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ENTREPRENEURIAL ACTIVITIES IN EGYPT

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Abstract*

The return of temporary migrants represents a key channel through which migration exerts an economic influence upon origin countries. The literature has shown that returnees tend to opt for entrepreneurial activities and that this could contribute to job creation. However, this effect crucially hinges on returnees' ability to carry on their entrepreneurial activity over time, and no evidence of whether they are successful or not in doing so has been provided so far. We address this research question for Egypt, using a labour market survey with a longitudinal dimension which allows us to analyze the determinants of the survival of entrepreneurial activities. Non-random selection in unobservables is likely to generate endogeneity between entrepreneurs' migration experience and the probability of survival over time. We address this concern through a recursive bivariate probit model, where the rate of population growth is used as an instrument for migration, and through a two-stages residuals inclusion estimation. We find that past migration experience of the entrepreneurs significantly improves the chances of survival of their entrepreneurial activities

Keywords

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1 Introduction

Several recent papers have dealt with the relationship between migration and entrepreneurship, analyzing the occupational choice of returnees and providing evidence of their high propensity to engage in entrepreneurial activities. Dustmann and Kirchkamp (2002) show that more than half of the returns migrants are economically active after return, and that most of them opt for an entrepreneurial activity. Ilahi (1999) shows that return migrants exhibit a high tendency for self-over wage-employment in Pakistan, with accumulated foreign savings driving this choice. Gubert and Nordman (2008) show that almost 30 per cent of interviewed returnees to Algeria, Tunisia and Morocco become employers or independent workers. They also show that their occupational choice depends on the employment status and level of integration experienced in the countries of destination.

McCormick and Wahba (2001) study the occupational choice of Egyptian returnees, with a particular focus on the characteristics of the returnees who decide to invest, and they provide evidence that the duration of the migration experience and the amount of foreign savings increase the probability of becoming an entrepreneur upon return. A similar conclusion is reached by Mesnard (2004) for Tunisia.

More recently, the hypothesis that return migration increases the probability of opting for entrepreneurial activities has been tested comparing the occupational choices of returnees and stayers. Kilic, Carletto, Davis, and Zezza (2009) find that returnees to Albania are, *ceteris paribus*, more likely than stayers to become entrepreneurs. Wahba and Zenou (2009) find that Egyptian returnees have a higher propensity to set up an entrepreneurial activity, notwithstanding the loss of social capital due to the period spent in a foreign country, thanks to the experiences and savings they accumulated abroad.

A recent contribution by Piracha and Vadean (2010) goes one step further, analyzing the contribution that return migrants give to employment creation and growth in Albania. They dif-

ferentiate between different types of self-employers: individual working as own account workers and owners of enterprises with paid employees, with the latter group being defined as entrepreneurs. They conclude that, without the migration experience, returnees would have been more likely to be own account workers and less likely to be entrepreneurs, thus giving a lower contribution to the economic development of the country.

This paper goes in the same direction as Piracha and Vadean (2010). In developing countries, the private sector consists largely of micro and small enterprises (MSEs), that are exposed to specific risks that threaten their development and survival over time. The single most relevant constraint is represented by the lack of access to credit (Beck and Demirguc-Kunt, 2006) which is mainly due to the widespread informal status of these enterprises, to the entrepreneur's inability to provide adequate collateral, and to the difficulties connected to a transaction with a formal financial institution. The sector is characterized by substantial turnover: every year, a great number of new enterprises enter the market, a few enterprises evolve rapidly, and many others close down. Thus, in order to assess whether the establishment of a new economic activity can actually produce a substantial contribution to development, it is crucial to understand which factors are conducive to its survival over time, as a narrower focus on the determinants of its establishment would overlook the fact that newly created enterprises face a high failure hazard.

