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INFORMALITY IN EGYPT:  
A STEPPING STONE OR A DEAD END?

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Working Paper No. 456

# **Informality in Egypt: a Stepping Stone or a Dead End?**

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## Abstract

In the last few decades, the informal sector has played a major role in many of the LDC's labor markets. Yet, little is known about the dynamics of this sector. This paper addresses an important question, namely whether informal employment is a stepping stone, as first argued by economists such as Fields (1975), or is it a dead end? Using evidence from the Egyptian Labor Market Panel Survey 2006, and controlling for selectivity in informal jobs, we estimate the probability of "graduating" from informal employment to semi-formal and formal jobs. The empirical findings suggest that the mobility from informal to semi-formal/formal employment is highly segmented along education and gender in Egypt. Overall, it seems that informal employment is a stepping stone for highly educated male workers, but is a dead end for the uneducated, and for female workers.

## ملخص

خلال العقود القليلة الماضية، لعب القطاع غير الرسمي دوراً كبيراً في كثير من أسواق العمل في الدول الأقل حظاً من النمو (LDC). ومع ذلك فنحن لا نعلم إلا النزر القليل عن ديناميكيات هذا القطاع. وتطرح هذه الورقة سؤالاً مهماً وهو بالتحديد هل نعتبر الوظيفة غير الرسمية خطوة على الطريق كما قال علماء الإقتصاد في البداية من أمثال فيلدر (1975) أم نعتبرها نهاية الطريق؟

وفي تقديرنا أنه من المرجح التدرج من الوظائف غير الرسمية إلى الوظائف شبه الرسمية والرسمية. وقد بنينا هذا التقدير على أدلة استقيناها من المسح الذي أجرى على سوق العمالة المصرية عام 2006، ومن عمليات المراقبة الإنتقائية في مجال الوظائف غير الرسمية. وتوحي النتائج التجريبية بأن الحركة من الوظائف غير الرسمية إلى شبه الرسمية أو الرسمية في مصر تعتمد اعتماداً كبيراً على نوعية التعليم وكذا على كون الموظف ذكراً أم أنثى.

وعموماً نجد أن الوظيفة غير الرسمية - على ما يبدو - تعتبر خطوة على الطريق بالنسبة للعاملين الذكور ممن تلقوا تعليماً عالياً، بينما نجدها تمثل نهاية الطريق بالنسبة للعاملين غير المتعلمين وكذلك بالنسبة للإناث.

## 1. Introduction

During the last three decades or so the informal sector has played a major role in many developing countries' labor markets. Since MENA countries have been undergoing a period of economic reform it is not surprising that employment in the informal sector has played a major role in employment and increased its relative share in many economies of the region.<sup>1</sup> In fact, as in most developing countries, employment in the informal economy tends to expand during periods of economic adjustment or transition. In the case of MENA, as a result of reforms, the public sector has been constrained in the number of new employment opportunities it can generate and there has been pressure to downsize the public sector thus limiting job prospects in that sector. In addition, privatization of public enterprises has led to lay-offs, and the absorption of the growing labor force by the private formal sector has been relatively limited. Also, in response to inflation and cutbacks in public services, households often need to supplement formal sector incomes with informal earnings. All of these factors have led to the increase of informal employment.

In Egypt, the informal sector has played an important role in job creation in the period of economic reforms. Empirical evidence suggests that “*informalisation*” has increased in the 90s as a result of economic reforms, see for example, McCormick & Wahba (2004). In particular, new entrants to the labor market seemed to bear the brunt where by the end of the 90s, some 69 % of new entrants to the labor markets managed to only secure informal jobs. Yet, very little is known about the dynamics of this sector, mainly due to lack of appropriate data. Thus, an important question that has not been previously addressed is whether the informal sector is a stepping stone as first argued by economists such as Fields (1975) or is it a dead end? In other words, do informal workers eventually “graduate” to the formal status?

With the availability of a new labor market panel data that was collected under the auspices of the ERF, this paper will examine the extent to which informal workers “graduate” to formal status in Egypt. The paper will answer the following questions. What is the probability of informal workers becoming formal? And what are the determinants of informal workers becoming formal?

Informal employment has several drawbacks for workers: lack of job security, lack of social security coverage, and lack of rights, to name just a few. Also, women are discriminated against in that sector in both hiring and earnings.<sup>2</sup> As pointed out by Elbadawi & Loayza (2008) informality also has had a negative marginal effect on the performance of small and micro enterprises in a number of Arab countries. Thus, the issue raised by this paper is important for policymakers who need to understand the dynamics of informality.

## 2. Literature Review

Overall, the limited literature on the informal sector in Egypt has focused on measuring the size of the informal sector and trying to understand its characteristics, see for example, El Mahdi (2000) and Rizk (1991, 1994). El Mahdi (2000) investigated the changing role of the informal sector in providing work opportunities to the growing labor force in Egypt in the late 90s. One of the main issues of concern was whether, and the extent to which, workers have become *informalised* during the period of reform. For example, in an earlier study, Moktar & Wahba & (2000) attempted to measure the degree of informality in the Egyptian labor market and found that the proportion of non-agricultural workers (over 18 years old) engaged in informal jobs — whether measured as a lack of job contract or social security coverage — has increased by 5 to 6 percentage points in the 1990s. They also found that new entrants to the labor market in the 90s have been drawn into informal employment. In the

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<sup>1</sup> See Abdel Fadil (2002).

<sup>2</sup> See El-Mahdi (2002) for a detailed discussion on advantages and disadvantages of informal employment.

early 1970s, some 20 % of workers used to start their working life with informal jobs, but by 1998, approximately 69 % of new workers have started in informal employment. McCormick and Wahba (2004) found that the predicted probability of a new entrant being informal in 1998 was 8 percent more than in 1990 (pre-reforms). They concluded that the Egyptian labor market has experienced an increase in the *informalisation* of “new” workers. This paper will examine whether workers who were new entrants in 1998 have stayed in informal employment or have they moved to formal jobs.

