

**A SURVEY-BASED EXPLORATION OF SATISFACTION  
AND PROFITABILITY IN EGYPT'S INFORMAL SECTOR**

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## Abstract

This paper investigates the determinants of job satisfaction, profitability and informality in the informal sector in Egypt. It is based on a sectorally structured sample survey that elicits the views of 90 employers and 180 employees regarding informality. With respect to employers, findings indicate that they tend to be more profitable in the trade sector and have a higher probability to remain informal in the manufacturing sector. For employees, satisfaction is higher in the manufacturing sector. Overall, higher levels of education are positively associated with employers' profitability, but negatively with employees' job satisfaction. The paper also finds that decent work conditions are important for profitability and job satisfaction. To conclude, the study stresses the importance of gradually motivating the informal sector to formalize. This could be achieved for example by linking upstream informal entities to downstream formal ones. Such linking may gradually bring about the acquisition of knowledge, efficiency and adherence to specifications that could motivate these entities to shift to formality.

## الخلاصة

تبحث هذه الدراسة في محددات كل من الرضا الوظيفي والربحية واللا رسمية في القطاع غير الرسمي في مصر. وتعتمد الدراسة على مسح بالعينة مقسم قطاعيا يضم نحو ٩٠ صاحب عمل و ١٨٠ عاملا في كيانات غير رسمية، وذلك لاستقاء وجهات نظرهم حول اللا رسمية. وفيما يتعلق بأصحاب العمل، تشير نتائج المسح إلى أن أصحاب العمل يحققون مستوى أعلى من الأرباح في قطاع التجارة، ولديهم احتمالية أكبر للاستمرار ككيانات غير رسمية في قطاع الصناعة التحويلية. وبالنسبة للعاملين، يزيد مستوى الرضا الوظيفي لديهم في قطاع الصناعة التحويلية. وإجمالاً، ثمة علاقة ترابط إيجابية بين ارتفاع المستوى التعليمي وربحية أصحاب العمل، بينما تتسم العلاقة بين ارتفاع المستوى التعليمي للعاملين والرضا الوظيفي بأنها سالبة. وتؤكد الورقة على أهمية توافر ظروف العمل اللائق لتحقيق كل من الربحية والرضا الوظيفي. وأخيراً، تؤكد الدراسة على أهمية تشجيع القطاع غير الرسمي على الانضمام للقطاع الرسمي تدريجياً. وهذا يمكن تحقيقه عن طريق إنشاء روابط بين الكيانات غير الرسمية العاملة في مراحل ما قبل الإنتاج، وبين الكيانات الرسمية العاملة في مراحل ما بعد الإنتاج. فمن شأن إرساء هذه الروابط أن يؤدي إلى تراكم المعرفة والكفاءة والالتزام بالموصفات داخل القطاع غير الرسمي، الأمر الذي يؤدي بدوره إلى تشجيع الانضمام إلى الاقتصاد الرسمي.

**JEL Classifications:** C25, E26, L25, M54

**Keywords:** informal sector, job satisfaction, profitability, sample survey, binomial logit, ordered logit.



## INTRODUCTION

The term “informal sector” was first introduced by Hart (1971) to describe part of the urban labor force that works outside the formal sector. He considered the informal sector to be suitable for self-employed individuals working in small numbers. In the same vein, in its report published in 1972, the ILO attributed informality to government regulations and tax avoidance (Gërkhani 1999).

Contemporary academic interest in studying the informal sector emphasizes its importance for the economy. On the one hand, given the limited employment growth rate in the formal sector, the informal sector can serve as a safety valve absorbing excess labor and reducing poverty. On the other hand, the informal sector may cause distortions in some of the main economic indicators, and induce unfair competition for the formal sector due to tax evasion.<sup>1</sup> Moreover, the debate concerning the informal sector revolves around defining its features, determining its size, and identifying its various consequences economically, socially and politically.

Various studies dealt with the Egyptian informal sector. Some focused on the size of the informal sector and its characteristics, while others investigated the relation between informality and other economic variables. But no attempt has been made to investigate the determinants of satisfaction and profitability in the informal sector—the topic of this paper.

Using sample survey data about employers and employees in a mostly informal area, namely, Manshiet Nasser,<sup>2</sup> the study attempts to explore the main characteristics of the informal sector, the determinants of job satisfaction among informal employees, the determinants of profitability among informal employers, and the determinants of informality among both of them. For this purpose, the paper depends on an ordered logistic regression

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<sup>1</sup> Main indicators such as real growth rate, the unemployment rate and the inflation rate may be understated due to the exclusion of the informal sector; the unemployment rate may be overstated due to the exclusion of informal sector employment, and the inflation rate may be overstated due to the exclusion of cost of goods produced in the informal sector. More importantly, government revenues will be underestimated due to informality and failure to account for and tax this activity.

<sup>2</sup> A slum area in Cairo packed with informal establishments. Manshiet Nasser is close to the garbage collectors area in the Moqattam plateau and the old bazaar known as Khan el-Khalili. Manshiet Nasser is said to house 800,000 inhabitants and to contain a variety of social strata; the richer living towards the Nasr Road in 4-6 storey buildings deprived in many instances from basic infrastructure amenities, and the poorest living towards the Moqattam cliff and are under the constant threat of big rocks falling from the plateau that reap lives from time to time.

when the dependent variable takes ordered outcomes, and binomial logistic regression when the dependent variable takes binary outcomes.

The rest of this paper proceeds as follows. Section I outlines the relevant literature. Section II descriptively analyzes the main results of the survey data. Section III introduces the determinants of job satisfaction, profitability and informality using econometric analysis. Section V concludes and offers some policy implications.

## **I. LITERATURE REVIEW**

This section outlines the relevant literature about the informal sector, including definition of the informal sector, reasons behind informality, the methods of measuring the size of the informal sector, and the relation between the informal and formal sectors. Finally, the section briefly reviews studies relevant to the informal sector in Egypt.

### ***Defining the Informal Sector***

The first problem that faces economists in this context is the definition of the informal sector. Dell'Anno (2003) identifies two approaches in defining the informal sector, namely, the definitional approach and the behavioral approach. The former defines it as all the unrecorded economic activities, while the latter considers it as a change in the behavior of economic agents in reaction to institutional constraints.

Along the same lines, many terms are used to describe 'informality.' Some of them associate informality with small and less developed economies, such as *the informal sector*. Others associate it with tax evasion, such as *hidden economy*, *underground economy* and *secondary economy* (Eilat and Zinnes 2000). The terms *unobserved sector* or *irregular sector* refer to activities that are not statistically recorded, while *hot sun sector* designates the location of activities (open-air areas). Finally, the terms *marginal economy* and *black economy* reflect a hazardous effect of the informal sector on the national economy (Abdelhamid and El Mahdi 2003).

The International Labour Organization defined the informal sector in the 15th ICLS (International Conference of Labour Statisticians) as activities that are engaged in the production of goods and services with the primary objective of generating employment and incomes to the persons concerned. These activities operate within a small sector, with little division if any between labor and capital as factors of production. Labor relations in these

activities are socially determined as opposed to being contractually set with formal guarantees (ILO 1993).

### ***The Reasons behind Informality***<sup>3</sup>

According to theoretical models, informality could be attributed to micro and/or macro factors. Micro factors include firm size, productivity and the cost of entering the formal sector (Dabla-Norris, Gradstein and Inchauste 2005).<sup>4</sup> Macro factors include economic characteristics such as the tax rate, excessive regulations, weakness of the legal system, corruption, inequality in income distribution and financial constraints (Chong and Gradstein 2004; Harding and Jenkins 1989).

At the micro level, empirical studies indicate that firm size and productivity have a negative effect on informality, while the cost of entering the formal sector has a positive effect on informality. At the macro level, empirical studies suggest a positive effect of a higher tax rate, excessive regulations, weakness of the legal system, corruption, inequality (measured by the GINI coefficient) and financial constraints on informality (Winkelried 2005 ; Mishra and Ray 2010).

### ***Methods of Measuring the Size of the Informal Sector***<sup>5</sup>

The approaches widely used to measure the size of the informal sector include direct and indirect approaches as well as the latent variable approach (Schneider 2002).

With reference to *direct approaches*, the size of the informal sector can be estimated either based on sample surveys or tax auditing that measures the discrepancy between incomes declared for tax purposes and those measured through institutional checks.

According to *indirect approaches*, the size of the informal sector can be estimated either by currency demand or physical inputs. The former is measured by estimating the demand function for cash assuming that shadow transactions are undertaken in cash and that an increase in the shadow economy will raise demand for cash (Cagan 1985). The latter measures the growth of the informal sector based on the difference between the growth rate of official GDP and that of total electricity consumption.

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<sup>3</sup> For more details about reasons for informality, see Schneider and Enste (2000).

<sup>4</sup> According to Jansson and Chalmers (2001), economic agents choose between formal and informal sectors based on a cost-benefit analysis. For more details, see Fajnzylber (2007).

<sup>5</sup> For more details, see Schneider and Enste (2000).

In the *latent variable approach*, structural equations are used to link unobserved indicators to observed indicators and causes. The size of the informal sector is treated as an unobservable latent variable that is a function of observed variables which are assumed to influence it, e.g., the tax burden, the unemployment rate, intensity of government regulations and cost of bureaucracy. In addition, the observed variables include variables that affect the size of the informal sector as well as other dependent variables that are used to make the unobservable informal sector visible, e.g., the monetary indicators and labor force participation rate.

However, attempts to measure the size of the informal sector face two problems. First, there is no single definition of the informal sector. Second, collecting data about the informal sector is difficult because those engaged in the informal sector are not interested in being identified.

