaluating the exchange rate.
- Structural reforms: include enacting an industrial licensing law, a new investment law, and a bankruptcy law aimed at creating a business-friendly environment.
- The reforms also included expansion in safety nets for the poorest segments of society, notably on the Takaful and Karama non-contributory social assistance, as well as increasing spending on food subsidies.

Commentators pointed out the negative socio-economic effect these reforms would have on increasing the cost of living, especially for the poorest households (el-Badrawi & Corkery, 2017). They also pointed to the reduced spending on health and education to reduce the budget deficit(The Tahrir Institute for Middle East Policy 2018). According to Household Income, Expenditure and Consumption Survey (HIECS), the national poverty headcount rose from 27.8% in 2015 to 32.5% in 2018, thereby lending confirmation to these fears.

The trend of increasing informal employment continued between 2012 and 2018 since public employment decreased even further during the period while private formal employment increased only marginally. The net result was a rise in informal employment. Moreover, the increasing informalization of labor between 2012-2018 has substantially restricted the access of the middle class to formal employment, which is evidence of the “hollowing out” of the middle class. Additionally, the period between 2006-2018 has witnessed an increase in the share of informal employment outside fixed establishments which generally suffer from deteriorated working conditions and are more vulnerable to economic downturns(Assaad et al., 2019).

3.1.1 Labor Law:

In 2003, a new labor law was enacted with the purpose of making firing and hiring processes more flexible (Wahba, 2009b). By contrast, previous labor laws provided strict employment protection. For example, dismissal for a cause under law number 137 of 1981 required judicial approval. Moreover, employers were prohibited from terminating indefinite contracts for economic reasons, short of permanent and complete liquidation of the firm. Definite duration contracts could only be issued once and were automatically transformed into indefinite duration contracts upon renewal. Both the strict employment protection provisions and ineffective implementation of the law incentivized private firms to hire workers informally, that is, without issuing a contract or registering them with the social insurance administration. Law 12 0f 2003 was intended to make hiring and firing in the private sector and state-owned enterprises more flexible. The law allowed employers to renew definite duration contracts for more than one time. This effectively meant that firms could lay off workers when their definite year contract came to an end. As for indefinite duration contracts, they could be terminated after the approval of the stoppage committee if employers pay severance which differed based on the length of employment(Wahba & Assaad, 2017). Workers maintained the right to appeal this termination(Wahba, 2009b). The law only applied to workers employed in 2004. Nonetheless, modifications were made so that the judicial process for dismissal for cause was streamlined for workers hired before the law came into force. (Wahba & Assaad, 2017).

Impact analyses indicate that the 2003 Law reduced the incidence of informal employment. It is estimated that the new law "increase(d) the probability of transitioning to formal employment for non-contractual workers employed in formal firms by about 3–3.5 percentage points, or the equivalent of at least a fifth of informal workers in formal firms"(Wahba & Assaad, 2017). Moreover, (Wahba, 2009b) finds the law has increased the likelihood that private non-agricultural employees become formalized. Nonetheless, it did not have an impact on newcomers to the labor market. The continued informalization of labor in Egypt indicates, however, that whatever impact the law had, it was indeed meager. It may be the case that the law influenced formal firms employing workers informally but not workers in informal firms. Considering how informal micro-firms form the backbone of the economy, the law was unable to stop the tide of rising informal employment.

Apart from labor regulations flexibility, the labor law accords many protections and entitlements to workers from which the informally employed are deprived. According to Articles 47 and 54 of the law, workers are entitled to a paid annual leave depending on the length of employment and a paid sick leave. Articles 91 and 92 of the law give women the right to a 90-day paid maternity leave which they receive for a maximum of two times (two births). Moreover, for two years after birth, women are entitled to additional break time during the working day for breastfeeding (article 93). Article 94 of the laws states that women working in establishments with more than 50 workers have the right to request an unpaid childcare leave for a period of two years. She can only apply for such a leave twice (two births) during her service. Similarly, per article 96 of the law, establishments with 100 or more female workers must provide child daycare.

The law also provides protections for children, such as prohibiting the employment of children who are less than 14 years of age and specifying the number of working hours per day for children above 14. The fifth chapter of the law deals with occupational health and safety of the work environment. It details protections the employer or economic establishment is obliged to offer to their workers, most importantly:

(1) Protection against physical risks such as heat, coldness, and light

(2) Protection against biological risks such as bacterial, viral, fungal, and parasitic infections.

(3) Protection against mechanical risks, that is, risks that result from a collision between the worker's body and a hard object

(4) Protection against chemical risks that result from dealing with different chemical materials

(5) Protection against passive risks which result from the absence of certain facilities such as ambulance services.

(6) Protection against fire risks.

3.2 Legislative Framework:

3.2.1 Social Security Laws:

The system of pensions in Egypt was initially founded as a fully funded system. That is, monthly contributions deducted from workers are invested in a fund that pays their pension when it's due. Nonetheless, it slowly moved towards a pay-as-you-go system where the current social

security contributions pay for pension benefits. Considering how the percentage of formal employment in Egypt has dwindled through time, the system also relies on the treasury to pay due benefits(Sieverding & Selwaness, 2012). Furthermore, inefficient investment strategies are partially responsible for the unsustainability of the system (Barsoum & Selwaness, 2022). Pensions are calculated based on a specific formula taking into consideration wage and years in service, making it a defined benefit system. The system is presided by the National Organization for Social Insurance (NOSI), which runs two funds that are independent of the state budget: the Government Social Fund (GSF) for civil servants and the Public and Private Business Sector Fund (PPBSF) for private and public sector employees, employers, the self-employed and Egyptians working abroad. The ministry of social solidarity supervises the two funds. (Sieverding & Selwaness, 2012).

Prior to the enactment of the law (149/ 2019), the social insurance system in Egypt was governed by five different laws covering different groups of workers(International Labor Organization, 2018):

(1) Law 79 of the year 1975 coving employees in the government and public sector and salaried employees in the private sector

(2) Law 108 of the year 1976 covers employers and their likes.

(3) Law 50 of the year 1978 covering Egyptians working in foreign lands and those working in the branches of international and regional organizations inside Egypt.

(4) Law 112 of the year 1980, also referred to as the total social insurance law covering irregular workers. Article (5) of the law also provided a pension called the Sadat pension to those who were not entitled to a pension under any of the social insurance laws before the law was enacted.

(5) Law 90/1975 applies to the armed forces.

The new social insurance law annulled the first four insurance laws, while law 90/1975 still governs the social insurance of armed forces officers.

Law 97/1975 is the most comprehensive in terms of coverage for it covers:(International Labor Organization, 2018)

(1) old age, disability, and survivorship: Those who have reached retirement age (60 years) are entitled to a pension provided they have contributed for at least ten years according to the following formula:

Pension = Settlement wage * (subscription period in months/12) *(1/45).

The pension on the basic or variable wage, in this case, shall not be less than 50% of the settlement wage and should not exceed 80% of the settlement wage[1]. This formula relates to the general case of employees whose service ended because they reached retirement age. The formula differs according to the case (e.g., early retirees, those who reach 60 years of age after leaving service, survivorship).

(2) work injuries: Workers are entitled to treatment through the health insurance organization, transportation costs, and a wage replacement equal to their full pensionable wage. In case the work injury results in disability, the worker is entitled to an injury pension valued as a percentage of settlement wage according to the degree of disability or a one-time compensation. In case the disability ends the worker's service, the worker is entitled to a disability pension alongside the work injury pension.

(3) sickness insurance: including treatment, transportation costs, and a wage replacement equal to 75% of pensionable wage during the first 90 days and 85% of pensionable wage during the next 90 days. Females are entitled to 75% of pensionable wage during maternity leave provided they have contributed to the insurance system for at least ten months.

(4) unemployment benefits: The duration of the benefits ranges from 16 to 28 weeks based on the contribution period of the worker. The benefits are equivalent to 60% of the pensionable wage. The unemployment benefits are not available for government employees or for workers who are 60 years of age or above.

The contributions paid under this law were equivalent to 30% and 33% of the wage for civil service and public enterprises, respectively, shared between the employee and the employer. For the private sector, the contribution rate amounted to 40% of the wage shared between the employee and the employer(Barsoum & Selwaness, 2022). The law also sets a cap on pensionable income that increases by 10% annually (The national organization for social insurance, 2019).

Originally, the pension payable under law 12/1980 covering irregular workers was 10 pounds per month and covered only old age, disability, and survivorship as opposed to the generous coverage of law 79/1975. (Law12/1980). In the original law, beneficiaries were required to pay a token subscription/deductible, but in 2016, they were increased to 7% of the minimum pensionable wage (Law 60/2016). An important source of funding for this pension is government

[1] Law 97/1975 differentiates between base wage which is a fixed value paid to the worker each month, and a variable wage including elements that vary from month to another (e.g., bonuses)(Sieverding & Selwaness, 2012)

treasury payments. This explains why the entitlements of beneficiaries under this law are slim compared to the 79/1975 law(International Labor Organization, 2018). Akin to law 112/1980, law 108/1976(employers' law) covers old age, disability, and survivorship only. Nonetheless, the contributions required are 15% of declared income (Law 108/1976).

A review of the amendments to the 79/1975 law as well as other social insurance laws in the old system reveals a trend of periodically increasing pensions to allow pensioners to cope with inflation and rising living expenses. For example, one of the amendments to the 79/1975 law decreed that after calculating the pension for the basic wage, it shall be increased by 25% of its value (Ministerial Decree 517-2009). Moreover, the total payable pension should be increased by a sum equal to "the difference between the maximum value of the social security pension (Ma'aash Al-Daman)[2]and 33% of the total pension value "(law 79/2013 amending law 79/1975 and Ministerial Decree 126/2014) Moreover, every year the government issued a law to increase the value of pensions (usually by 15%) for all pensioners covered by law 79/1975, law 112/1980, law 108/1976 and law 50/1978. In 2019, before the enactment of the new social insurance law, law 74/2019 set 900 pounds as the minimum pension payable under laws 79/1975, 112/1980, 108/1976, and 50/1978.

In general, commentators pointed to the following characteristics of the old social insurance system (Sieverding & Selwaness, 2012):

(1) Generational and Geographical Bias: Coverage declines with age due to reduced government hiring and the informalization of private sector employment. It is also biased towards urban dwellers.

(2) Regressivity: Since the law caps pensionable wage, it could be seen as a regressive tax, requiring low-paid workers to contribute a large portion of their income while higher-paid employees pay only a small fraction of their income. This flaw incentivizes workers to underreport their incomes and deprives the system of the higher contributions of high-paid workers.

(3) The calculation of the settlement wage is based on the last years of service, thereby incentivizing employees and employers to underreport their income during their service

[2] Ma'ash Al-damana in a non-contributary pension received by specific groups which provides pensions to specific target groups (orphans, widowed, divorcees, unmarried women at age 50 and above, and families of the imprisoned). (Barsoum 2015).

to evade higher contributions and only report their real income around the end of their service.

(4) Low return to contributions despite elevated contribution rates. This is partially attributable to the fact that none of the social insurance laws automatically adjust pensions for inflation. Instead, the government issues laws to increase pensions almost annually.

(5) One last obstacle hindering employers and employees from participating in the social insurance system is the high contribution cost considering the low level of wages workers already receive. The evasion of social security contributions is facilitated by poor low enforcement with negative repercussions on the financial sustainability of the system(Barsoum, 2015, 2016; Sieverding, 2016).

In 2019, a new social insurance law was decreed to replace laws 79/1975, 112/1980, 108/1976, and 50/1978. Per the new law, the social insurance system is still a defined benefit system with the option to opt into a supplementary defined contributions account. Moreover, (NOSI) now presides over a unified fund instead of two in the old system. In order to deal with the financial unsustainability of the social insurance scheme, the new law stipulates that insurance fund management is the responsibility of a professional investment board presided by NOSI instead of the treasury and the national bank of investment in the old system(Barsoum & Selwaness, 2022). Moreover, the age of retirement is to increase gradually from 60 years to 65 years. In contrast to the old laws, the new law has an internal mechanism to periodically adjust the value of pensions in accordance with inflation (Article 35) to deal with the problem of low returns to contributions.

The calculation of contributions/deductibles and the pension value is based on a single number, the total wage, which combines the base and variable wages. Notably, the new law decreased the contributions paid by salaried workers and their employers. The rates of contribution now amount to 28.25%,29.25%, and 29.75 of the salaries of workers in civil service, public enterprises, and the private sector shared between the employee and employers. The reduction in contribution rates as well as increasing the penalty over non-complying employers are intended to incentivize registration in the new social insurance scheme. Nonetheless, the reduced contributions are unlikely to incentivize employers to register workers with low marginal

productivity (the least skilled and least educated workers). At best, employers may register them while underreporting their incomes (Barsoum & Selwaness, 2022).

On the flip side, the contributions have increased for irregular workers from 7% of the minimum pensionable wage to 9%. In addition, they are still uncovered for the risks of sickness, unemployment, and work injuries. The bylaw defines the groups of irregular workers that are eligible for coverage under the new law. They form a small fraction of informal employment, in particular, the "least paid and least educated" informal workers (Barsoum & Selwaness, 2022).

The settlement wage in the new law is the average income for all years in service instead of the income in the last years of service. This is intended to deal with the issue of underreporting. Nonetheless, it is doubtful that underreporting will decrease since the government has recently increased personal income tax for higher income brackets which is likely to incentivize underreporting for high-earning workers. Lastly, the social insurance scheme is still regressive, given that the new law preserved the upper and lower thresholds of pensionable income(Barsoum & Selwaness, 2022).

3.3 Active Labor Market Policies:

Active labor market policies are defined as "interventions aimed at the employment of the most vulnerable groups in society," including demand and supply-side policies(International Labor Office, 2017). These policies are sought after as a solution to the high rates of unemployment, especially youth unemployment. In the past two decades, the Egyptian government has launched several employment strategies that were not always put into practice. A case in point is the national youth employment program of 2001, which was spearheaded by the information and decision support center. It had a grand goal of employing 17,000 graduates in the public sector as well as creating 100,000 jobs in the private sector. In 2009, the youth national employment plan was drafted by the ministry of manpower with the support of international donors, but like its predecessor, it never materialized because of the political turmoil ensuing from the 2011 revolution. The most recent attempt at an employment strategy came with Egypt's sustainable development strategy (Egypt Vision 2030), which postulated several employment objectives, including unemployment reduction, reforming vocational education, and making university education responsive to labor market needs(International Labor Office, 2017).

The policy context of ALMPS in Egypt is plagued by centralization and authoritarianism. Moreover, employment policies tend to be politicized. That is, they are often connected to presidential campaigns and used as a tool to preserve the legitimacy of the current regime instead of relying on scientific evidence(International Labor Office, 2017). A tantamount to the politicization of policies is the conviction that megaprojects are an employment policy. This has been witnessed during the time of Mubarak in projects such as Toshka but has also been witnessed recently in projects such as the new administrative capital(International Labor Office, 2017). Generally, there is a lack of coordination between stakeholders. The ministry of manpower shies away from coordinating ALMPS. Meanwhile, the existence of many donors in the field with varying objectives and agendas inhibits the coordination of efforts (International Labor Office, 2017). The literature highlights four types of ALMPS policies in Egypt; skill training, entrepreneurship promotion, employment services, and public employment programs (public works).

