

ECONOMIC
RESEARCH
FORUM



منتدى
البحوث
الاقتصادية

2014

working paper series

**DURATION TO COVERAGE: DYNAMICS OF ACCESS
TO SOCIAL SECURITY IN THE EGYPTIAN
LABOR MARKET IN THE 1998-2012 PERIOD**

Rania Roushdy and Irène Selwaness

Working Paper No. 836



**DURATION TO COVERAGE: DYNAMICS OF ACCESS
TO SOCIAL SECURITY IN THE EGYPTIAN LABOR
MARKET IN THE 1998-2012 PERIOD**

Rania Roushdy and Irène Selwaness

Working Paper 836

June 2014

Send correspondence to:
Irene Selwaness
Cairo University
Irene.selwaness@feps.edu.eg

First published in 2014 by
The Economic Research Forum (ERF)
21 Al-Sad Al-Aaly Street
Dokki, Giza
Egypt
www.erf.org.eg

Copyright © The Economic Research Forum, 2014

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

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

Abstract

This paper investigates the dynamics of having access to social insurance (SI) coverage on the Egyptian labor market among wage workers throughout 1998 to 2012. Using three rich nationally representative Egyptian labor market surveys conducted in 1998, 2006, and 2012, the paper explores the individual and firm-level characteristics of private sector wage workers who are enrolled in the SI system. Also, the paper studies how long it takes to have access to SI coverage. Findings show that, during the 2006-2012 period, access to wage employment with SI coverage has slightly declined in the public sector but appeared to be stalled in the private sector. Acquiring social insurance coverage in the private sector does not often come at first entry; gaining such access takes time. The share of private sector wage workers with no social insurance is highest among new entrants, followed by those having 5 years of experience, and lowest among those with at least 10 years of working experience.

JEL Classification: H55, J46, J81

Keywords: Social security, informality, survival analysis.

ملخص

تبحث هذه الورقة ديناميات الحصول على تغطية التأمين الاجتماعي وأثره على سوق العمل المصرية بين العاملين بالأجور في الفترة بين 1998 إلى 2012. وعن طريق استخدام ثلاثة مسوحات غنية ممثلة لسوق العمل المصرية والتي أجريت في أعوام 1998 و 2006 و 2012، تستكشف الورقة الخصائص الفردية وعلى مستوى الشركات للعاملين بأجر في القطاع الخاص والمسجلين في نظام التأمين الاجتماعي. أيضاً، تدرس الورقة المدى الزمني الذي يستغرقه العامل في الحصول على تغطية التأمين الاجتماعي. وتظهر النتائج أنه خلال الفترة 2006-2012، فرص الحصول على تغطية التأمين الاجتماعي قد انخفضت قليلاً في القطاع العام ولكن يبدو أنها متعثره في القطاع الخاص. لا يأتي اكتساب تغطية التأمين الاجتماعي في القطاع الخاص في كثير من الأحيان في مرحلة الالتحاق بالعمل الأولى؛ وإن الحصول على تغطية التأمين الاجتماعي يستغرق وقتاً. نجد أيضاً أن حصة العاملين بأجر في القطاع الخاص مع عدم وجود التأمين الاجتماعي هو الأعلى بين الوافدين الجدد، تليها تلك للذين لديهم 5 سنوات من الخبرة، وأدنى من بين أولئك الذين لديهم ما لا يقل عن 10 سنوات من الخبرة في العمل.

1. Introduction

Egypt, like many developing countries, has been confronted with a growing share of informal employment, under which individuals lack access not only to legal contracts, but also to social security. Social security schemes are among the main components of social protection that allow workers to secure their futures and to cope with income shocks. The existence of an important share of workers on the Egyptian labor market who lack social security fuels a heightened sense of vulnerability, risk, and uncertainty for future generations (Roushdy and Selwaness 2012). This mandates serious re-evaluation of recent labor market policies and the whole social protection system in Egypt.

Egypt has a history of providing social security and social assistance projects. Following the 1952 revolution, Egypt implemented a new social insurance system (SIS) operated as a fully funded scheme where employees pay contributions that should be invested and repaid to them in the form of old age pensions. This system has gradually become a Pay-As-You-Go system, partially funded from the Treasury, with defined benefits scheme that is equal to a set percentage of the average monthly wage earned (UNDP 2005).

The participation of wage workers and non-wage workers in the social security system is compulsory according to the law (laws 79/1975 and 108/1976, respectively). As for migrant workers, their enrollment in the system is optional and regulated by law 116/1978. Moreover, workers who were not included in any of the previous schemes, namely irregular and casual workers, can be covered by law 112/1980, which introduced the Comprehensive Social Insurance Scheme (CSIS) or the so-called “*Sadat* pension.” Therefore, The Egyptian Social Insurance system (SI) is a broad one with which, by law, every employed person should be affiliated. Wage workers can only be enrolled in the SIS by their employers whereas other types of workers can register themselves in the system.

This paper aims at providing a first step in understanding the extent of social security coverage in the Egyptian labor market. The paper examines the evolution of SI coverage across the three rounds of the Egypt Labor Market Survey (ELMPS) in 1998, 2006, and 2012. It also investigates how long it takes for different cohorts of entrants to the Egyptian Labor Market to get covered. A particular focus is given to regular wage workers in the private sector, since this is the only group who do not have a choice of getting social insurance coverage; rather their affiliation in the SIS is determined by their employers.

The paper is organized into six sections. Following this introduction, Section 2 gives a brief background on the social security system of wage workers in Egypt. Section 3 presents the data used in this paper. Section 4 presents a descriptive assessment of the pattern and dynamics of social insurance coverage during the 1998 to 2012 periods. It also explores the characteristics of regular wage workers in the private sector who have social insurance coverage, and their enterprise-specific characteristics. Finally, Section 5 sheds light on the time to the first covered job in a wage worker’s career history. Conclusions and policy implications are provided in Section 6.

2. Background: Wage Workers’ Social Insurance System¹

Wage workers in the government sector (aged 16 years and above), the public sector and the private sector (aged 18 years and above) can be socially insured according to law 79 of 1975 which represents the general scheme for the Egyptian SIS. The scheme provides old-age, disability, survivors, sickness, maternity, work injury and unemployment benefits to workers and their dependents. Contributions to the SIS are deducted from both basic and variable wages up to an upper bound that amounted to 875 and 1050 EGP for the basic and the variable wage, respectively, in 2011. As of 2013, the maximum bounds for the variable and

¹ The overview of the Egyptian social insurance system in this section is based on Sieverding and Selwaness (2012).

basic monthly wage –the so called pensionable wages– were raised to 1380 and 912 EGP respectively.² The total contribution sums to 41% of the basic wage and 25% of the variable wage, which is jointly paid by workers, their employers and the government. Workers' contributions amount to 14% and 10% of their base and variable earnings, respectively; while employers contribute 26% and 15% of the base and variable earnings, respectively. The government contributes only 1% of the base wage in addition to covering any deficit in the system (Helmy 2004; Roushdy and Selwaness, 2012). Workers enrolled in the system can claim their old age, disability and survivor pensions provided they are either 60 years old with 120 months of contributions or 50 years old with 240 months of contributions. Early retirement is possible under certain conditions.³

Several shortcomings of the SIS have often been highlighted in the literature. Loewe (2004) has described the system as being not effective. Public sector permanent wage workers get insured automatically, but not all private sector employers abide by the law and insure their employees. The relatively high social insurance contribution rates required from employers, combined with the weak enforcement of the law, cause many employers to either underreport the basic salary of their employees to the social insurance authority or to not cover their workers at all (Helmy 2008; UNDP 2005). On the other hand, some wage workers queuing for public sector jobs may choose not to be insured in the private sector, thinking that this might minimize their opportunities to be employed in the public sector (Barsoum et al. 2009). Also, wage workers may negotiate, with their employers, higher pay in return for not having social insurance. Many others are ignorant about the whole system of social insurance and its benefits (Sieverding 2012).

3. Data

The analysis of this paper relies on data from the three rounds of the Egypt Labor Market Survey: the 1998 Egypt Labor Market Survey (ELMS 1998), the 2006 Egypt Labor Market Panel Survey (ELMPS 2006) and the 2012 Egypt Labor Market Panel Survey (ELMPS 2012). These panel surveys were conducted by the Economic Research Forum (ERF) in cooperation with the Egyptian Central Agency for Public Mobilization and Statistics (CAPMAS).

The ELMS 1998 was carried out on a nationally-representative sample of 4,816 households. The ELMPS 2006 is a follow-up survey to the ELMS 1998, representing a longitudinal survey that tracks the labor market and demographic characteristics of the households and individuals interviewed in 1998, and any new households that might have formed as a result of splits from the original households. The ELMPS 2006 sample consists of a total of 8,349 households.⁴ Similarly, the 2012 round succeeded in following 77% of individuals interviewed in 2006 and their split households. The ELMPS 2012 consists of a total of 12,060 households, including 6,752 households from the 2006 sample, 3,308 new households that emerged from splits from original households, and a refresher sample of 2,000 households (Assaad and Krafft 2013a). This paper focuses only on working men and women aged 15 to 64, according to the market definition of the labor force, whose social security coverage status is not missing. The sample of this group of workers is 6,224 workers in the ELMS 1998, 11,328 workers in the 2006 round, and 13,889 workers in the 2012 round. In some parts of the paper we will limit the analysis to regular wage workers aged 18 to 59 years, since by law, social security coverage only concerns wage workers who are at least 18 years old in public enterprises and in the private sector until the retirement age of 60 years old. The

² National Organization for Social Insurance announcement 1 July 2012 and 1 January 2013. Available at: <http://nosi.gov.eg/Arabic/News/Pages/default.aspx> (In Arabic). Last accessed on August 15, 2013

³ For more details, see SSA (2011), Roushdy and Selwaness (2012), and Sieverding and Selwaness (2012).