Few recent studies have focused on the main features of the informal enterprises in Egypt, the role they play in employment creation, the sources of funding their activities, their ability to survive and the problems they encounter in their daily transactions [see for example Abdelhamid and ElMahdi (2003)]. This paper will focus on informal employment and not on informal enterprises, or in other words on the change of workers’ status rather than enterprises’ status from informal to formal.<sup>3</sup>

A few studies examine the size of the informal sector by focusing on the role played by taxes. For example, Ihrig & Moe (2000) show how tax policy affects the informal sector size. Johnson et al. (1998) also find that the informal sector is large when the tax burden is large. Others have examined the sectoral choice and the determinants of informal employment such as McCormick and Wahba (2004) for Egypt and Packard (2007) for Chile, but unlike the aforementioned studies, the rest of the literature’s focus had been on earnings.

Little is known about the dynamics of informal employment in developing or developed countries with a few exceptions like Maloney (1998) and Gong et al. (2004). Maloney (1998) offered the first study of worker transitions between sectors and found little evidence in support of the dualistic labor market view in Mexico. Gong et al. (2004) analyzed mobility in urban Mexico between three labor market states: working in the formal sector, working in the informal sector, and not working. They found that the formal sector jobs were superior to informal sector jobs and that working in the informal sector was a temporary state for those who could not find a formal sector job and could not afford to stay unemployed. Entry and exit rates for the formal sector were lower than for the informal one.

### **3. Conceptual Framework**

The traditional view of the informal sector is one based on Fields (1975) where it is believed to be a search place for a high wage job. This initial view of the informal sector was that of a marginal sector in terms of its place in, and contribution to the overall economy. It was seen as a transitional phenomenon. It was basically viewed as a place where workers waited for formal sector jobs — practically a stepping stone. The underlying characteristic behind this view is a dualistic and segmented labor market. However, more recently Maloney (2003) for example, has questioned this view. It is conjectured that the informal sector is not marginal and that it contributes significantly to employment and output. In addition, recent evidence suggests that it is a more permanent phenomenon.<sup>4</sup> Within this framework, this paper will provide empirical evidence on the segmentation of the labor market by examining the mobility of workers from informal to formal work.

#### ***Definition & Measurement***

It is important first to define informal employment as used in this paper. Informal employment status refers to employees of informal enterprises as well as wage employment in formal enterprises, households, or those with no fixed employer, who are not covered by social security and/or have no contract. Informal employment includes all remunerative work

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<sup>3</sup>The graduation of informal enterprises to formal status is important, but is beyond the scope of this paper.

<sup>4</sup> See Blunch et al (2001) for a discussion on the changing role of the informal sector.

— both self-employment and wage employment — that is not recognized, regulated, or protected by existing legal or regulatory frameworks and non-remunerative work undertaken in an income-producing enterprise. Thus, the paper will adopt the ILO 1993 definition of informal activity — which is activity unregulated by formal institutions and regulations of society such as contracts, labor laws, registration and taxation. The lack of a job contract and social insurance coverage would be used to identify informality in our analysis.

#### **4. Data**

The analysis in this paper will be based on the Egypt Labor Market Panel Survey (ELMPS 06) which is a follow-up survey to the Egypt Labor Market Survey of 1998 (ELMS 98), which was carried out in November-December 1998 by the Economic Research Forum (ERF) in cooperation with the Egyptian Central Agency for Public Mobilization and Statistics (CAPMAS), the Egyptian government's prime statistical agency. The ELMPS 06 is the second round of what is intended to be a periodic longitudinal survey that tracks the labor market and demographic characteristics of the households and individuals interviewed in 1998, any new households that might have formed as a result of splits from the original households, as well as a refresher sample of households to ensure that the data continues to be nationally representative. The field work for ELMPS 06 was carried out from January to March 06.

The final sample of 8,349 households is made up of 3,684 households from the original ELMS 98 survey, 2,167 new households that emerged from these households as a result of splits, and a refresher sample of 2,498 households. Of the 23,997 individuals interviewed in 1998, 17,357 (72 %) were successfully re-interviewed in 2006, forming a panel that is used for our analysis. The attrition that occurred in the original 1998 sample was mostly random in nature since it resulted from the loss of records containing identifying information for the 1998 households at CAPMAS. Of the 1,115 households that could not be re-interviewed, 615 are due to loss of records and the remainder is made up of expected losses due to total relocation of the household, death of all household members, or refusal to participate in the survey.<sup>5</sup> The questionnaire for the ELMPS 06 is closely based on that used in the ELMS 98 to ensure comparability of the data over time.

The paper will make use of the panel nature of ELMPS 06 to estimate the probability of those who were informally employed in 1998 having formal employment by 2006. We use lack of job contract *and* social security as our measure of informality. We focus on non-agriculture employment (NAE) and also look at private non-agriculture waged work (PNAW).

#### ***Informality in 2006***

First, examining informality trends between 1998 and 2006 provide us with a slightly different picture to earlier trends observed between 1988 and 1998.<sup>6</sup> Overall, informality among non-agriculture employment (NAE) has increased slightly from 35% to 36%. Interestingly however, informality among private non-agriculture waged work (PNAW) has fallen from 70% to 66% suggesting that the share of workers in that sector who has contracts & social security coverage has increased. This may be due to the changes in labor laws introduced in 2003, although identifying the impact of the new labor law is beyond the scope of this paper.

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<sup>5</sup> For more details, see Barsoum, G. 2006. Egypt Labor Market Panel Survey 2006, Final Report. The Population Council, Cairo, Egypt.

<sup>6</sup> El Mahdi and Rashed (2007) used the ELMPS 06 to compare the changes that took place between 1998 and 2006 to micro and small enterprises.

In addition, the composition of the non-agricultural informal employment has changed. As Figure 2 suggests, the proportion of regular waged workers has increased by almost 15 percentage points and amounted to almost 60% in 2006. Another interesting issue is the decline in the share of unpaid family workers over this time period.

Examining the characteristics of informal workers in 1998 and 2006, one can observe that informal employment is still male dominated, more so for PNAW, although there has been a slight increase in the proportion of women. There has been an increase in the share of 20-29 years old among informal workers. This pattern may be the result of a queuing process by the new entrants to the labor market who might ultimately graduate to formal jobs and may also be the result of previous fertility trends that is translated into more youth entering the labor market. Table 1 also suggests that the share of illiterate workers among informal workers has declined which might be due to the overall increase in educational attainment over that period. There is also a noticeable increase in the share of those with intermediate education among informal workers in 2006. Moreover the share of university graduates has increased slightly over this period suggesting that more university graduates are informally employed in 2006 than in 1998. The regional variation in informal employment is quite interesting. Greater Cairo no longer has 1 in 5 informal workers. The biggest regional increase in the share of informal workers was in Upper Urban Egypt, which almost doubled over this period.