According to the Youth Inventory Dataset, (66%) of active labor market interventions for the youth (until 2015) were focused on skill training, about one quarter was entrepreneurship promotion-focused, and 8% and 2% were dedicated to employment services and provision of subsidized employment respectively. Moreover, they rarely target women (10%), youth with disabilities (5%), and exhibit an urban bias, with nearly half of them catering to youth in urban metropolitan areas. Civil society organizations dominate the field of ALMPS, implementing nearly 80% of interventions. A minority of these interventions are rolled out on a national scale (10%) since CSOs lack the resources to upscale programs. (Barsoum, 2017).

State skill training programs offered by the government are presided by various government institutions and offer hard-skill training. They generally suffer from design inflexibility, lack of focus on skills demanded in the labor market, and non-existence of program monitoring or evaluation. Even though donors have supported government ALMPS, the projects they contributed to are mostly pilots. Moreover, they do not seem to focus on institutionalization, the exception being the dual education program, providing an alternative track for completing secondary education following the German Dual System in technical education(Barsoum, 2017). The CSO training programs are less traditional and more in line with international best practices as they reflect the skills demanded in the labor market, adopt integrated approaches, and make use of computer technology to deliver courses. Moreover, they have managed to develop networks and

partnerships among themselves, with universities and the private sector. (Barsoum, 2017). Lastly, an important dimension of training ALMPS, on-the-job training, is still missing (International Labor Office, 2017).

Employment offices operating under the auspices of the ministry of manpower provide employment services. Originally, their task was to facilitate the process of hiring in the public sector but later started to match job seekers with employment opportunities in the private sector. These employment offices suffer from substandard infrastructure, lack of networking with the private sector, and lack of reliance on computer technology(Barsoum, 2017). Employment services are also offered by the private sector, such as the national employment pact, an initiative by the German Egyptian business community and the German Arab chamber of commerce and industry specializing in employment services for blue-collar workers. Notable non-governmental initiatives include career and entrepreneurship development units launched by Nahdet El Mahrousa in universities. Al Gawady nongovernmental organization also offers career counseling and has launched a website where jobs and scholarships are posted. NGO employment services are congruent with international best practices (forging networks with the private sector, using technology), but there is a need for coordination between public, NGO, and private sector initiatives in the area of employment services (International Labor Office, 2017).

Government entrepreneurship promotion services were offered primarily through the Social Fund for Development, a quasigovernmental originally established to dampen the effects of ERSAP on the poor (Barsoum, 2017). SFD provided financial and non-financial services to small and micro enterprises, yet, commentators have raised concerns about the accessibility of the loans to small businesses and the youth(International Labor Office, 2017). Apart from SDF, the practice of providing financial services in tandem with non-financial services is still a novelty in the Egyptian context, with some exceptions, such as the Sawiris foundation for social development and Alexandria Business Association. Other private stakeholders include business incubators providing non-financial support to start-ups, such as the American University in Cairo's Entrepreneurship and Innovation Program, providing training to youth-led startups and connecting them to investors, Injaz Egypt, and Enactus Egypt(International Labor Office, 2017).

Apart from the specific critiques leveled against ALMPS in Egypt, the very concept and theory underpinning ALMPS have come under attack for two main reasons; (1) global evidence as well as evidence from MENA illustrates their failure in achieving their intended aims or, at best

achieving meager results (Krafft & Assaad, 2015; Krafft & Rizk, 2021). (2) they are useless as long as labor demand is low. According to this line of argument, a possible alternative is enhancing the business environment and easing the registration and formalization burdens for small firms, which contribute immensely to employment creation in Egypt(Krafft & Assaad, 2015).

4 Conceptual Framework

In this section, I examine the main conceptual and theoretical issues related to informal employment. The first subsection discusses the definitions of the informal sector, informal employment, and the related concept of precarious employment. The second subsection considers the different hypotheses that were developed by economists to (1) explain the relationship between informal employment and various variables, (2) understand the motivations of individuals to participate in the informal sector and (3) understand the patterns of movements between different labor market states. It also highlights the multitude of methodologies used by scholars to prove/disprove these hypotheses.

4.1 Defining Informality:

In this subsection, I present the definitions of the informal sector and informal employment. Even though the main question of this study is concerned with informal employment, it is not possible to understand this concept without defining the related concept of the informal sector.

4.1.1 Informal Sector versus Informal Employment in the Informal Sector

According to the 15th International Council for Labor Statisticians, "the informal sector is regarded as a group of production units which, according to the definitions and classifications provided in the United Nations System of National Accounts (Rev.4), form part of the household sector as household enterprises or, equivalently unincorporated enterprises owned by households" (ILO,1993).

Household enterprises have the following characteristics: first, they "are not constituted as an entity separate from its owner as are corporations" second, "they have no complete set of accounts that would provide a means of identifying flows of income and capital between the enterprise and the owner(s)." Third, they could be owned and operated by a single household member, more than one member from the same household, or individuals from different households. Fourth, they must sell some of their production on the market (ILO,1993)

Household sector enterprises could be classified into two categories (ILO,1993).

(i) Own account enterprises (self-employed) are defined as household enterprises owned and operated by one or more persons that do not hire paid continuous labor and may hire unpaid family members or paid seasonal workers. The 15th ICLS resolution gave states and their statistical agencies the option to consider all own account enterprises

as informal or to classify as informal those own account enterprises that are not registered.

(ii) Enterprises of employers are defined as household enterprises that hire paid labor in a continuous manner and may hire unpaid family members or seasonal paid labor. They are considered informal based on one of two criteria: the number of employees or nonregistration.

Employees in the informal sector are defined as "all persons who, during a given reference period, were employed in at least one informal sector unit, irrespective of their status in employment and whether it is their main or a secondary job." Both the definitions of the informal sector and employment in the informal sector rely on the production unit as a reference unit (ILO,1993).

4.1.2 Informal Employment:

The definition of informal employment was introduced in the 17th ICLS guidelines concerning a statistical definition of informal employment. The guidelines created a taxonomy of formal/informal jobs based on two axes, as illustrated in Table (1): the type of job and the type of the production unit. Production units are classified into three categories: formal enterprises, informal enterprises, and households producing goods and services for their own use. Jobs are classified into five categories; own-account workers; employers; contributing family workers; employees; and members of producers' cooperatives (ILO,2003).

Table 1: Categories of Formal and informal Employment

Production units by type	Jobs by status in employment								
	Own-account workers		Employers		Contributing family workers	Employees		Members of producers' cooperatives	
	Informal	Formal	Informal	Formal	Informal	Informal	Formal	Informal	Formal
Formal sector enterprises					1	2			
Informal sector enterprises[(b)]	3		4		5	6	7	8	
Households[(c)]	9					10			

Notes

(a) Cells shaded in dark grey refer to jobs, which by definition do not exist in the type of production unit in question. Cells shaded in light grey refer to formal jobs. Unshaded cells represent the various types of informal jobs.

(b) As defined by the 15th ICLS resolution (excluding households employing paid domestic workers).

(c) Households producing goods exclusively for their own final use and households employing paid domestic workers.

Informal employment: Cells 1to 6 and 8 to 10.

Employment in the informal sector: Cells 3 to 8.

Informal employment outside the informal sector: Cells 1, 2, 9 and 10.

Source:(ILO, 2013)

Based on this classification, the following categories of employment/jobs are considered informal (ILO,2003):

1. Own-account workers (self-employed) and employers in their informal sector enterprises. In this case, the informality of employment stems from the nature of the enterprise in which they are employed

2. Contributing family workers who work in formal or informal enterprises. This category is considered informally employed because usually, "their employment is not subject to labor legislation, social security regulations, collective agreements" (ILO,2003)
3. Individuals employed in formal sector enterprises, informal sector enterprises, and paid domestic workers are considered informal employees provided that "their employment relationship is, in law or in practice, not subject to national labor legislation, income taxation, social protection or entitlement to certain employment benefits (advance notice of dismissal, severance pay, paid annual or sick leave, etc.)" (ILO,2003)
4. Members of informal producers' cooperatives. The informality of employment stems from the informality of the enterprise (the producer cooperative).

5. Own-account workers who produce goods for the use of their households (e.g., subsistence farming, household member building a housing unit to live in).

These categories of informal employment could be collapsed into three categories, employees in the informal sector, informal employees in the formal sector, and individuals engaged in subsistence work to produce goods for household use.

This study considers two categories of informal employment:

1. Informal salaried employees: Individuals employed in formal sector enterprises and informal sector enterprises whose employment relationship lacks possession of a written contract and social security. This somewhat coincides with category number three in the previous classification
2. Self-employed: this category includes the self-employed, employers of household enterprises, and unpaid family workers. As illustrated above, the self-employed and unpaid family workers are considered, by definition, informal employees. However, the employers of household enterprises are informal workers only if the enterprise they own is informal. Given the small sample size, the study places all employers of household enterprises in this category regardless of informality status.

4.1.3 Precarious Employment:

Precarious employment, on the other hand, could be defined in reference to the following characteristics(International Labor Organization, 2016):

- Low pay (worker's poverty).
- High risk of job loss.
- Lack of worker control, either individually or collectively, over working conditions and wages (disempowerment)
- Lack of protection; they are not protected under labor and social insurance laws that accord protection against occupational risks, sickness, old age, unemployment, and discrimination, among other risks.

It could be deduced that precarity is wider and more comprehensive compared to informal employment. The lack of protection dimension coincides with the definition of informal employment. Moreover, this dimension causes the other dimensions of precarity, low pay, high risk of job loss, and disempowerment.

Based on this definition, a recent ILO published report defines precarious employment in Egypt in reference to the following indicators(L. Fedi, 2019):

- working poverty
- underemployment
- irregular employment
- informal work (without a contract or social insurance or health insurance)

It is noticeable that the irregular work dimension coincides with the high risk of job loss mentioned in the previous definition, while the informal work dimension operationalizes the lack of protection aspect of precarity. Moreover, the underemployment dimension coincides with the lack of worker control over working conditions.

4.2 Informal employment: Hypotheses and Methodologies

In this subsection, I discuss the main hypotheses developed by scholars to explain how informal employment relates to other variables, namely, trade liberalization and labor market regulations. I also discuss the two competing hypotheses about the motivations of individuals to participate in the informal sector. Moreover, I examine the relationship between gender and informal employment. Lastly, I present the hypotheses that predict the patterns of mobility of different groups between labor market states. Throughout the section, I summarize the main methodologies used by scholars to prove/disprove these hypotheses.

4.2.1 Labor Market Regulations:

There are two competing hypotheses regarding the impact of labor regulation; The distortionist perspective argues against labor market regulations because they "introduce distortions that misallocate labor; waste resources through rent-seeking, impede adjustments to economic shocks, discourage hiring and favor "insiders" (such as regular workers or males) and therefore reduce growth." The "institutionalist" perspective, on the other hand, argues that labor market regulations offer indispensable protection for the poor from the impacts of market failures. (Wahba & Assaad, 2017).

To determine the impact of labor market regulations on informal employment, economists exploited regional variation in labor market regulations. For example, (Besley & Burgess, 2004) coded amendments to the industrial disputes act, which organizes the settlement of disputes between workers and employers and hiring and firing regulations into "pro-worker," "pro-

employer," or "neutral" Enacted in 1947, the law has been amended by state governments extensively which means that each state has a somewhat different version of the law. This is used as their independent variable, which they regression on several dependent variables measuring the size of formal and informal sectors.

While the previous studies on India exploit the federal nature of the state that creates state-level variation in the implementation of laws and regulations, studies of Egypt exploit the enactment of a new labor law on a national scale to account for the impact of labor market flexibilization on informal employment. In this regard, (Wahba, 2009) estimates probit and proportional hazard models to model the effect of the new labor law on an individual's probability of obtaining a formal private sector job using two waves of a panel survey, one conducted before the enactment of the law and the second after the law came into force. (Wahba & Assaad, 2017) on the other hand, employ a difference in differences methodology to gauge the effect of rolling out the new law using workers in informal enterprises as a comparison group. Researchers have also resorted to different variations of the search and matching labor market models taking account of the different characteristics of labor markets in developing countries, such as the existence of a sizeable public sector(Bosch & Esteban-Pretel, 2012; Yassin & Langot, 2018).

4.2.2 Informal Employment and Trade liberalization:

According to the literature, trade liberalization is an important macro driver of informal employment. However, there are two main hypotheses regarding the direction of this relationship. The first hypothesis posits that trade liberalization increases competition from foreign products and consequently forces low-productivity informal enterprises out of the market. Trade liberalization also encourages some firms to formalize their operations(Selwaness & Zaki, 2015). The second hypothesis, which stands in juxtaposition to the first one, claims that the heightened competition unleashed by trade liberalization incentivizes firms to reduce production costs to increase their competitiveness. This can be achieved by hiring more informal employees, laying off employees (which subsequently forces them to join the ranks of the informal sector), and outsourcing tasks to informal enterprises(Selwaness & Zaki, 2015).

One approach to determine the impact of trade liberalization on informality is to regress the probability of informal employment on import tariffs at the level of the industry directly(Ben Yahmed & Bombarda, 2020; Paz, 2014). Another approach is a two-step regression estimation. In

the first step, the probability of being an informal employee is regressed over a number of household, individual, regional, and industry variables using panel data. The coefficient of the industry variable, which represents the "informality premium," is then regressed over import tariffs at the level of the industry in the second step of the analysis(Salem & Zaki, 2019; Selwaness & Zaki, 2015). A third approach takes regions or micro-regions as the unit of analysis through a two-step analysis. In the first step, the probability of informal employment is regressed over individual and micro-region characteristics. The regression is run for each region separately. These regional estimates are then used as the dependent variables in the second step and regressed over regional tariff levels and other controls(Ponczek & Ulyssea, 2021).

4.2.3 Motivations of Informal Workers: Segmentation vs. Integrated Market Explanations

Labor market segmentation theorists argue the labor market is split into two sub-markets: a formal one with favorable jobs (e.g., higher wages, social protection, and good working conditions) and an informal one with less favorable jobs. In a labor market segmented along the formal/informal divide, workers are forced into the informal sector because of barriers to entry into the formal sector (e.g., minimum wage enforced by the government in the formal sector, which reduces labor demand). This means that the informal sector is a survivalist sector or a sector of last resort. In a competitive/integrated labor market, by contrast, workers choose to join the ranks of the informal sector voluntarily because they have a comparative advantage in that sector and because it offers many non-wage benefits to workers, such as flexibility in working hours which is especially valued by married women and mothers. This doesn't mean that workers in the informal sector are well off or that they are not poor. Instead, it means they will not be better off if they join the ranks of the formal sector. A third view claims the informal sector is a heterogeneous field that includes workers who are rationed out of formal employment as well as ones who are in the sector because they have a comparative advantage in informal jobs and enjoy the non-wage benefits it offers(Maloney & Arias, 2007). Scholars used a myriad of methodologies to gauge the extent of labor market segmentation. They can generally be classified into three categories: (1) calculating transition probabilities, (2) estimating finite mixture models, and (3) estimating the formal/informal wage gap.