⁴ For more details on the data description, see Assaad and Roushdy (2007), and Assaad and Krafft (2013a)

group of wage workers constitutes a sample of 4,431 workers in 1998, 7,211 workers in 2006, and 9,806 workers in 2012 while the sample of regular wage workers are of 3,879 in 1998, 6,459 in 2006, and 7,430 in 2012.

4. Social Insurance Coverage in the Egyptian Labor Market

This section presents a descriptive assessment of the patterns and dynamics of social insurance coverage in Egypt over the last few decades. It also investigates the characteristics of socially insured workers. The section starts by giving an overview of access to social security among all workers, and then focuses on regular wage workers in the private sector. This latter group of workers is the only group of workers which do not have a choice of whether to get social insurance coverage or not. Getting registered in the social insurance system is mainly determined by their employers. In contrast, employers and self-employed workers have a choice of whether to abide by the social insurance law (requiring mandatory enrollment) and insure themselves or not. No coverage scheme was explicitly designed for the unpaid family worker and irregular wage worker, except the above mentioned law 50/1980 (the CSIS or the *Sadat* pension). Finally, as will be discussed below, the phenomenon of socially uninsured workers in the public sector, though growth is still limited. However, in several occasions, we include the public sector in the discussion for sake of comparison. Moreover, for the social insurance analysis we limit the sample to those aged 18-59, since according to the social insurance law outside this age range private sector workers cannot enroll in the social insurance system.

4.1 Employment structure and social security coverage

Before investigating the social insurance coverage patterns in the Egyptian labor market during the 1998-2012 period, let us explore first how the share of different groups of workers in total employment evolved during this period. Figure 1 shows the share of public sector wage employment decreased from 38% in 1998 to about 30% in 2006 and remained around the same figure in 2012. This decline in the public sector was not associated with an equivalent increase in the share of socially insured regular private jobs, but rather with an increase in the share of uninsured regular wage work and non-wage work during the period between 1998-2006. The share of private sector insured regular wage work in total employment increased by only 1 percentage point (from 7% to 8%) between 1998 and 2006, and by 2 percentage points between 2006 and 2012. In contrast, the uninsured regular wage work increased more rapidly from 14% in 1998 to 18% in 2006, and then declined by only 1 percentage points in 2012. Also, the share of non-wage workers increased from 29% in 1998 to 36% in 2006; but it substantially declined in 2012 to 27%; 2 percentage points lower than its 1998 level. A similar increase was not observed for the share of irregular private sector wage employment during the 1998-2006 period. The share of this group actually declined from 12% in 1998 to 8% in 2006; however, it more than doubled during the recent period reaching 17% of total employment in 2012.

Table 1 presents a detailed assessment of all the transitions that occurred among the different groups of workers between 2006 and 2012. The table shows that several movements into irregular wage work were observed not only from non-wage work, but also from regular wage work. About 11.5% of non-wage workers moved to irregular jobs between 2006 and 2012. Furthermore, a substantial share of regular wage workers has experienced a status worsening in 2012. Around 18.3% of uninsured regular private wage workers and 8.4% of regular insured (formal) private wage workers became irregular between 2006 and 2012. Therefore, a large part of this substantial increase in irregular wage work between 2006 and 2012 occurred mainly at the expense of uninsured regular wage work and non-wage work.

Let us move to exploring the pattern of the social insurance coverage during the 1998-2012 period on workers aged 18-59 years. Several changes in the evolution of social insurance

coverage were observed in the Egyptian labor market during this period. The percent of uninsured workers in the public sector increased from around 3% in 1998, to 5% in 2006, then to 7% in 2012. This increase is equally attributed to the government and public enterprises, which exhibited similar coverage patterns during the last two decades. In contrast, private sector wage employment experienced an increase in the proportion of social insurance coverage from 24% in 1998 to around 25% in 2006, and then slightly declined by 0.7 percentage points between 2006 and 2012.

On the non-wage work front, Figure 2 shows that employers and self-employed experienced a sharp decline in their coverage rates throughout the 1998-2006 period (going down from 29.6% to around 20%). This decline continued through 2012 reaching a coverage rate of 14%. Moreover, as expected, the lowest percentage of coverage has been experienced by unpaid family workers throughout the study period.

In the following, we will focus on private sector wage workers to further explore the spread of social insurance coverage among this group. Figure 3 distinguishes workers according to their regularity status to investigate its effect on acquiring social insurance coverage in the private sector. The figure shows that, although almost stalled among total wage employment, access to social insurance increased among regular wage workers (from 31.0% to 36.7%) and slightly increased among irregular wage workers (from 3.5% to 4.0%) during the 2006-2012 period. This is mainly due to the change of regular and irregular workers' shares in total private wage employment during this period. During 2006-2012, as shown in Figure 3, the number of regular wage workers with social insurance coverage increased by 4.3% per annum, which is more rapid than the observed annual growth of regular wage workers *per-se* (1.4% per annum). This led to a rise in the percent of socially insured regular workers from 31.0% to 36.7% of total regular wage workers. However, total wage employment (including irregular workers) in the private sector grew by about 5.4% per annum, which is faster than the annual growth of socially insured wage workers, leading to the observed slight decline in access to social insurance among total wage employment in the private sector. The growth of total wage employment is fueled by the substantial increase in the irregular wage work (15.3% per annum) who are mostly (96%) informal. Hence, a substantial increase in access to social insurance among regular wage workers was observed in 2012, which outweighed the growth of this group of workers but not the observed large expansion in the irregular work component of the private wage sector.

It is important to mention here that one should be careful when interpreting this observed increase in access to social insurance among the regular wage group of workers. As observed in Table 1, around 49% of regular uninsured wage workers and 46% of regular insured wage workers observed in 2006 experienced worsened job statuses in 2012; hence, a substantial part of this increase is due to workers losing regular wage work, rather than a higher willingness from the part of employers to cover their workers or better enforcement of law in recent years than in 2006. Accordingly, those who remain in regular wage work are those who are more likely to have access to jobs with greater job security and benefits, while those who transition into irregular wage work are those who do not get jobs with social insurance coverage. In the following section we will focus on this selective group of regular wage workers and explore their characteristics in detail.

4.2 Social insurance coverage by worker characteristics for regular wage workers in the private sector

This section explores the characteristics of regular wage workers in the private sector, their social insurance coverage, and their enterprise-specific characteristics. As mentioned above, we will limit the focus on regular wage workers in the private sector, since this is the only group of workers which do not have a free choice in acquiring social insurance coverage.

Table 2 shows that, among regular wage workers in the private sector, the only groups which enjoyed an increase in their social insurance coverage rates between 1998 and 2006 are those aged 50 to 59 years (from 38.0% in 1998 to 47.7% in 2006), workers of firms with 50 to 100 employees (from 54.6% in 1998 to 56.3% in 2006) and those working in the other service activity group (about 7.6 percentage points increase from 31.6% to 39.2%). In contrast, between 2006 and 2012, there was a broad rise in social security coverage in regular wage employment cutting across males and females, urban and rural residence, all age groups, all education levels (except among university graduates who experienced a slight decline in their social insurance coverage), and all economic activity groups. Additionally, a slight increase in social insurance coverage was observed among the largest firms' workers (with 100 or more employees). Nevertheless, one should be careful when interpreting those figures since, as mentioned above, regular wage employment did not rapidly increase during 2006 and 2012, while irregular work has significantly expanded. Therefore, this observed increase mainly concerns the selective group of workers which managed to stay in regular wage work.

As expected, in the private regular wage sector, males are more likely to be covered than their female counterparts. Nevertheless, in 2012, females are observed to be catching up with males. About 37% of males as well as of females had social insurance coverage. This counter-intuitive finding is mainly due to the fact that women who do not obtain good jobs with social insurance coverage are increasingly leaving the labor force. Hence, in 2012 we observe the selected group of women who enjoy the benefits of social insurance and higher quality jobs. Marriage, living in an urban neighborhood, and being the household heads increase the likelihood of having access to social insurance. Also, age is strongly associated with having social insurance coverage in 2006 and 2012 confirming that enrollment in the system is usually gained with more time spent in the labor market. In 2012, 54% of regular private wage workers aged 50-59, and 42% of those aged 30-49 had access to social insurance coverage, compared to only 27.7% among those aged 18-29.⁵ This does not seem to be the case in 1998; where private regular wage workers aged 30-49 were more likely (47%) to be insured than the older-age (50-59) group (38%). This is probably due to a cohort effect where the middle age workers (30-49) transitioned to the older age group (50-59) holding on to their insured jobs. The youngest age group (18-29), which constitutes new entrants to the labor market, shows an interesting evolution over time. Their coverage rate was at 25.9% in 1998, declined to 21.3% in 2006 then increased to 27.7% in 2012. Again, this latter increase in 2012 is not due to a real improvement in the status of new entrants. These younger generations are increasingly faced with irregular and low end jobs in 2006 and in 2012 compared to 1998, leading to fewer of them succeeding in acquiring regular wage work. Those who do are more likely to get an insured job.

Education plays an important role in private regular wage workers' coverage status, particularly among those with higher than intermediate education. Throughout the study period, private regular wage workers with higher than intermediate education appeared to be twice as likely to have social insurance coverage relative to those with no education degree. However, an important observation here is that coverage had substantially declined in 2006 across all education levels (particularly among those with intermediate or higher education), then increased again in 2012. University graduates appeared to be the most hard-hit from this decline, and the only group that did not witness an increase in their social insurance coverage in 2012. As has often been highlighted in the literature, this confirms the hardship situation faced by the more educated group of workers on the Egyptian labor market. They often experience higher unemployment rates and longer unemployment duration due to their higher reservation wage (see Assaad 2009).

⁵ One should be careful in interpreting these data on the youngest age groups (18 – 29) as a large portion of regular wage workers in this group might still be in school.