A plausible hypothesis is that, among many relevant factors, the migration experience of the entrepreneur plays a role in explaining the chance of survival of the entrepreneurial activity. The acquisition of skills in the host countries could improve returnees' entrepreneurial abilities, and their accumulated savings could not only help to pay the start-up costs, but they could also loosen the constraint created by a limited access to credit. This entails that the engagement of return migrants in entrepreneurial activities could be more stable than the engagement of stayers. Still, while abroad, migrants lose part of their social capital, which is generally a key input in the management of a small economic activity; moreover, once back home they have better opportunities as salaried workers (Wahba, 2007), so that they might have fewer incentives

to struggle for the survival of their enterprise.

This paper focuses on a research question that, to the best of our knowledge, has not yet been addressed in the economic literature. Do returnees and stayers differ with respect to their chances of survival as entrepreneurs? Is the entrepreneurial activity of return migrants more likely to persist over time?

We address this question with respect to Egypt, both because of data availability and the large number of Egyptian returnees. We draw our data from the Egypt Labour Market Panel Survey, ELMPS henceforth, collected by the Economic Research Forum. The ELMPS includes two waves, conducted in 1998 and 2006 respectively, that give this dataset the longitudinal dimension that is essential to track the evolution of entrepreneurial activity over time. The ELMPS provides information on Egyptian households, but it also includes a specific module on household economic projects.

Endogeneity represents a key analytical challenge in the analysis of the relationship between return migration and the survival of entrepreneurial activities: return migrants can be positively or negatively self-selected with respect to unobservables that also influence the survival of their entrepreneurial activities. If, for istance, returnees are more talented than stayers, this would bias upwards the estimated effect of return migration on survival. Conversely, the estimated effect could be biased downwards if return migrants are more risk-prone (risk-lovers could adopt overly risky entrepreneurial strategies) or if migrants turn to be self-selected among the individuals with a lower endowment of social capital. Thus, any relationship in the data between return migration and the survival of entrepreneurial activities might be spurious rather than casual. Moreover, the decision to migrate and the decision to become entrepreneurs can be portrayed as simultaneous choices, with migration being an entrepreneurial strategy itself.

Following Wahba and Zenou (2009), we use a recursive bivariate probit, where the probability of survival as an entrepreneur and the probability of having a migration experience are simultaneously estimated to better identify the causal relationship of interest (Maddala, 1983; Greene, 1998, 2003).

Moreover, we impose an exclusion restriction in the model in order to improve our identification strategy, using the rate of growth of the population in the year of birth of the entrepreneur as an instrument for return. The use of this instrument is inspired by the recent papers by Hanson and McIntosh (2009, 2010), who find that demographic factors significantly influence the scale of migration flows. We also rely on an alternative estimation strategy, the two-stages residuals inclusion estimation, 2SRI, to tackle with the endogeneity problem (Terza, Bazu, and Rathouz, 2008).

Our results show that returnees enjoy a significantly higher probability of surviving as entrepreneurs over time with respect to stayers, and that this effect is robust to the estimation strategies that we adopt to control for the endogeneity of the migration decision.

The paper is structured as follows: Section 2 provides the theoretical background of the paper; Section 3 introduces the ELMPS dataset and presents some descriptive statistics; Section 4 presents the econometric analysis and Section 5 draws the main conclusions.

2   Theoretical background

This section provides a review of the two strands of economic literature that are connected to our research question: the determinants of the survival of entrepreneurial activities, and the link between return migration and entrepreneurship at origin, with a focus on Egypt.

2.1   The survival of entrepreneurial activities

The literature on the survival of entrepreneurial activities is quite recent.[1]   Most of the existent work refers to industrialized countries and data constraints have a non-negligible role for this geographical bias. The longitudinal data that are needed to analyze the persistence of an entrepreneurial activity is often unavailable for developing countries.