A practical implication of labor market segmentation is that the flows from the informal to the formal sector are higher than the flows in the other ways around, which indicates that workers

enter the informal sector and queue in it until they manage to find a position in the formal sector. Because relying on raw conditional transition probabilities can yield misleading results, scholars developed their own measures of transitions between sectors. For example, (Bosch & Maloney, 2010) developed the C- Statistic which represents "worker's h probability of transitioning from sector k to I over his/her probability of leaving sector k relative to the analogous ratio for all the sectors" They argue that this measure is akin to the revealed comparative advantage in the trade literature in that it reflects the comparative advantage of workers.

Likewise, (Pagés & Stampini, 2009) developed a "benchmark mobility indicator" measuring " the degree of mobility that should occur in a world in which all states are equally preferred – in utility terms- and all workers who left their initial position have an equal probability of ending up in a given labor market state regardless of their previous employment history." In another paper, (Bernabè & Stampini, 2009) devise "cleaned" measure of transition tendencies that captures "the probability of transiting from status I to j that account for the share of jobs destroyed by status I, and for the share of jobs created in each status of possible destination, that is, all but I"

The second method of gauging the existence of labor market segmentation is estimating the wage gap between the formal and informal sectors (the informal sector penalty). Barriers to entry exist if there is a wage gap between equally endowed individuals in the formal and informal sectors. By using OLS and Quantile regressions with fixed effects, it is possible to determine the wage gap between the two sectors while taking time-invariant unobserved heterogeneity into account. The use of quantile regressions also allows for quantifying the gap along with the income distribution. This methodology requires the existence of panel data which may be unavailable for some developing countries.

According to (Günther & Launov, 2012), entry barriers exist if the workers are under-represented in the sector that maximizes their wages given their level of human capital. Using finite mixture models, they estimate the distribution of workers in the different labor market segments under the competitive labor market assumption (i.e., that workers are found in that segment of the labor market that maximizes their income given their level of human capital). This counterfactual distribution is then compared to the actual worker distribution in the labor market.

4.2.4 Gender and Informality:

A key area of research in this section is understanding how and why the gender wage gap varies between the formal and informal sectors. Theoretically, there are three explanations for why the gender wage gap should vary between the formal and informal sectors:

(1) Observed and unobserved heterogeneity in worker characteristics.

(2) Compensating wage Differentials: Each of the sectors (formal/informal) provides different types of amenities that are preferred or valued differently by males and females. If women in the formal sector prefer paid leave more than men in the same sector, then they will be open to receiving lower wages compared to men in exchange for the paid leave, thereby creating a gender wage gap in the formal sector only. If, on the other hand, women in the informal sector place a higher value on flexibility compared to men, they will be open to accepting a lower wage in exchange for flexibility which will create a gender wage gap in the informal sector only.

(3) Labor Regulation and Discrimination: In the formal sector, employers are incentivized to pay lower wages to women even though they have identical characteristics to men because the latter's market attachment is affected by childbirth. Employers who employ women formally incur costs due to labor discontinuity of women (mandated by maternity leaves and job protection regulations) and compensate for it by awarding them with lower wages. These amenities are not offered in the informal sector and hence do not contribute to the gender wage gap in it.

Two main methods can be used to decompose the gender wage gap in the formal and informal sectors: Oaxaca-Blinder decomposition techniques and OLS and Quantile regressions with fixed effects. Both methodologies allow for the decomposition of the wage gap into two parts; the first part of the gap represents the differences in wages due to differences in observable characteristics (e.g., educational attainment). Interestingly, studies differ in interpreting the meaning of the second component of the gap; while some studies refer to it as the differences in wages attributable to unobserved heterogeneity, other studies interpret it as the discrimination component of the gender wage gap.

4.2.5 Predicting Transition Probabilities of Different Groups of Workers:

Another concern for researchers was understanding the determinants of informal employment as well as the determinants of transitions between different labor market states, including but not

limited to formal and informal labor market states. In answer to the first question, researchers used logit, probit, and multinomial logistic regressions depending on the number of categories in their dependent variable. In answer to the second question, they tended to rely on multinomial logistic regressions. Analyses of labor market transitions are dynamic and provide information about labor mobility of different demographic groups that are not captured by a snapshot of the labor market. They also give an indication of which demographic groups are likely to fall into undesirable or unprotected labor market states, which could be extremely beneficial in the design of employment and social protection policies. Different variables affect the transition probabilities of workers differently, to which we turn in the following paragraphs.

4.2.5.1 Age:

Younger age groups are likely to have high rates of informal salaried employment. "Because of information asymmetries, young workers without a track record may find formal employers reluctant to hire them and hence may queue in the informal sector while they gain experience." (Maloney & Arias, 2007). As workers grow, their likelihood of moving from informal to formal salaried work is likely to increase. Older salaried workers may decide instead to move into self-employment, having gained capital and experience. The concentration of the younger age groups in informal salaried employment and the older age groups in self-employment prompts Ulyssea to note that "It has been extensively documented that the incidence of informal employment displays a U-shape pattern with respect to age (it is larger among younger and older workers) …..transitions in and out of informality follow a similar pattern to that observed for the stock of informal employment"(Ulyssea, 2020).

4.2.5.2 Education

Both human capital theory and signaling theory focus on the impact of education on labor market outcomes. The first posits that education and experience increase the productivity of workers, while the second argues that education gives a signal to prospective employers about the level of productivity of workers(Tan, 2014); hence we should expect to find workers with higher levels of education moving into more favorable employment states and less likely to fall into undesirable labor market states.

However, the youth may also queue in unemployment in the presence of large government sectors and anemic formal private sectors. Assaad develops a simple theoretical model on the lines of the Todaro-Harris model where the government wage and non-wage benefits exceed market-clearing prices resulting in the queuing of workers eligible for the government positions in

unemployment. Per this model, the unemployed youth would be more likely compared to the less educated to move from unemployment towards government or formal employment and less likely to move into any other inferior labor market state. (Assaad, 2014).

4.2.5.3 Social Class:

It is also crucial to understand the role played by social class in determining labor market outcomes. Individuals who have equal educational attainment but belong to different social classes may face a gap in labor market outcomes, otherwise known as the social origin gap. The social origin gap refers to " the advantage that subjects of the upper-class experience for occupational attainment and income compared with subjects of the lower class at the same level of education" several mechanisms of action underpin the social origins gap. For one thing, it is possible for individuals of high social and economic standing to benefit from the economic resources of their parents. For instance, it may provide much-needed capital to kickstart a business or pay tuition fees. Additionally, a good social background translates into better social networks that provide individuals with information about vacancies or gives them an edge in the hiring process. It is also possible that individuals from lower social classes are discriminated against by employers(Bernardi & Gil-Hernández, 2021). For all these reasons, it is expected that higher social class will facilitate transitions to more favorable labor market states and protect against unfavorable transitions.

4.2.5.4 Gender:

In many developing countries, women are overrepresented in informal employment or are more likely to transition into it (Danquah et al., 2019; Maloney & Arias, 2007; Ulyssea, 2020). Human capital theory would explain this trend by differences in human capital between men and women. Another explanation highlights the voluntary nature of female participation in informal employment: since workers weigh the costs and benefits of different forms of employment, married women may decide to join the informal sector because they value the flexibility it offers and because it allows them to balance life and work responsibilities(Maloney & Arias, 2007). A third explanation is the discrimination from employers in formal firms against women (Ben Yahmed, 2018). On the flipside, MENA countries, including Egypt, face high levels of female unemployment and inactivity despite rising levels of educational attainment, otherwise known as the MENA paradox(Assaad et al., 2020). There are multiple explanations for this phenomenon.

On the demand side, high female unemployment and economic inactivity in the region are explained by the changing opportunity structure available to women after downsizing the government and public sector that started in the 1990s (Assaad et al., 2020). On the supply side, cultural norms that confine women to performing domestic and care activities could be responsible for female inactivity. (Hendy, 2015). Another related supply-side explanation highlights how women and their families tend to have "reservation working conditions" and will be unwilling to take on jobs with poor working conditions (such as informal jobs) for fear of sexual harassment and tarnishing the reputation of the female worker. (Krafft & Assaad, 2015).

5 Data and Methodology:

In this study, I employ a quantitative methodology to test the relationship between transitions from one labor market state to another and a set of micro-determinants. The methodology section is divided into a data section describing the data used in this study and an empirical model section.

5.1 Data:

In this study, I will rely on the Egyptian Labor Market Panel Survey (ELMPS)2012 and 2018 rounds. The ELMPS is a longitudinal survey conducted by the Economic Research Forum (ERF) and the Central Agency for Public Mobilization and Statistics (CAPMAS). There are currently four waves of the survey conducted in 1998, 2006,2012, and 2018. The first round of ELMPS was a two-stage stratified national sample chosen from a master sample made by CAPMAS (Assaad & Krafft,2013). Subsequent rounds of ELMPS tracked households that were interviewed in previous waves and interviewed all their members, including new members and members who had been interviewed in previous waves. Moreover, they tracked household members that have split and formed/joined new households and reinterviewed them as well as interviewing other members of the newly formed households. A refresher sample ranging from 2000 to 3000 households is added in each wave of the survey in order to sustain sample representativeness and to provide a fine-grained analysis of a particular phenomenon of interest. For instance, in the latest wave of the survey, the refresher sample consisted of 2000 households oversampled from the poorest villages in Egypt in order to discover the topic of the economic vulnerability of the poor in more detail (Krafft, Assaad & Rahman,2019).

The ELMPS questions cover a wide array of topics, including employment status and characteristics, wages, education, parent's education, housing, services, residential mobility, migration, remittances, and female empowerment. In addition, the survey includes a number of retrospective questions. For example, some questions are about jobs that the interviewees held in the last six years and their characteristics (e.g., possession of contract and social insurance) (Krafft, Assaad & Rahman,2019). In this study, I focus on the subsample of individuals who were interviewed in 2012 and reinterviewed in 2018. Moreover, the analysis is restricted to individuals aged 15-64 in 2012.

5.2 Methodology

5.2.1 Transition Matrices

Before estimating the determinants of labor market transitions, the probabilities of flows from one labor market state to another are estimated as follows:

$$Psi = Nsi / Ns$$

Where:

Psi is the probability of an individual transitioning to labor market state (i) in 2018, provided that they were at labor market state (s) in 2012.

Nsi is the number of transitions from state (s) to state (i) between 2012 and 2018
Ns is the total number of transitions from state (s) between 2012 and 2018

Transition matrices are calculated for the whole sample as well as for men and women separately to understand the gendered nature of transitions.

5.2.2 Multinomial Logistic Regression Models

In this study, I use multinomial logistic regression to model the determinants of transition from one labor market state to another. Multinomial Logistic regression (MNL) is used when the dependent variable is a categorical variable with k categories, and these categories are unordered. The dependent variable in this study is the labor market status in 2018, which is a categorical variable composed of the following four categories[3]:

(1) Formal salaried employment refers to salaried workers in the government, public or private sector who possess either a contract or social insurance.
(2) Informal salaried employment refers to salaried employees in government, public or private sector who possess neither social insurance nor a contract.
(3) Self-employed consists of the self-employed, unpaid family workers, and employers.
(4) Non-employed: refers to individuals with no job but are searching actively for one (unemployed) as well as the Out of Labor Force; those who do not have a job and are not searching for one.

[3] A market definition of employment is used.

The specification of the dependent variables allows for focusing on the most important transitions (between formal, informal salaried, and self-employment) without fragmenting the analysis. Moreover, specifying more labor market states led to computational difficulties given the small sample size and using many categorical independent variables.

In order to study the impact of the explanatory variables on labor market transitions, the sample is divided into four subsamples based on the labor market state in 2012; the formal salaried, informal salaried, self-employed and non-employed, and a multinomial logistic regression is run separately for each subsample with a total of four MNL models. Hence, for each individual, there are three possible market state transitions in addition to immobility (remaining in the same market state between 2012 and 2018).

For each one of the four MNL models, there are k-1 equations. Each equation estimates the log odds of transition to one category of the dependent variables compared to the reference category (immobility) given several independent variables as follows:

$$\text{Log}(P(Y=1|X)/P(Y=K|X)) = a1 + b1x$$

$$\text{Log}(P(Y=2|X)/P(Y=K|X)) = a2 + b2x$$

….

$$\text{Log}(P(Y=K-1|X)/P(Y=K|X)) = aK-1 + bK-1\ x$$

Where:

Y is the categorical dependent variable which is the employment status in 2018.

X is a set of independent variables pertaining to the year 2012

K is the reference category, and a is constant

b is a coefficient that measures the change in the odds of Y = 1 compared to Y=k given one unit change in X

Given that the interpretation of the coefficients of MNL models is not straightforward, average marginal effects will be reported, which represent the change in Y given one unit change in X.

The independent variables used in the four regression models are listed in Table (2). The values of these variables are for the year 2012. The independent variables of interest are age, education, father's level of education, gender, and area of residence. Other controls included in the four models are marital status and household size.