### ***Panel Analysis***

For the purpose of our analysis and given our research question, we limit our analysis to those who were in the labor market in 1998 and ask whether they have become less informal by 2006.<sup>7</sup> Table 2 presents the transitional matrices. Almost 22% of NAE workers who had no contracts in 1998 had job contracts by 2006 and 30% who were not covered by social insurance had coverage by 2006. This suggests that 20-30% of NAE workers have graduated over that period. Looking at PNAW, similar patterns are observed albeit at a lower frequency.

Looking at the proportion of informal workers who graduated to semi-formal (have either a job contract *or* social insurance coverage) or became formal (acquiring both a contract & social insurance coverage), Figure 3 suggests that around 37% of informal workers in NAE moved to semi-formal jobs, and 19% moved to formal jobs. Among informal workers in PNAW in 1998, almost 35% moved to semi-formal jobs, and 21% moved to formal work. However, those statistics refer to those who were in informal employment in 1998 and were still employed in 2006. This doesn't capture those who might have become discouraged and dropped out of the labor market, as well as those who might be unemployed in 2006. In order to capture the discouraged and unemployed group, we examine informal workers in 1998 but do not restrict the analysis to those who stayed employed in 2006 but include those who were unemployed or not working in 2006 (as long as they were of working age, not retired, and not disabled). In fact, Figure 4 shows that once we allow for discouraged and unemployed workers, the proportion of 1998 informal workers who graduated to semi-formal and formal jobs is lower than that shown in Figure 3. Examining the effect of discouraged workers shows that this is particularly an issue for females, but not as much for male workers. Of the informally employed female workers in 1998, approximately 45% were discouraged (left the labor market) by 2006, and 7% were unemployed. This is a relatively high proportion since during the same period, of females employed in the formal sector, only 8% became discouraged and 1% became unemployed by 2006. As for males, among 1998 informal workers, only 4% became discouraged and 4% were unemployed in 2006.

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<sup>7</sup> The drawback for examining two points in time is that this might miss movements within this period.

### ***Who has moved?***

Table 3 examines the characteristics of movers — informal workers who by 2006 have become semi-formal (either got a job contract or social insurance coverage) or formal workers (acquiring both a contract and social insurance coverage). Again we distinguish between non-agriculture employment (NAE) and private non-agriculture waged work (PNAW). First, it is clear that movers are mostly males, and tend to be young, between 20-29 years old. Those between 20-39 years of age account for the majority of movers, around three quarters roughly. Examining the educational composition of movers, there doesn't seem to be a bias towards those with higher education. Yet, this will be investigated in the next section, when we examine the probability of graduation for the different educational levels.

Another interesting issue is the destination of the movers. When we examine NAE, it becomes clear that informal workers who become semi-formal don't necessarily all become waged workers; only 65% do and the rest become self-employed (15%) or employers (19%). Around, 80% of private non-agriculture waged informal workers stay as waged workers once they become semi-formal, 14% become employers and 6% self-employed.

The informal sector has been seen by many as a waiting sector where workers queue for good jobs and in particular for public sector jobs. Table 6 shows that around 50% of informal workers who move to formal jobs tend to move to the public sector. Around 30% of informal workers who graduate to semi-formal jobs also end up in the public sector.<sup>8</sup> This suggests that a substantial proportion of queuing is for public sector employment.

Finally, another interesting issue regarding informal workers who move out of informality is the main method by which they get their semi-formal or formal employment. Social networks (friends & family) play an important role, though less so for formal jobs relative to semi-formal jobs. Also, for formal employment getting a job through the formal channel (such as government channels, job applications... etc.) tends to be more important than informal methods such as through social networks or contractor.

### **5. Determinants of Graduating from Informal to Formal Employment**

The main aim of this paper is to examine the determinants of informal workers graduating to semi-formal or formal jobs. We estimate a probit model with selection to control for selectivity into informality in 1998 (i.e. control for the selection into informality before estimating mobility out of informality in 2006). We use whether the informal job in 98 was the first job as an instrument to control for selectivity into informal employment in 1998. The idea here is that many workers begin their labor market experience with informal employment. Individual characteristics, such as age, education, gender, and region of residence are used as controls. We estimate four models distinguishing between mobility from informal status in 1998 to semi formal (either job contract or social security coverage) and formal jobs (both job contract and social security coverage) by 2006. We consider non-agriculture employment (NAE) and private non- agriculture waged employment (PNAW) as before. The detailed results are available in the Appendix.

The interest here is in whether informal workers are able to move into formal (or semi formal) jobs. First, we examine the probability of mobility out of informality by everyone in that sector but exclude those who are not of working age and those who are retired or disabled (i.e. include discouraged workers and those unemployed in 2006). As seen above,

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<sup>8</sup> It has to be noted that semi-formal employment refers to having either a job-contract or social insurance coverage. Formal employment refers to having both a job-contract and social insurance coverage. Thus, it is not surprising that the proportion of movers to public sector jobs is higher among informal to formal moves as opposed to informal to semi-formal ones.



this is particularly important for females who tend to drop out of the labor market from informal employment more than males do.

Figure 7 provides the average predicted conditional probabilities by gender. The conditional probability of moving from informal to semi-formal employment is higher (almost twice) than that of moving from informal to formal employment, which is not surprising. However, although similar patterns appear for both genders, males are twice as likely as females to move out of informality. For example, the average probability of males moving from informal to semi formal employment is 43% in non-agriculture employment (NAE) which is twice the probability of females. Overall, our estimates suggest that for the average male the probability of graduating from informal employment to a semi-formal employment is around 40% and to a formal job is only 20%. For the average female, the probability to graduate from informal employment to semi-formal employment is around 20% and only around 10% to formal employment.