### ***The Relation between the Informal and Formal Sectors***

Many theories have dealt with the relation between the informal sector and the formal one. The mainstream theory supports the idea that the informal sector depends on the formal sector, either in a complementary manner (via activities that can be done in the informal sector rather than the formal one) or competitively (via cheaper labor and lower prices in the informal sector).

By the same token, there are two sub-theories of the mainstream theory. The first is the *production-rationale* approach which emphasizes the role of government in regulating the informal sector in order to integrate it into the formal economy. The objective is to avoid the problem of misleading statistics about the true size of the economy and to give suitable size estimates to guide decision makers. Alternatively, the *illegality-based* approach supports the idea of 'laissez-faire,' namely, proposing that the free operation of the informal sector may increase the efficiency of resource allocation (Harding and Jenkins 1989). The *production-rationale* approach may be suitable for the informal sector in Egypt, since it can be used to understand how the informal sector can be regulated and integrated into the formal sector to estimate the true size of the economy, thereby informing government policies.



### *Studies on the Informal Sector in Egypt*

Studies that addressed Egypt's informal sector tackled the issue from multiple angles. Some focused on the size of the informal sector and its characteristics, while others investigated the relation between informality and other economic variables. But none have attempted to investigate the determinants of satisfaction and profitability in the informal sector.

Like in many other developing countries, the informal sector in Egypt represents a substantial share of GDP. According to Ernste and Schneider (1998), the informal sector accounts for 68 percent of GDP in Egypt. Due to data constraints, the study uses only the electricity approach to measure the size of the informal sector in Egypt. Schneider and Klinglmair (2004), however, estimate the informal sector at 35.1 percent of GDP in Egypt,<sup>6</sup> based on the currency demand approach.<sup>7</sup> The different percentages may not necessarily reflect a reduction in the size of the informal sector, but may be attributed to the use of different approaches in estimating its size.

Moreover, ERF (2004) indicates that 65 percent of the jobs taken up by the new entrants to the labor force in 1998 were informal, compared to 40 percent in the mid-1980s. Additionally, some estimates indicate that informal employment accounts for 55 percent of total non-agriculture employment in Egypt (Assad 2006).<sup>8</sup>

With reference to informal sector employment, Frost (2008) has shown that a large proportion of the youth in the labor force depends on the informal sector to acquire skills and qualifications, with which they expect to continue to be employed in the informal sector.<sup>9</sup> However, the employed in the informal sector are aware that such skills may not be rewarded if they were to be employed formally. Wahba (2009b) had shown that moving from informal to semi-formal or formal employment is determined by two factors: education and gender,

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<sup>6</sup> According to Schneider and Klinglmair (2004), the average size of the shadow economy as a percentage of GDP over 1999-2000 was 41 percent in developing countries, 38 percent in transition countries, and 18 percent in OECD countries.

<sup>7</sup> In Schneider and Buehn (2009), the informal sector is estimated to account for 36.5 percent of GDP in Egypt based on the latent variable approach.

<sup>8</sup> According to Chen (2007), informal employment as a percentage of non-agricultural employment in developing countries accounts for 50 to 75 percent (48 percent in North Africa; 51 percent in Latin America; 65 percent in Asia; and 72 percent in sub-Saharan Africa).

<sup>9</sup> Wahba (2009a) focuses on the effect of the labor law 12/2003 on formal employment (jobs with contracts) in the private non-agricultural sector. The study finds that the labor law had a positive impact on those who were informally employed in 1998 and no significant impact on new entrants.

whereby holders of higher education vis-a-vis illiterates, and males vis-a-vis females, have a higher probability to shift to formality.<sup>10</sup> In the same vein, the study further shows that informal employment is a stepping stone for highly educated male workers, while it is a dead end for the uneducated and for female workers.<sup>11</sup>

According to the characteristics of the informal sector, El Mahdi (2002) focused on two dimensions of informality: micro and small enterprises, and informal employment within the formal sector enterprises. The study found that 83.6 percent of the country's small enterprises were informal in 1998,<sup>12</sup> and that their number was growing faster than the number of formal enterprises.<sup>13</sup> The increase in informal employment is attributed to privatization and the diminishing role of the state. Moreover, the analysis had shown significant gender differences in both the formal and informal sectors.

Referring to productivity inside the informal sector, Amin (2009) estimated average productivity of labor in informal establishments as a measure of efficiency and found that the so-called "opportunity firms" (those that are established as a way of taking advantage of business opportunities) are more efficient than "necessity firms" (those that are established because the owner cannot find an alternative satisfactory job).

Finally, Galal (2004) investigated the potential winners and losers from formalization, concluding that the net annual gains to society ranged between 0.4 and 3.7 percent of GDP under the pessimistic and optimistic scenarios, respectively. Galal noted that government,

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<sup>10</sup> Workers with a level of education higher than illiterates have higher probability of moving from informal to semi-formal or formal employment, and the same holds for males relative to females.

<sup>11</sup> This conclusion was supported by El Mahdi (2010) who views the informal sector as the house of the uneducated.

<sup>12</sup> With respect to the distribution of MSEs (micro and small enterprises) by economic activity in the informal sector in 1998, the trade sector was the dominant sector (38 percent relative to 11 percent in 1988), followed by the service sector (30 percent relative to 44 percent in 1988), then the manufacturing sector (19 percent relative to 37.5 percent in 1988), then others. El Mahdi (2002) has also shown that 85 percent of employees in MSEs do not hold contracts based on Greater Cairo survey data files.

<sup>13</sup> Galal (2004) notes that the informal sector includes 82 percent of entrepreneurs in Egypt based on government survey data 1997.

entrepreneurs and employees would gain, but consumers and taxpayers would lose under the two scenarios.<sup>14</sup>

## II. DESCRIPTIVE ANALYSIS

A sample survey of 180 employees and 90 employers in Manshiet Nasser area was conducted to probe the views of both employers and employees on informality. The survey covered informal establishments<sup>15</sup> in some of Egypt's main economic sectors (i.e., manufacturing, services and trade), classified per Egypt's Central Agency for Public Mobilization and Statistics (CAPMAS). Accordingly, two separate questionnaires were addressed to employers and employees.<sup>16</sup> The questionnaires were randomized equally among the Manshiet Nasser area to ensure highest representation.

The remainder of this section presents an overview of the sample survey and results, including distribution by sector, gender, size and education. It will then discuss the push and pull factors to and from the informal sector, including reasons and advantages for being informal. Subsequently, the section focuses on work conditions, including work and employment practices, working hours and days, wages and salaries, social insurance, investment in human capital, management and profitability. Finally, an analysis of surveillance and administrative corruption as well as the effect of the global financial crisis on the informal sector is provided.

### *The Sample Survey*

The manufacturing sector dominates the sample with 45 percent of total establishments, followed by trade and services (29 percent and 26 percent, respectively). In terms of *gender*, males dominate with 94 percent of employers and 85 percent of employees. As for informal establishments' *size*, 96.3 percent of the surveyed establishments were micro (5-14

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<sup>14</sup> According to the pessimistic scenario, the government, entrepreneurs and employees would gain (0.8, 0.6 and 0.7 percent of GDP, respectively), but consumers and taxpayers would lose (1.7 and 0.04 percent of GDP, respectively). In the optimistic scenario, the government, entrepreneurs and employees would gain (2.5, 2.2 and 1.1 percent of GDP, respectively), but consumers and taxpayers would lose (2.1 and 0.04 percent of GDP, respectively).

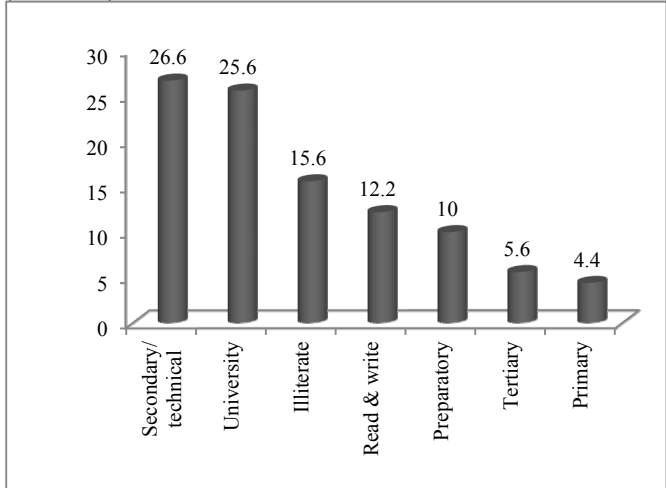
<sup>15</sup> Informal establishments have at least one of the following characteristics: do not have an operating license, all or some of their employees do not have contracts, do not file tax returns or do not contribute to social insurance, and do not keep regular accounting records.

<sup>16</sup> Responses were in three categories: number/percentage; "yes/no" category and scaled category.

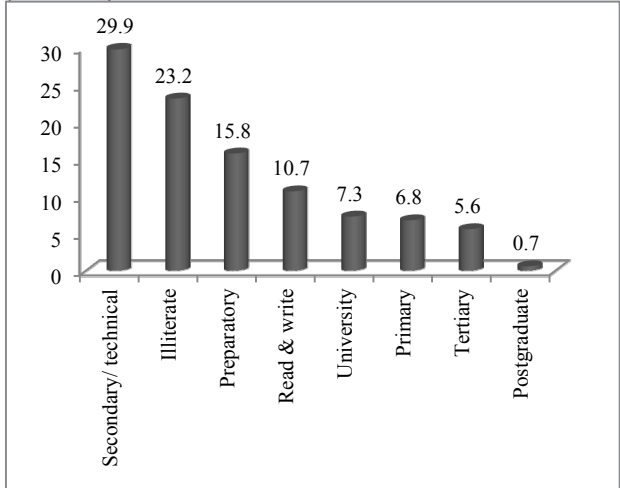
employees). Accordingly, we do not need to differentiate between micro and small informal establishments in our analysis since the overwhelming majority is, in fact, micro.