On the occupation front, among those who had private regular wage jobs in 2012, blue collar high skilled workers had the lowest access to social insurance coverage, not only lower than the white collar occupation group, but even lower than their low skilled regular waged peers.⁶ In contrast, among the regular waged white collar occupation group, access to social security increases with skill. Low skilled regular private wage workers, whether white or blue collar, were the two groups who suffered the brunt of the decline in social insurance coverage in 2006. Between 1998 and 2006, they experienced more than 10 percentage points decline in their coverage status (from 33.3% to 22.7% for the white collar workers and from 49.6% to 38.2% for the blue collar workers), compared to a less than 2 percentage point decline among the high skilled white and blue collar workers (from 63.6% to 62.9% and from 17.9% to 16.0%, respectively). However, this was reversed in 2012; where, the low skilled workers witnessed higher increase in their coverage status, relative to their high skilled peers. Once again, this surprising better access to social insurance among low skilled regular wage workers is due to the fact that this group of workers is often the most mobile group in and out of regular employment. Hence, those who managed to stay in regular jobs are more likely to be a small fortunate group that enjoys higher job security.

Furthermore, the table shows that firm size substantially increases the likelihood of having access to social insurance benefits among private sector regular wage workers. More than 70% of regular private wage workers in large firms (100 or more workers) have social insurance coverage, compared to less than 20% among those working in small firms (fewer than 10 workers). The share of socially insured private regular wage workers is highest in the transportation, storage and communication sector, followed by the industry sector and the other services activity group, and lowest among those working in agriculture. Nevertheless, it is worth noting here that regular private wage workers in the transportation, storage and communication sector experienced the highest drop in their coverage rate during 1998 and 2006 (16.7 percentage point from 63.7% to 47.1%). Between 2006 and 2012, their coverage rates increased, a trend that is mostly due to the fact that many of them have transitioned to irregular work. The share of the latter has indeed increased in the transportation sector in 2012 (Assaad and Krafft 2013b).

The ELMPS surveys divide Egypt into six regions: Greater Cairo, Alexandria and the Suez Canal cities, Urban Lower Egypt, Urban Upper Egypt, Rural Lower Egypt, and Rural Upper Egypt. Access to social insurance is highest among regular private wage workers located in Alexandria and Suez Canal followed by regular private wage workers located in the urban Lower and urban Upper regions. The lowest access to social insurance is observed in rural Upper Egypt. Differences in the enforcement of laws in the metropolitan and the urban regions, relative to rural areas, is probably the main reason behind these regional variations in access to social insurance coverage (Tansel 1999). On the other hand, individuals' perception and knowledge of social insurance among those residing in rural areas generally varies from that of their urban counterparts. Also, rural workers often rely on their social networks and families as social safety nets rather than the social insurance system (see Sieverding 2012).

5. How Long Does It Take to Get Social Insurance in the Egyptian Labor Market?

A widely recognized characteristic of the Egyptian labor market is that new entrants do not easily find a formal job; instead they often work in several informal jobs for some time before

⁶ These skill groups are based on the ILO's International Standard Classification of Occupations (ISOC 1988). The major groups of ISOC-88 are condensed into the following 4 skill groups: (1) White-collar, high-skill (legislators, senior officials and managers, professionals, technicians and associate professionals); (2) White-collar, low-skill (clerks, service workers, and shop and sales workers); (3) Blue-collar, high-skill (skilled agricultural and fishery workers, and craft and related trade workers); and (4) Blue-collar, low-skill (plant and machine operators and assemblers and elementary occupations). Information on ISCO-88 can be found at <http://laborsta.ilo.org/applv8/data/isco88e.html>. Last accessed on August 17, 2013.

getting access to a covered job (Wahba 2009). This section focuses on exploring how long it takes to acquire social insurance coverage in the labor market.

5.1 Access to social insurance at first entry

The recent generations of new entrants into the Egyptian labor market generally do not find jobs that offer social insurance coverage. Figure 4 presents the structure of the first jobs in wage employment by year of entry into the labor market and sector of employment (public, private regular with social insurance coverage, private regular with no social insurance coverage and irregular) during the period 1960-2010.

Following the guaranteed employment scheme of the 1960s, the Egyptian public sector started to be the main creator of formal employment opportunities by the mid 1960s and typically, as has been highlighted in many previous studies, the preferred sector by most new entrants to the labor market (see Assaad 1997; Wahba 2009).⁷ However, by the mid 1980s, public sector jobs started to decline in favor of the private sector job with no social insurance coverage. This is the period during which the Economic Reform Structural and Adjustment Program (of 1991) was implemented with the World Bank and IMF. This economic reform curbed new employment opportunities in the public sector and initiated a privatization program of existing public enterprises (Wahba and Mokhtar 2002). Nevertheless, as shown in Figure 4, the share of private sector regular wage workers who had access to social insurance during their first jobs, although growing, has continued to be very small during this period (roughly around 10% of wage employment). In contrast, uninsured regular wage employment has been making up a substantial and growing share of total first wage jobs since late 1980s. Also, irregular wage work in the private sector, which not only often lacks the benefits of social insurance but is also extremely unstable, increased even faster than the uninsured private regular wage work during this transitional period from the mid 1980s to early 1990s.

The share of private sector regular wage workers who had no access to social insurance coverage during their first job reached its peak of 43% of total first wage employment in 1997 and 2006. This confirms the known fact about the failure of the private sector to ensure formality or social security coverage to all its new entrants after the shrinking role of the government sector.

Furthermore, Figure 5 investigates the role of work experience in acquiring social insurance coverage. This figure compares the share of the private sector regular wage workers who had access to social insurance among first entrants, among those with 5 years working experience and among those with 10 years of experience. The figure shows that, as expected, acquiring social insurance coverage in private sector wage work does not often come at first entry; gaining such access takes time. Those who start in uninsured regular private wage employment may acquire social insurance (whether by staying in the same job or through changing jobs) after some years of working experience. For instance, in 2000, around 31% of private regular wage workers with 10 years of experience were socially insured, compared to only 18% among new entrants. Accordingly, the share of insured private sector wage workers in regular wage employment is lowest among labor market entrants, followed by those having 5 years of experience, and highest among those with at least 10 years of working experience.

5.2 Duration to first job with social insurance among wage workers

This section investigates further the time needed for a job market entrant to get a job with social insurance coverage for the first time in his or her work career. We exploit here a unique piece of information provided only in the 2012 wave of the ELMPS to calculate the duration to first socially insured job. In 2012, all individuals were asked, for their first job,

⁷ This guaranteed employment scheme took place since the promulgation of law 14 in 1964, which was later amended by law 85 in 1973.

and for their subsequent three jobs: whether they were enrolled at the social insurance system at the start date of the job, or had to wait for a certain while to be insured, and if so, for how long. From these series of questions, we are able to determine how long it took to get enrolled in the SI system since labor market entry for each worker who started in wage work (public, regular private or irregular private), if ever.⁸

In the following, Kaplan-Meier failure curves are used to study the transition to the first job covered by social insurance among those who started their work career as wage workers, were still employed in 2012 and aged 18-59.⁹ We also limit the analysis to those who have started their first jobs between 2000 and 2012, i.e. in the last 12 years, in order to avoid recall problems.

5.3 First job institutional sector

Figure 6 shows the cumulative probability of obtaining social insurance at various years spent on the labor market by institutional sector of the first job. It is important to note here that the first job with SI coverage in a worker's career history might be in the same sector of his or her first job or in a different sector than where he or she started. The figure shows that the sector of employment of the wage worker's first job substantially matters in the duration of acquiring social insurance. As is well known, public wage workers often get social insurance at first entry. Almost 74.8% of workers who started their work career in the public sector got social insurance immediately upon their recruitment, compared to only about 15.3% among those who started in the private waged sector. Even after 10 years of employment, only around a third of those who started in the private sector were able to acquire social insurance coverage whether by changing jobs and/or sectors or staying in the same job. This goes in line with the findings shown in Figure 5 confirming that acquiring social insurance coverage in private sector wage work does not often come at first entry. However, around 66% of individuals who started their first job in the private sector wage employment remained without social insurance coverage even after ten years.

Since irregular wage workers are usually informal, lumping private regular and irregular wage work together in one group is overestimating the duration of getting enrolled in the SIS among those who started in the regular private waged sector. Accordingly, in Figure 7 we present the duration to social insurance coverage separately for those who started in the public waged sector, the private regular waged sector, and the private irregular waged sector.

As expected, those who started in a private regular waged job had shorter duration to social insurance coverage than their irregular peers. Less than 2% of those who started in irregular work got social insurance coverage at job start, compared to almost 22.2% among those started in regular jobs. In 10 years, only 13% of those who started in irregular wage jobs got insured, as compared to 44% of those who started as regular wage workers. In terms of level of access to social insurance coverage, workers starting in the irregular waged sector remain the most disadvantaged.

Moreover, since this section is based on retrospective data, and in recall questions individuals have problems detecting whether and when their status has changed from being regular to irregular, the next analysis uses in and out of establishment status, which is likely to be

⁸ This information is computed through combining the year of the first job if it is a waged job, the start date of each job and the time taken to get social insurance at each job. It is worth mentioning that the question of enrollment time was only asked for workers who have already claimed that their job was covered. Others with uninsured jobs did not answer this question. Hence, we compute the time it took them to find the first job with social insurance.

⁹ The failure function is the complement of the survival function. The survival function shows the cumulative fraction of an original group who survive (or do not experience a particular event) at various points in time. We chose our event to be getting social insurance since first entry to the labor market; and hence used the failure function to show the cumulative fraction of workers who are enrolled in the SI system by various points in time.

recalled more accurately, and is often associated with regularity of employment. Figure 8 shows the duration to social insurance coverage by institutional sector and in/out of establishment status regardless of the reported first job regularity status.

Similar results are obtained when distinguishing workers by first job regularity (Figure 7) or in/out of establishment (Figure 8) status. Around 4% of those who started out of an establishment gained access to social security at the start of their jobs, and about 16% got insured within 10 years. In comparison, those who started as irregular workers had a likelihood of acquiring social insurance of about 2% at the start of their jobs and 13% after 10 years. From this point onward, we distinguish private sector workers based on their first job in/out of establishment status instead of regularity status.