If we restrict the analysis to those informal workers who stay in employment between 1998 and 2006 (i.e. ignore the discouraged worker effects and unemployment), we find that the probability of moving out of informality is higher for both genders and the gap between males and females is narrower. In addition, the probability of moving into formal jobs is higher than above — roughly 30% of informal workers ended up with formal jobs and around 50% managed to secure a semi-formal job status. Thus this suggests that ignoring the discouraged worker effect might be misleading.

Examining the predicted conditional probability for a reference informal worker provides a more informative picture of the probability of moving out of informal work to semi-formal/formal employment (see Figures 9-12). It is clear from the estimates that educational levels play a very important role in mobility out of informality. It is clear that mobility between informal and formal employment is positively related to education for both men and women. As discussed before women have lower probabilities of moving from informal jobs to other semi-formal or formal jobs. The estimates suggest that women tend to be pushed out of informal employment out of the labor market all together. University educated men tend to have a very high chance of graduating from informal to semi-formal/formal work. However, this is not the case for male workers with lower education or no education. Thus this suggests that the labor market is segmented along gender and educational levels.

## **6. Conclusion**

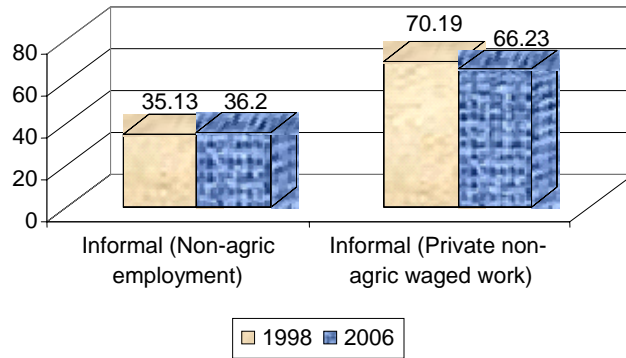
This paper addresses a very important question, namely whether informal employment is a stepping stone, as first argued by economists such as Fields (1975), or is it a dead end? Using evidence from the Egyptian labor market, and controlling for selectivity into informal jobs, we estimate the conditional probability of graduating from informal employment to semi-formal and formal jobs. The empirical findings suggest that the mobility from informal to semi-formal/formal employment is highly segmented along education and gender. Overall, it seems that informal employment is a stepping stone for highly educated male workers, but is a dead end for the uneducated and for female workers.

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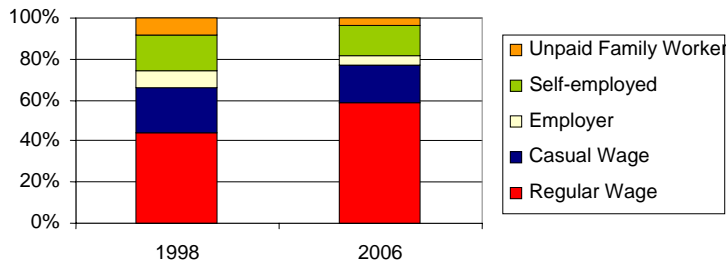
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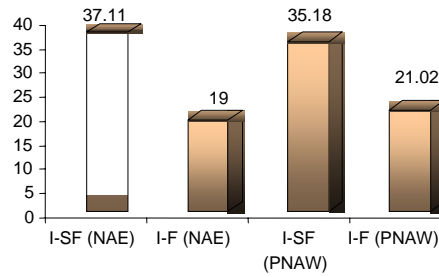
**Figure 1: Informality in Egypt, 1998 & 2006**



**Figure 2 : Composition of Informal Workers (ENA) by Work Status (%)**



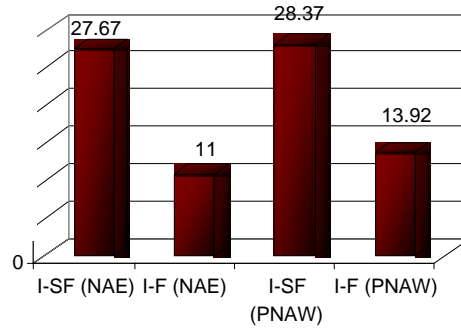
**Figure 3 : % of Informal Workers who Moved to Semi-Formal or Formal Jobs**



I: informal; SF: semi-formal; F: formal; NAE: non-agriculture employment; PNAW: private non-agriculture waged.

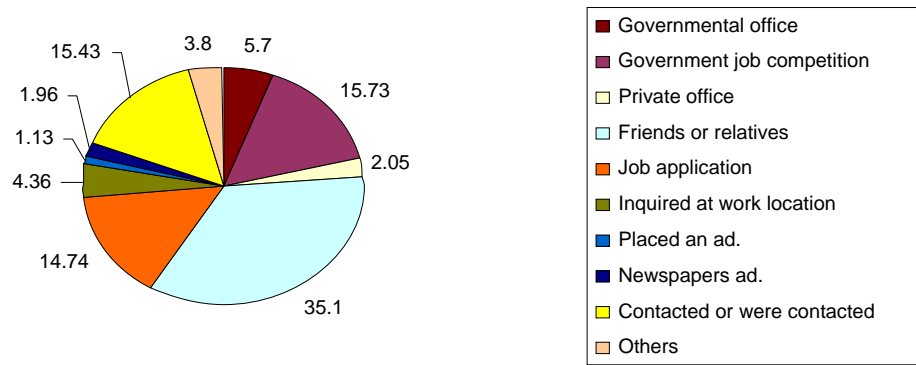
Note: Informal in 1998 and still employed in 2006.

**Figure 4 : % of Informal Workers who Moved to Semi-Formal or Formal Jobs**

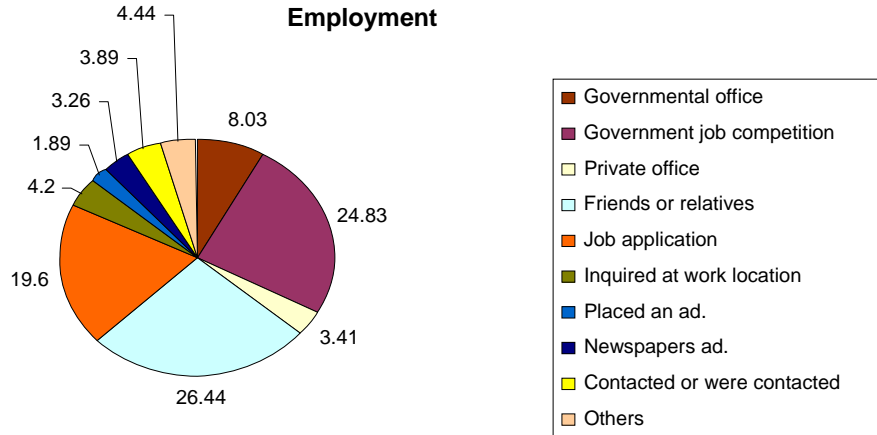


Note: Informal in 1998, but discouraged, unemployed or employed in 2006.  
 I: informal; SF: semi-formal; F: formal; NAE: non-agriculture employment; PNAW: private non-agriculture waged.