The empirical literature that analyzes the survival of an economic activity over time can be di-

vided in two strands, defined with respect to their unit of analysis: a strand that focuses on the survival of the enterprises, and a second strand which deals with the persistence of the entrepreneurial activity by the entrepreneur, that is what we define here as "survival of entrepreneurial activity". Even in this case, the analytical choice is most often data-driven and each of the two options has its own analytical problems. Specifically, when the focus is on the enterprise, problems can arise because of the gap between the legal and economic definition of an enteprise: a change in the legal entity of the enterprise - which is quite common, especially for enterprises that manage to grow - might be wrongly recorded as the failure of the old enterprise and the birth of a new one. Conversely, when the focus is on the entrepreneur, we might run into a different issue: the prosecution of the entrepreneurial activity by an individual does not necessarily entail the survival of the same enterprise. In developing countries, the prevalent informality status of the economic activities makes extremely hard to trace the same enterprise over time; moreover, the risks connected to the adoption of the enterprise as the unit of analysis in a vulnerable economic environment are particularly high, since we might wrongly regard as failures all the changes connected to the adoption of coping strategies in the face of an adverse shock (i.e. the change in the sector of the activity, in the legal status, in its location). Still, the dichotomy in the choice of the unit of analysis is much less sharp when one deals with MSEs, where the survival of the enterprise is strongly related to the occupational choice of the entrepreneur, while this is not true for large enterprises.

The survival of the entrepreneurial activity over time depends on the evaluation, on the side of the entrepreneur, of the value of the expected stream of future earnings from the entrepreneurial activity against the value of the best foregone alternative on the labour market. Needless to say, credit market imperfections could be a binding constraint here, so that an entrepreneur might be forced to abandon her activity because of liquidity problems, and the entrepreneurial activity could fail even if the entrepreneur does not have access to a better alternative.

The persistence of the entrepreneurial activity by the entrepreneur is modelled by Holtz-Eakin, Joulfaian, and Rosen (1994) as a decision based on the comparison among four possible alternatives

(retirement, employment as a wage worker, continuation as a solo entrepreneur, and participation in a partnership) on a set of individual characteristics. More in general, the literature models the decision about the persistence of the entrepreneurial activity only on the basis of the individual characteristics of the entrepreneurs (van Praag, 2003; Carrasco, 1999; Taylor, 1999; Holtz-Eakin, Joulfaian, and Rosen, 1994; Schutjens and Wever, 2000; Schiller and Crewson, 1997).

Conversely, the strand of literature that focuses on enterprise survival generally includes also individual characteristics of the entrepreneur as explanatory variables, since it is recognized that great part of the heterogeneity in the chances of survival of the enterprises can be explained by the heterogeneity among the entrepreneurs.[2]

We believe that, if it is a fact that the individual characteristics of the entrepreneur are key factors in explaining the chances of survival of the enterprise, it is equally reasonable to expect that enterprise's characteristics have a role in explaining the survival of the individual as an entrepreneur. So, in order to identify the variables that could potentially drive the survival of entrepreneurial activities, it is necessary to review the literature on enterprise survival as well.

Three sets of variables are relevant for the survival of the entrepreneurial activity: the characteristics of the entrepreneur, the characteristics of the enterprise, and the business environment in which the entrepreneurial activity is developed. Many of these factors are found to have an ambiguous effect and the empirical evidence on the determinants of the probability of survival of entrepreneurial activities is far from being conclusive.

The age of the entrepreneur - or her age at the time of business' start-up - is found to be an important determinant of survival for German and Vietnamese enterprises (Schutjens and Wever, 2000; Vijverberg and Haughton, 2004). Similar evidence is also found for Britain, where young individuals are more likely to survive as entrepreneurs (Taylor, 1999). Arribas and Vila (2007) estimate that enterprises established by men survive longer than those founded by women.[3]

The employment status of the father of the entrepreneur is often listed among the determinants of enterprise survival; Brüderl, Preisendörfer, and Ziegler (1992) argue that if the father was

self-employed, the likelihood to survive as an entrepreneur is higher. The motivation of the entrepreneur, measured by her previous working condition, is mentioned by van Praag (2003), and Carrasco (1999) as one of the determinants of entrepreneurial activity's survival. They show that if the owner was unemployed prior to the start-up, the entrepreneurial activity has a lower probability of surviving. Motivation is also important according to Taylor (1999): "those who quit their previous employment are more positive and perhaps more persevering in their self-employment decision", thus they are more likely to survive as entrepreneurs. The opposite is true for those entrepreneurs with a defensive motivation, who fear the possible unemployment (Arrighetti and Vivarelli, 1999).