5.4 Gender

Crossing gender with the institutional sector of first job (Figure 9), we find that women seem to have higher probabilities of acquiring social insurance coverage at first entry, relative to men, when starting in the private sector and similar probabilities to men when starting in the public sector. This does not come as a surprise, since, as often highlighted in the literature (see Assaad 2009; Assaad and El Hamidi 2009), women often either accept formal jobs or remain jobless (whether unemployed or out of labor force), hereby choosing jobs with benefits, i.e. public sector jobs or insured private sector ones.

Figure 9 also shows that females who started their career in the public sector (but did not get SI at first entry) were more likely to get social insurance coverage later in their work career than their male counterparts. More specifically, women's probability of acquiring social insurance coverage increased in a period of 10 years since their first job from 75% to 95.4%, whereas that of men increased over the same period from 74% to 84%. Once again, this is most probably due to women's withdrawal from the labor market when getting married, particularly if they do not have a formal job that offers good benefits, which is generally not an option for their male counterparts. Hence, those who continue working after marriage are more likely to be those with public sector or formal private sector jobs. Women starting in private wage employment inside an establishment were more likely (32%) to be insured at the start of their jobs than men (20%).

5.5 Education

In terms of workers' education, as has been highlighted in previous research (see Roushdy and Selwaness 2012; Wahba 2009), Figure 10 shows that insured workers are more likely to be educated. University graduates are the fastest to acquire social insurance coverage, while those with a lower education degree take the longest duration to get such coverage. This holds for those who start in public or private in establishment wage employment. Nevertheless, it is important to highlight how workers with below secondary education degree (illiterate, read and write and below secondary) starting in the public sector have higher probabilities of accessing social insurance coverage at first entry than those with secondary education level who started in the private sector; and similar probabilities as those with university and above education level starting in the private sector.

It is also interesting to note that, regardless of the education level, those who started in private wage jobs had steeper probability curves of ever getting a socially insured job than those who started in the public sector.

5.6 First job firm size

The first job firm characteristics play an important role in determining the duration to social insurance coverage, for those who started in private wage employment in establishment.¹⁰

¹⁰ We found it more interesting here to focus on wage workers working in the establishment.

Figure 11 shows the extent by which firm formality status of the first job alters the probability of acquiring social insurance coverage in workers' careers history. About 55.7% of those who started in formal firms got coverage at first job entry, an option which is not possible for those starting in an informal firm.¹¹ This means that around 44.3% of workers were hired informally at first entry in formal firms. In other words, not only informal firms hire their workers informally, but formal firms also tend to do so. This is an indication of how weak the social insurance law is enforced in the Egyptian labor market even among registered firms.

The figure also shows that after 5 years on the labor market, 68.4% of those who started in formal firms got insured during their career (whether in the same firm or in another formal firm) relative to 14.4% of those who started in informal firms and later moved to formal ones. Accordingly, in the following section we will focus on those who started as wage workers in establishments in private formal firms, since this group of workers is more likely to experience the risk of getting social insurance coverage relative to those starting in informal firms. Hence, from now onwards, we will refer to this group of workers as the "at risk" group.

5.7 Duration to first job with social insurance among the "at risk" group of workers

Figure 12 shows that, although women have a higher probability of acquiring social insurance coverage at start of their jobs (since as mentioned above, they can afford to wait longer for formal jobs than men), this probability remained quite flat for almost 6 years. Afterwards, it suddenly jumped to around 73% then stayed flat again until the end of the study period. This further confirms the above discussion regarding women's withdrawal from the labor market either to get married or when failing to find socially insured jobs, leaving the luckier women behind. Almost 75% of men compared to 73% of women have social insurance coverage within 10 years from the start of their first job.

5.8 Cohort Effect

Figure 13 investigates the cohort effect by gender on the probability of SI coverage. The figure distinguishes between those who entered during the period 2000-2005 from those who entered during the period 2006-2012. The younger cohort of men (2006-2012) had lower chances of getting social insurance coverage at the start of their jobs relative to their elder peers (2000-2005). These results confirm the findings of Wahba (2009), which show that the new labor law introduced in 2003 did not have an impact on the formality status of new entrants, but accelerated the formalization pace of those who were already employed.

As for women, the younger cohort has higher access to social insurance, whether at the start of their career or at later years from the start of their first jobs. This confirms the argument of Assaad and Krafft (2013b) that lower end jobs—in terms of quality—for women have disappeared during the period 2006-2012. In other words, as highlighted above, in the later period, women are observed either in stable secure jobs or staying out of the labor market.

5.9 Firm and sector characteristics for the "at risk" of coverage group

Moving to firms' characteristics, Figure 14 shows the relationship between the firm size of the first job and workers' social insurance coverage status among those starting in the private waged sector in establishments in formal firms. As expected, the smaller the first job firm size, the less likely a worker gets insured at the start of his/her job. Less than 40% of workers starting in micro firms (less than 10 workers) got social insurance upon job start, compared to

¹¹ According to the labor market regulations, a firm must be formally working to be able to register any of its employees in the social insurance system. Hence, when constructing the firm formality status variable, we assumed that a firm is formal if at least one of its workers has social insurance coverage. Therefore, by construction, at time zero, there should be no workers starting in informal firms who have social insurance at first entry.

over 50% among those starting in small (10-49 workers), medium (50-99 workers) and large firms (more than 100 workers). It is worth mentioning that even in medium and large formal firms, more than a third of the workers hired in those firms started working without being enrolled in the SIS (37.6% and 35.1%, respectively). Differences by firm size persist after ten years. This once again, is a sign of how the social insurance law is weakly enforced in the Egyptian labor market even among the large firms.

The last aspect we examine is the firm's economic activity. The workers are divided into 3 groups of economic activities: broad manufacturing, wholesale and retail, and other services group including the transportation, storage and communication sectors. As shown Figure 15, workers in the manufacturing and the other services sector are more likely to have access to social insurance at the start of their jobs than those who started in the wholesale and retail sector.

6. Conclusion

This paper contributes to the growing literature on informality and access to social insurance. To our knowledge, it is one of few studies that investigates the pattern and dynamics of social insurance coverage in the Egyptian labor market, and sheds light on the duration to the first job with social insurance coverage in a worker's job history among those who started in wage employment. The paper focuses on regular wage workers in the private sector, since this is the only group of workers which does not have a choice of getting social insurance coverage or not. Registering this group of workers in the social insurance system (SIS) is mainly determined by their employers. In contrast, other groups of workers either have the choice of whether to abide by the social insurance law or not (e.g. employers and self-employed workers), have no specific scheme (e.g. irregular wage workers) or generally get automatically enrolled in the SIS (e.g. public sector workers).

The analysis shows that, during 1998 – 2012, the percent of workers enrolled in SIS has declined in the public sector, whether in the government or in state owned enterprises. This finding comes despite the fact that enrollment of employees in the SIS should automatically occur in the public sector. In the private regular wage sector, there was an increase in the percent of insured workers. Careful interpretation of this rise in social insurance access among private regular wage workers is important, given the increasing transition from regular to irregular wage work. Those who remain in regular wage work are those who are likely to receive greater job security and benefits. Therefore, a substantial part of the increase in SI coverage in private sector regular wage employment is due to this worker-movement effect, rather than a higher willingness on the part of employers to cover their workers or better enforcement of the law in recent years. In both employment in general and in at all private wage employment, social insurance coverage declined slightly from 2006 to 2012. Moreover, new entrants increasingly face smaller chances of finding an insured regular wage job in the private sector. This situation faced by the new entrants has often been attributed to the decline of public sector hiring in Egypt and the high cost of participation in the social insurance system, both of which resulted in an expansion of informal employment.

The duration analysis in this paper shows interesting findings concerning the time it takes to get enrolled in the SIS for the first time. As expected, those who start in the public sector are more likely to get immediately insured upon their recruitment, while those starting in the private sector wage employment, whether regular or irregular, experience longer durations. New entrants in irregular wage work are the most disadvantaged group in terms of access to SI coverage. They not only remain mostly uninsured along their career history, but they also experience the longest duration to social insurance coverage. Duration to SI coverage is not only affected by the first job regularity status and institutional sector, but also by the firm size and formality status of first job. Only around a quarter of regular wage workers starting in

informal firms have ever gotten a job with SI coverage. Traces of the weak enforcement of the law even among registered firms have been detected; 44% of regular wage workers who started in formal private sector firms were hired informally (with no coverage). Due to the increasing trend of women's withdrawal from the labor market, particularly from the lower end jobs, those who choose to stay on the labor market have higher probability of coverage than their male peers.

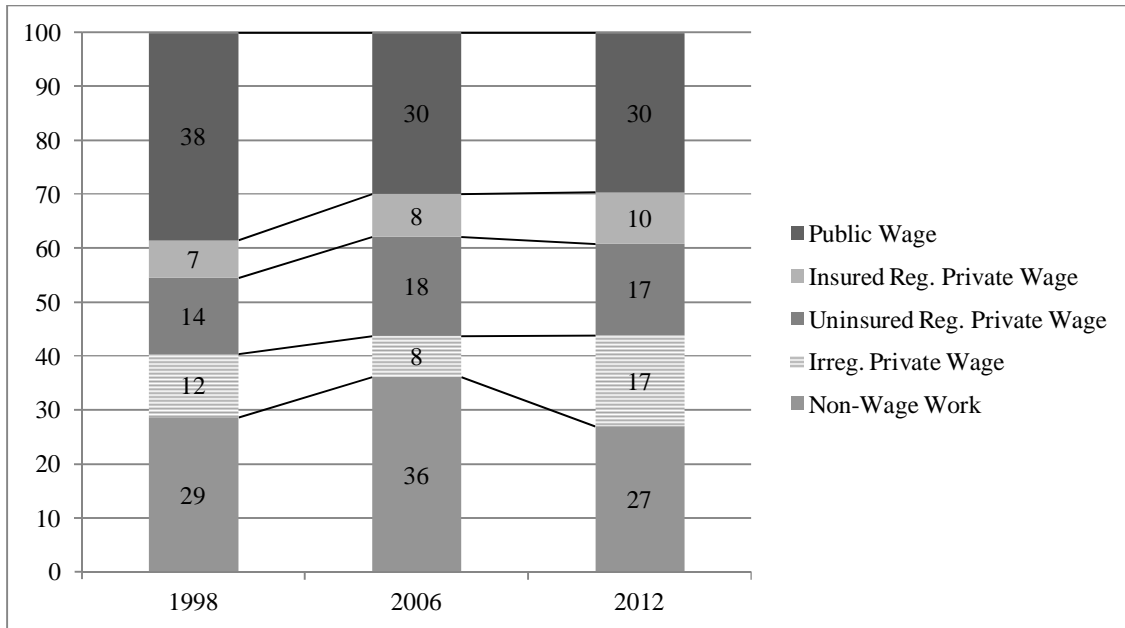
The main findings of this paper emphasize the limited capacity of the private sector to socially insure, and hence to formalize, its workers. It calls for a set of inter-related reforms to social insurance regulation in Egypt, in order to incentivize and encourage the private sector to grow and cover its workers, and hence provide alternative employment opportunities to the public sector.