Table 2: Independent Variables

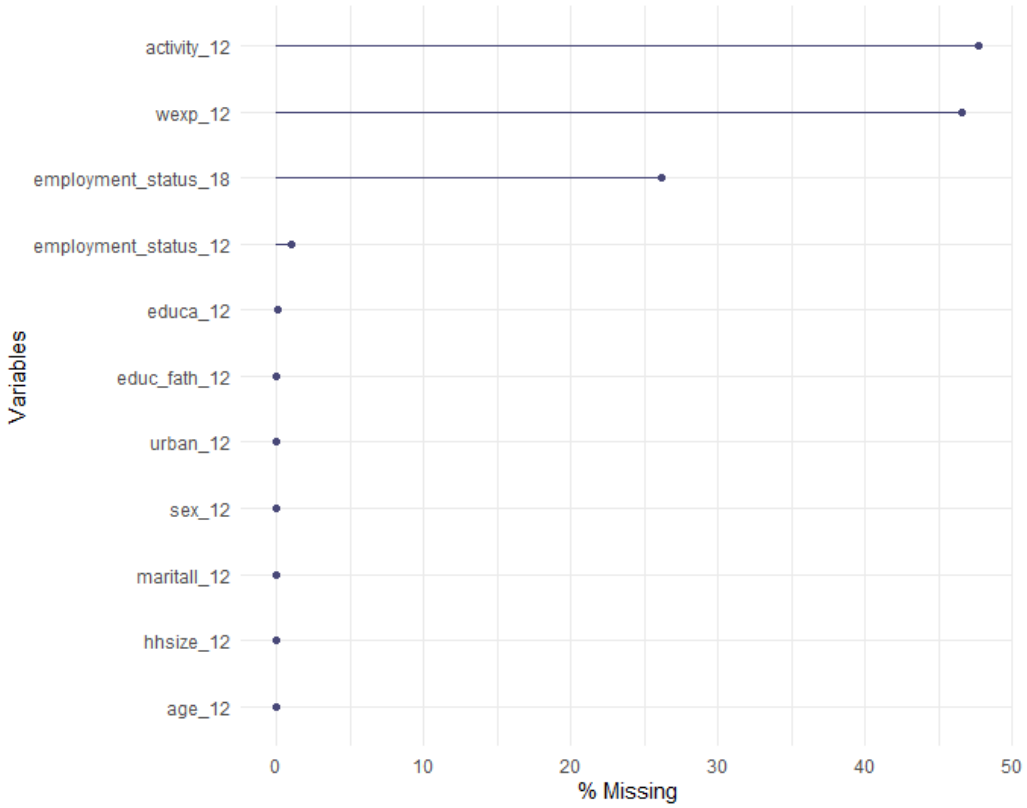
Variable	**Definition**	**Type**
1. Gender	Gender of the individual; male or female	Categorical
2. Age	This variable consists of three categories; individuals aged between 15 and 24, those aged 25 to 44, and individuals aged 45 to 64	Categorical
3. Marital Status	A dummy variable consisting of the following categories: married, not married	Categorical

4. Household Size	Number of household members	Discrete
5. Educational attainment	A variable measuring educational attainment consisting of the following categories: Illiterate or read and write, less than intermediate education, intermediate education and above, university education and above	Categorical
6. Social class	Father's education is a proxy for social class. It consists of the following categories: Illiterate or read and write, less than intermediate education, intermediate education and above, university education and above	Categorical
7. Residence	Area of residence; urban or rural	Categorical

5.2.3 Study Limitations:

The original aim was to include all the independent variables in (Tansel & Ozdemir, 2019), but it was not possible for two main reasons: First, a large number of missing observations was detected in some of the variables. Figure (1) illustrates the high percentage of missing data in activity_12, which is the variable for the sector of employment, wexp_12(work experience), and employment_status_18, the dependent variable. Second, because of the small sample size, it was not possible to include interactions between some of the variables, especially since many of the independent variables are categorical. Including interactions resulted in the non-convergence of the model. One last limitation of this study is not accounting for the economic shock caused by the 2016 reforms over labor market transitions. The 2016 economic reforms implemented by the government must have had a profound impact on the labor market in Egypt. It could have the effect of increasing the transitions towards undesirable labor market states such as informal salaried jobs, especially for the most vulnerable groups in society, such as the least educated. Its impact should be incorporated into model estimation in future studies, considering how the ELMPS includes a historical data module listing the previous jobs of the individual and whether or not he/she had a contract/social security in these jobs.

Figure 1: % of Missing Data in Model Variables



Source: Constructed by the author using ELMPS2012,2018

6 Empirical Results:

6.1 Descriptive Statistics

6.1.1 Transition Matrices:

Table 1: Transition Probability Matrix - Total Sample

Employment status in 2012	Employment Status in 2018			
	Formal Salaried	Informal Salaried	Self Employed	Non-employed
Formal Salaried	72.3	12.0	3.8	11.9
Informal Salaried	13.2	59.0	16.6	11.1
Self Employed	5.6	27.2	46.1	21.1
Non-employed	4.7	10.0	7.4	77.9

Source: Constructed by the author using data from ELMPS 2012,2018

The transition matrix for the total sample indicates that most individuals in a given labor market state in 2012 remained in that state in 2018. This pattern is more noticeable in the case of formal salaried workers in 2012, as they have nearly a 70% chance of remaining in the same labor market state in 2018. A similar pattern is noticeable for the non-employed in 2012, who are more likely to remain non-employed in 2018 with a probability of approximately 78%. The persistence of non-employment may be driven by individuals queuing in unemployment until they manage to find a formal position. The informally employed and self-employed in 2012 largely remained in their respective labor market states in 2018 with probabilities of 59% and 46%, respectively; however, their transition rates towards other labor market states are higher compared to the formal salaried and the non-employed. This is consistent with the flexibility that characterizes these labor market states. There also seems to be some oscillation between informal salaried work and self-employment as well as the other way around. A worrying trend is that the self-employed in 2012 have a relatively high probability of moving into non-employment. This may be driven by retirement or failing to succeed in entrepreneurial activity and consequently becoming unemployed.

All in all, this transition matrix indicates a high degree of stability and labor market state dependence. That is, those in a certain labor market state are more likely to remain in that state in the future than to make a transition to another state. As informative as this matrix is, it may conceal gendered trends in the labor market, to which we move in the coming paragraphs.

Table 2: Transition Probability Matrix-Females

Employment status in 2012	**Employment Status in 2018**			
	Formal Salaried	**Informal Salaried**	**Self Employed**	**Non-employed**
Formal Salaried	76.7	4.5	0.6	18.2
Informal Salaried	12.8	25.6	5.4	56.2
Self Employed	0.9	4.0	28.3	66.8
Non-employed	2.5	3.3	6.0	88.1

Source: Constructed by the author using data from ELMPS 2012,2018.

A glaring trend in the females-only transition matrix is the higher likelihood of transiting from other labor market states to non-employment, as well as the persistence of non-employment. Women in informal salaried work in 2012 have a 56% probability of moving into non-employment, while women in self-employment have a 67% likelihood of becoming non-employed. Those in non-employment have an 88% probability of remaining in that state. An exception is the formally salaried in 2012 who are more likely to remain in formal salaried work with nearly a 77% probability. This is likely driven by stable government employment that tends to hire women disproportionately and allows them to reconcile work and domestic duties. The second highest transition probability for the self-employed and informal salaried women is remaining in their respective states. The second highest transition probability for the formal salaried is by contrast towards non-employment. In general, females are most likely to move from other labor market states to non-employment except for the formally salaried. Several explanations have been advanced by scholars to explain high rates of female unemployment and inactivity, to which we turn in the regression results section.

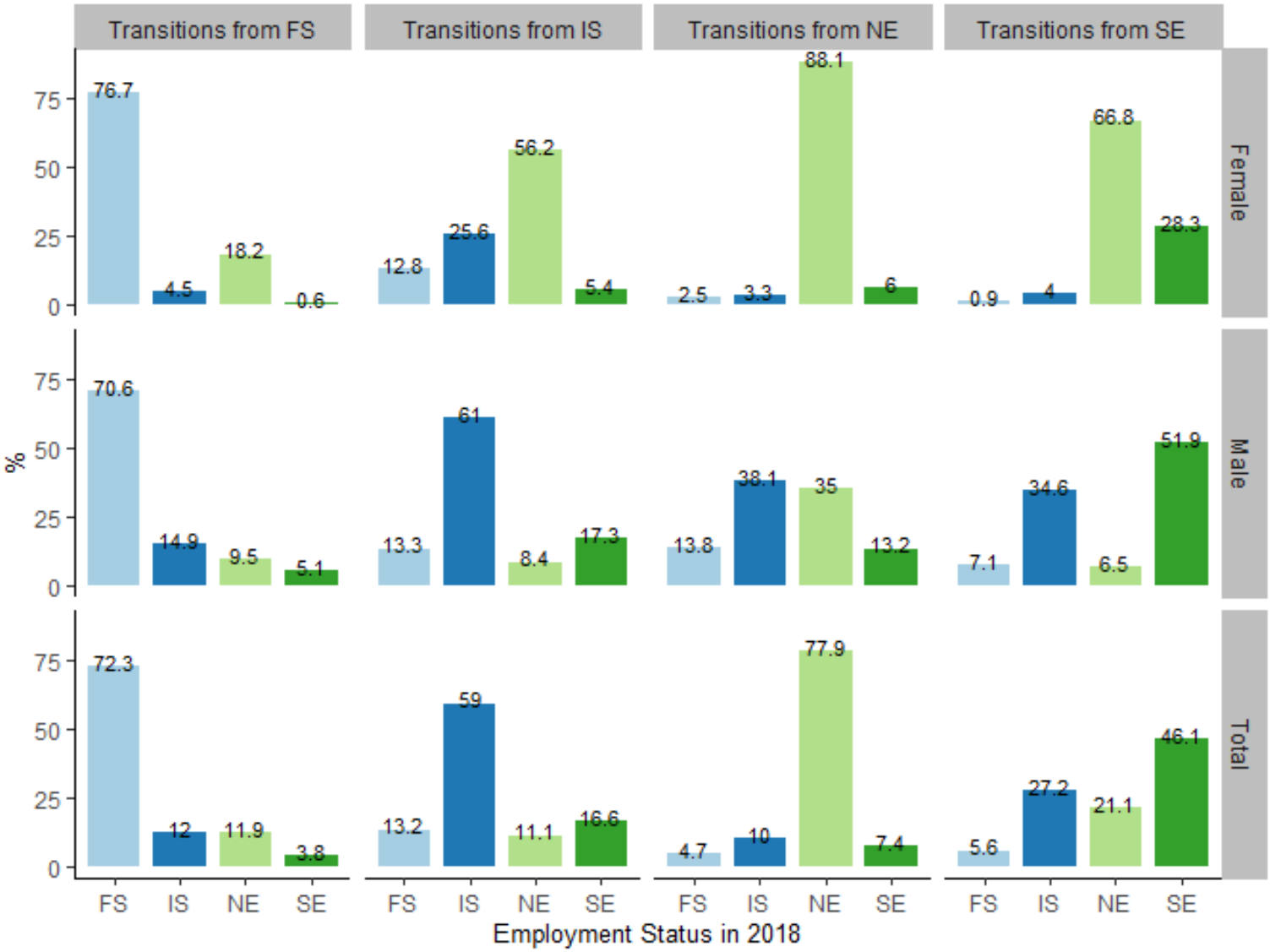
Table 3: Transition Probability Matrix - Males only

Employment status in 2012	Employment Status in 2018			
	Formal Salaried	**Informal Salaried**	**Self Employed**	**Non-employed**
Formal Salaried	70.6	14.9	5.1	9.5
Informal Salaried	13.3	61.0	17.3	8.4
Self Employed	7.1	34.6	51.9	6.5
Non-employed	13.8	38.1	13.2	35.0

Source: Constructed by the author using data from ELMPS 2012,2018.

As for the males-only matrix, the pattern of transitions reflects a labor market state dependency akin to that of the total sample matrix except for the non-employed. Those who were formally salaried in 2012 have approximately a 71% probability of remaining in the same labor market state, while those in informal salaried work are most likely to remain in the same labor market state with a 61% probability. The same pattern holds for the self-employed (52%). For those who were non-employed in 2012, the highest probability of transition is towards informal employment (nearly 38%), followed by remaining in non-employment (35%). This may reflect the prevalent gender norms where men cannot afford to stay unemployed/out of the labor force and must pursue a job even if that means resorting to the informal sector. Women, by contrast, would only accept a job if it were in the formal sector, most likely a government job. Figure (3) provides a graphical depiction of the transition probability matrices discussed above.

Figure 2: Transition Probability Matrix



FS: Formal Salaried, IS: Informal Salaried, SE: Self Employed, NE: Non Employed
Source: Constructed by the author using the ELMPS 2012 and 2018

6.1.2 Model Variables:

Table 4: Distribution of Labor Market States in 2012 by Gender

Variable	Sex		Total
	Female	Male	
Labor Market State in 2012			
Formal Salaried	1,510 (5.0%)	3,974 (13%)	5,484 (18%)
Informal Salaried	287 (1.0%)	4,406 (15%)	4,693 (16%)
Self Employed	881 (2.9%)	3,024 (10%)	3,905 (13%)
Non-employed	12,457 (41%)	3,230 (11%)	15,687 (52%)
Missing	82 (0.3%)	214 (0.7%)	296 (1.0%)
Total	15,217 (51%)	14,848 (49%)	30,065 (100%)

Source: Constructed by the author using data from ELMPS 2012.

Tables (4) and (5) present the distribution of labor market states in 2012 and 2018. The dependent variable is the labor market state in 2018. The distribution of labor market states in 2012 indicates that the most common labor market state was non-employment (52%). Moreover, the percentages of formal and informal salaried are on par with one another at 18% and 16% respectively. The least recurrent labor market state in the year is self-employment (13%). Disaggregation by sex shows that men have higher representation in all labor market states compared to women, except for non-employment, in which women are overrepresented. The distribution of labor market states in 2018 exhibits similar patterns. That is, non-employment is the most recurrent labor market state (35%), followed by formal salaried workers (14%), informal salaried (15%), and self-employed (10%). Disaggregation by sex also shows that men are overrepresented in all labor market states except for non-employment, in which women are overrepresented. These gendered patterns confirm the findings from the transition matrices. One

last thing to note is the high percentage of missing observations in 2018 (26%) compared to 2012 (1%).

Table 5: Distribution of Labor Market States in 2018 by Gender

Variable	Sex		Total
	Female	Male	
Labor Market State in 2018			
Formal Salaried	1,098 (3.7%)	2,969 (9.9%)	4,067 (14%)
Informal Salaried	440 (1.5%)	4,164 (14%)	4,604 (15%)
Self Employed	787 (2.6%)	2,244 (7.5%)	3,031 (10%)
Non-employed	8,981 (30%)	1,509 (5.0%)	10,490 (35%)
Missing	3,911 (13%)	3,962 (13%)	7,873 (26%)
Total	15,217 (51%)	14,848 (49%)	30,065 (100%)

Source: Constructed by the author using data from ELMPS 2018.

Table (6) presents the independent variables in the model. Regarding age, 47% of the sample falls between 25-44 years, 30% fall between 15-24 years, and 23% are between 45-64 years of age. Moving on to the educational attainment of individuals, it is noticeable that most of the sample has an intermediate certificate or above (37%), followed by illiterate to read and write (27%), less than intermediate (22%), and finally those with a university certificate amounted to 14% of the sample. Further, 45% of the sample reside in urban areas, while 55% reside in rural areas. The sample has almost equal proportions of males (49%) and females (51%). Two-thirds of the sample are married, while the remainder is unmarried. Regarding the father's level of education, which is a proxy for social class, more than two-thirds of the sample have a father who is either illiterate or can read and write (69%), 12% have a less than intermediate certificate, 12%

have an intermediate certificate or above and nearly 7% university education or above. Finally, the mean household size is approximately 5, with a standard deviation of 2.17.