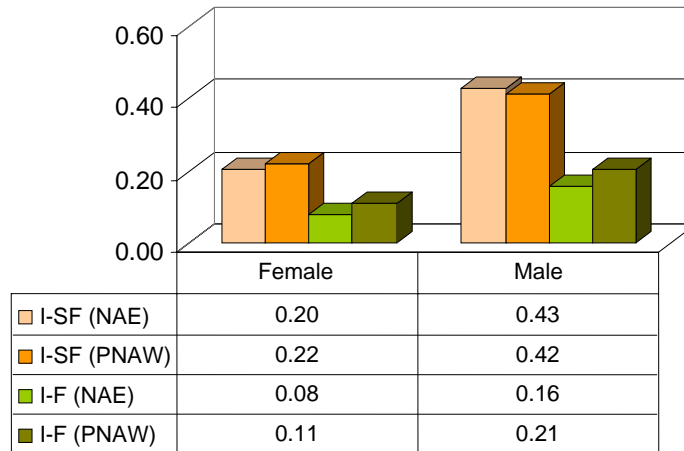
**Figure 5A: Main Method of Getting Semi-Formal Non-Agric Employment**



**Figure 5B: Main Method of Getting Formal Non-Agric. Employment**

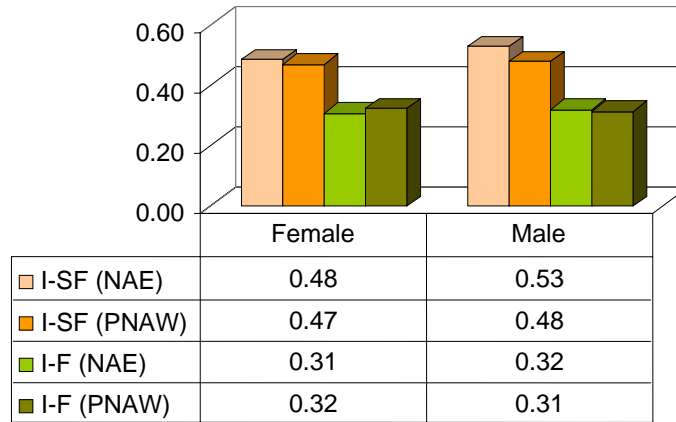


**Figure 7: Predicted Conditional Probability of Mobility out of Informal Employment**



Notes: This is the conditional probability of informal workers in 1998 (everyone in that sector excluding those who are not of working age, those retired or are disabled, i.e. include discouraged workers and those unemployed in 2006) moving into semi-formal or formal employment by 2006. This is average predicted conditional probability.

**Figure 8: Predicted Conditional Probability of Moving out of Informal Employment**



Notes: This is the conditional probability of informal workers in 1998 who were still employed in 2006 having moved into semi-formal or formal employment by 2006. This is average predicted conditional probability.

Figure 9: Conditional Predicted Probability of Mobility out of Informal Employment for all 1998 Informal workers\*\*, by Educational Level: Females

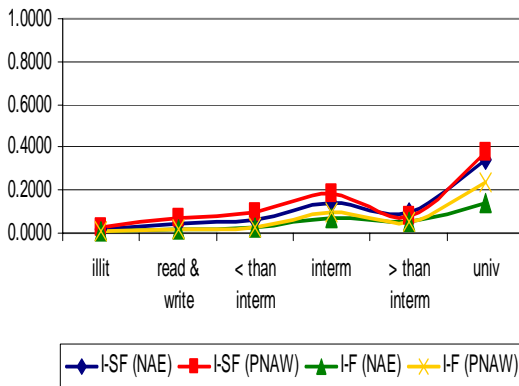


Figure 10: Conditional Predicted Probability of Mobility out of Informal Employment for 1998 Informal workers who were employed in 2006\*, by Educational level: Females

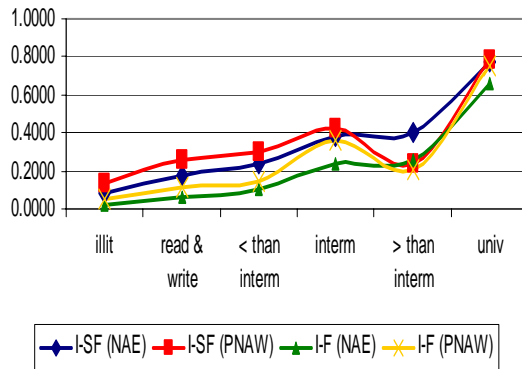


Figure 11: Conditional Predicted Probability of Mobility out of Informal Employment for all 1998 Informal workers\*\*, by Educational Levels: Males

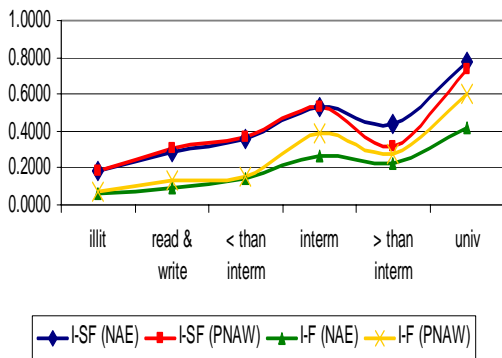
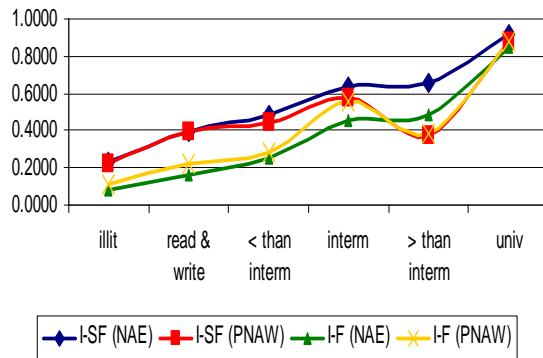


Figure 12: Conditional Predicted Probability of Mobility out of Informal Employment for 1998 Informal workers who were employed in 2006\*, by Educational Levels: Males



Notes: \*\*This is the conditional probability of informal workers in 1998 (everyone in that sector excluding those who are not of working age, those retired or are disabled, i.e. includes discouraged workers and those unemployed in 2006) moving into semi-formal or formal employment by 2006.