Van Praag (2003) shows that one of the most important determinants of entry into self-employment - asset holdings - does not have any significant effect on the duration of self-employment. Conversely, Holtz-Eakin, Joulfaian, and Rosen (1994) show how, in the US, "those entrepreneurs who have substantial personal financial resources are more successful than those who do not".

There are a number of studies that show that human capital has a significant positive effect on the survival of an economic activity, though they also find that there are differentiated effects across different forms of human capital: vocational schools and training for workers have a significant positive effect on the performance of the enterprises, while the effect of formal schooling is somewhat mixed, at least for developing countries.[4] Vijverberg and Haughton (2004) argue, for example, that the survival rate of Vietnamese small enterprises is not influenced by the educational level of the entrepreneur. The ambiguous impact of formal schooling upon the chances of success of a small economic activity can be explained by two different sets of factors: first, formal schooling does not provide any specific knowledge useful for enterprise management; second, better educated individuals are likely to be able to obtain a higher wage on the labour market, and the higher opportunity cost of entrepreneurial activity reduces the chances of survival as entrepreneurs.

The number of years of work experience of the entrepreneur is found to be a key explaining factor of the survival of the entrepreneurial activity by Schiller and Crewson (1997). While

Brüderl and Preisendörfer (1998) underline the role of social network, measured by the support the entrepreneurs receives from their family, from their friends and from the commercial partners.

Enterprise's characteristics are usually identified as key determinants of an enterprises survival. The "size" of the enterprise is often considered an important predictor of its chances of survival, and the empirical evidence usually shows that large businesses are more likely to survive.[5]

Astebro and Bernhardt (2003) study the relationship between obtaining a loan at the start-up, and the chances of survival of the entrepreneurial activity, and they conclude that both a bank loan and a loan from informal sources are positively related to survival.

Soderbom, Teal, and Harding (2006) do not find any strong evidence that enterprise age affects failure rates, while Vijverberg and Haughton (2004) show that the age of the enterprise is particularly relevant when combined with size. The "liability of adolescence hypothesis" argues that the risk of failure is quite low at the time of start-up, given the stock of initial resources that can be invested to face possible problems; the risk reaches its maximum in the "adolescence" or "early" stage of the enterprise, when the initial capital has been depleted and, in absence of revenues, the entrepreneur is no longer able to manage the activity. Mahmood (2000) finds that "adolescence" lasts between one and two years. After this phase the risk of failure starts to decline.[6]

Finally, the last set of variables to be considered among the potential determinants of survival are the characteristics of the business environment in which the enterprise is operating. The idea behind the introduction of this kind of variables is that a enterprise-friendly environment reduces the failure rate of the entrepreneurial activities. Van Praag (2003) finds that the business failure rate in the area in which the enterprise is located is a key determinant of entrepreneurial activity's survival; Taylor (1999) argues that the unemployment rate at the start up is positively related to the exit from self-employment. Vijverberg and Haughton (2004) include in their model the local wage index and the availability of infrastructures in rural areas, and they observe that the availability of local markets is positively related to the survival of the enterprises. The location

of the enterprise in a rural or an urban area is introduced by Brüderl, Preisendörfer, and Ziegler (1992).

2.2   The survival of Egyptian MSEs

The importance of MSEs for Egypt can be hardly overstated: 46.5 per cent of Egyptian workers are employed in private non agricultural activities, and 95 per cent of the enterprises operating in this sector have no more than four employees. Between 1998 and 2006, the number of micro and small activities increased by 4.5 percent per year, and the number of workers in the private non agricultural sector increased from 3.6 to 5 million (El Mahdi and Rashed, 2007). Such an increase can be traced back to the prolonged recession that hit Egypt in the early 1990s, when a substantial decline in the number of public employees led to the creation of new private economic activities. Together with the recession, the progressive economic liberalization can also account for the growing number of MSEs.[7]