Table 6: Independent Variables in the Model

Variable	**N = 30,065** Number (%) Mean (SD)
Age	
15-24	9,052 (30%)
25-44	13,997 (47%)
45-64	7,016 (23%)
Educational Attainment	
Illiterate/Read&Write	8,135 (27%)
Less than Intermediate	6,567 (22%)
Intermediate and above	10,987 (37%)
University	4,341 (14%)
Missing	35
Residence	
Rural	16,441 (55%)
Urban	13,624 (45%)

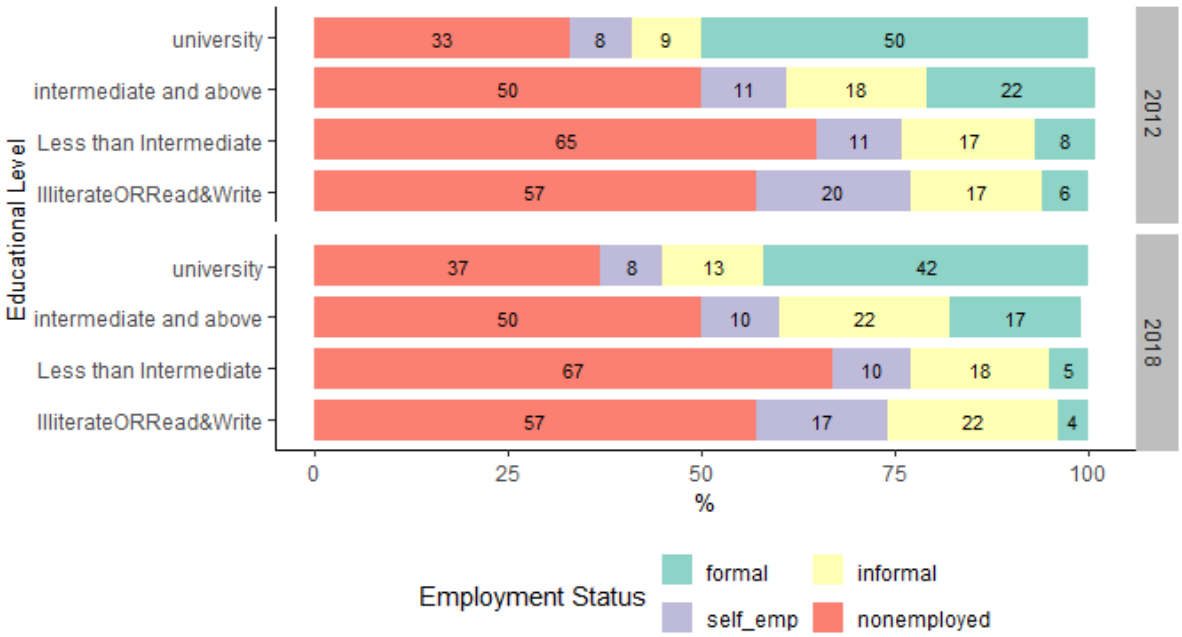
Gender	
Female	15,217 (51%)
Male	14,848 (49%)
Marital Status	
Married	19,863 (66%)
Not married	10,202 (34%)
Father's Educational Attainment	
Illiterate/read&write	20,760 (69%)
Less than Intermediate	3,560 (12%)
Intermediate and above	3,669 (12%)
University & above	2,074 (6.9%)
Missing	2
Household Size	4.83 (2.17)

Source: Constructed by the author from ELMPS 2012

We now move to the analysis of labor market states in 2012 and 2018 stratified by the values of the main independent variables. In both years, the likelihood of being in formal employment increases with educational attainment. For example, in 2018, the percentage of university graduates in formal employment was 42%, compared to 4% in the lowest educational category. The likelihood of being in informal employment is lower for the university graduates compared to the illiterate/read or write (13%,22% in 2018). Self-employment also consistently

decreases with educational level. Moreover, non-employment is higher for the base category compared to university graduates.

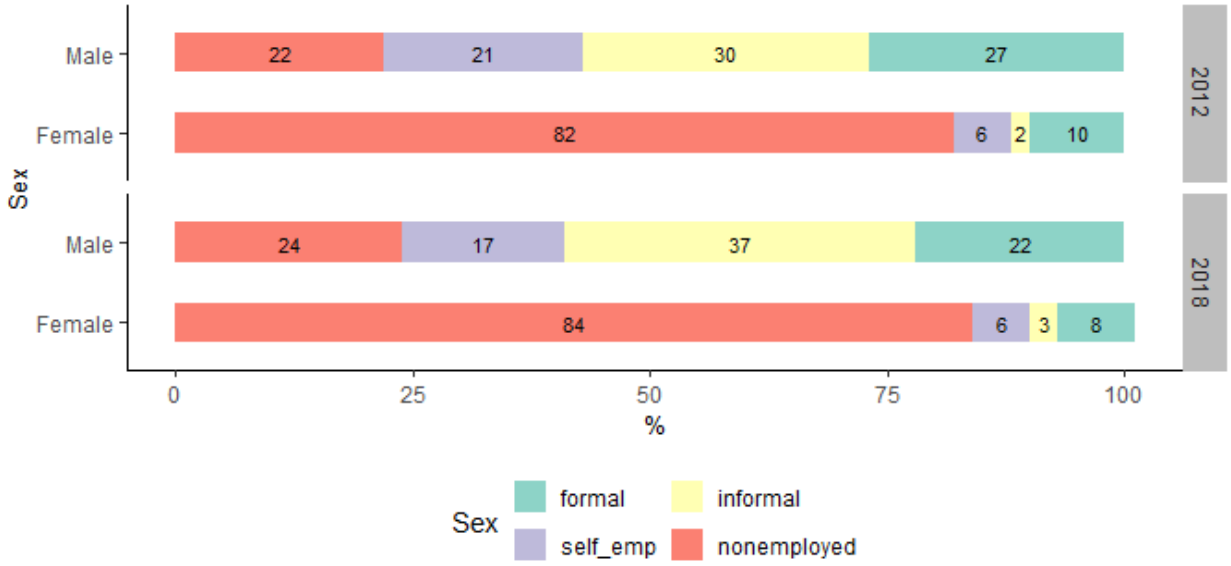
Figure 3: Employment Status by educational Level



Source: Constructed by the author using the ELMPS 2012 and 2018

The overwhelming majority of women are non-employed (unemployed or economically inactive). The likelihood of being non-employed is higher for women compared to men (84% compared to 24% in 2018). The second most recurrent labor market state for women is formal employment, most likely in the government/public sector. However, the odds of being in formal salaried employment are higher for men compared to women. Furthermore, the odds of being in informal salaried employment are higher for men compared to women. In fact, informal salaried employment is the most recurrent employment category for men in both years. (30%,37% in 2012-2018 respectively).

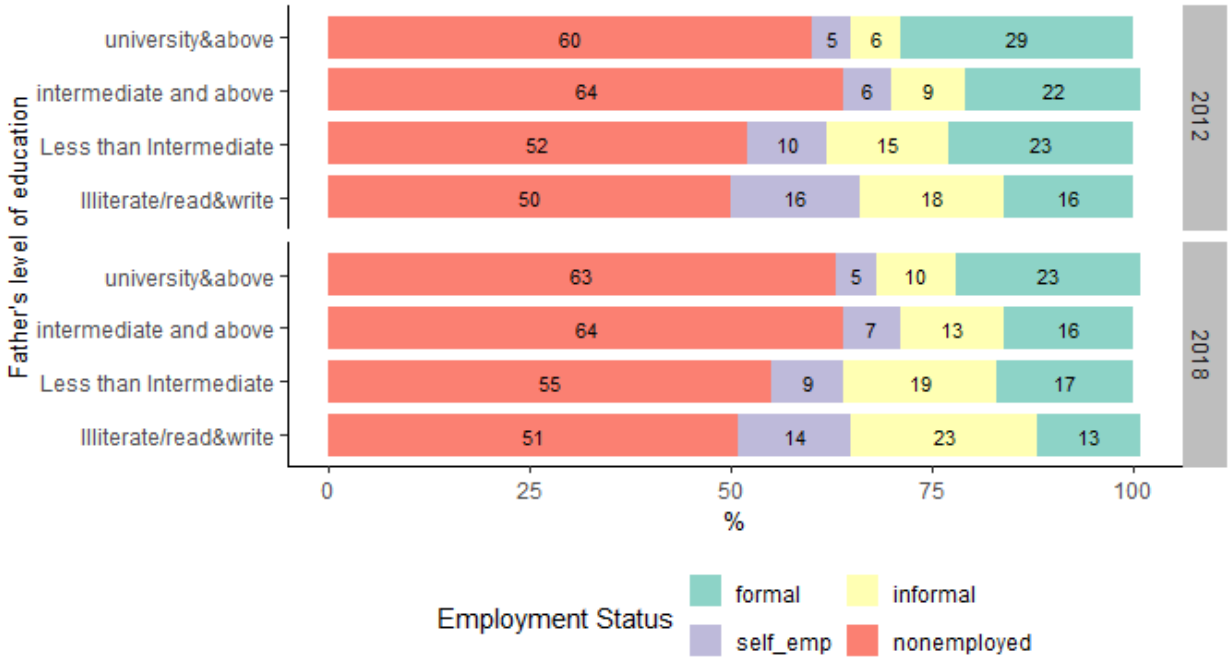
Figure 4: employment Status by Sex



Source: Constructed by the author using the ELMPS 2012 and 2018

The incidence of formal employment and non-employment increases with the father's level of education. For instance, the likelihood of being in formal employment is 13% for the base category and 23% for those with university certificates in 2018. On the other hand, the likelihood of non-employment in 2018 increases from 51% for the lowest educational category to 63% for university graduates. The latter result indicates that those belonging to a higher social class can afford to remain non-employed until they find a suitable position. Moreover, the likelihood of being in informal salaried employment or self-employment decreases with the educational level of the father.

Figure 5: Employment Status by Father's level of education



Source: Constructed by the author using the ELMPS 2012 and 2018

The likelihood of being in non-employment is the same for urban and rural areas. However, the percentage of formal employment is higher in urban compared to rural areas. By contrast, the percentages of individuals in self-employment and informal employment are somewhat higher in rural areas compared to urban areas.

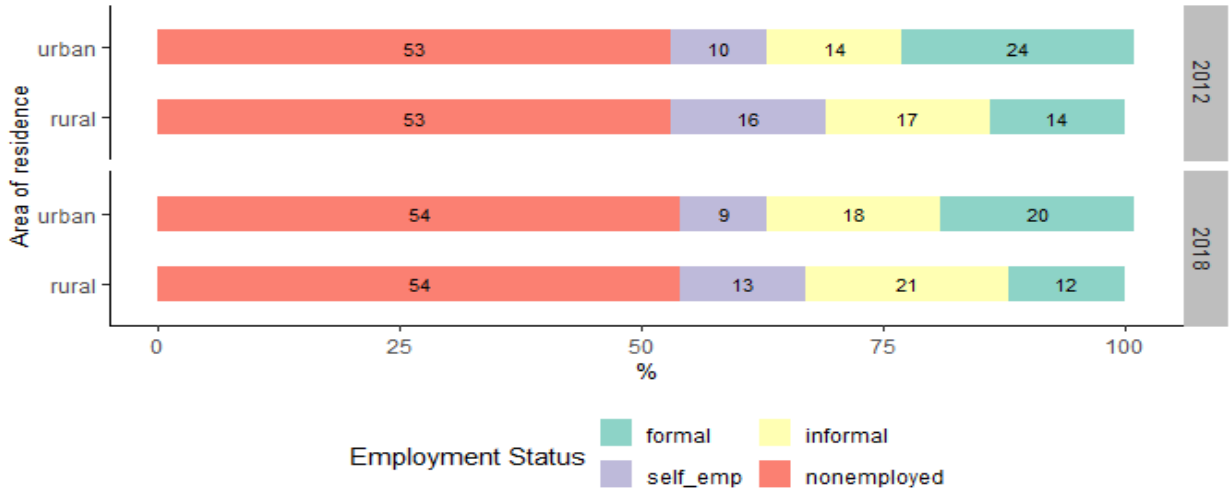
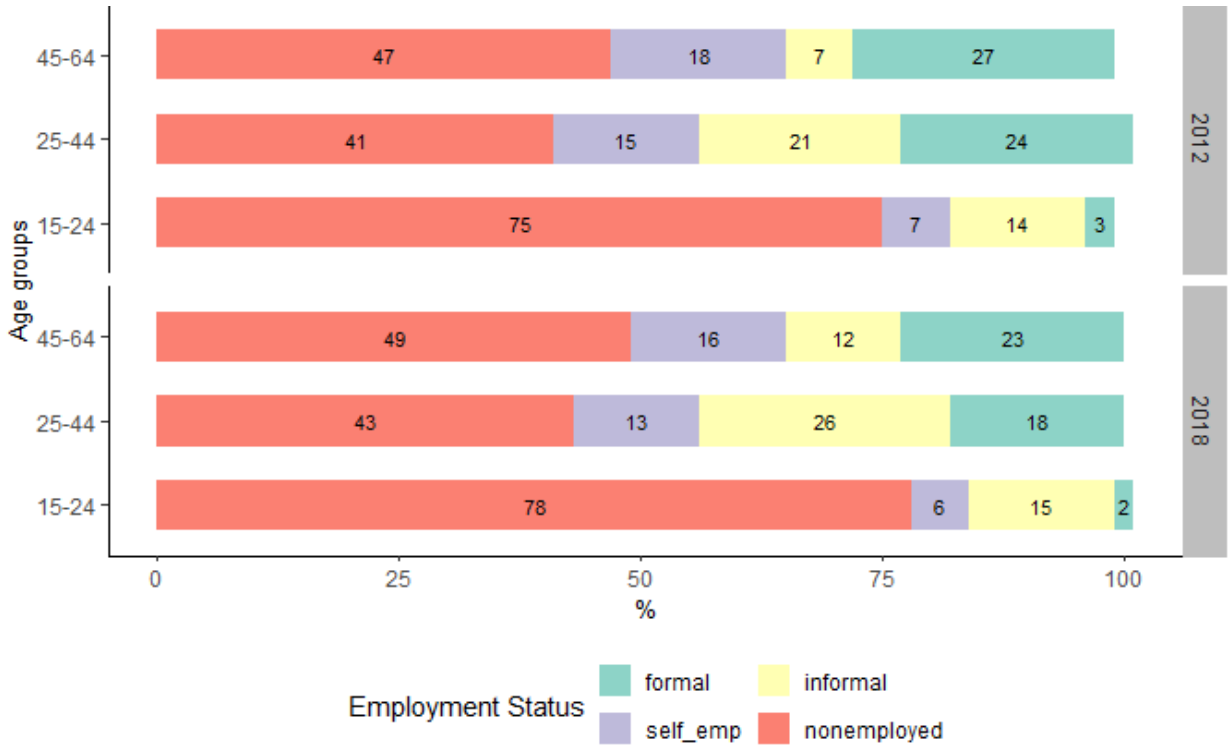


Figure 6: Employment Status by Area of Residence

Moving on to age, the likelihood of non-employment is highest for the youngest age group (75% and 78% in 2012 and 2018, respectively). By contrast, formal employment is lowest for this age group (3% and 2% for 2012 and 2018, respectively). Moreover, self-employment seems to increase with age. Informal employment is highest for those of prime age (21% and 26% in 2012 and 2018, respectively).