For employers, the overall distribution by *level of education* tilts towards secondary/technical education in all sectors (26.6 percent), followed by university degree holders (25.6 percent), and illiterates (15.6 percent) (Figure 1). On the other hand, the overall distribution of education for employees tilts towards secondary/technical education in all sectors (29.9 percent), followed by illiterates (23.2 percent), preparatory schooling (15.8 percent), those who barely read and write (10.7 percent), then university graduates (7.3 percent). It is worthy to note, however, that post-university degree holders account for 0.7 percent of informal sector employees in the surveyed sample (Figure 2).

**Figure 1. Level of Education among Employers (Percent)**



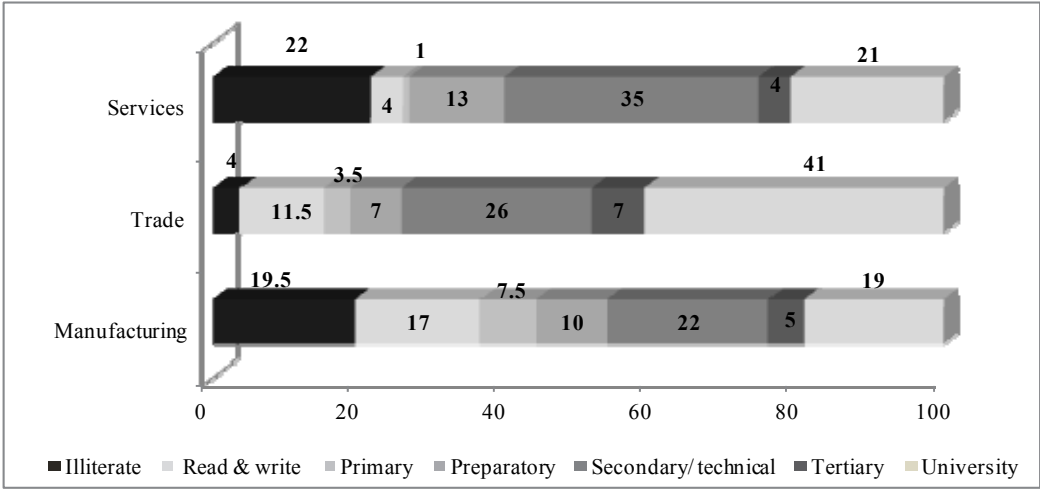
**Figure 2. Level of Education among Employees (Percent)**



Source: Survey results.

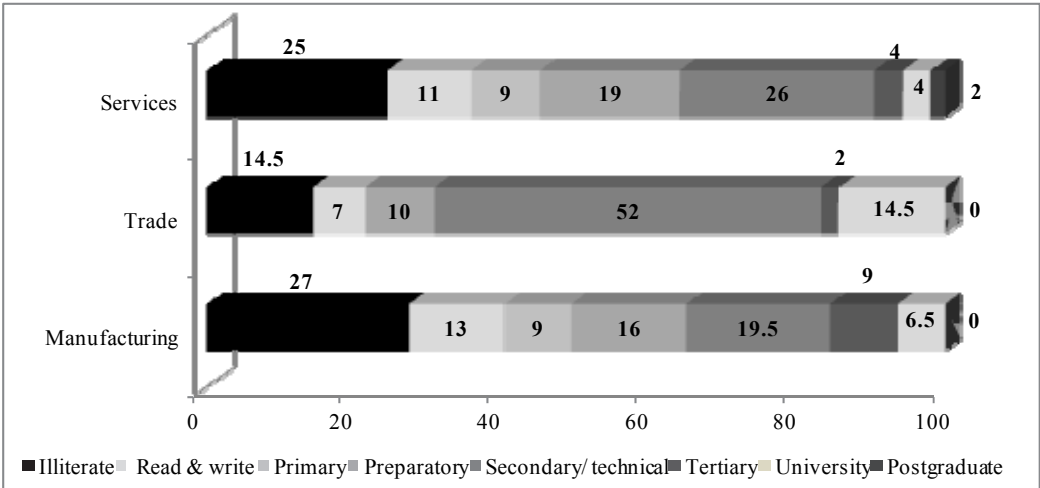
From Figures 3 and 4, we note that the informal sector draws mostly on low skilled and lower educated graduates. However, it also seems to attract university and post-university graduates who may have been unable to find formal employment opportunities (in the government or non-government private sector), or may have been attracted to higher income to meet their household needs.

**Figure 3. Level of Education among Employers by Sector (Percent)**



Source: Survey results.

**Figure 4. Level of Education among Employees by Sector (Percent)**



Source: Survey results.

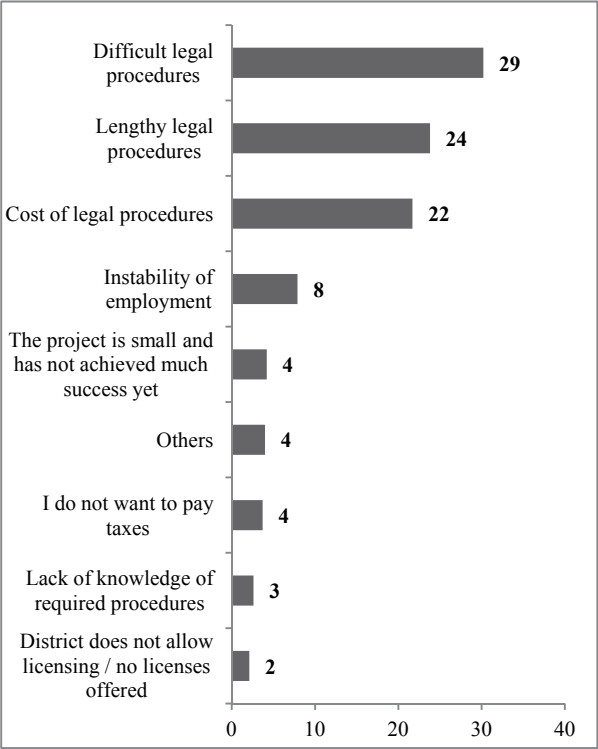
About 67.6 percent of employers and employees believe that the low level of education is closely tied to informal sector employment. However, when asked whether they thought they are employed in a job that matches their education level, 54.4 percent of employees responded positively. The high proportion is consistent with the 50 percent response in support of job satisfaction. This clearly illustrates that the education policy leaves a supply-demand gap in employment qualification in the labor market.

***Push and Pull Factors to and from the Informal Sector***

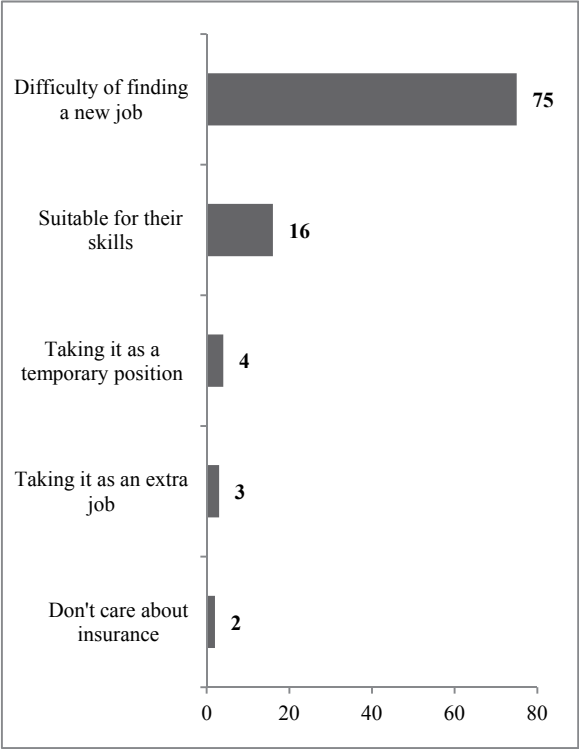
*The reasons that discourage informal employers from joining the formal sector include complexity of government procedures (29 percent), followed by lengthy registration (24*

percent), the cost of legal procedures (22 percent), instability of employment (8 percent), the small size of projects (4 percent), avoiding tax payments (4 percent) and lack of knowledge of required procedures (3 percent) (Figure 5). According to employees, the main reason for working in informal establishments is the lack of formal job opportunities (75 percent) (Figure 6). The trends above hold true at the sectoral level (Table 1).

**Figure 5. Reasons for Being Informal, Employers’ Perspective (Percent)**



**Figure 6. Reasons for Being Informal, Employees’ Perspective (Percent)**



Source: Survey results.

*Advantages of being informal* vary among employees. About 30 percent of employers believe that being informal saves time and efforts, followed by avoiding commitments to subscribe to social insurance (17 percent) and paying taxes (16 percent). However, 27 percent of respondents believe that formalization does not grant them any benefits (Table 2). Across sectors, the trade sector came at the top (42.9 percent) where many respondents cited increasing waste of time and effort that is attributed to formalization, followed by avoiding tax payments and lack of incentives for formalization (21.4 percent for each, respectively). In the service sector, the largest share indicated lack of incentives for formalization (37.5 percent), followed by avoiding social insurance (25 percent). In the manufacturing sector, 30

percent assigned high priority to the lost time and effort in registration, followed by lack of incentives for formalization (26 percent) (Table 2).