References

- Assaad, R. 1997. "The effects of public sector hiring and compensation policies on the Egyptian labor market." *World Bank Economic Review* 11 (1): 85-118.
- Assaad, Ragui and Rania Roushdy. 2007. "Poverty and the Labor Market in Egypt: A Review of Developments in the 1998–2006 period." Background Paper for Arab Republic of Egypt: Poverty Assessment Update, The World Bank.
- Assaad, Ragui. 2009 "Labor Supply, Employment and Unemployment in the Egyptian Economy, 1988-2006,." In *The Egyptian Labor Market Revisited*, edited by Ragui Assaad, 1-52. Cairo: American University in Cairo Press.
- Assaad, Ragui and Fatma El Hamidi. 2009. "Women in The Egyptian Labor Market." In *The Egyptian Labor Market Revisited*, edited by Ragui Assaad, 217-257. Cairo: American University in Cairo Press
- Assaad, Ragui and Caroline Krafft. "The Egyptian Labor Market Panel Survey: Introducing the 2012 round." Working Paper Series, No. 758, The Economic Research Forum, Egypt, 2013a.
- Assaad, Ragui and Caroline Krafft "The Structure and Evolution of Employment in Egypt:1988-2012." Working Paper Series, No. 805, The Economic Research Forum, Egypt, 2013b.
- Barsoum, Ghada, Ali Rashed and Dahlia Hassanein. . "When there is no Respect at Work: Job Quality Issues for Women in Egypt's Private Sector." Gender and Work in the MENA Region Working Paper Series: Poverty, Job Quality and Labor Market Dynamics, No. 2. Cairo: Population Council, 2009.
- Economic Research Forum and the Central Agency for Public Mobilization and Statistics (CAPMAS), Egypt labor Market Survey 1998 (ELMS06), Version 1.0 of the Licensed data files (April 2013), provided by the Economic Research Forum. <http://www.erfdataportal.com/index.php/catalog>
- Economic Research Forum and the Central Agency for Public Mobilization and Statistics (CAPMAS), Egypt labor Market Panel Survey 2006 (ELMPS06), Version 1.0 of the Licensed data files (April 2013), provided by the Economic Research Forum. <http://www.erfdataportal.com/index.php/catalog>
- Economic Research Forum and the Central Agency for Public Mobilization and Statistics (CAPMAS), Egypt labor Market Panel Survey 2012 (ELMPS12), Version 1.0 of the Licensed data files (April 2013), provided by the Economic Research Forum. <http://www.erfdataportal.com/index.php/catalog>
- Helmy, Omneia. "Development of the pension system in Egypt" (in Arabic), (working paper, Egyptian Center for Economic Studies, 2004).
- Helmy, Omneia. 2008. "Towards a More Efficient and Equitable Pension System in Egypt." in *The Egyptian Economy: Current Challenges and Future Prospects*, edited by Hanaa Kheir-El-Din, 201-220, American University in Cairo Press..
- International Labor Office ILO. "Building Adequate Social Protection Systems and Protecting People in the Arab Region." Thematic Background Paper for the Arab Employment Forum, Arab Employment Forum, October 19-21 2009
- Loewe, Markus. 2004. "New avenues to be opened for social protection in the Arab world: The case of Egypt." *International Journal of Social Welfare* 13: 3 – 14.

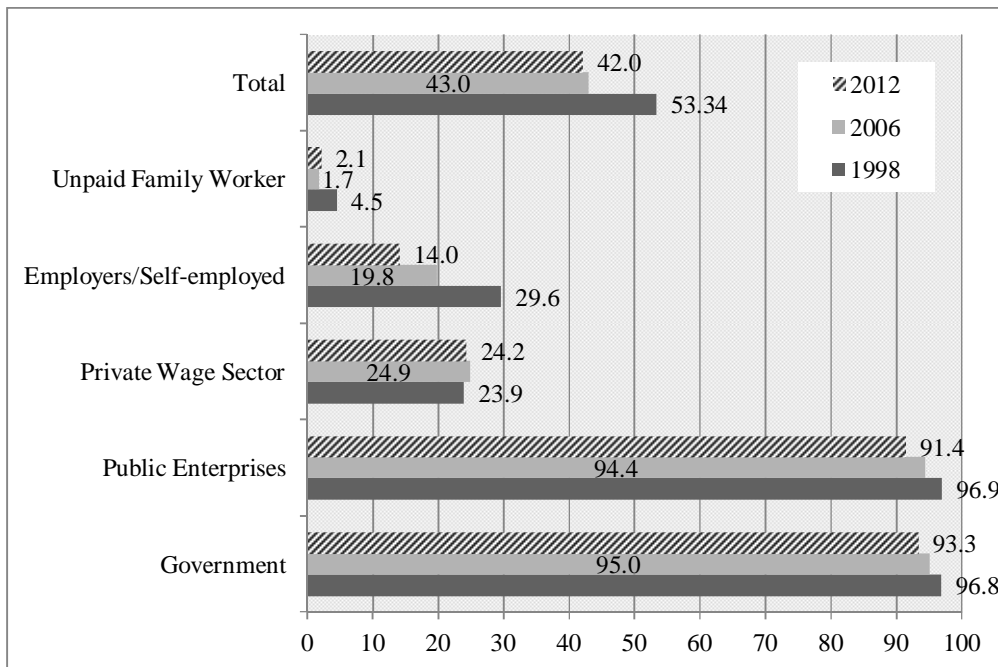
- Roushdy, Rania and Irene Selwaness. "Who Is Covered and Who Under-reports: Who Is Covered and Who Underreports: An Empirical Analysis of Access to Social Insurance on the Egyptian Labor Market." Gender and Work in the MENA Region Working Paper Series, No. 25, Population Council, Egypt Country office, 2012.
- Sieverding, Maia. "A Life Course Perspective on Social Protection among the Working Poor in Egypt," Gender and Work in the MENA Region Working Paper Series, No. 24, Population Council, Egypt Country office, 2012.
- Sieverding, Maia and Irene Selwaness. "Social Protection in Egypt: A Policy Overview." Gender and Work in the MENA Region Working Paper Series, No. 23, Population Council, Egypt Country office, 2012.
- Social Security Administration (SSA). 2011. *Social Security Programs around the World: Africa, 2011*. Social Security Administration.
- Tansel, Aysit. "Formal Versus Informal Sector Choice of Wage Earners and their Wages in Turkey." ERF Working Papers, No. 9927, ERF, 1999.
- United Nations Development Programme (UNDP) and Institute of National Planning. 2005. *Egypt Human Development Report 2005 – Choosing our Future: Towards a New Social Contract*. Cairo: UNDP.
- Wahba, Jackline. 2002. "Labor Mobility in Egypt: Are the 1990s any Different from the 1980s?" In *The Egyptian Labor Market in an Era of Reform*, edited by Ragui Assaad, 258-286. American University in Cairo Press.
- Wahba, Jackline and May Mokhtar. 2002. "Informalization of Labor in Egypt." In *The Egyptian Labor Market in an Era of Reform*, edited by Ragui Assaad, 131-157. American University in Cairo Press.
- Wahba, Jackline. "The Impact of Labor Market Reforms on Informality in Egypt." Gender and Work in the Mena Region Working Paper Series, No. 3, Population Council, Egypt Country office, 2009.

Figure 1: Employment Structure by Institutional Sector and Social Insurance Coverage, WAP (15-64), 1998-2012



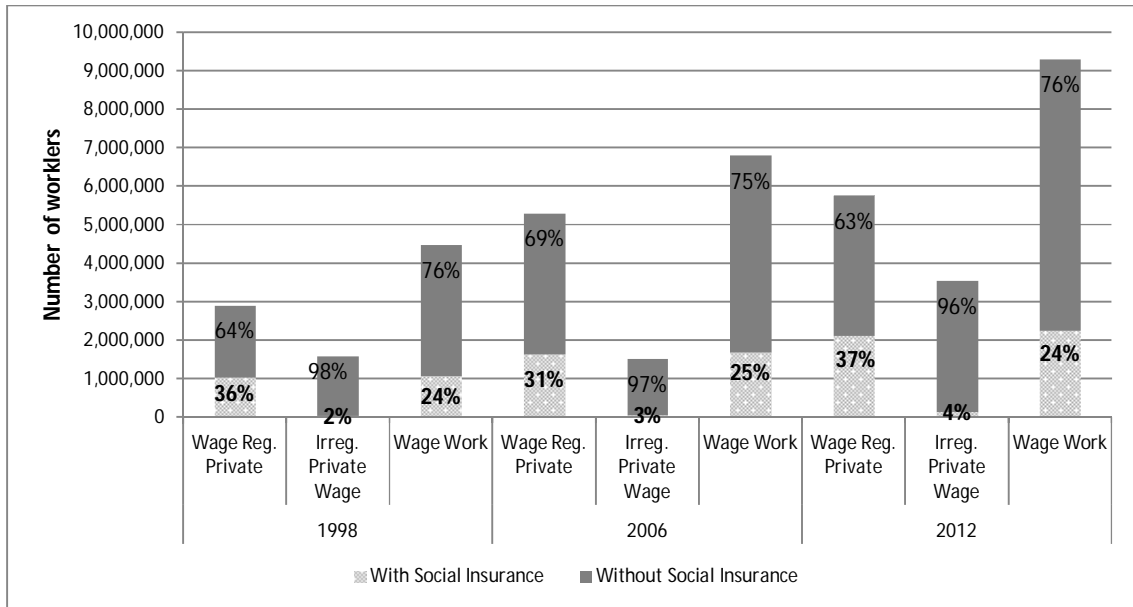
Source: Constructed by the authors using ELMPS 2012