Figure 7: Employment Status by Age Group



Source: Constructed by the author using the ELMPS 2012 and 2018

6.2 Findings:

6.2.1 Transitions from Formal Salaried Employment:

6.2.1.1 From Formal Salaried to Informal Salaried:

The results indicate that being male increases the probability of making this transition compared to being female by nearly 9%. Moreover, educational attainment is protective against transitions from formal to informal waged employment. The protective effect is higher for those with intermediate and above education and university education. Being older in age (25-44 or 45-64) reduces the likelihood of this transition compared to being 15-24. Being between 25 and 44 reduces the likelihood of making this transition by nearly 5% compared to the reference category, while being between 45-64 reduces the likelihood by nearly 14%. The unmarried were 9% more likely to make a transition from formal to informal salaried compared to the married. Moving on to household size, one unit increase in household size is associated with an average of 10% decrease in the likelihood of making this transition. Lastly, an individual whose father has a university or above education is 5% less likely to move from formal to informal waged employment.

6.2.1.2 Transitions from formal salaried to self-employed.

For this transition, the results indicate that being a female is protective against the transition from formal salaried to self-employed compared to being a male. Moreover, having an intermediate or above or university education is associated with a reduced probability of transitioning to self-employment compared to the reference group. Individuals whose fathers have less than an intermediate level of education are less likely to transition from formal employment to self-employment.

6.2.1.3 Transitions from formal salaried to non-employment

Unlike previous transitions, being male is protective against the transition from formal waged employment to non-employment compared to being female. Moreover, having an intermediate and above education reduces the likelihood of transitions to non-employment compared to the reference category in all specifications except the third one. Holding an intermediate or above degree reduces the likelihood of transition to non-employment by nearly 4% in the full model. As for the university level of education, it is only statistically significant in one specification and is not statistically significant in the full model. Moreover, the results indicate that being between 25 and 44 years old is protective against this transition compared to the reference category, while being in the older age group of 45 to 64 increases the likelihood of transition to

non-employment compared to the reference group. This might be driven by people retiring and becoming out of the labor force rather than becoming unemployed. As for the residence variable, living in an urban area increases the likelihood of transitioning to non-employment compared to a rural area by 4%. Additionally, the unmarried are more likely to transition from formal waged employment to non-employment compared to the married by nearly 3%. Lastly, those living in a larger household are less likely to transition to nonemployment.

6.2.2 Transitions from informal employment

6.2.2.1 Transitions from informal employment to formal salaried

Higher educational attainment is associated with a higher probability of making this transition. It is also noticeable that the magnitude of the marginal effects increases with the level of education. For example, having a less than intermediate certificate raises the likelihood of this transition by nearly 5% compared to the reference category, while having a university certificate increases the likelihood by nearly 24% compared to the reference category. Moreover, being between 25 and 44 years of age increases the likelihood of making this transition by nearly 6% compared to the reference category. Moreover, living in an urban area increases the likelihood of moving from informal to formal employment by nearly 3% compared to rural area residents. Lastly, those whose father has intermediate or above certificate are more likely to make this transition compared to the reference category by 7%

6.2.2.2 Transitions from informal salaried to self-employed

Being male increases the likelihood of this transition by nearly 12% compared to being female. Moreover, having less than intermediate education is protective against this transition, while the intermediate and above level is significant in some specifications only and not in the full model. Being between 25 and 44 years of age and between 45 and 64 years of age increases the likelihood of this transition compared to the reference category, but the results are not statistically significant in the full model. Furthermore, the unmarried are less likely compared to the married to make this transition towards self-employment, while those with larger households are more likely to make this transition; nonetheless, the magnitude of the marginal effects for the household size variable is meager.

6.2.2.3 From informal salaried to non-employment

It is noticeable that being male reduces the probability of making this transition by an alarming 47%. Moreover, having less than intermediate education increases the likelihood of this

transition compared to the reference category by nearly 4%. Being between 25 and 44 of age reduces the probability of this transition by nearly 4% compared to the reference group, while being between 45 -64 increases the probability by nearly 12%. Living in an urban area is associated with higher odds of moving from informal waged employment to non-employment, but the results are not statistically significant in the full model. Finally, unmarried individuals are more likely to make this transition compared to married individuals by nearly 4%.

6.2.3 Transitions from self-employment

6.2.3.1 From self-employment to formal salaried

The results indicate that being male increases the probability of this transition by nearly 5% compared to being female. Moreover, those with university or intermediate and above education are more likely to make this transition compared to the reference category noting that the magnitude of the marginal effect doubles (4% for the intermediate and above compared to 8% for those with university education).

6.2.3.2 Transitions from self-employment to informal salaried

As expected, males are more likely to move from self-employment to informal waged employment compared to women by nearly 31%. Moreover, having a university degree reduces the probability of this transition by 10% compared to the reference group, while holding an intermediate or above certificate reduces the probability by nearly 4%. Additionally, being between 25-44 and 45-64 reduces the likelihood of making this transition by 8% and 26%, respectively, compared to the reference category. The unmarried are more likely to move from self-employment to formal wage employment by about 5% compared to the married. Lastly, having a father with intermediate and above or university and above education reduces the likelihood of this transition by 6% and 12%, respectively, compared to the reference group.

6.2.3.3 Transitions from self-employment to non-employment

Males are less likely than females to make this transition by 61%. Additionally, those with less than intermediate education are more likely to make this transition by 5% compared to the reference category. Lastly, those between 25-44 years of age are less likely compared to those between 15 and 24 years of age to transition from self-employment to non-employment by about 6%.

6.2.3.4 Transitions from non-employment

6.2.3.4.1 Transitions from non-employment to formal salaried.

Males are more likely than women to make this transition by about 6%. Additionally, Higher educational attainment is associated with a higher probability of transitioning to formal employment, and the effect of education increases with the certificate earned. Those who live in urban areas are more likely than those who live in rural areas to transition to formal salaried by about 1%. Furthermore, the unmarried are more likely than the married to make this transition by 3%. Higher levels of father's education are associated with a higher likelihood of transitioning to formal salaried only for individuals whose father has intermediate and above or university and above education. The results for the age variable indicate that the older the individual gets, the less likely they are to transition from non-employment to formal salaried, but the marginal effects are insignificant in the full model.

6.2.3.5 Transitions from non-employment to informal salaried

Men had a higher likelihood than women to make this transition, specifically by 30%. Higher educational attainment is associated with a lower probability of making this transition, but the results aren't statistically significant in all specifications. Being older is associated with a lower likelihood of transitioning from non-employment to informal salaried work, but the results for the 25-44 category aren't always statistically significant. Additionally, living in an urban area is protective against making this transition. Nonetheless, the marginal effects are not significant in the full model. The unmarried are 3.6% more likely than their married counterparts to transition from non-employment to informal salaried employment. Finally, a higher level of father's education reduces the likelihood of making this transition.

6.2.3.6 Transitions from non-employment to self-employed.

Confirming the previous pattern of female immobility in the Egyptian labor market, men are 19% more likely than women to transition from non-employment to self-employment. Moreover, higher educational attainment and a higher level of father's educational attainment were both associated with a lower likelihood of making this transition, while older age was associated with higher odds of transitioning from non-employment to self-employment, noting that the marginal effects for 45-64 category are not significant in the full model. Both residence in an urban area and not being married were protective against this transition compared to the respective reference categories. Lastly, individuals living in larger households are more likely to transition

from non-employment to self-employment. One unit increase in household size is associated with about a 3.6% increase in the probability of moving from non-employment to self-employment.

6.3 Discussion:

This section analyses the findings related to the main study variables, namely, age, education, sex, father's education, and area of residence.

6.3.1 Age:

The results indicate that being in prime age (between 25-44 years of age) protects against the transition from formal to informal salaried employment and non-employment compared to the reference category while increasing the likelihood of transitions the other way round from informal to formal salaried work. Those between 45-64 years of age are also less likely than the reference group to transition from formal salaried to informal salaried jobs. These results are in line with findings from developing country literature indicating that the transition from formal to informal salaried work decreases with age (Tansel & Acar, 2017; Tansel & Ozdemir, 2019) while the reverse transition increases with age (Bernabè & Stampini, 2009). These results generally point to the vulnerability of the youth population (15-24) in the labor market. They also confirm the findings from qualitative research documenting how Egyptian youth fluctuate between formal and informal positions in the labor market in their quest to find a better paying job, a job that matches their level of educational attainment, or a job with decent working conditions. (Sieverding, 2016). It is doubtful, however, that the present generation of youth will enjoy the same prospects of moving from informal salaried to formal salaried employment as they become older, considering the continued shrinkage of the government/public sector, the main source of formal employment.

Furthermore, being between 25 and 44 years of age and between 45 and 64 years of age increases the likelihood of moving from informal salaried to self-employment compared to the reference category. Similarly, a previous study on Egypt finds that being in prime age is a predictor of transition from informal private wage work to self-employment (Tansel & Ozdemir, 2019). Likewise, the older age groups in Brazil are more likely to move from salaried work to self-employment. (Maciel & Oliveira, 2018). These findings suggest that as informally salaried workers age, they accumulate enough assets and experience to become self-employed(Maloney & Arias, 2007). The two older age categories are also more likely to transition from non-employment to self-employment, noting that the results aren't statistically significant in all specifications.

With age, the likelihood of moving out of self-employment declines. For example, being between 25-44 and 45-64 reduces the likelihood of making a transition from self-employment to informal salaried work, similar to the findings from (Tansel & Acar, 2017; Tansel & Ozdemir, 2019). Those between 25-44 years of age are also less likely compared to those between 15 and 24 years of age to transition from self-employment to non-employment, in line with the findings of (Tansel & Acar, 2017).

All in all, these findings indicate that self-employment is less accessible or not preferred by the youth (hence they are less likely to transition to it). Moreover, youth in self-employment are less likely to remain/succeed there. This lends support to the argument put forth by (Krafft & Rizk, 2021) about how entrepreneurs in MENA are usually older in age, having accumulated assets and experience. This goes to show that youth who are supposed to be the target of entrepreneurship promotion policies -given their high rates of unemployment- are shying away from it and are less likely to succeed in entrepreneurial endeavors. The youth may be less likely to engage in entrepreneurship because of the difficulties referred to in the literature, such as lack of funding(Sieverding, 2012; Zamzam, 2017). It also may be the case that being in self-employment is not rewarding enough or prestigious enough for youth, given that most entrepreneurial work in Egypt is blue-collar in agricultural or wholesale and retail(Krafft & Rizk, 2021).

6.3.2 Gender:

It is noticeable from the findings that females are immobile compared to men, except if they are moving towards non-employment in line with the previous literature on developing countries (Bernabè & Stampini, 2009; Tansel & Acar, 2017; Tansel & Ozdemir, 2019). This result also confirms the findings from female transition matrices highlighting high rates of transitions to non-employment from all labor market states. Several explanations have been advanced for the low levels of labor force participation/unemployment among women in the middle east in general and in Egypt despite the high levels of educational attainment achieved by women in recent years. One explanation for high rates of female unemployment and economic inactivity is the changing opportunity structure available to women after downsizing the government and public sector that started in the 1990s (Assaad et al., 2020). On the other hand, cultural norms that confine women to performing domestic and care activities could be responsible for female inactivity. These cultural constraints are far more binding for ever-married women; currently employed, ever-married women spend the same amount of time on domestic activities as ever-married women who

are not working. Moreover, ever-married women spend, on average, longer hours on domestic activities compared to never-married women. (Hendy, 2015). Lastly, commentators highlight how women and their families tend to have "reservation working conditions" and will be unwilling to take on jobs with poor working conditions for fear of sexual harassment and tarnishing the reputation of the female worker. The fact that employment is informalized in Egypt curtails women's chances of participating in the labor force and increases their unemployment rate compared to men. (Krafft & Assaad, 2015). The reality of women in MENA and Egypt, however, contrasts with findings of women in many other developing countries who tend to be overrepresented in informal employment(Danquah et al., 2019; Maloney & Arias, 2007; Ulyssea, 2020).

6.3.3 Education:

The results for the education variable indicate that higher educational attainment is protective against the transition from formal to informal salaried and self-employment. Previous literature similarly finds that higher educational attainment protects against slipping into informal employment((Danquah et al., 2019). Studies that differentiate between salaried work and self-employment also indicate that education decreases the likelihood of transition from formal salaried work/government work to informal private salaried work (Tansel & Ozdemir, 2019) and, more generally, from formal waged work to informal waged work (Bernabè & Stampini, 2009; Tansel & Acar, 2017) and self-employed (Bernabè & Stampini, 2009; Maciel & Oliveira, 2018; Tansel & Acar, 2017).

Education also increases flows towards formal salaried work. Those with university or intermediate and above education are more likely to transition from self-employment and informal salaried work to formal salaried work compared to the reference category in line with the literature. Previous studies have found that higher education increases the likelihood of transition from informal to formal private salaried work (Tansel & Ozdemir, 2019) and from informal salaried to formal salaried work generally (Bernabè & Stampini, 2009; Maciel & Oliveira, 2018; Tansel & Acar, 2017). It is also reported education reduces the odds of being in self-employment/employers (El-Fiky, 2021; Krafft & Assaad, 2015) while increasing the odds of moving from self-employment to formal salaried employment(Bernabè & Stampini, 2009; Tansel & Ozdemir, 2019).

Lastly, educational attainment is positively correlated with transitioning from non-employment to formal salaried work and negatively correlated with transitions from non-employment into informal waged employment or self-employment. This means that those who are non-employed and well educated will not leave this state unless they find a position in the formal sector. Considering how the non-employment category includes OLF as well as the unemployed, this finding corroborates the evidence from (Bernabè & Stampini, 2009) as well as the theoretical model posited by (Assaad, 2014) in which youth queue in unemployment awaiting formal jobs in the government.

The flows from and to self-employment by education level indicate its undesirability for the educated. This could be an indication that succeeding in self-employment does not depend on formal education but on the entrepreneurial experience passed on from one generation. In Egypt, those with self-employed or employer fathers are more likely to be in self-employment or be an employer (Krafft & Rizk, 2021). Another possible explanation is that self-employment is generally not a prestigious form of employment (Krafft & Rizk, 2021).

6.3.4 Father's Education:

The impact of the father's level of education was far less than expected. A higher level of father's education is protective against some negative transitions, such as transitions from formal salaried to informal salaried employment (for the university level of education only). Moreover, Higher levels of Father's education were associated with a higher likelihood of transitioning from non-employment to formal salaried and a lower likelihood of transitioning to informal or self-employed. This could mean that those who are non-employed of a certain social class will only leave nonemployment if they find a formal position.

6.3.5 Area of Residence:

living in an urban area increases the likelihood of transitioning from formal and informal salaried work to non-employment compared to rural areas. It may be the case that individuals in rural areas do not remain non-employed because they instead join the ranks of the self-employed. As the descriptive section has shown, self-employment is more prevalent in rural areas compared to urban areas. Moreover, self-employed activities are predominantly in agriculture (See figure (8)). Additionally, living in an urban area is protective against the transition from non-employment to self-employed. Lastly, living in an urban area increases the likelihood of moving to formal salaried work from non-employment and informal salaried employment. This is in line with the

results from the descriptive section showing that formal salaried work is more prevalent in urban areas. It also highlights the disparity of opportunities between urban and rural areas.