**Table 1. Reasons for Being Informal by Sector (Perspectives of Both Employers and Employees)**

<b>Employers (Percent)</b>			
	<b>Manufacturing</b>	<b>Trade</b>	<b>Services</b>
Difficulty of legal procedures	30.1	42.9	26.8
Lengthy legal procedures	20.5	24.3	26.8
Cost of legal procedures	21.7	17.1	17.1
Avoiding taxes	3.6	4.3	2.4
Lack of knowledge of procedures	1.2	4.3	2.4
The project is small	4.8	1.4	4.9
Instability of employment	13.3	1.4	7.3
Spatial requirements	1.2	0	0
Other	1.2	0	2.4
District does not allow licensing / no licenses offered	1.2	4.3	0.3
Bribery	1.2	0	2.4
Work based on lump sum remuneration	0	0	2.4
Market instability	0	0	2.4
Established under the supervision of social solidarity	0	0	2.4

<b>Employees (Percent)</b>			
	<b>Manufacturing</b>	<b>Trade</b>	<b>Services</b>
Difficulty finding a new job	70	80	71
Suitable for their skills	15	13	26
Do not care about insurance	4.5	0	3
Taking it as an extra job	4.5	4	0
Taking it as a temporary position	6	3	0

*Source:* Survey results.

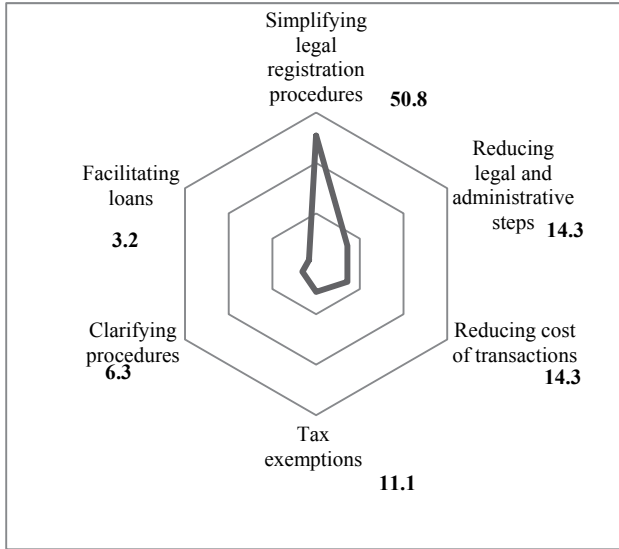
**Table 2. Advantages of Being Informal by Sector, Employers (Percent)**

	<b>Manufacturing</b>	<b>Trade</b>	<b>Services</b>	<b>Total</b>
Saves time and effort	30	42.9	12.5	29.4
Formalizing does not involve advantages	26	21.4	37.5	27.4
No need to subscribe employees to social insurance	16	10.7	25	16.7
Do not need to pay taxes	14	21.4	12.5	15.7
Being not committed to the application of labor laws on employees	6	3.6	8.3	5.9
Earn more profit and save more	6	0	0	2.9
Others	2	0	4.2	2

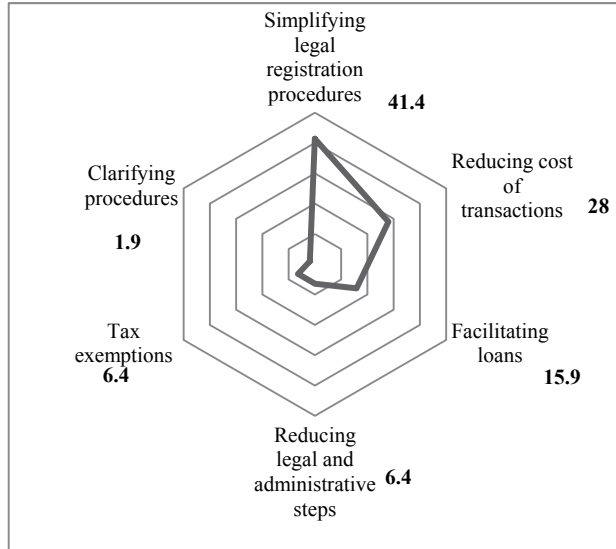
*Source:* Survey results.

As for the *procedures required to attract the informal sector to formality*, the majority of employers (50.8 percent) and employees (41.4 percent) believe that the government has to act transparently and to simplify the administrative and legal procedures for registration. From the employers' point of view, reductions in administrative and legal steps for registration and in the cost of registration were cited as major incentives for formalization. From the employees' point of view, reductions in the cost of registration (28 percent), followed by facilitating credit (15.9 percent) were cited as major incentives for formalization (Figures 7 and 8).

**Figure 7. Procedures that Encourage Employers to Formalize (Percent)**



**Figure 8. Procedures that Encourage Employees to Formalize (Percent)**



Source: Survey results.

**Work Conditions**

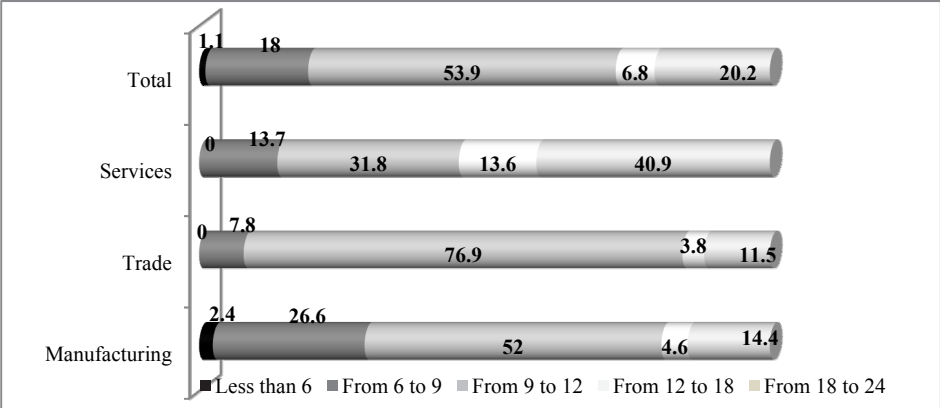
With reference to *labor and employment*, a large share of employers (94.4 percent) reported that their projects employ permanent employees. The highest ranking sector with respect to recruitment of permanent employees is the trade sector (96.2 percent), followed by the service sector (95.7 percent) and the manufacturing sector (92.5 percent). However, 93.3 percent of employers in all these sectors confirmed that their employees do not have signed contracts. With regard to gender, the percentage of total female employers offering contracts is 40 percent, while the corresponding share for males is only 4.8 percent. This may show that female employers tend to be more risk averse, as evident in their higher tendency to issue contracts compared to male employers.



On the other hand, 25.6 percent of employers reported employing seasonal workers. The highest sector with seasonal employment is the manufacturing sector (39 percent), followed by the services (21.7 percent), then the trade sector (7.7 percent). Seasonal employment is characterized by the prevalence of child labor. Our analysis shows that around 6 percent of the sample is below 18 years of age.

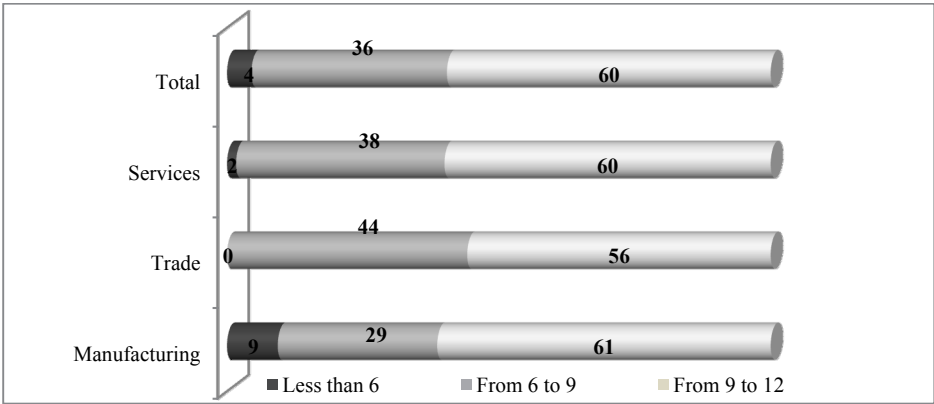
Average *working days* in the majority of informal establishments are 6 days per week. This applies to all economic sectors with average *daily working* hours ranging between 9-12 hours. Across sectors, 76.9 percent of employers in the trade sector and 52 percent in the manufacturing sector work 9-12 hours, while in the service sector the majority of employers (40.9 percent) work 18-24 hours a day (Figure 9). Moreover, the majority of employees work 9-12 hours in all sectors (Figure 10).

**Figure 9. Employer’s Working Hours by Sector (per day)**



Source: Survey results.

**Figure 10. Employee’s Working Hours by Sector (per day)**



Source: Survey results.

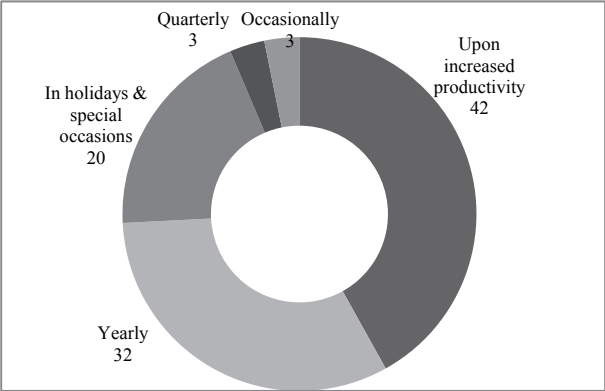
With respect to *wages*, the general results of the study show that the majority of employers in informal establishments pay weekly wages (47.8 percent), followed by daily wages (32.2 percent) and monthly wages (18.9 percent). The shares are comparable upon analyzing employees' responses. Across sectors, 75.6 percent of informal entities in the manufacturing sector pay weekly wages. In contrast, the highest share in the service sector is daily wages (60.9 percent), where the highest share is monthly pay in the trade sector (38.5 percent). As recipients, employees reported similar trends.