Figure 2: The Percentage of Workers With Social Insurance Coverage by Institutional Sector (Ages 18-59), 1998-2012



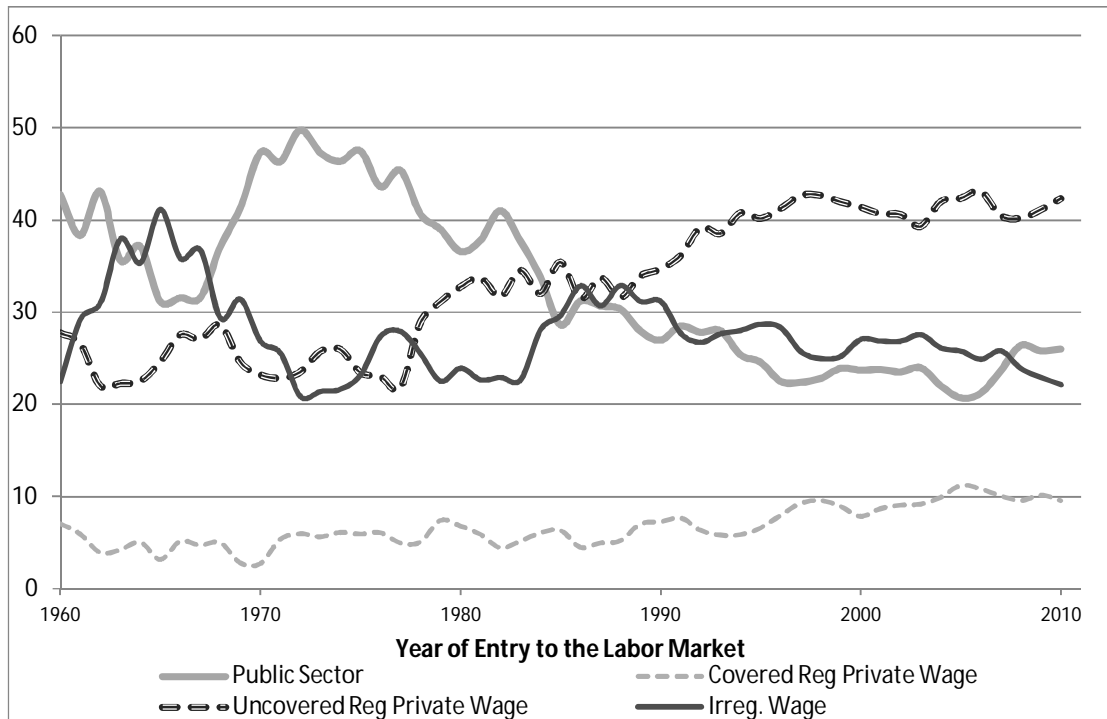
Source: Constructed by the authors using ELMPS 2012

Figure 3: Number and Distribution of Private Sector Wage Workers by Social Insurance Coverage and Job Regularity Status (Ages 18-59), 1998-2012



Source: Constructed by the authors based on data from ELMS 1998, ELMPS 2006, and ELMPS 2012

Figure 4: Distribution of First Job by Year of Entry and Employment Status, Wage Employment, 1960 to 2012 (Three Years Moving Average)



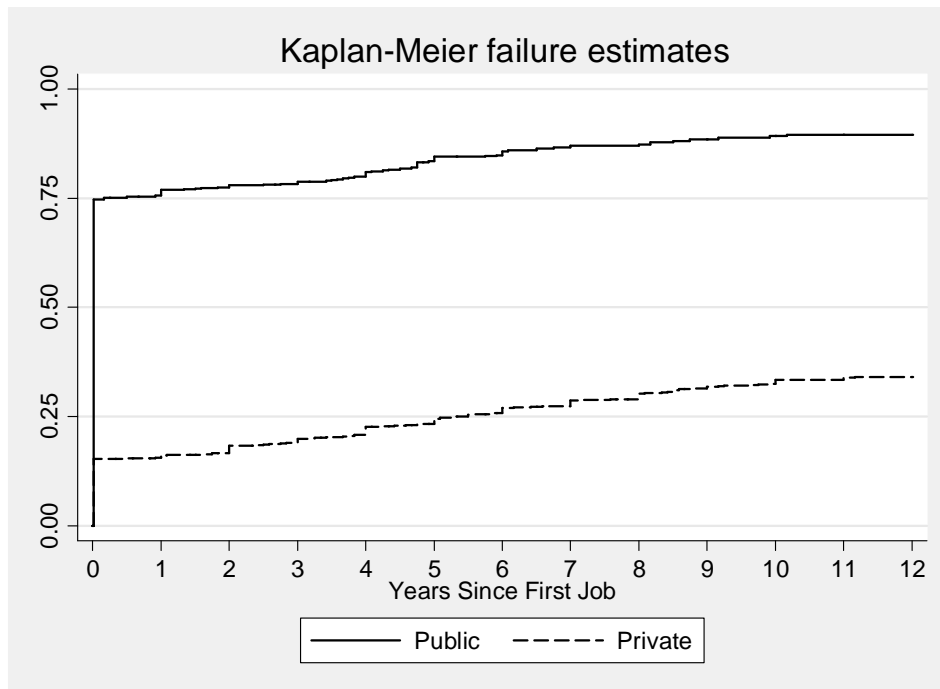
Source: Constructed by the authors based on ELMPS 2012

Figure 5: Percent of Private Sector Regular Wage Workers with Social Insurance by Job Tenure, 1960 to 2006 (Five period moving average)



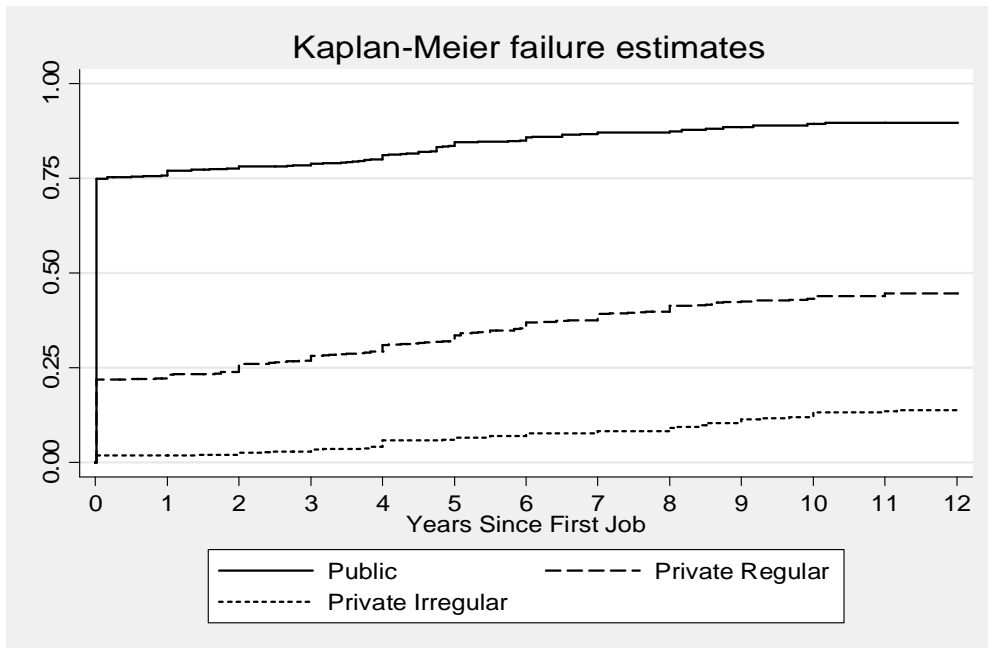
Source: Constructed by the authors based on ELMPS 2012

Figure 6: Cumulative Probability of Obtaining Social Insurance Coverage Since First Job, Among Those Who Entered the Labor Market As Wage Workers, by First Job Institutional Sector, Currently Employed, Ages (18-59)



Source: Constructed by the authors based on ELMPS 2012

Figure 7: Cumulative Probability of Obtaining Social Insurance Coverage Since First Job, Among Those Who Entered The Labor Market As Wage Workers, by First Job Institutional Sector, Currently Employed, Ages (18-59)



Source: Constructed by the authors based on ELMPS 2012

Figure 8: Cumulative Probability of Obtaining Social Insurance Coverage Since First Job, Among Those Who Entered The Labor Market As Wage Workers, by First Job Institutional Sector and Establishment Status, Currently Employed, Ages (18-59)