Today, the private sector in Egypt has a dual structure: there are quite a number of big enterprises and a large number of micro enterprises, while there are only a few medium enterprises. The best available data to draw a picture of the sector were collected by the Economic Research Forum in 2003 and 2004: a sample of 4,962 enterprises were interviewed in eight Egyptian governorates. These data show that 42.6 per cent of the enterprises had just one worker, 52.3 per cent between two and four workers, and just 2.3 per cent of enterprises more than 45 workers. The technology they used was generally not advanced.[8]

The large majority of small-scale manufacturing firms in Egypt are family enterprises, where the labour force acquires its professional skills outside the public education system. The sector is highly labour intensive, the production is for small local markets that are highly competitive, while exports account for just a small share of their total market sales (Meyer, 2000). Informality is widespread and it is generally a permanent status of the enterprise.[9]

As far as the source of financing is concerned, financial loans do not represent more than 3.5

per cent of the start-up capital because banks generally ask for high collaterals, which it is not easy for a small entrepreneur to provide (El Mahdi, 2006). Conversely, private money lenders and loans from relatives are widespread.[10]

Meyer (2000) tracked the same economic activities from 1985 up to 1998 and he studied their chances of survival. He shows that, despite the negative economic context of the 1990s, more than 50 per cent of economic activities managed to survive, thanks mainly to the reduction in the number of workers (from an average of 3.6 to 2.5), the substitution of external workers with family members (the percentage of external workers was reduced from 55 to 37 per cent), and the increase in the employment of less expensive workers (children and woman - most employers started to employ their wives). Meyer (2000) also observes that the enterprises which managed to survive used adaptation as a key strategy: most converted their activity from production to repairing, while others were able to adapt to a changing demand, and other entrepreneurs found a second job.

More recent research has analyzed enterprises' performance in Egypt: El Mahdi (2006) analyses the performance of enterprises between 2002 and 2004, showing that 6.5 per cent of the enterprises interviewed in 2002 were closed down in 2004. This occurred mostly in rural areas, for enterprises with less than five workers, which had been established only recently, and for entrepreneurs with a high education level. The average duration of the life of the enterprises which closed down is quite low: more than 80 per cent of the enterprises failed in less than two years, in line with the liability of adolescence hypothesis. The duration is lower when the entrepreneurs are highly educated. A possible explanation for this unexpected finding is given by El Mahdi (2006): the highly educated decide to establish an entrepreneurial activity because they do not have any other job opportunities, but they do not have sufficient experience and managerial skills to run the enterprise successfully.[11]

2.3   Egyptian migration and entrepreneurship

Migration is an important social and economic phenomenon for Egypt: almost 5 per cent of households have at least one member living abroad. Most of the estimated 3.5 million Egyptians who are abroad reside in an Arab country.[12] Migrants are mostly young married men who left their family behind (Nassar, 2008), and their contacts with the home country while abroad remain tight. Indeed, Egyptian migration is predominantly temporary: ELMPS shows that - in 2006 - 7 per cent of households included at least one return migrant and 48 per cent of current Egyptian migrants migrated in the three years prior to the survey.

Like most temporary migrants, Egyptians send home sizeable cash transfers: officially recorded remittances amounted to USD5.9 billion, approximately 5 per cent of GDP, in 2007 (WorldBank, 2008a). ELMPS also show that half of the migrants work in the production sector, but a substantial number also works in technical and scientific occupations (17 per cent). In addition, migrants are, on average, more educated than stayers.

The temporary nature of Egyptian migration implies that Egypt is a good case to study the effect of return migration on the labour market of the origin country. The interest around this topic began in the 1980s, given the 1.2 million Egyptians - about 7 per cent of the labour force - who returned to the country between 1974 and 1988. Indeed, in 1988, the Labour Force Survey included a supplementary module on return migration.[13]

These data show that the main factors for returning were not related to the intention to establish an entrepreneurial activity, but to family reasons, and poor working conditions at destination. Comparing jobs before and after the migration experience, it is clear that most returnees moved from public to private enterprises upon return: this was probably the result of the downsizing in the public sector that forced young educated public employees into private sector occupation.