\*This is the conditional probability of informal workers in 1998 who were still employed in 2006 having moved into semi-formal or formal employment by 2006.

Based on a reference person who is between 30 and 39 years of age, head of household, married and lives in Greater Cairo; job in 1998 was the first job.

I: informal; SF: semi-formal; F: formal; NAE: non-agriculture employment; PNAW: private non-agriculture waged.



**Table 1: Who are the Informal Workers?**

	Non-agriculture Employment (NAE)		Private Non-agriculture Waged Workers (PNAW)	
	1998	2006	1998	2006
Male	83.98	85.10	90.86	88.97
Married	48.13	53.86	40.01	47.15
Head of HH	35.53	40.91	31.80	36.89
<i>Age</i>				
15-19	18.56	11.77	22.82	13.64
20-29	35.80	45.67	41.41	50.67
30-39	24.95	24.66	22.24	23.41
40-49	13.14	11.37	8.72	8.40
50-59	7.56	6.53	4.81	3.88
<i>Educational Level</i>				
None	34.30	26.35	30.04	21.17
Reads & writes	11.17	7.09	12.78	7.01
Less than intermediate	24.71	22.52	26.72	23.57
Intermediate	21.18	34.35	23.32	38.10
Higher than intermediate	3.45	2.91	2.67	3.21
University & higher	5.20	6.79	4.48	6.94
<i>Region</i>				
Greater Cairo	19.71	13.35	20.41	14.68
Alex. & Canal Cities	7.08	8.48	7.16	9.00
Lower Urban	12.49	11.28	12.68	11.28
Upper Urban	6.87	12.46	6.23	12.92
Lower Rural	28.49	28.24	30.43	28.41
Upper Rural	25.35	26.19	23.09	23.71

**Table 2: Transition Matrices**

Non-Agriculture Employment			
	Job Contract 06	No Job Contract 06	Total
Job Contract 98	95.31	4.69	100
No Job Contract 98	<b>22.07</b>	77.93	100
Total	70.12	29.88	100

Non-Agriculture Employment			
	Social Insurance 06	No Social Insurance 06	Total
Social Insurance 98	91.35	8.65	100
No Social Insurance 98	<b>29.93</b>	70.07	100
Total	70.55	29.45	100

Private Non-Agriculture Waged			
	Job Contract 06	No Job Contract 06	Total
Job Contract 98	97.35	2.65	100
No Job Contract 98	<b>12.63</b>	87.37	100
Total	69.05	30.95	100

Private Non-Agriculture Waged			
	Social Insurance 06	No Social Insurance 06	Total
Social Insurance 98	93.37	6.63	100
No Social Insurance 98	<b>19.43</b>	80.57	100
Total	68.34	31.66	100

**Table 3: Who Are the Movers?**

	Informal 98 to <b>Semi-Formal</b> NAE 06	Informal 98 to <b>Semi- Formal</b> PNAW 06	Informal 98 to <b>Formal</b> NAE 06	Informal 98 to <b>Formal PNAW</b> 06
Male	94.52	95.41	92.91	94.17
Married	44.36	39.07	31.81	31.38
Head of HH	35.29	30.32	22.88	22.36
<i>Age</i>				
15-19	12.62	14.59	11.40	10.07
20-29	43.17	48.61	58.33	60.51
30-39	29.39	27.79	24.98	25.90
40-49	11.27	6.66	4.11	2.54
50-59	3.55	2.36	1.18	0.98
<i>Educational Level</i>				
None	16.41	14.38	7.06	5.62
Reads & writes	7.50	9.09	3.66	4.50
Less than intermediate	25.69	27.66	22.27	20.16
Intermediate	33.39	35.33	44.49	49.18
Higher than intermediate	4.62	2.11	4.97	2.45
University & higher	12.39	11.42	17.55	18.09
<i>Region of Residence</i>				
Greater Cairo	23.28	22.41	30.79	34.14
Alex. & Canal Cities	13.89	15.06	15.56	13.12
Lower Urban	16.13	15.83	8.95	7.67
Upper Urban	11.10	9.19	9.06	8.61
Lower Rural	16.93	16.53	22.50	23.45
Upper Rural	18.66	20.98	13.13	13.02
Sample Size	308	199	119	94

**Table 4: Employment Status of Informal Movers & Semi-Formal Jobs: (NAE)**

Employment Status of Informal Movers in 1998 (NAE)	Semi-Formal Employment Status in 2006 (NAE)					Total
	wage work	employer	self employed	Unpaid family work		
Wage Worker	80.69	12.85	6.15	0.31		100
Employer	26.98	56.01	17.01	0		100
Self- employed	26.07	20.96	52.97	0		100
Unpaid Family Worker	50.6	31.96	11.94	5.5		100
<b>Total</b>	<b>65.39</b>	<b>19.13</b>	<b>14.91</b>	<b>0.57</b>		<b>100</b>

Note: informal workers (NAE) in 1998, semi-formal employment (NAE) in 2006.

**Table 5: Employment Status of Informal PNAW Movers to Semi-Formal Jobs**

Employment Status of Informal Movers in 1998 (PNAW)	Semi-Formal Employment Status in 2006				Total
	Waged worker	employer	self employed	unpaid family	
Wage Worker	79.79	13.46	6.44	0.32	100

Note: informal workers (PNAW) in 1998, semi-formal employment (NAE) in 2006

**Table 6: Sectoral Destinations of Informal Movers**

	I-SF (NAE)	I-F (NAE)	I-SF (PNAW)	I-F (PNAW)
Government	20.22	39.77	24.04	35.15
Public Enterprise	7.24	13.42	8.44	14.92
Private	71.35	44.03	65.59	46.5
Joint-Venture	1.19	2.77	1.94	3.42
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100.01</b>	<b>100</b>

Note: I: informal; SF: semi-formal; F: formal; NAE: non-agriculture employment; PNAW: private non-agriculture waged.