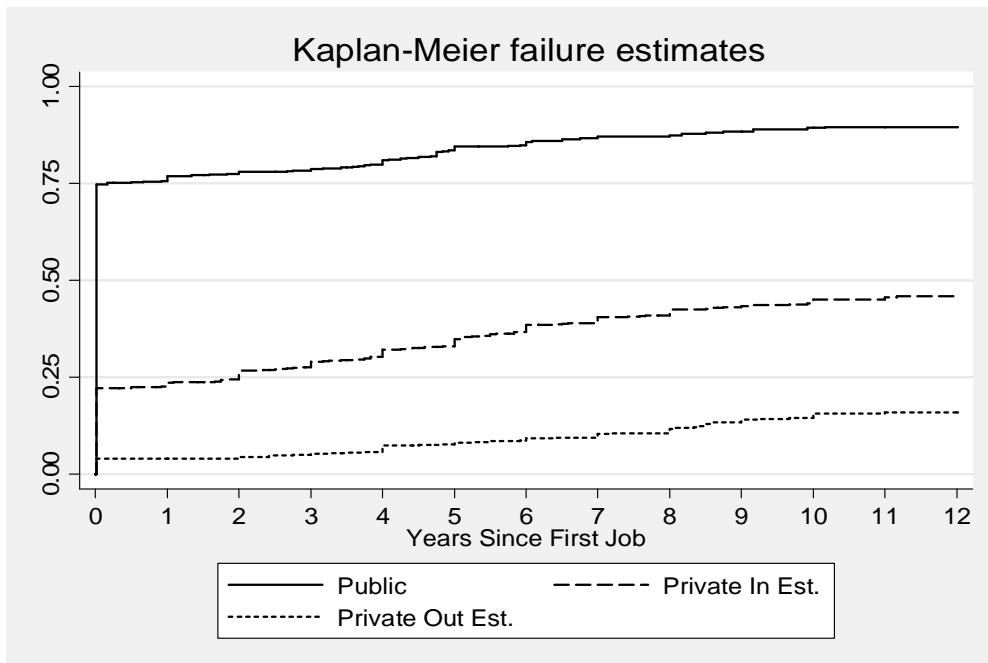
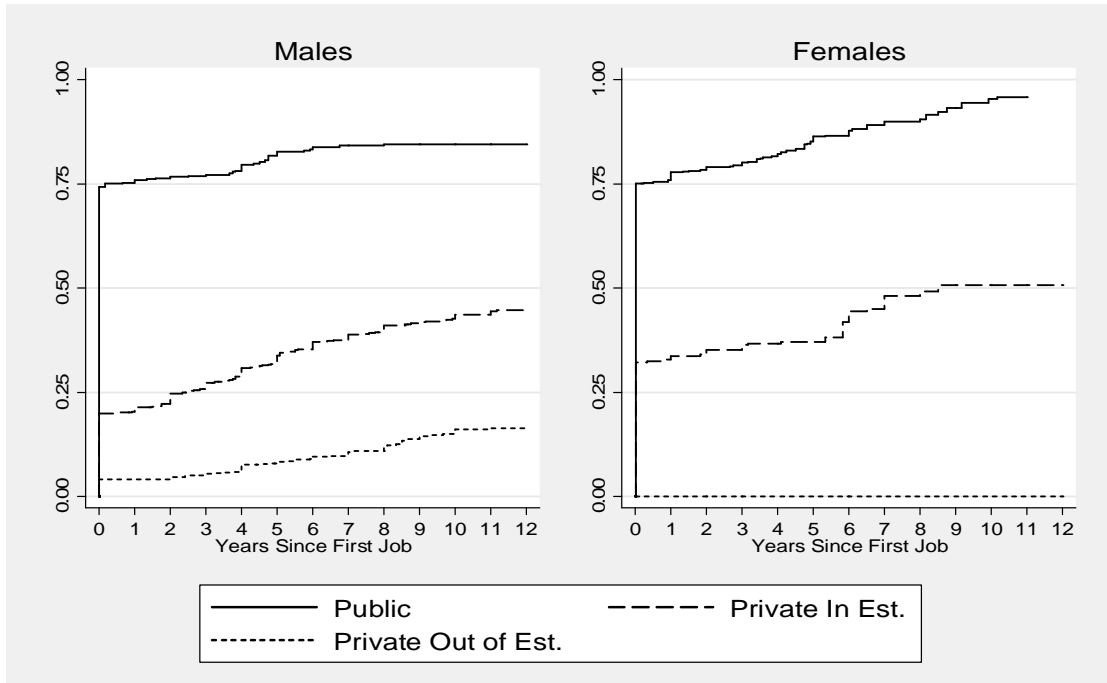
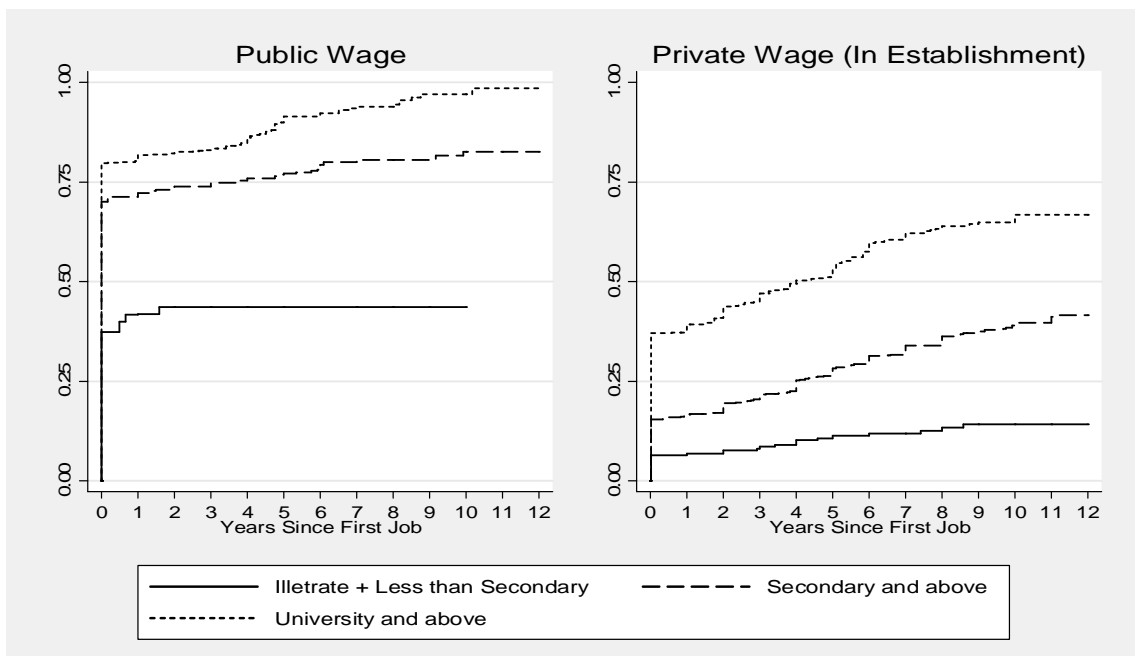


Figure 9: Cumulative Probability of Obtaining Social Insurance Coverage Since First Job, Among Those Who Entered The Labor Market As Wage Workers, by Gender, First Job Institutional Sector and Establishment Status, Currently Employed, Ages (18-59)



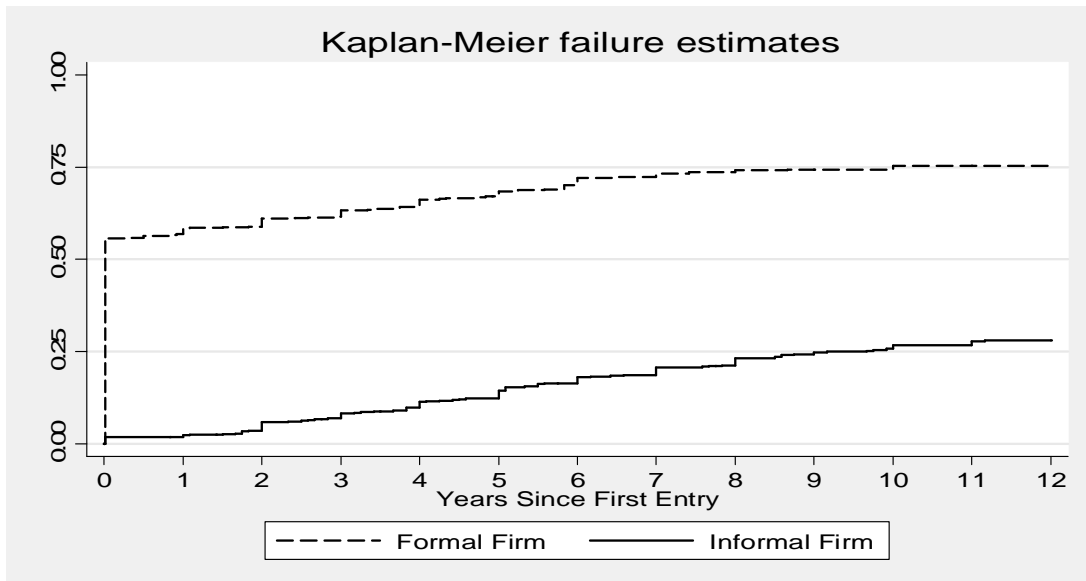
Source: Constructed by the authors based on ELMPS 2012

Figure 10: Cumulative Probability of Obtaining Social Insurance Since First Job, Among Those Who Started in A Wage Work, by Level of Educational and First Job Institutional Sector, Currently Employed, Ages (18-59)



Source: Constructed by the authors based on ELMPS 2012

Figure 11: Cumulative Probability of Obtaining A Job With Social Insurance Since First Job, Among Those Who Started In A Private Sector Regular Wage Work, by First Job Firm Formality Status, Currently Employed, Ages (18-59)