Figure 8: Employment States by Sector of economic activity

Source: Calculated by the author based on ELMPS 2012 and 2018.

7 Conclusion and Policy Recommendation:

This study attempted to understand the determinants of labor market transitions in Egypt, relying on the Egyptian Labor Market Panel Survey of 2012 and 2018 with a special focus on transitions between informal and informal employment. The results of the multinomial logistic regression indicate that sex is an important determinant in labor market transitions. Women are extremely immobile in comparison to men, except if they are moving to non-employment. The youth seem to be particularly vulnerable as they are less likely to transition from informal to formal salaried employment. Moreover, self-employment is less accessible to the youth (hence they are less likely to transition to it), and youth in self-employment are less likely to remain/succeed there. This effectively means the youth are trapped in informal salaried employment. It was also found that higher educational attainment is protective against the transition from formal to informal salaried and self-employment. Higher education also increases flows from other states towards formal salaried work. Additionally, there is evidence that the highly educated queue in non-employment until they find a formal position. It is important to note that flows from and to self-employment by education level indicate its undesirability for the educated. Essentially, the group that is supposed to be the target of entrepreneurship promotion programs (the highly educated youth) is less likely to transition into it and more likely to transition out of it. In the light of the above findings, the following measures are recommended:

1. The new social insurance system suffers from major coverage gaps. It offers coverage in exchange for low contribution rates (9% of the minimum pensionable wage) to "irregular workers." The groups eligible to apply for this scheme, however, form but a fraction of informal employment. This means that other groups of hitherto informal salaried workers and their employers in the private sector have to pay 29.75% of the pensionable wage. Even though this is a reduction compared to old social insurance laws, it is unlikely to incentivize small-sized, low-productivity informal enterprises. Moreover, the self-employed and employers' scheme doesn't differentiate contribution rates between different types of employers and self-employed workers. Previous experiences from other MENA countries show that frameworks that increase coverage create different social insurance schemes for different groups of workers based on their ability to contribute to the system. The system's financial sustainability is maintained by varying the benefits offered under different schemes(ESCWA, 2019). Designing different schemes suited to different groups of workers has to be data-driven. For

example, data from ELMPS and HIECS can be utilized to determine the levels of contributions suitable to diverse groups. It also has to be based on deliberations with diverse groups of workers.

2. Another recommendation is to allow employers to pay the contributions through an online portal akin to the experience of Morocco. An online application should also be available to employees to allow them to track whether their employers are paying their social insurance contributions(ESCWA, 2019). This could empower workers vis-a-vis their employers, especially the youth who are the most vulnerable in the labor market and who most likely know how to use smartphones for this purpose.
3. There are also other approaches to empower youth in the labor market and accelerate their formalization. One such approach applied in many Latin American countries is providing subsidies to firms that hire young people formally or who offer internships to young people so they can complement their formal education with on-the-job training. The target groups for these programs could be youth who face other forms of vulnerability such as poverty or low education. for example, in Uruguay, tax exemptions are offered to firms if workers hired are below 25 years of age. Moreover, subsidies are offered to employers who hire young workers between 15-24 years of age with little experience in formal employment(Work4Youth, 2015).
4. Entrepreneurship promotion programs must be expanded and must target educated youth and women. These programs should be integrated, including financial and non-financial services, in line with the international best practice. Also, the loans offered must cater to the needs of program targets (loans for small and micro-businesses, not for the more established firms).
5. Considering the role of education in promoting formalization and in preventing flows out of formal salaried employment, it is necessary to allow for lifelong learning and development of skills for the least-educated workers. The government needs to update its skill training programs so that they are more responsive to the needs of the market and are in line with the international best practices. Coordination between the government, private, and NGO sectors is also necessary to encourage enrollment. Furthermore, skill training programs may be linked to social protection programs. The training programs can be offered to the beneficiaries of takaful program, for example.
6. Enhancing inspection is also recommended to increase the cost of informality for informal firms and formal firms hiring workers informally. While harsher penalties are necessary, they

are not enough on their own. The ILO recommends providing training and capacity building to government entities in charge of inspections to allow them to liaise information correctly to employers(ILO, 2014).

7. The development literature highlights the importance of streamlining the processes of registration and paying taxes for micro, small and medium enterprises to encourage them to formalize their operations. It also suggests providing them with tax incentives(ILO, 2014). The government in Egypt has taken steps in this regard by adopting the small enterprises law (Law 141 of 2004) and, more recently, the Micro, Small and Medium Enterprises (MSMEs) Law No 152 of 2020. We are yet to see the impact of the latest law on the behavior of small enterprises. Nonetheless, for these reforms to work, targeted groups (firms in the informal sector) have to be made aware of them through information campaigns and training sessions. This will help build trust and alleviate suspicion between employers of informal enterprises and the government.
8. Several measures should be taken to deal with the low levels of female labor market participation and unemployment. This requires multifaceted efforts to deal with all possible causes of this phenomenon:
    a. Providing access to affordable and good-quality childcare. Previous studies recommend providing conditional childcare subsidies to encourage women to take up employment (Hendy, 2015a)
    b. Encouraging flexibility in working hours (such as offering part-time jobs) and allowing women to work from home. Moreover, maternity leaves (between 7 and 10 months) are necessary to allow women to keep full-time jobs and advance in their careers. (Hendy, 2015a)
    c. Activating the role of equal opportunity units in dealing with discrimination against women and sexual harassment in the workplace in collaboration with the Ministry of Manpower.
9. Lastly, future studies on labor market transitions in Egypt should consider the impact of the 2016 economic reforms. This is possible by relying on the historical data module in the ELMPS, which asks respondents about their previous jobs and whether they had a contract/social security in these jobs. It is important to note, however, that relying on historical data runs the risk of recall bias.

8 Appendix (1): Regression Tables:

Transitions From Formal Employment

Table 7: Transitions from Formal Salaried to Informal Salaried Employment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	y1	y1	y1	y1	y1	y1	y1
Sex:							
Male	0.104***	0.0893***	0.0850***	0.0853***	0.0877***	0.0882***	0.0869***
	(0.00911)	(0.00985)	(0.0100)	(0.0101)	(0.00993)	(0.00990)	(0.00994)
Education:							
University		-0.113***	-0.167***	-0.170***	-0.179***	-0.188***	-0.169***
		(0.0213)	(0.0248)	(0.0252)	(0.0253)	(0.0258)	(0.0259)
Intermediate&above		-0.0614***	-0.115***	-0.117***	-0.124***	-0.132***	-0.122***
		(0.0214)	(0.0248)	(0.0250)	(0.0252)	(0.0256)	(0.0251)
Less Intermediate		-0.0189	-0.0590**	-0.0607**	-0.0624**	-0.0655**	-0.0622**
		(0.0270)	(0.0300)	(0.0302)	(0.0304)	(0.0309)	(0.0298)
Age							
45-64			-0.211***	-0.211***	-0.146***	-0.140***	-0.147***
			(0.0309)	(0.0309)	(0.0290)	(0.0283)	(0.0290)
25-44			-0.113***	-0.112***	-0.0505*	-0.0477*	-0.0526*
			(0.0311)	(0.0311)	(0.0288)	(0.0281)	(0.0288)

Residence:							
urban				0.00973	0.00290	-0.00156	0.00354
				(0.0101)	(0.0101)	(0.0102)	(0.0103)
Marital Status							
Not Married					0.0834***	0.0870***	0.0921***
					(0.0183)	(0.0183)	(0.0187)
hhsize						-0.00999***	-0.0107***
						(0.00296)	(0.00297)
Father's Education							
University							-0.0581***
							(0.0170)
Intermediate&above							-0.0192
							(0.0160)
Less Intermediate							-0.0211
							(0.0146)
Observations	3,995	3,992	3,992	3,992	3,992	3,992	3,992

Source: Constructed by the author based on ELMPS 2012,2018

Table 8: transitions from Formal Salaried to Self Employed

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	y1	y1	y1	y1	y1	y1	y1
Sex:							
Male	0.0451***	0.0410***	0.0416***	0.0410***	0.0412***	0.0412***	0.0413***
	(0.00464)	(0.00480)	(0.00480)	(0.00483)	(0.00485)	(0.00485)	(0.00486)
Education:							
University		-0.0562***	-0.0477***	-0.0429***	-0.0430***	-0.0429***	-0.0451***
		(0.0143)	(0.0136)	(0.0132)	(0.0132)	(0.0133)	(0.0141)
Intermediate&above		-0.0522***	-0.0440***	-0.0402***	-0.0400***	-0.0398***	-0.0398***
		(0.0141)	(0.0133)	(0.0129)	(0.0129)	(0.0129)	(0.0133)
Less Intermediate		-0.0266	-0.0195	-0.0163	-0.0159	-0.0157	-0.0150
		(0.0173)	(0.0165)	(0.0161)	(0.0161)	(0.0160)	(0.0164)
Age							
45-64			0.00185	0.00219	0.00435	0.00485	0.00494
			(0.0168)	(0.0168)	(0.0183)	(0.0183)	(0.0184)
25-44			-0.0144	-0.0148	-0.0134	-0.0132	-0.0133
			(0.0161)	(0.0162)	(0.0171)	(0.0171)	(0.0171)
Residence:							
urban				-0.0115*	-0.0118*	-0.0121*	-0.0123*
				(0.00608)	(0.00613)	(0.00619)	(0.00633)

Marital Status							
Not Married					0.00556	0.00577	0.00510
					(0.0120)	(0.0120)	(0.0119)
hhsize						-0.000320	-0.000303
						(0.00163)	(0.00164)
Father's Education							
University							0.0120
							(0.0171)
Intermediate&above							0.00861
							(0.0125)
Less Intermediate							-0.0161**
							(0.00805)
Observations	3,995	3,992	3,992	3,992	3,992	3,992	3,992

Source: Constructed by the author based on ELMPS 2012,2018

Table 9: Transitions from Formal Salaried to Nonemployment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	y1	y1	y1	y1	y1	y1	y1
Sex:							
Male	-0.0870***	-0.105***	-0.0869***	-0.0794***	-0.0743***	-0.0697***	-0.0699***
	(0.0129)	(0.0142)	(0.0127)	(0.0126)	(0.0127)	(0.0126)	(0.0127)
Education:							
University		-0.0827***	-0.00690	-0.0203	-0.0205	-0.0224	-0.0232
		(0.0247)	(0.0190)	(0.0198)	(0.0197)	(0.0198)	(0.0208)
Intermediate&above		-0.0805***	-0.0293	-0.0378**	-0.0372**	-0.0390**	-0.0417**
		(0.0243)	(0.0179)	(0.0187)	(0.0186)	(0.0187)	(0.0191)
Less Intermediate		-0.0430	-0.00221	-0.0100	-0.00957	-0.0103	-0.0125
		(0.0304)	(0.0236)	(0.0243)	(0.0242)	(0.0243)	(0.0245)
Age							
45-64			0.156***	0.149***	0.161***	0.164***	0.163***
			(0.0222)	(0.0224)	(0.0227)	(0.0228)	(0.0230)
25-44			-0.0463**	-0.0472**	-0.0400**	-0.0408**	-0.0410**
			(0.0193)	(0.0196)	(0.0190)	(0.0191)	(0.0191)
Residence:							
urban				0.0425***	0.0406***	0.0375***	0.0372***
				(0.00993)	(0.00998)	(0.0101)	(0.0102)

Marital Status							
Not Married					0.0334**	0.0284*	0.0284*
					(0.0165)	(0.0163)	(0.0163)
hhsize						-0.00746**	-0.00746**
						(0.00301)	(0.00302)
Father's Education							
University							-0.00578
							(0.0187)
Intermediate&above							-0.00688
							(0.0151)
Less Intermediate							0.0157
							(0.0152)
Observations	3,995	3,992	3,992	3,992	3,992	3,992	3,992

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Constructed by the author based on ELMPS 2012,2018

Table 10: Transitions from Informal Salaried to formal Salaried Employment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	y1	y1	y1	y1	y1	y1	y1
Sex:							
Male	0.00444	0.0102	0.0109	0.0136	0.00908	0.00919	0.00972
	(0.0242)	(0.0234)	(0.0230)	(0.0227)	(0.0234)	(0.0234)	(0.0234)
Education:							
University		0.294***	0.283***	0.270***	0.272***	0.268***	0.239***
		(0.0310)	(0.0305)	(0.0303)	(0.0306)	(0.0306)	(0.0314)
Intermediate&above		0.114***	0.114***	0.111***	0.112***	0.111***	0.106***
		(0.0122)	(0.0124)	(0.0124)	(0.0124)	(0.0125)	(0.0127)
Less Intermediate		0.0416***	0.0472***	0.0450***	0.0452***	0.0450***	0.0457***
		(0.0125)	(0.0128)	(0.0129)	(0.0129)	(0.0130)	(0.0134)
Age							
45-64			0.0306	0.0260	0.0181	0.0206	0.0272
			(0.0231)	(0.0227)	(0.0240)	(0.0243)	(0.0246)
25-44			0.0585***	0.0577***	0.0525***	0.0532***	0.0585***
			(0.0116)	(0.0117)	(0.0139)	(0.0139)	(0.0137)
Residence:							

urban				0.0354***	0.0367***	0.0352***	0.0303**
				(0.0118)	(0.0119)	(0.0120)	(0.0121)
Marital Status							
Not Married					-0.00976	-0.00705	-0.00835
					(0.0139)	(0.0141)	(0.0142)
hhsize						-0.00270	-0.00233
						(0.00271)	(0.00271)
Father's Education							
University							0.0315
							(0.0354)
Intermediate&above							0.0754***
							(0.0254)
Less Intermediate							0.0144
							(0.0181)
Observations	3,561	3,557	3,557	3,557	3,557	3,557	3,557

Source: Source: Constructed by the author based on ELMPS 2012,2018

Table 11: Transitions from Informal Salaried to Self Employed

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	y1	y1	y1	y1	y1	y1	y1
Sex:							
Male	0.119***	0.127***	0.128***	0.126***	0.123***	0.122***	0.123***
	(0.0172)	(0.0159)	(0.0156)	(0.0160)	(0.0168)	(0.0169)	(0.0168)
Education:							
University		-0.0338	-0.0237	-0.0208	-0.0137	-0.00538	-0.00676
		(0.0273)	(0.0275)	(0.0280)	(0.0285)	(0.0292)	(0.0306)
Intermediate&above		-0.0461***	-0.0345**	-0.0342**	-0.0316*	-0.0285*	-0.0274*
		(0.0159)	(0.0162)	(0.0163)	(0.0162)	(0.0162)	(0.0165)
Less Intermediate		-0.0694***	-0.0567***	-0.0566***	-0.0538***	-0.0518***	-0.0499***
		(0.0173)	(0.0176)	(0.0177)	(0.0176)	(0.0175)	(0.0176)
Age							
45-64			0.0685***	0.0703***	0.0285	0.0208	0.0195
			(0.0248)	(0.0250)	(0.0275)	(0.0275)	(0.0274)
25-44			0.0345**	0.0346**	0.00387	0.00123	0.00117
			(0.0137)	(0.0137)	(0.0181)	(0.0184)	(0.0185)
Residence:							
urban				-0.00407	0.000634	0.00440	0.00551
				(0.0131)	(0.0133)	(0.0134)	(0.0136)