## Appendix

**Table A1: Determinants of Informal Worker Graduating to Semi-Formal Employment: Probit Model with Selection**

	1		2	
	I-SF (ENA)	Informal 98	I-SF (PNAW)	Informal 98
Male	1.158 (6.52)**	0.326 (3.40)**	0.984 (3.76)**	0.629 (5.34)**
<i>Region of residence in 98 (ref: Greater Cairo)</i>				
Alex. & Canal Cities	0.156 (0.94)	-0.060 (0.57)	0.293 (1.49)	-0.039 (0.31)
Lower Urban	-0.128 (0.83)	0.013 (0.13)	-0.090 (0.49)	-0.001 (0.01)
Upper Urban	-0.021 (0.14)	-0.114 (1.18)	-0.065 (0.33)	-0.180 (1.58)
Lower Rural	-0.055 (0.33)	-0.172 (1.64)	-0.021 (0.10)	-0.209 (1.78)
Upper Rural	0.070 (0.39)	0.208 (1.83)	0.258 (1.20)	0.073 (0.55)
<i>Age in 98 (ref: 30-39)</i>				
15-19	-0.510 (1.94)	1.244 (7.59)**	-0.376 (1.07)	1.360 (7.84)**
20-29	-0.245 (1.30)	0.513 (5.24)**	-0.225 (0.91)	0.612 (5.55)**
40-59	-0.050 (0.26)	-0.526 (6.18)**	-0.217 (0.71)	-0.714 (6.91)**
<i>Educational Level (ref: none)</i>				
Reads & writes	0.346 (1.39)	-0.974 (7.75)**	0.390 (1.43)	-0.686 (4.83)**
Less than intermediate	0.561 (2.69)**	-0.886 (7.99)**	0.538 (2.15)*	-0.763 (6.24)**
Intermediate	1.009 (3.27)**	-1.653 (16.01)**	0.931 (2.70)**	-1.374 (11.03)**
Higher than intermediate	0.797 (1.73)	-2.046 (12.89)**	0.361 (0.60)	-2.017 (10.97)**
University & higher	1.706 (3.45)**	-2.272 (17.45)**	1.476 (2.35)*	-2.054 (12.67)**
Married_98	0.113 (0.63)	-0.338 (3.46)**	0.129 (0.56)	-0.389 (3.34)**
Head_98	-0.252 (1.39)	-0.181 (1.92)	-0.143 (0.62)	-0.126 (1.07)
First_job98		0.315 (4.18)**		0.325 (3.70)**
Constant	-1.916 (6.96)**	0.695 (4.48)**	-1.899 (4.40)**	-0.015 (0.07)
Wald test of indep. eqns. (rho = 0):		chi2(1) = 0.01 Prob > chi2 = 0.927		chi2(1) = 0.01 Prob > chi2 = 0.907
Observations		3314		2912

Notes: Informal workers in 1998 (everyone in that sector excluding those who are not of working age, those retired or are disable, i.e. include discouraged workers and those unemployed in 2006) moving into semi-formal or formal employment by 2006.

Robust t statistics in parentheses.

\* significant at 5%; \*\* significant at 1%

**Table A2: Determinants of Informal Worker Graduating to Formal Employment: Probit Model with Selection**

	3		4	
	I-F (ENA)	Informal 98	I-F (PNAW)	Informal 98
Male	0.734 (3.15)**	0.323 (3.35)**	0.742 (1.85)	0.628 (5.33)**
<i>Region of residence in 98 (ref: Greater Cairo)</i>				
Alex. & Canal Cities	0.013 (0.07)	-0.061 (0.58)	-0.107 (0.48)	-0.041 (0.33)
Lower Urban	-0.629 (3.20)**	0.014 (0.15)	-0.791 (3.15)**	-0.000 (0.00)
Upper Urban	-0.356 (1.91)	-0.113 (1.18)	-0.403 (1.70)	-0.180 (1.58)
Lower Rural	-0.037 (0.19)	-0.173 (1.65)	0.054 (0.24)	-0.211 (1.80)
Upper Rural	-0.317 (1.44)	0.213 (1.87)	-0.355 (1.39)	0.076 (0.57)
<i>Age in 98 (ref: 30-39)</i>				
15-19	-0.591 (1.79)	1.244 (7.58)**	-0.713 (1.68)	1.360 (7.84)**
20-29	-0.091 (0.40)	0.513 (5.26)**	-0.210 (0.76)	0.613 (5.56)**
40-59	-0.026 (0.08)	-0.527 (6.19)**	-0.009 (0.02)	-0.716 (6.91)**
<i>Educational Level (ref: none)</i>				
Reads & writes	0.417 (1.20)	-0.976 (7.78)**	0.485 (1.36)	-0.689 (4.84)**
Less than intermediate	0.639 (2.30)*	-0.882 (7.91)**	0.580 (2.14)*	-0.765 (6.26)**
Intermediate	1.268 (3.80)**	-1.654 (16.00)**	1.464 (5.07)**	-1.378 (11.02)**
Higher than intermediate	1.227 (2.45)*	-2.045 (12.89)**	1.359 (2.19)*	-2.020 (10.95)**
University & higher	1.823 (3.80)**	-2.271 (17.41)**	2.198 (4.92)**	-2.059 (12.67)**
Married_98	0.164 (0.78)	-0.340 (3.49)**	0.175 (0.70)	-0.387 (3.33)**
Head_98	-0.243 (1.12)	-0.185 (1.96)*	-0.237 (0.92)	-0.131 (1.13)
First_job98		0.306 (3.89)**		0.320 (3.64)**
Constant	-2.078 (5.33)**	0.703 (4.51)**	-1.887 (2.68)**	-0.007 (0.04)
Wald test of indep. eqns. (rho = 0):		chi2(1) = 0.85 Prob > chi2 = 0.358		chi2(1) = 0.75 Prob > chi2 = 0.385
Observations		3314		2921