Regrettably, no other in-depth survey on return migration has been collected after 1988: the following rounds of the Egyptian Labour Market Survey simply collected information about previous places of work and residence of the individual. We thus rely on these data in order to

compare the characteristics of the return migrants across the decades: between 1988 and 2006, return migrants appear to be older, more educated (this reflects the general improvement in the average level of education of Egyptians), and less often resident in Greater Cairo.

McCormick and Wahba (2001) - using the 1988 data - conduct an econometric analysis of occupational choices on return to understand the characteristics of returnees who decided to invest. The two variables which drove the returnees' probability to become entrepreneurs upon return were savings and the amount of time spent abroad. For literate returnees, both the length of employment abroad and savings were important as determinants of entrepreneurial activity, while for the illiterate, just savings were a significant determinant of occupational choice. According to the authors, the duration of the foreign employment can be seen as a proxy of "learning" overseas.

McCormick and Wahba (2003) use the same data to show that the length of migration did not matter for returnees' projects in the agricultural sector. Moreover, they show that better-educated individuals were less likely to become entrepreneurs. Another important result in McCormick and Wahba (2003) is that they find a positive relationship between those who report to have benefited from work abroad and their probability of investing.

The last available data on returnees have been collected from the European Training Foundation in 2006, when 1,000 returnees in six governorates, chosen to represent the diversity of the country, were interviewed.[14] These data show that 42 per cent of the returnees who are still in the labour force are either employers or self-employed. They confirm the importance of length in the migration experience and savings as determinants of occupation choice. They also confirm that the less educated invest more: the percentage of highly educated is 28 per cent among returnees who invested in an entrepreneurial activity, while it is 47 per cent among the ones who did not invest, with this difference being statistically significant. The data also show that the destination matters: returnees from Europe have a higher likelihood of being entrepreneurs.

The ELMPS allows a comparison of the working status of returnees with the one of stayers. Data show that returnees are on average more skilled than non migrants: more returnees are in

fact involved in technical scientific and management occupations (49 vs. 26 per cent). In terms of economic activity, the services sector employs almost 40 per cent of returnees vs. 30 per cent of stayers. The share of returnees in the government sector is higher than that of stayers (36 per cent vs. 26 per cent). This can be partly explained with the fact that public sector employees are able to work overseas for 2 years without losing their jobs. The shares of waged workers are similar, while the proportion of employers among returnees is much higher than among non migrants (Wahba, 2009).[15] The impact of the migration experience on the likelihood of becoming an entrepreneur has already been studied by Wahba and Zenou (2009), who have demonstrated that returnees are more likely to become entrepreneurs than stayers. Although migrants may lose their social capital, their accumulated savings and experience overseas overcompensate for this loss. So, according to the authors, this demonstrates that access to credit is a major obstacle to entrepreneurship in Egypt.

3   Data and descriptive statistics

The ELMPS is a national representative survey.[16] It provides information on the employment history of the respondents, their earnings, personal characteristics and past migration experiences, and a whole section on the enterprises run or owned by the interviewees. The sample of the 1998 round of the ELMPS consisted of 4,816 households, while the second round of the survey in 2006 included 8,349 households. The 2006 sample consisted of 3,685 households from the original survey, 2,168 split households and 2,498 new households resulting from a refresher sample. Not all the individuals belonging to the 1998 sample were re-interviewed in 2006. This was mainly due to two factors: the inability to locate the entire households, and the inability to find individuals who had given rise to split households. The first type of attrition is mainly due to the accidental loss of 615 identifying records from the 1998 wave.[17] Moreover, 516 households could not be re-interviewed because of the inability to locate the entire household, because the death of all the members

or because of the refusal to participate in the new round of the survey. 18,856 members of the original 1998 sample were successfully tracked in 2006: among them 790 had died, 220 had left the country, 14,661 were in the original households and 2,694 had created new households and were successfully re-interviewed, while 491 had left the original households but could not be located.