Employment practices in informal establishments have shown that the *minimum wage* policy as legislated by the government is not applied and was never heard of by the majority of employers (65.6 percent of respondents). This percentage increases to 76 percent among employees. In addition, 34.4 percent of employers who knew about the minimum wage policy tended not to apply it, reflecting primarily lack of funding, as indicated by the share of responses on constraints (57.7 percent).

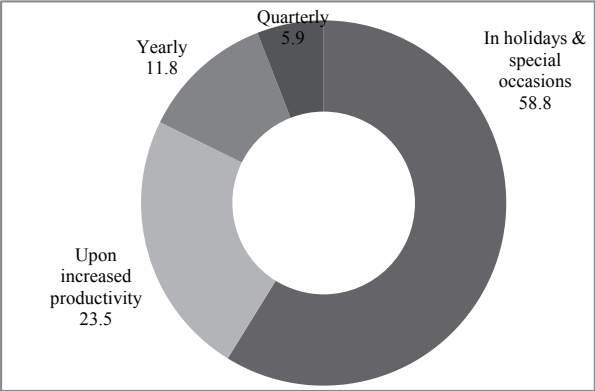
Results show that 14.4 percent of employees in the informal sector offer *paid leaves* to their employees (12.2 percent males and 2.2 percent females). A closer look shows that 40 percent of total female employers offer paid leaves to their employees; while only 12.9 percent of total male employers do so. This may be indicative of females being more inclined to take disciplinary action at the work place to ensure quality output.

Employers' responses further show that there are neither stable *incentives* (72.2 percent) nor well-defined punitive systems (71.1 percent) in place within informal establishments. Opinions relating to the disbursement of bonuses and incentives varied, with 42 percent of employers informing that they are payable upon realizing increased output, while 58.8 percent of employees affirmed that they get incentives and/or bonuses in feasts and special occasions only (Figures 11 and 12).

**Figure 11. Disbursement of Bonuses and Incentives, Employers (Percent)**



**Figure 12. Disbursement of Bonuses and Incentives, Employees (Percent)**



Source: Survey results.

With respect to *punishment* systems, 40 percent of female employers reported that they punish their employees in case of lack of discipline or misconduct compared to 28.2 percent of male employers. Thus, female employers appear to be more disciplined in the work environment than male employers.

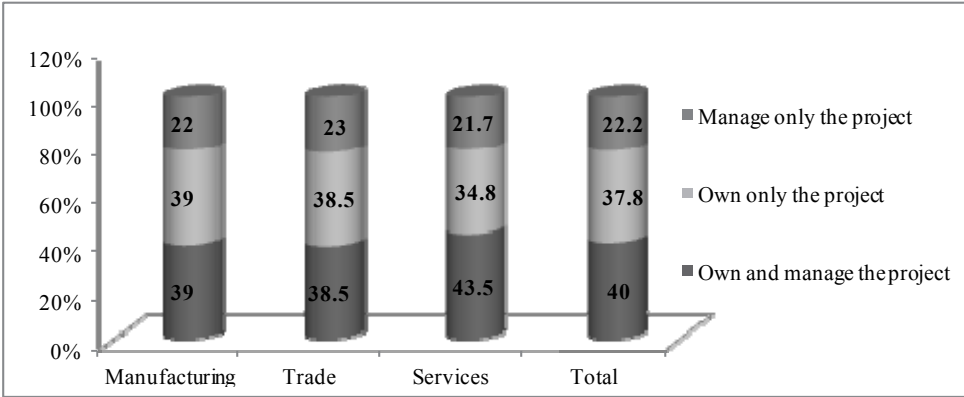
The general results of the study show that 53.3 percent of employers have some knowledge of the *social insurance* law no. 79/1975. However, only 7.8 percent of employers have knowledge of the insurance law no. 135/2010. The highest ranking sector with respect to knowledge of law no. 79/1975 is the manufacturing sector (63.4 percent), followed by trade (46.2 percent) and services (43.5 percent). However, knowledge of the new social insurance law is rather limited, with only 9.8 percent in the manufacturing sector, followed by the trade (7.7 percent) and the service sectors (4.3 percent). Clearly, there is an incentive to avoid subscribing to social insurance. Employers reported that as a result of not providing their employees with social insurance, they save LE 300 on average per month.

Regarding *investment in human capital*, 50 percent of employers stated that they offer training to their employees (47.8 percent inside the project and 2.2 percent outside the project). The highest ranking sector with respect to offering training to their employees is the manufacturing sector (68.3 percent), followed by trade (38.5 percent) and services (30.4 percent). Most of the responses by employers (93 percent) and by employees (92.6 percent) indicate that training is given once when an employee first joins the informal establishment and is never repeated again. Both employers and employees believe that training comes at no cost to them (100 and 95.6 percent of employee and employer responses).

Only 14.5 percent of employers and 9 percent of employees affirm that there were benefits accruing from training offered and acquired. These benefits include increasing the speed of production, reducing the physical efforts of employees and improving output quality. Moreover, 75 percent of female employers offer one-time training upon employees' first joining of their projects, and 25 percent of female employers tend to offer training on an annual basis. On the other hand, male employers tend to offer annual training to employees (94.9 percent), with only 5.1 percent of them confirming that they offer training bi-annually.

Regarding *management*, only 40 percent of employers own and manage their projects, 37.8 percent own only their projects and 22.2 percent manage only. From a sectoral point of view, data for all economic activities affirm the same trends (Figure 13).

**Figure 13. Nature of Management (By Sector/Employer)**

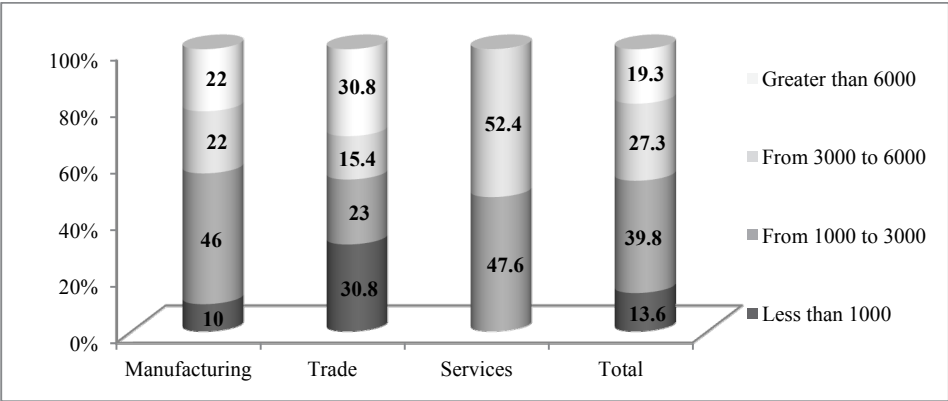


Source: Survey results.

As for *profitability*, the majority of employers (46.6 percent) said that as a result of operations, they gain more than LE 3,000 in profit per month for their project, followed by 39.8 percent gaining between LE1,000 -3,000 and 13.6 percent gaining less than LE1,000 per month<sup>17</sup> (Figure 14). Across sectors, 46 percent of employers in the manufacturing sector currently earn around LE 1000 to 3000 per month compared to 30.3 percent in 2008; 52.4 percent of employers in the service sector currently earn around LE 3000 to 6000 per month compared to 57.8 percent in 2008; and 30.8 percent of employers in the trade sector currently earn more than LE 6000 compared to 38.5 percent in 2008 (Figure 15).

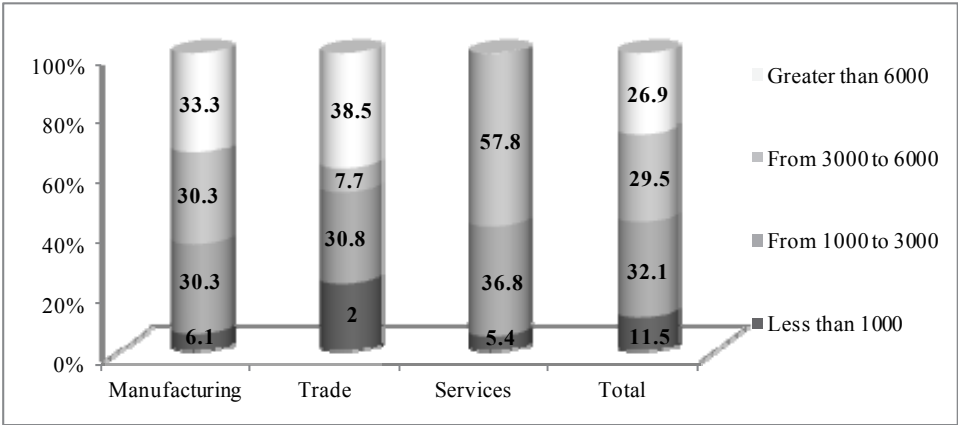
<sup>17</sup> While 56.4 percent, 32.1 percent and 11.5 percent respectively of employers used to collect these amounts three years ago in 2008.

**Figure 14. Profits of Employers in 2011**



Source: Survey results.

**Figure 15. Profits of Employers in 2008**



Source: Survey results.