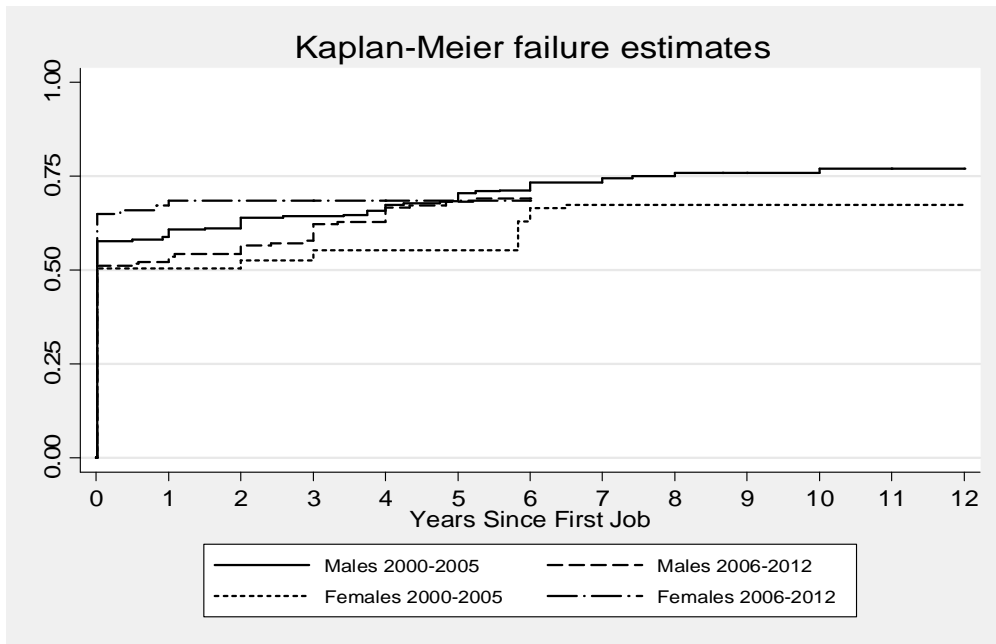


Source: Constructed by the authors based on ELMPS 2012

Figure 12: Probability of Obtaining SI Coverage by Year of Entry and Gender, Those Who Started in Private Sector Formal Firm (In Establishment) Since 2000, Currently Employed



Figure 13: Probability of Obtaining SI Coverage by Cohort of Entry and Gender, Those Who Started in Private Sector Formal Firm since 2000, Currently Employed



Source: Constructed by the authors based on ELMPS 2012

Figure 14: Cumulative Probability of Obtaining A Job With Social Insurance since A First Job, Among Those Who Started in A Private Sector Regular Wage Work and in A Formal Firm, by First Job Firm Size, Currently Employed, Ages (18-59)



Source: Constructed by the authors based on ELMPS 2012

Figure 15: Cumulative Probability of Obtaining A Job With Social Insurance Since First Job, Among Those Who Started in A Private Sector Regular Wage Work in A Formal Firm, by First Job Sector, Currently Employed, Ages (18-59)

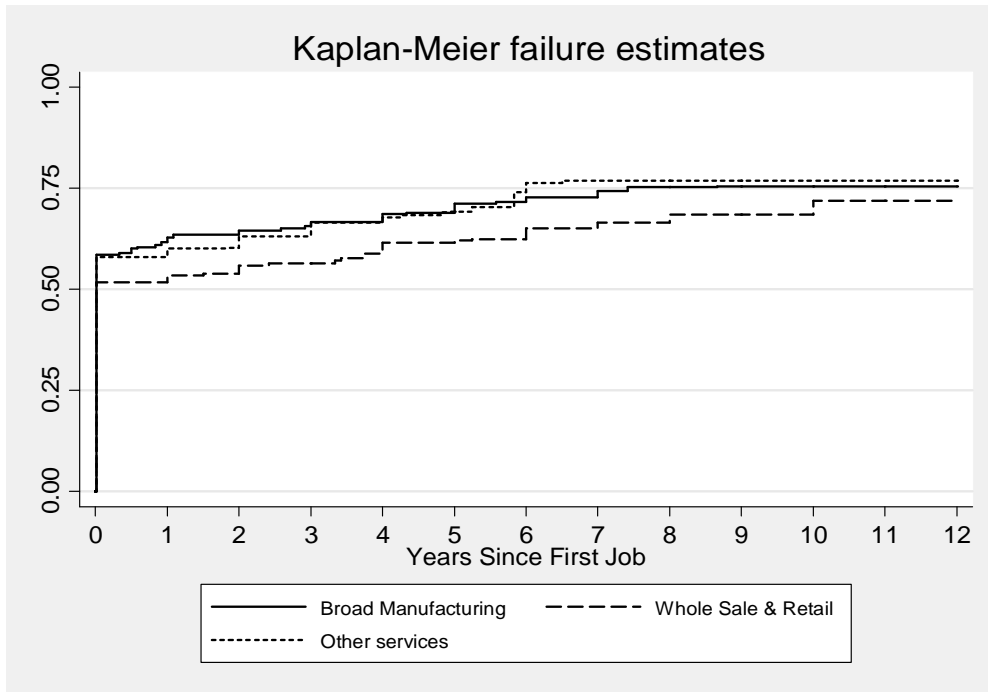


Table 1: Transition between Employment Statuses, Market labor definition, 2006 to 2012, Ages (15-64) in 2012

Status in 2006	Status in 2012			Uninsured Regular Private	Insured Regular Private	Public	Worsened job Status
	Not Working	Non-Wage	Irregular Private				
Not Working	78.1	6.0	4.6	5.7	1.9	3.7	
Non-Wage	28.8	46.1	11.5	8.0	2.2	3.4	28.8
Irregular Private Wage	13.4	19.3	43.9	14.0	4.4	5.0	32.8
Uninsured Regular Private	14.5	16.4	18.3	30.9	11.7	8.3	49.1
Insured Regular Private	11.8	8.2	8.4	17.6	39.1	15.1	45.9
Public	12.0	3.1	0.8	1.7	3.4	79.1	20.9
Total	54.0	12.8	7.4	7.9	4.0	13.9	

Source: Constructed by the authors using ELMPS 2012

Table 2: Percent of Private Regular Wage Workers with Social Insurance, by Worker and Firm's Characteristics, Aged 18-59, 1998-2012

	1998	2006	2012
Total (%)	35.6	31.0	36.7
<u>Worker's Characteristics</u>			
Female	33.0	26.6	36.8
Male	35.9	31.6	36.7
Married	44.1	40.8	42.2
Not Married	26.4	20.3	26.2
<i>Age</i>			
18-29	25.9	21.3	27.7
30-49	47.2	42.2	42.2
50-59	38.0	47.7	54.4
<i>Education Level</i>			
Illiterate/ read or write ¹	23.4	20.9	22.3
Less than intermediate	26.2	25.0	29.4
Intermediate	37.7	28.5	36.1
Above Intermediate	50.7	41.1	44.9
University and Above	66.0	54.2	52.6
<i>Years of Experience</i>			
< 5 years	28.3	22.1	25.6
5 - 9 years	31.9	27.3	36.4
10-14 years	35.9	31.6	35.9
15 + years	41.6	38.0	41.2
<i>Occupation</i>			
White collar high skill	63.6	62.9	61.8
White collar low skill	33.3	22.7	25.3
Blue collar high skill	17.9	16.0	15.1
Blue collar low skill	49.6	38.2	44.8
<i>Residence</i>			
Urban	44.2	38.1	43.5
Rural	22.3	22.4	28.2
Household Head	45.9	42.0	41.9
Not Head	27.8	23.2	29.3
<u>Firm's Characteristics</u>			
<i>Region</i>			
Greater Cairo	48.7	40.8	50.2
Alexandria & Suez Canal	53.5	46.8	44.7
Urban Lower	25.5	25.3	27.4
Urban Upper	38.0	30.6	38.2
Rural Lower	22.1	22.9	28.2
Rural Upper	22.8	21.5	27.1
<i>Firm Size</i>			
< 10 workers	19.4	15.0	14.4
10-29 workers	36.5	33.5	31.8
30-49 workers	59.1	52.6	49.0
50+ workers	54.6	56.3	55.6
More than 100 workers	79.1	72.0	73.8
Do not know	42.4	38.4	50.0
<i>Firm Size</i>			
Micro < 10 workers	19.4	15.0	14.4
Small 10-49 workers	43.2	40.5	39.1
Medium 50-99	54.6	56.3	55.6
Large 100+	79.1	72.0	73.8
Do not know	42.4	38.4	50.0
<i>Economic Activity</i>			
Agriculture & Fishing	10.8	6.9	7.0
Broad manufacturing group	40.0	39.5	47.1
Construction	28.8	19.8	28.4
Wholesale & retail trade, hotel & restaurant	28.7	20.9	24.6
Transp., storage & communication	63.7	47.1	52.4
Other services	31.6	39.2	41.8
Total number of workers	1242	2884	3359

Notes: ¹Illiterate or can only read and write, but has no education certificate.

Source: Constructed by the authors based on ELMS 1998, ELMPS 2006, and ELMPS 2012

Table 3: Probability of Obtaining SI Coverage by Time and by Institutional Sector

	Job Start (Time 0)	After 5 Years	After 10 years
Public	0.748	0.846	0.894
Private Wage	0.153	0.243	0.332
Public	0.748	0.846	0.896
Private Regular	0.219	0.335	0.44
Private Irregular	0.019	0.066	0.133
Public	0.747	0.845	0.893
Private In Establishment	0.222	0.347	0.45
Private Out	0.04	0.081	0.156
Males			
Public	0.743	0.827	0.844
Private In Establishment	0.199	0.338	0.437
Private Out	0.041	0.084	0.162
Females			
Public	0.751	0.864	0.954
Private In Establishment	0.321	0.371	0.507
Private Out	0	0	0
Public			
Below Secondary	0.373	0.436	0.436
Secondary	0.701	0.772	0.826
University	0.798	0.914	0.97
Private			
Below Secondary	0.064	0.114	0.142
Secondary	0.154	0.283	0.397
University	0.371	0.534	0.668
Informal Firm	0.018	0.144	0.267
Formal Firm	0.557	0.684	0.753
Females	0.594	0.643	0.73
Men	0.546	0.692	0.757
Men Cohort 2000-2005	0.577	0.705	0.771
Women Cohort 2000-2005	0.505	0.63	0.674
Men Cohort 2006-2012	0.512	0.683	0.69
Women Cohort 2006-2012	0.65	0.685	0.685
Firm Size			
Micro	0.366	0.464	0.53
Small	0.548	0.645	0.685
Medium	0.624	0.753	0.855
Large	0.65	0.801	0.847
Economic Activity			
Broad manufacturing group	0.585	0.712	0.755
Whole sale and retail trade	0.517	0.621	0.718
Other services	0.58	0.692	0.769