The lack of data on 6,642 individuals interviewed in 1998 could potentially represent a threat to our analysis, if the panel is characterized by a different probability of attrition between non-migrants and returnees.[18] Specifically, returnee entrepreneurs whose entrepreneurial activity failed might be more likely to engage in further episodes of international migration, and this would lead to an *overestimation* of the rate of survival of their entrepreneurial activities. Luckily, this hypothesis is not borne out by the data, which do not reveal any significant difference in the probability of attrition between non-migrant and returnee entrepreneurs.[19]

As usual with repeated surveys, the matching of the two waves of the ELMPS gave rise to some minor inconsistencies,[20] which forced us to reduce the sample to 16,494 individuals.

We define as *entrepreneurs* all the individuals who are employers or self-employed in non-agricultural activities as a primary or secondary job. With the expression non-agricultural activities we refer to all the individual and household projects or private activities that aim to produce service or goods for sale, except those in the fishing and in the agricultural sector. This is the definition used in the ELMPS; it is quite a broad definition, that includes informal activities and activities without a fixed location. Following this definition, there are 733 entrepreneurs in the 1998 sample, corresponding to four per cent of the population and 6.5 per cent of all working age individuals (15-64 years), which were re-interviewed in 2006.[21] Individuals working as entrepreneurs as a first job are 87 per cent, while 13 per cent of the entrepreneurs are waged workers with respect to their primary employment status. The large majority of the enterprises established by the sample entrepreneurs are micro enterprises. Table 1 shows the distribution with respect to the number of workers employed: 47.8 per cent are individual enterprises, while just 5.7 per cent employ more than 10 workers. The percentage of enterprises where the value of physical capital

in 1998 is above LE10,000 is 26 per cent[22].

About half of the sample entrepreneurs do not to have a business licence, 24 per cent declare their enterprise has not a fixed location and, among them, about five per cent own a van or a taxi. 90 per cent of entrepreneurs sell their goods and services directly to consumers. 92 per cent invested their personal savings to establish the economic activity and less than three per cent received a loan at the start up. These data confirm that the Egyptian economic environment is characterized by the presence of a vast majority of MSEs and by a high degree of informality.[23] In order to make the sample more homogeneous, we will not include in the analysis those entrepreneurs employing more than 50 workers.

The survey also includes a large number of Egyptian returnees: in our dataset we have information on 310 individuals who had an international migration experience prior to 1998. They correspond to the 1.8 per cent of the population and to 3.5 of working age individuals. 8.6 per cent of the entrepreneurs had a migration experience. There is also a considerable percentage of returnees - 8.4 per cent - who are no longer in the labour force.[24]

Table 2 shows the distribution of the entrepreneurs between returnees and stayers in percentages of the labour force, in 1998. The percentage of entrepreneurs among stayers is significantly lower than the percentage of entrepreneurs among returnees.

Table 3 compares the entrepreneurs with a migration experience with the other entrepreneurs in 1998. The most striking differences between the two groups lie in the individual characteristics of the entrepreneur. The mean age of the entrepreneurs with a migration experience is lower and the percentage of female entrepreneurs among returnees is almost negligible. The average education level of returnees is well above the one of stayers. Quite interestingly, a higher percentage of entrepreneurs among returnees are entrepreneurs as a second job.[25]

The enterprises established by returnees are clearly younger, and the value of capital invested by them is higher, as expected from the literature. There are no other significant differences among the enterprises established by the two groups.

The individual characteristics of the entrepreneurs and of their enterprises that we have explored so far can be regarded as important determinants of the stability and evolution of the entrepreneurial activity. The differences in the individual characteristics between the stayers and the returnees can be attributed to the different propensity to migrate of different individuals (for example, male or more educated are more likely to migrate), and they already suggest that we can expect some differences in the chances of survival as entrepreneurs between the two groups.

In what follows we will try to answer the main research question: do the entrepreneurial activity of Egyptian returnees differ from the entrepreneurial activity of stayers with respect to its chances of survival over time? In particular, we will see whether returnee entrepreneurs in 1998 have a higher possibility of being still working as entrepreneurs in 2006 with respect to stayers. Thus, we will consider an entrepreneurial activity as surviving if the individual who was an entrepreneur in 1998 is still an entrepreneur in 2006. We restrict the sample to working age individuals, i.e. between 15 and 64 years old. The sample consists of 695 entrepreneurs.