It is worth noting that in 2011, 60 percent of employers saved less than LE 1000, while 40 percent saved LE 1000 to LE 3000 compared to 42.5 percent and 57.5 percent respectively in 2008. In addition, results show that 32.2 percent of employers did not reinvest in their projects in 2011 compared to 28.9 percent in 2008. Moreover, despite limited resources and reinvestment in informal establishments, 92.8 percent of employers do not hold bank accounts.<sup>18</sup>

***Surveillance and Administrative Corruption***

The majority of informal employers (84 percent) are subject to some form of government surveillance. This is more pronounced in the service sector (100 percent of responses), followed by the trade sector (81 percent), then the manufacturing sector (78 percent). At the

<sup>18</sup> A bank account is a prerequisite for obtaining bank credit.

aggregate level, government inspectors can be representatives of the following authorities: municipality, health, social insurance, labor office and tax inspectors. The highest level of visits across sectors is in the manufacturing and service sectors from municipality inspectors (42.9 percent and 39.1 percent, respectively), while, in the trade sector visits are primarily from health inspectors (42.9 percent).

Some 80.3 percent of employers offer bribes to government inspectors, with the highest level of that practice in the manufacturing sector (84.4 percent of employers), followed by 82.6 percent in the service sector, then 71.4 percent in the trade sector. However, the majority of employers (93.2 percent) believe that inspectors' visits have a negative impact on their project.

### ***Effect of Global Financial Crisis***

The survey results show that 55.1 percent of employers and 32 percent of employees were aware of the global financial crisis; this can be attributed to the diversity of education levels among them. Further, 38.9 percent of employers and 22 percent of employees thought that the crisis had an adverse effect on project sales and profit. As for the impact of the crisis on their business, 74 percent of employers and 55.2 percent of employees believe that the financial crisis is not the reason behind their informality. It can be interpreted that the growth of informal sector is due to persisting unemployment rather than the temporary and exogenous global financial shock.

According to survey results, the majority of employers (72 percent) believe that informal establishments helped reduce unemployment before the global financial crisis in 2008, but 42 percent affirm that they did not reduce unemployment in the aftermath of the crisis. The interpretation of this result is that the informal sector was able to absorb the unemployed before the financial crisis; however the outbreak of the crisis has influenced the performance and profitability of the informal sector, so its absorptive capacity of the unemployed (who were unable to find a job in the formal market) is curtailed.

### **III. ECONOMETRIC ANALYSIS**

This section investigates the determinants of employee satisfaction, employer profitability as well as determinants of their intentions to continue operating in the informal sector.

## ***Determinants of Employee Satisfaction***

### *Theoretical background*

The utility from working is usually represented as:

$$u = u(y, h, X_i, X_j) \quad (1)$$

where  $y$  denotes the labor wage,  $h$  denotes hours of work,  $X_i$  is sets of employee characteristics and  $X_j$  is sets of work characteristics.

Job satisfaction is taken as a proxy of utility of employees. It is measured on an ordinal scale, and hence the ordered logit model would be the appropriate econometric technique. Responses ranged from 1 to 5 as follows (not satisfied at all, not satisfied, semi satisfied, satisfied and very satisfied) (Hinks 2009).

Most studies found that there is a positive relation between wages and job satisfaction, but a negative relation between working hours and job satisfaction. This paper will investigate the impact of both wages, measured as monthly wages of employees (Grund and Sliwka 2001) and working hours, measured as working hours of the employees (Green and Heywood 2007), on job satisfaction.

In the same vein, we include working days as a possible determinant of job satisfaction. On one side, an increase in working days may increase the pay and, therefore, increase job satisfaction. Alternatively, more working days may crowd out leisure time and signal dissatisfaction with the job in light of increased commitments and low pay. We will test which scenario determines variation in satisfaction with the increase in working days.

According to available employee characteristics, determinants of job satisfaction may include gender (male=1) and the education level. In the latter case, we introduce dummy variables relative to a benchmark of no education, i.e., illiterate,<sup>19</sup> to test whether higher job satisfaction in the informal sector relates to the level of education.

Indicators of work conditions include a dummy for the incentive system (=1 if there is an incentive system), the punishment system (=1 if there is a punishment system), paid leaves

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<sup>19</sup> In this case, we take the illiterate as a benchmark under the assumption that they have the highest level of satisfaction.

(=1 if there is paid leave), training (=1 if there is training) and promotion (=1 if there is promotion).

The findings of different studies regarding the impact of gender on job satisfaction vary. Some studies found that male employees are more satisfied with their jobs than female employees (Hunjra et al. 2010), but other studies found the opposite (Bender, Donohue and Heywood 2005). While our survey sample is predominately populated with males, we thought to test the possibility that job satisfaction may vary by gender.

To test the possibility that job satisfaction may vary by economic activity, we take the manufacturing sector as the benchmark and introduce two dummies to test the possibility that job satisfaction in the other sectors (services and trade) may vary significantly relative to manufacturing.

### *Results*

Equation (1) was estimated using the maximum likelihood estimation technique. The results are presented in Appendix 1. Estimation results reflect the statistical significance of the following variables: incentives and training with a positive sign, punishment with a negative sign, primary education level relative to university with a negative sign, working days with a negative sign, and the trade and service sectors with negative signs relative to the manufacturing sector.

Employees who have an incentive system and training tend to have higher probability of greater job satisfaction. The implication is that informal workers strive to upgrade their skills and improve their status. In contrast, employees who have a punishment system tend to have a lower probability of job satisfaction. Hence, investing in informal workers' skills is more important than instituting a tough punishment system to increase their commitments.

Employees with a primary level of education have a lower probability of greater job satisfaction relative to the illiterate. One possible interpretation is that the informal sector is more suitable to the illiterate. Another plausible explanation is that none of the primary education recipients confirm that they have an incentive system, as opposed to 10 percent of the illiterate. Moreover, 25 percent of primary education recipients confirm that they have a punishment system compared to 12 percent of the illiterate. Thus, this would reduce the probability of greater job satisfaction for primary education recipients relative to the illiterate.



The results further reinforce the importance of the incentive system vs. the punishment system to boost productivity.

The negative sign of working days implies that an increase in working days may crowd out leisure time and signal dissatisfaction with the job in light of increased commitments and low pay (second scenario). This implies that an irregular work schedule is a major concern for informal workers.

With reference to sectors, employees in the trade and service sectors have lower probability of greater job satisfaction than the manufacturing sector. One possible explanation is that the average working days in the manufacturing sector is 5.5 days vs. (6 and 7 days) in the trade and service sectors, respectively. The results further reinforce the importance of suitable work load to the degree of job satisfaction for informal workers.

### ***Determinants of Profitability for Employers***

#### *Theoretical background*

The profitability function of employers is usually represented as:

$$\pi = f(X_i, X_j, D_s) \quad (2)$$

where  $\pi$  denotes the level of profitability,  $X_i$  is the set of employer characteristics, and  $X_j$  is the set of work characteristics and  $D_s$  is sector dummy variables (Slade 2004).

The level of profitability is measured on an ordinal scale, and hence the ordered logit model would be the appropriate econometric technique. Responses ranged from 1 to 6, as follows: less than LE 500, LE 500-1000, LE 1000-2000, LE 2000-3000, LE 3000-4000, LE 4000-5000 and LE 5000-6000.

According to available employer characteristics, determinants of profitability may include gender (male=1) and education level by introducing dummy variables, relative to a benchmark of university graduates, to test whether the higher profitability in the informal sector needs higher education.<sup>20</sup> Indicators of work conditions include a dummy for paid leaves (=1 if there is a paid leave), training (=1 if there is training), incentives (=1 if there is an incentive system), and number of employees.

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<sup>20</sup> In this case, we take university graduates as a benchmark under the assumption that they have the highest level of profitability.

There is controversy in the findings of different studies on the role of gender on profitability. Some studies found that female employers achieve more profit than male employers, but other studies found the opposite (Liu, Nomura and Nishijima 2010). Since our survey sample is predominately populated with males, we thought to test the possibility that profitability may vary by gender.

According to the number of employees, some studies found that there is a positive relation between the number of employees and profitability (Ton 2009), but other studies found the opposite (Crossan 2006). We will test which scenario our sample may support. We also include the management mode (=1 if manage and own vs. manage only/own only) to test whether separating management from ownership will increase the profitability of the project.

Along the same lines, we include a dummy for the punishment system (=1 if there is a punishment system). In one scenario, the existing punishment system may increase the commitment to the job and, therefore, increase productivity and profitability. Alternatively, the existing punishment system may reduce the incentives of employees to increase their productivity and, therefore, decrease productivity and profitability. We will test which scenario determines variation in profitability with the existing punishment system.

### *Results*

Equation (2) was estimated using the maximum likelihood estimation technique. The results are presented in Appendix 1. Estimation results reflect the statistical significance of the following variables: most of the education levels relative to the university level have negative signs. Manage and own relative to own or manage has a negative sign, and paid leaves and punishment have a negative sign. The trade sector relative to the manufacturing sector has a positive sign.

Employers who complete secondary education have a lower probability for profit, relative to university degree holders. Evidence indicates that higher education may correlate with higher overall productivity and hence higher profitability for employers in the informal sector.

Employers who own and manage the project tend to have lower profitability, relative to those who own only or manage only. Evidence indicates that separating management from ownership helps gear managerial decisions towards improving financial soundness.

Employers who have a paid leave system tend to have lower profitability. This reflects the fact that the paid leave system represents added cost on the employer. In the same vein, employers who have a punishment system tend to have lower profitability, indicating that the punishment system could lead to lower productivity which causes lower output and profitability.

With reference to sectors, employers in the trade sector have a higher probability of greater profitability than those in the manufacturing sector. One possible explanation is that 41 percent of employers in the trade sector have university education vs. only 19 percent in the manufacturing sector. Higher education may help boost profitability indicators in the trade sector relative to manufacturing.