Notes: Informal workers in 1998 who were still employed in 2006 having moved into semi-formal or formal employment by 2006. Robust t statistics in parentheses. \* significant at 5%; \*\* significant at 1%

**Table A3: Determinants of Informal Worker Graduating to Semi-Formal Employment: Probit Model with Selection**

	1		2	
	I-SF (ENA)	Informal 98	I-SF (PNAW)	Informal 98
Male	0.605 (2.39)*	0.743 (6.62)**	0.232 (0.51)	1.029 (7.28)**
<i>Region of residence in 98 (ref: Greater Cairo)</i>				
Alex. & Canal Cities	0.253 (1.33)	-0.042 (0.35)	0.345 (1.61)	-0.008 (0.06)
Lower Urban	-0.129 (0.76)	0.026 (0.24)	-0.046 (0.24)	0.002 (0.01)
Upper Urban	-0.103 (0.62)	-0.001 (0.01)	-0.052 (0.26)	-0.087 (0.71)
Lower Rural	-0.040 (0.22)	-0.097 (0.85)	0.060 (0.28)	-0.148 (1.19)
Upper Rural	0.039 (0.20)	0.246 (2.01)*	0.299 (1.31)	0.089 (0.65)
<i>Age in 98 (ref: 30-39)</i>				
15-19	-0.419 (1.47)	1.173 (6.72)**	-0.460 (1.09)	1.307 (7.14)**
20-29	-0.247 (1.23)	0.480 (4.51)**	-0.286 (1.04)	0.575 (4.94)**
40-59	-0.081 (0.37)	-0.559 (5.80)**	-0.147 (0.41)	-0.697 (6.34)**
<i>Educational Level (ref: none)</i>				
Reads & writes	0.511 (1.78)	-0.994 (7.42)**	0.556 (1.83)	-0.666 (4.52)**
Less than intermediate	0.726 (3.12)**	-0.918 (7.59)**	0.707 (2.60)**	-0.760 (6.01)**
Intermediate	1.169 (3.62)**	-1.573 (13.74)**	1.098 (3.02)**	-1.290 (9.95)**
Higher than intermediate	1.252 (2.52)*	-2.035 (11.08)**	0.706 (1.03)	-1.956 (9.88)**
University & higher	2.250 (4.59)**	-2.192 (15.20)**	2.179 (3.70)**	-2.026 (11.94)**
Married_98	0.212 (1.07)	-0.340 (3.10)**	0.174 (0.71)	-0.327 (2.57)*
Head_98	-0.137 (0.69)	-0.224 (2.16)*	0.017 (0.07)	-0.224 (1.82)
First_job98		0.305 (3.74)**		0.315 (3.37)**
Constant	-1.376 (3.84)**	0.158 (0.89)	-1.067 (1.47)	-0.523 (2.42)*
Wald test of indep. eqns. (rho = 0):		chi2(1) = 0.06 Prob > chi2 = 0.81		chi2(1) = 0.14 Prob > chi2 = 0.71
Observations	3053		2804	

Notes: Informal workers in 1998 who were still employed in 2006 having moved into semi-formal or formal employment by 2006.

Robust t statistics in parentheses.

\* significant at 5%; \*\* significant at 1%

**Table A4: Determinants of Informal Worker Graduating to Formal Employment: Probit Model with Selection**

	3		4	
	I-F (ENA)	Informal 98	I-F (PNAW)	Informal 98
Male	0.383 (1.15)	0.605 (4.97)**	0.116 (0.21)	1.015 (6.87)**
<i>Region of residence in 98 (ref: Greater Cairo)</i>				
Alex. & Canal Cities	0.172 (0.76)	-0.106 (0.80)	0.007 (0.03)	-0.138 (0.94)
Lower Urban	-0.611 (2.57)*	-0.018 (0.15)	-0.716 (2.44)*	-0.082 (0.62)
Upper Urban	-0.384 (1.78)	-0.046 (0.40)	-0.385 (1.49)	-0.147 (1.13)
Lower Rural	0.062 (0.28)	-0.067 (0.56)	0.063 (0.26)	-0.114 (0.88)
Upper Rural	-0.146 (0.58)	0.237 (1.78)	-0.104 (0.36)	-0.014 (0.09)
<i>Age in 98 (ref: 30-39)</i>				
15-19	-0.658 (1.61)	1.215 (6.61)**	-0.827 (1.62)	1.320 (6.85)**
20-29	-0.205 (0.76)	0.545 (4.73)**	-0.369 (1.14)	0.625 (4.99)**
40-59	-0.092 (0.23)	-0.560 (5.20)**	-0.268 (0.43)	-0.629 (5.24)**
<i>Educational Level (ref: none)</i>				
Reads & writes	0.669 (1.59)	-1.075 (7.30)**	0.641 (1.60)	-0.759 (4.71)**
Less than intermediate	0.951 (2.85)**	-1.020 (7.68)**	0.821 (2.65)**	-0.827 (6.12)**
Intermediate	1.672 (4.25)**	-1.695 (13.81)**	1.647 (5.07)**	-1.323 (9.81)**
Higher than intermediate	1.899 (3.37)**	-2.213 (12.22)**	1.446 (2.17)*	-1.916 (8.98)**
University & higher	2.977 (5.91)**	-2.413 (14.60)**	2.882 (6.37)**	-2.061 (11.11)**
Married_98	0.187 (0.78)	-0.351 (2.89)**	0.118 (0.43)	-0.346 (2.54)*
Head_98	-0.044 (0.17)	-0.264 (2.30)*	0.037 (0.13)	-0.263 (2.06)*
First_job98		0.286 (3.11)**		0.308 (3.20)**
Constant	-1.682 (3.18)**	0.218 (1.14)	-1.143 (1.23)	-0.560 (2.51)*
Wald test of indep. eqns. (rho = 0):		chi2(1) = 0.83 Prob > chi2 = 0.36		chi2(1) = 0.61 Prob > chi2 = 0.43
Observations	2866		2700	

Notes: Informal workers in 1998 who were still employed in 2006 having moved into semi-formal or formal employment by 2006. Robust t statistics in parentheses. \* significant at 5%; \*\* significant at 1%