Marital Status							
Not Married					-0.0502***	-0.0575***	-0.0547***
					(0.0160)	(0.0162)	(0.0163)
hhsize						0.00716***	0.00729***
						(0.00269)	(0.00269)
Father's Education							
University							0.0710
							(0.0555)
Intermediate&above							-0.00321
							(0.0281)
Less Intermediate							-0.0355*
							(0.0202)
Observations	3,561	3,557	3,557	3,557	3,557	3,557	3,557

Source: Source: Constructed by the author based on ELMPS 2012,2018

Table 12: Transitions from Informal Salaried to Non-Employed

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	y1	y1	y1	y1	y1	y1	y1
Sex:							
Male	-0.478***	-0.487***	-0.493***	-0.483***	-0.470***	-0.470***	-0.468***
	(0.0352)	(0.0353)	(0.0344)	(0.0349)	(0.0352)	(0.0352)	(0.0353)
Education:							
University		-0.0107	0.0108	0.00537	0.000177	-0.000816	-0.00842
		(0.0185)	(0.0201)	(0.0200)	(0.0196)	(0.0196)	(0.0204)
Intermediate&above		-0.0109	0.00466	0.000816	-0.000624	-0.00107	-0.00466
		(0.0115)	(0.0117)	(0.0119)	(0.0119)	(0.0120)	(0.0123)
Less Intermediate		0.0460***	0.0501***	0.0466***	0.0446***	0.0444***	0.0441***
		(0.0147)	(0.0142)	(0.0143)	(0.0144)	(0.0144)	(0.0147)
Age							
45-64			0.0740***	0.0672***	0.111***	0.112***	0.116***
			(0.0249)	(0.0247)	(0.0295)	(0.0297)	(0.0299)
25-44			-0.0638***	-0.0657***	-0.0414***	-0.0412***	-0.0390***
			(0.0117)	(0.0118)	(0.0132)	(0.0132)	(0.0132)
Residence:							
urban				0.0251**	0.0210**	0.0204*	0.0186*
				(0.0106)	(0.0105)	(0.0106)	(0.0106)

Marital Status							
Not Married					0.0396***	0.0408***	0.0395***
					(0.0135)	(0.0137)	(0.0137)
hhsize						-0.00128	-0.00115
						(0.00239)	(0.00240)
Father's Education							
University							0.0262
							(0.0397)
Intermediate&above							0.0321
							(0.0232)
Less Intermediate							0.00992
							(0.0162)
Observations	3,561	3,557	3,557	3,557	3,557	3,557	3,557

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Source: Constructed by the author based on ELMPS 2012,2018.

Transitions From Self Employment

Table 13: Transitions from Self Employed to Formal Salaried

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	y1	y1	y1	y1	y1	y1	y1
Sex:							
Male	0.0613***	0.0536***	0.0541***	0.0537***	0.0541***	0.0540***	0.0540***
	(0.00636)	(0.00685)	(0.00675)	(0.00679)	(0.00675)	(0.00677)	(0.00676)
Education:							
University		0.0978***	0.0971***	0.0929***	0.0947***	0.0926***	0.0815***
		(0.0193)	(0.0195)	(0.0194)	(0.0197)	(0.0198)	(0.0201)
Intermediate&above		0.0501***	0.0483***	0.0469***	0.0469***	0.0466***	0.0439***
		(0.00967)	(0.0101)	(0.0102)	(0.0101)	(0.0102)	(0.0104)
Less Intermediate		0.00945	0.00891	0.00840	0.00862	0.00844	0.00818
		(0.00883)	(0.00900)	(0.00908)	(0.00907)	(0.00909)	(0.00942)
Age							
45-64			-0.00717	-0.00898	-0.0188	-0.0188	-0.0163
			(0.0137)	(0.0139)	(0.0180)	(0.0179)	(0.0176)
25-44			-0.00219	-0.00314	-0.0124	-0.0126	-0.00972
			(0.0114)	(0.0116)	(0.0157)	(0.0157)	(0.0154)
Residence:							

urban				0.00936	0.00972	0.00925	0.00698
				(0.00871)	(0.00873)	(0.00875)	(0.00884)
Marital Status							
Not Married					-0.0103	-0.00986	-0.0111
					(0.0112)	(0.0113)	(0.0113)
hhsize						-0.000966	-0.000703
						(0.00194)	(0.00193)
Father's Education							
University							0.0254
							(0.0272)
Intermediate&above							0.0309*
							(0.0180)
Less Intermediate							0.00480
							(0.0134)
Observations	3,086	3,082	3,082	3,082	3,082	3,082	3,081

Source: Source: Constructed by the author based on ELMPS 2012,2018

Table 14: From Self Employment to Informal Salaried

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	y1	y1	y1	y1	y1	y1	y1
Sex:							
Male	0.306***	0.304***	0.310***	0.310***	0.310***	0.310***	0.309***
	(0.0122)	(0.0125)	(0.0119)	(0.0119)	(0.0120)	(0.0120)	(0.0120)
Education:							
University		-0.0630**	-0.115***	-0.113***	-0.118***	-0.122***	-0.0993***
		(0.0254)	(0.0255)	(0.0259)	(0.0258)	(0.0259)	(0.0280)
Intermediate&above		0.0348*	-0.0501***	-0.0490**	-0.0507***	-0.0531***	-0.0453**
		(0.0188)	(0.0192)	(0.0193)	(0.0193)	(0.0194)	(0.0197)
Less Intermediate		0.0358*	-0.0384*	-0.0378*	-0.0396*	-0.0415*	-0.0397*
		(0.0213)	(0.0216)	(0.0216)	(0.0216)	(0.0217)	(0.0216)
Age							
45-64			-0.290***	-0.288***	-0.254***	-0.255***	-0.259***
			(0.0235)	(0.0236)	(0.0300)	(0.0299)	(0.0300)
25-44			-0.115***	-0.114***	-0.0796***	-0.0800***	-0.0843***
			(0.0226)	(0.0226)	(0.0289)	(0.0289)	(0.0291)
Residence:							

urban				-0.00804	-0.00930	-0.0114	-0.00664
				(0.0159)	(0.0159)	(0.0160)	(0.0161)
Marital Status							
Not Married					0.0448*	0.0471**	0.0500**
					(0.0234)	(0.0235)	(0.0237)
hhsize						-0.00362	-0.00394
						(0.00318)	(0.00318)
Father's Education							
University							-0.120**
							(0.0476)
Intermediate&above							-0.0624**
							(0.0292)
Less Intermediate							-0.00852
							(0.0260)
Observations	3,086	3,082	3,082	3,082	3,082	3,082	3,081

Source: Source: Constructed by the author based on ELMPS 2012,2018

Table 15: Transitions from Self Employment to Non-Employed

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	y1	y1	y1	y1	y1	y1	y1
Sex:							
Male	-0.603***	-0.607***	-0.613***	-0.613***	-0.612***	-0.612***	-0.613***
	(0.0180)	(0.0192)	(0.0188)	(0.0189)	(0.0189)	(0.0189)	(0.0189)
Education:							
University		-0.00840	0.0157	0.0164	0.0138	0.0162	0.00707
		(0.0249)	(0.0248)	(0.0252)	(0.0252)	(0.0254)	(0.0271)
Intermediate&above		-0.0104	0.0185	0.0187	0.0189	0.0198	0.0152
		(0.0139)	(0.0144)	(0.0145)	(0.0144)	(0.0145)	(0.0148)
Less Intermediate		0.0426***	0.0513***	0.0514***	0.0507***	0.0515***	0.0502***
		(0.0165)	(0.0164)	(0.0165)	(0.0165)	(0.0165)	(0.0167)
Age							
45-64			0.0259	0.0261	0.0367*	0.0386*	0.0418**
			(0.0190)	(0.0191)	(0.0208)	(0.0210)	(0.0210)
25-44			-0.0708***	-0.0708***	-0.0602***	-0.0591***	-0.0566***
			(0.0156)	(0.0156)	(0.0173)	(0.0173)	(0.0173)
Residence:							
urban				-0.00121	-0.00246	-0.00143	-0.00267
				(0.0129)	(0.0130)	(0.0130)	(0.0131)

Marital Status							
Not Married					0.0272*	0.0276*	0.0254
					(0.0159)	(0.0159)	(0.0159)
hhsize						0.00192	0.00216
						(0.00231)	(0.00231)
Father's Education							
University							0.00701
							(0.0489)
Intermediate&above							0.0477
							(0.0297)
Less Intermediate							0.0214
							(0.0216)
Observations	3,086	3,082	3,082	3,082	3,082	3,082	3,081

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Source: Constructed by the author based on ELMPS 2012,2018

Transitions from Non-Employment

Table 16 Transitions from Non-Employment to Formal Salaried Employment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	y1	y1	y1	y1	y1	y1	y1
Sex:							
Male	0.113***	0.105***	0.0934***	0.0910***	0.0664***	0.0665***	0.0630***
	(0.00751)	(0.00700)	(0.00729)	(0.00715)	(0.00705)	(0.00706)	(0.00678)
Education:							
University		0.133***	0.138***	0.128***	0.130***	0.129***	0.113***
		(0.0113)	(0.0120)	(0.0115)	(0.0118)	(0.0119)	(0.0117)
Intermediate&above		0.0663***	0.0650***	0.0618***	0.0646***	0.0642***	0.0621***
		(0.00441)	(0.00462)	(0.00469)	(0.00487)	(0.00489)	(0.00504)
Less Intermediate		0.0116***	0.00999***	0.00889***	0.00871***	0.00872***	0.00845**
		(0.00288)	(0.00300)	(0.00323)	(0.00319)	(0.00321)	(0.00343)
Age							
45-64			-0.0113	-0.0166**	0.00199	0.00170	0.00616
			(0.00800)	(0.00744)	(0.00946)	(0.00944)	(0.00985)
25-44			-0.0148***	-0.0165***	-0.00368	-0.00372	0.000347
			(0.00445)	(0.00447)	(0.00507)	(0.00507)	(0.00527)
Residence:							

urban				0.0213***	0.0188***	0.0183***	0.0141***
				(0.00387)	(0.00385)	(0.00390)	(0.00397)
Marital Status							
Not Married					0.0338***	0.0343***	0.0320***
					(0.00554)	(0.00560)	(0.00572)
hhsize						-0.000746	-0.000518
						(0.00105)	(0.00104)
Father's Education							
University							0.0278***
							(0.00668)
Intermediate&above							0.0139***
							(0.00505)
Less Intermediate							0.000359
							(0.00530)
Observations	11,457	11,441	11,441	11,441	11,441	11,441	11,440

Source: Constructed by the author based on ELMPS 2012,2018

Table 17: Transitions from Non-Employment to Informal Salaried

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	y1	y1	y1	y1	y1	y1	y1
Sex:							
Male	0.347***	0.346***	0.322***	0.322***	0.291***	0.291***	0.298***
	(0.0105)	(0.0121)	(0.0133)	(0.0133)	(0.0153)	(0.0153)	(0.0155)
Education							
University		-0.00996	-0.0360***	-0.0329***	-0.0349***	-0.0341***	-0.00832
		(0.0111)	(0.0117)	(0.0119)	(0.0120)	(0.0121)	(0.0132)
Intermediate&above		0.00844	-0.0197**	-0.0186**	-0.0195**	-0.0191**	-0.00934
		(0.00792)	(0.00894)	(0.00898)	(0.00907)	(0.00911)	(0.00896)
LessIntermediate		-0.00436	-0.0334***	-0.0331***	-0.0358***	-0.0359***	-0.0308***
		(0.00786)	(0.00904)	(0.00903)	(0.00908)	(0.00907)	(0.00878)
Age							
45-64			-0.0712***	-0.0697***	-0.0576***	-0.0575***	-0.0642***
			(0.00730)	(0.00740)	(0.00866)	(0.00871)	(0.00829)
25-44			-0.0152**	-0.0146**	-0.000462	-0.000591	-0.00898
			(0.00738)	(0.00736)	(0.00829)	(0.00831)	(0.00812)
Residence							
Urban				-0.0111**	-0.0125**	-0.0120**	-0.00268
				(0.00509)	(0.00509)	(0.00514)	(0.00525)

Marital Statis							
Not Married					0.0304***	0.0297***	0.0364***
					(0.00841)	(0.00848)	(0.00838)
hhsize						0.000865	0.000415
						(0.00124)	(0.00123)
Father Education							
University							-0.0650***
							(0.00694)
Intermediate&above							-0.0392***
							(0.00632)
LessIntermediate							-0.00860
							(0.00794)
Observations	11,457	11,441	11,441	11,441	11,441	11,441	11,440

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Constructed by the author based on ELMPS 2012,2018

Table 18: Transitions from Non-Employment to Self Employed

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	y1	y1	y1	y1	y1	y1	y1
Sex:							
Male	0.0712***	0.112***	0.145***	0.150***	0.189***	0.187***	0.194***
	(0.00760)	(0.00994)	(0.0122)	(0.0122)	(0.0151)	(0.0150)	(0.0153)
Education:							
University		-0.0894***	-0.0824***	-0.0633***	-0.0616***	-0.0571***	-0.0416***
		(0.0100)	(0.00949)	(0.00994)	(0.00994)	(0.0102)	(0.0115)
Intermediate&above		-0.0756***	-0.0634***	-0.0480***	-0.0484***	-0.0450***	-0.0385***
		(0.00797)	(0.00817)	(0.00787)	(0.00774)	(0.00774)	(0.00765)
Less Intermediate		-0.0870***	-0.0684***	-0.0558***	-0.0540***	-0.0526***	-0.0485***
		(0.00810)	(0.00867)	(0.00825)	(0.00820)	(0.00809)	(0.00783)
Age							
45-64			0.0244***	0.0351***	0.0188**	0.0194**	0.0148*
			(0.00814)	(0.00867)	(0.00861)	(0.00876)	(0.00856)
25-44			0.0464***	0.0492***	0.0335***	0.0316***	0.0283***
			(0.00697)	(0.00686)	(0.00718)	(0.00723)	(0.00719)
Residence:							
urban				-0.0469***	-0.0455***	-0.0438***	-0.0403***
				(0.00473)	(0.00474)	(0.00477)	(0.00483)

Marital Status							
Not Married					-0.0356***	-0.0380***	-0.0326***
					(0.00732)	(0.00743)	(0.00738)
hhsize						0.00370***	0.00365***
						(0.00102)	(0.00102)
Father's Education							
University							-0.0528***
							(0.00712)
Intermediate&above							-0.0229***
							(0.00718)
Less Intermediate							-0.0186**
							(0.00786)
Observations	11,457	11,441	11,441	11,441	11,441	11,441	11,440

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Source: Constructed by the author based on ELMPS 2012,2018

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