### ***Determinants of Informality***

#### *Theoretical background*

Depending on the theoretical model of Dabla-Norris, Gradstein and Inchauste (2005) that investigates the determinants of informality across 41 countries, the determinants of employers' and employees' intention to continue as being informal can be represented as:

$$\Pi = f(X_i, X_j, D_s) \quad (3)$$

where  $\Pi$  denotes the intention to continue as informal,  $X_i$  is the set of employer or employee characteristics,  $X_j$  is the set of work characteristics and  $D_s$  is the sector dummy variables. We omit the country characteristics in our previously modified theoretical model, because we depend on cross-sectional data of one country, not a panel data comprising 41 countries as in the original model (Azuma and Grossman 2002).

The intentions to continue being informal are measured on a binary scale, and hence the binomial logit model would be the appropriate econometric technique. It takes one if there is intention to continue being informal.

According to the survey, determinants of intentions to continue as informal may include age, gender (male=1) and the education level by introducing dummy variables relative to a benchmark of no education, i.e., the illiterate.<sup>21</sup>

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<sup>21</sup> In this case, we take the illiterate as a benchmark under the assumption that they have the highest level of intention to continue as being informal.

Indicators of work conditions include working hours and working days to test the impact of suitable working hours and days on the intentions of employers and employees to continue as being informal. Other indicators are profitability level for employers and wage level for employees to test the importance of profitability and wage level on informality.

To test the possibility that the intentions of employers and employees to continue being informal may vary by economic activity, we take the manufacturing sector as the benchmark and introduce two dummies for other two sectors (services and trade).

### *Results*

Equation (3) was estimated using the maximum likelihood estimation technique. The results are presented in Appendix 2. Estimation of employer results reflects the statistical significance of the following variables: working hours have a positive effect on formality. Employers who complete the preparatory level, relative to illiterates, have negative signs, indicating lower probability of staying informal. The trade and service sectors, relative to manufacturing, have negative signs indicating lower probability of staying informal for employers in these sectors.

The positive sign of working hours reflects the fact that employers, operating in an informal sector without binding legal constraints, may urge workers to work longer hours without overtime compensation, thereby increasing their profitability. Hence, longer hours increase the incentives for employers to stay informal as they enjoy higher profitability.

Employers with preparatory education have a lower probability of staying informal relative to the illiterate. One explanation is that the informal sector is more suitable for the illiterate than for preparatory education holders. Hence, higher education attainment reduces employers' incentives to stay informal.

At the sectoral level, employers in trade and services have a lower probability to continue being informal. One explanation is that 19 percent of employers in the manufacturing sector hold a university degree vs. 41 percent and 21 percent in the trade and service sectors, respectively. Hence, higher education attainment reduces employers' incentives to stay informal in the trade and service sectors.

Overall, the employee model was statistically insignificant. However, estimation of employee results reflects only working days having a significant negative effect on continuing

as informal. It seems plausible that a larger number of working days leads to lower probability of continuing as informal. Meanwhile, the educational level has an insignificant negative effect on continuing as informal (i.e., those with a higher level of education have a lower probability to continue being informal), and those in the trade sector have a lower, although insignificant, probability to continue being informal relative to the manufacturing sector.

#### **IV. CONCLUDING REMARKS**

This paper discussed the characteristics of the informal sector in Egypt, with emphasis on the determinants of satisfaction, profitability and informality. Based on our sample survey, the previous descriptive and econometric analyses of the informal sector have highlighted various interesting results regarding employers and employees.

*First*, from a sectoral point of view, the informal sector is dominated by the manufacturing sector that has a higher probability for employee satisfaction than the trade and service sectors. With respect to informality, ‘employers in the manufacturing sector’ have a higher probability to remain informal than those in the trade and service sectors. However, with respect to the profitability, the trade sector has a higher probability for profitability relative to the manufacturing sector, perhaps owing to the concentration of higher education graduates in trade. Such concentration does not, however, have a significant effect on the probability of remaining informal. Although employee satisfaction is higher in manufacturing, employers in trade report higher profitability coupled with a higher tendency to move out of informality. Thus, employees’ satisfaction does not appear to be associated with employers’ profitability. Also, higher profitability does not appear to be closely associated with the decision to remain informal.

*Second*, the informal sector is more attractive and suitable for workers with low skills, and lower education attainment (i.e., secondary and preparatory degree holders, and illiterates) among both employers and employees. That does not mean however that it fails to attract recipients of higher education (i.e., university degree holders), particularly among employers. This is perhaps associated with the higher profitability reported by employers, owing to correlation with higher overall productivity (hence higher profitability). However, higher education attainment reduces employers’ incentive to remain informal.

*Third*, employees tend to become more satisfied with incentives and training in contrast to having a punishment system in place. In the same vein, employers who have a punishment system tend to have lower profitability. Evidence indicates that punishment systems lead to lower productivity, which causes lower satisfaction and profitability among employees. Hence, investing in informal workers' skill enhancement is more important than instituting a tough punishment system.

*Fourth*, an increase in working days of employees may reduce their leisure time and lead to job dissatisfaction, particularly in view of increased commitments and low pay. This may be compounded with employee concern over the irregular work schedule. With respect to paid leave, employers who have such a system in place tend to have lower profitability as the paid leave system represents an added cost.

*Fifth*, with reference to the relation between owning/managing a project and level of profitability achieved, employers who own and manage the project tend to have lower profitability, relative to those who "own only" or "manage only". Evidence thus indicates that separating management from ownership may help gear managerial decisions towards improving financial soundness.

*Finally*, reasons behind employers' opting to remain informal are the complexity, cost, and length of legal procedures. For employees, the main reason is the absence of alternative formal jobs. In addition, the majority of employers and employees do not view the global financial crisis as a reason behind their informality. However, they believe the outbreak of the crisis has curtailed the capacity of the informal sector to absorb unemployment, and to make profit.

In the view of the above findings, it is important to gradually motivate the informal sector to formalize. This may be achieved by identifying means by which upstream informal entities can be linked to downstream formal ones. Such linking may gradually bring about the acquisition of knowledge, efficiency and adherence to specifications which could motivate and promote the formalization of these entities. Here, civil society organizations may play a role in promoting such linkage by offering credit facilities, promoting business planning, encouraging training and marketing, adopting innovative sales techniques, and raising awareness about the importance of work environment for productivity. Achieving the above

should allow the transformed informal sector to absorb excess labour in a way that sustains higher growth with lower unemployment rates.

## Appendix 1. Ordered Logit Model for Job Satisfaction and Profitability

Dependent variable → Independent variables ↓	Job satisfaction (employees)		Profitability (employers)	
	Coefficients	Odds ratio	Coefficients	Odds ratio
<b>Work conditions</b>				
Monthly wage	0.0003 (0.0003)	1.0003 (0.0003)		
Working hours	-0.392 (0.275)	0.675 (0.185)	0.0114 (0.0264)	1.011 (0.266)
Working days	-0.366* (0.207)	0.694* (0.143)		
Number of employees			0.0445 (0.0288)	1.045 (0.030)
Incentives	1.007* (0.603)	2.737 (1.650)	-0.115 (0.514)	0.891 (0.458)
Punishment	-1.483*** (0.378)	0.227*** (0.086)	-0.917* (0.526)	0.399* (0.210)
Paid leaves	1.070 (0.685)	2.915 (1.997)	-1.693** (0.744)	0.184** (0.137)
Training	1.173*** (0.350)	3.232*** (1.132)	-0.110 (0.499)	0.895 (0.446)
Promotion	1.702 (1.143)	5.483 (6.266)		
<b>Employees' characteristics / Employers' characteristics</b>				
Gender (=1 if male)	0.194 (0.486)	1.213 (0.590)	1.471 (1.012)	4.352 (4.406)
Illiterate			-0.784 (0.766)	0.456 (0.349)
Read and write	-0.241 (0.515)	0.786 (0.405)	-1.441* (0.787)	0.236* (0.186)
Primary	-1.127* (0.649)	0.323* (0.210)	-2.080* (1.147)	0.124* (0.143)
Preparatory	0.152 (0.489)	1.164 (0.568)	-2.612*** (0.885)	0.073*** (0.065)
Secondary	0.345 (0.419)	1.412 (0.592)	-1.519** (0.710)	0.219** (0.155)
Tertiary	0.292 (0.845)	1.339 (1.132)	-1.905* (1.141)	0.149* (0.169)
University	-0.00535 (0.627)	0.995 (0.623)		
Management mode (=1 if manage and own)			-2.010*** (0.501)	0.134*** (0.067)
<b>Sectors</b>				
Trade	-0.963** (0.405)	0.382** (0.154)	1.402** (0.571)	4.062** (2.322)
Services	-0.760** (0.374)	0.467** (0.174)	-0.753 (0.636)	0.471 (0.299)
<b>Observations</b>		180		90
<b>LR chi2</b>		62.45		45.76
<b>p-value</b>		0.000***		0.000***

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

Source: Author's calculations.

Note: Standard errors in parentheses. Ordered logit coefficients cannot be interpreted as regular OLS coefficients, but their interpretation depends on coefficients' signs (to interpret the direction of relation), and also on the odds ratios (to interpret the magnitude of relation). When the coefficient sign is negative (positive), the odds ratio will be less than one (higher than one).



## Appendix 2. Binomial Logit Model for Informality

Dependent variable → Independent variables ↓	Informality(employees)		Informality(employers)	
	Coefficients	Odds ratio	Coefficients	Odds ratio
<b>Work conditions</b>				
Monthly wage	0.0004 (0.001)	1.000 (0.001)		
Profitability			-0.0002 (0.001)	0.999 (0.001)
Working hours	0.0834 (0.629)	1.087 (0.683)	0.0786** (0.038)	1.082** (0.041)
Working days	-1.311* (0.763)	0.269* (0.205)	-0.0900 (0.327)	0.914 (0.298)
<b>Employees' characteristics (Employees' characteristics)</b>				
Gender (=1 if male)	-0.00113 (0.980)	0.998 (0.978)	-0.655 (1.053)	0.519 (0.547)
Illiterate				
Read and write	39.12 (4.302)	9.73 (4.180)	-0.683 (1.002)	0.505 (0.506)
Primary	-1.731 (1.511)	0.177 (0.267)	-1.340 (1.394)	0.262 (0.365)
Preparatory	-1.484 (1.249)	0.226 (0.283)	-2.142* (1.104)	0.117* (0.129)
Secondary	-1.141 (1.195)	0.319 (0.382)	-0.637 (0.918)	0.528 (0.485)
Tertiary	-1.602 (1.521)	0.202 (0.306)	-1.766 (1.367)	0.171 (0.234)
University	-0.658 (1.516)	0.517 (0.785)	-0.695 (0.916)	0.499 (0.457)
<b>Sectors</b>				
Trade	-0.394 (0.839)	0.674 (0.565)	-1.740** (0.690)	0.175** (0.121)
Services	-0.0219 (0.828)	0.978 (0.810)	-2.307*** (0.770)	0.099*** (0.076)
Constant			-11.20** (5.259)	3.178 (2.385)
<b>Observations</b>	180		90	
<b>LR chi2</b>	9.41		22.19	
<b>p-value</b>	0.667		0.035**	

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

Source: Author's calculations.

Note: Standard errors in parentheses. Binomial logit coefficients cannot be interpreted as regular OLS coefficients, but their interpretation depends on coefficients' signs (to interpret the direction of relation), and also on the odds ratios (to interpret the magnitude of relation). When the coefficient sign is negative (positive), the odds ratio will be less than one (higher than one).

## REFERENCES

- Abdelhamid, Doha, and Alia El Mahdi. 2003. *The Small Business Informality Challenge: Lessons Learned From Country Experiences and the Road Ahead of Egypt*. ERF( Economic Research Forum) Working Paper No. 0324. Cairo, Egypt: ERF.
- Amin, Mohamed. 2009. *Labor Productivity in the Informal Sector: Necessity vs. Opportunity Firms*. Enterprise Analysis Unit. Washington DC.: World Bank Group.
- Assad, Ragui. 2006. "Assessing Informality in Labor Markets of Developing Countries." IZA/World Bank Conference on Employment and Development, May 25-27, 2006, Berlin
- Azuma, Yoshiaki, and Herschel I. Grossman. 2002. *A Theory of the Informal Sector*. NBER ( National Bureau of Economic Research) Working Paper No. 8823. Cambridge, Massachusetts: NBER.
- Bender, Keith, Susan Donohue and John Heywood. 2005. *Job Satisfaction and Gender Segregation*. Oxford University Oxford Economic Papers 57: 479–496. Oxford University.
- Cagan, Phillip. 1985. "The Demand for Currency Relative to the Total Money Supply." *Journal of Political Economy* 66, no. 3: 302-328.
- Chen, Martha. 2007. *Rethinking the Informal Economy: Linkages with the Formal Economy and the Formal Regulatory Environment*. UN Department of Economic and Social Affairs (DESA) Working Paper No. 46. UN Department of Economic and Social Affairs.
- Chong, Alberto and Mark Gradstein. 2004. *Inequality, Institutions, and Informality*. Inter-American Development Bank Research Department Working Papers No. 516. Inter-American Development Bank.
- Crossan, Kenny. 2006. "A Test of the Validity of the Theory of the Firm". *Journal of International Research Publication: Economy & Business* 1.
- Dabla-Norris, Era, Mark Gradstein, and Gab Inchauste. 2005. *What Causes Firms to Hide Output? The Determinants of Informality*. International Monetary Fund (IMF) Working Paper wp/05/160. IMF.
- Dell'Anno, Roberto. 2003. *Estimating the Shadow Economy in Italy: A Structural Equation Approach*. Institut for Økonom. Aarhus University Working Paper No. 2003-07. Institut for Økonom.
- Eilat, Yair, and Clifford Zinnes. 2000. *The Evolution of the Shadow Economy in Transition Countries: Consequences for Economic Growth and Donor Assistance*. Consulting Assistance on Economic Reform (CAER II). Harvard Institute for International Development. CAER II Discussion Paper No. 83.

- El Mahdi, Alia. 2002. *Towards Decent Work in the Informal Sector: The Case of Egypt*. International Labour Organization (ILO) Series on the Informal Economy, Geneva: (ILO).
- . 2010. *Poverty and Informality: A Restraining or constructive relationship?* Economic Research Forum (ERF) Working Paper NO 569. Egypt: ERF
- ERF. 2004. *Egypt Country Profile: The Road Ahead for Egypt*. Cairo: ERF (Economic Research Forum).
- Ernste, Dominik, and Friedrich Schneider. 1998. *Increasing Shadow Economies all over the World - Fiction or Reality? A Survey of the Global Evidence of their Size and of their Impact from 1970 to 1995*. The Institute for the Study of Labor (IZA) Discussion Paper No. 26, December.
- Fajnzylber, Pablo. 2007. "Informality, Productivity, and the Firm." In *Informality: Exit and Exclusion* by Guillermo Perry, William Maloney, Omar Arias, Pablo Fajnzylber, Andrew Mason and Jaime Saavedra-Chanduvi, 157-178. Washington, D.C.: The World Bank.
- Frost, Jon. 2008. *Returns to Qualification in Informal Employment: A Study of Urban Youth in Egypt*. Munich Personal RePEc Archive (MPRA). MPRA Paper No. 12599, posted 08. Munich: MPRA
- Galal, Ahmed. 2004. *The Economics of Formalization: Potential Winners and Losers from Formalization in Egypt*. The Egyptian Center for Economic Studies (ECES) Working Paper No. 95. Egypt: ECES.
- Gërzhani, Klarita. 1999. *The Informal Sector in Developed and Less Developed Countries : A Literature Survey*. Tinbergen Institute, University of Amsterdam TI 1999-083/2.
- Green, Colin, and John Heywood. 2007. *Performance Pay, Sorting and the Dimensions of Job Satisfaction*. Lancaster University Management School Working Paper No. 2007/013. Lancaster University Management School.
- Grund, Christian, and Dirk Sliwka. 2001. *The Impact of Wage Increases on Job Satisfaction – Empirical Evidence and Theoretical Implications*. The Institute for the Study of Labor (IZA) Discussion Paper No. 387. IZA.
- Harding, P, and R Jenkins. 1989. *The Myth of the Hidden Economy: Towards a New Understanding of Informal Economic Activity*. Philadelphia: Open University Press, Milton Keynes.
- Hart, Keith. 1971. "Small Scale Entrepreneurs in Ghana and Development Planning". *Journal of Development studies* 6(4), 104-120.
- Hinks, Tim. 2009. "Job Satisfaction and Employment Equity in South Africa." *Journal of African Economies* 19(2), p237-255.

- Hunjra, Ahmed Imran, Muhammad Irfan Chani, Sher Aslam, Muhammad Azam, and Kashif Ur-Rehman. 2010. "Factors Affecting Job Satisfaction of Employees in Pakistani Banking Sector." *African Journal of Business Management* 4, no. 10.
- ILO (International Labour Organization). 1993. Fifteenth International Conference of Labour Statisticians Report. ILO, Geneva.
- Jansson, Tor, and Geoffrey Chalmers. 2001. *The Case for Business Registration Reform in Latin America*. Inter-American Development Bank Best Practices Series No. MSM-110.
- Liu, Wenjun, Tomokazu Nomura, and Shoji Nishijima. 2010. *Gender Discrimination and Firm Profit Efficiency: Evidence from Brazil*. Graduate School of Economics, Kobe University Discussion Paper No. 1019.
- Mishra, Ajit, and Ranjan Ray. 2010. *Informality, Corruption and Inequality*. Department of Economics, University of Bath Working Paper No. 13/10.
- Schneider, Friedrich. June 2002. *The Size and Development of the Shadow Economies of 22 Transition and 21 OECD Countries*. The Institute for the Study of Labor (IZA) Discussion Paper No. 514.
- Schneider, Friedrich, and Andreas Buehn. 2009. *Corruption and the Shadow Economy: A Structural Equation Model Approach*. The Institute for the Study of Labor (IZA) Discussion Paper No. 4182.
- Schneider, Friedrich, and Dominik Enste. 2000. "Shadow Economies: Size, Causes, and Consequences." *Journal of Economic Literature* 38 (1): 77-114.
- Schneider, Friedrich, and Robert Klinglmaier. 2004. *Shadow Economies Around the World: What Do We Know?* Center for Research in Economics Management and the Arts. Department of Economics, Johannes Kepler University, Working Paper No. 0403.
- Slade, M. 2004. "Competing Models of Firm Profitability." *International Journal of Industrial Organization* 22: 289–308.
- Ton, Zeynep. 2009. *The Effect of Labor on Profitability: The Role of Quality*. Harvard Business School, Boston Working Paper No. 09-040.
- Wahba, Jackline. 2009a. *The Impact of Labor Market Reforms on Informality in Egypt*. Population Council, Gender and Work in The MENA Region Working Paper Series.
- . 2009b. *Informality in Egypt: A Stepping Stone or a Dead End?* Economic Research Forum (ERF) Working Paper No. 456. Egypt: ERF.
- Winkelried, Diego. 2005. *Income Distribution and the Size of the Informal Sector*. University of Cambridge, UK. October 25.  
[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=777144](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=777144) (accessed October 5, 2011).