According to the our definition, 65 per cent of entrepreneurial activities survived in 2006. 77 per cent of return migrants' entrepreneurial activities survived between 1998 and 2006, the corresponding figure for stayers is 64 per cent. The difference is statistically significant. These figures are in line with the expectations that migration experience can contribute to the survival of entrepreneurial activity, but they could be driven by the differences in the characteristics of stayers and returnees entrepreneurs discussed above.

Before proceeding with the econometric analysis, it is useful to explore the working status of the individuals who are no longer entrepreneurs in 2006 (Table 4).

The large majority are still employed in 2006, mainly as wage workers. Of these, half become public employees. These figures suggest that the failure of the entrepreneurial activity often concides with a change of the working status, but the data do not allow to establish if the two events are simultaneous or not. Interestingly, just 2 per cent of individuals are unemployed, while there is a non negligible percentage of working age individuals out of the labour force. The

individuals who were entrepreneurs in 1998 and who are employed in the public sector in 2006 are characterized by a higher education level than the others. This suggests that a job in the public sector is a favourable "exit option" for the better educated workers.

4   Econometric analysis

We first estimate a probit model on the determinants of the survival of the entrepreneurial activity. Then, we introduce the recursive bivariate probit model in order to take into account the likely endogeneity between entrepreneurs migration experience and the chances of survival of the entrepreneurial activity. Finally, we present the results of the two-stages residuals inclusion estimation, an alternative strategy to deal with the endogeneity problem.

4.1   The probit model

In line with the literature reviewed in Section 2.1, we model the survival of the entrepreneurial activity ($S_i = 0, 1$) as depending on the value of a latent variable (S_i^*), which is a linear function of a vector of individual characteristics of the entrepreneur ($\mathbf{I}_i$), on a vector of the characteristics of the enterprise ($\mathbf{F}_i$), on the factors related to the bussiness environment ($\mathbf{N}_i$) and on the migration experience of the entrepreneur (M_i).[26] Specifically, the model can be described as:

$$S_i^* = \alpha_1'\mathbf{I}_i + \alpha_2'\mathbf{F}_i + \alpha_3'\mathbf{N}_i + \alpha_4'M_i + \epsilon_i \tag{1}$$

where ϵ_i is i.i.d. $N(0, \sigma^2)$. The observed dichotomic variable S_i equals 1 if and only if the latent variable S_i^* takes a positive value. The empirical literature on the survival of the entrepreneurial activity identifies some of the characteristics of the entrepreneur as key explanatory variables.[27] The individual characteristics that we include in vector $\mathbf{I}_i$ are age, education, gender, skills acquired out of school, and wealth measured through an asset index.[28] We also include in vector $\mathbf{I}_i$ a proxy for the motivation, represented by a dummy variable indicating whether the entrepreneurial

activity represents the first job reported by the interviewee. It is reasonable to expect that entrepreneurs who do not run an enterprise as their main economic activity are less likely to put adequate time, energies and motivation into its management.[29]

The vector $\mathbf{F}_i$ contains those characteristics of the enterprise that can correlate with the likelihood to survive of the entrepreneurial activity. It is reasonable to assume that an entrepreneur is more likely to remain so if her enterprise has a likelihood of lasting long. We include information on the property of the enterprise - if it is shared with other households or not, on the age of the enterprise, on the size of the enterprise - measured through the number of workers employed and on the estimated value of the capital invested in 1998.[30] We also control for the sector of activity of the enterprise, because both profitability and vulnerability to demand shocks could differ across sectors.

We also control for the governorate of residence of the entrepreneur in order to account for the effects of the economic environment where she operates.

Table 7 proposes three specifications of the probit model. The second specification excludes some of the variables which turned out to be statistically insignificant in the first specification. The third specification excludes all the variables indicating enterprise characteristics, i.e. property regime of the enterprise, age of the enterprise, number of employees and capital.

The coefficient of migration experience variable is positive and statistically significant, and its marginal effect suggests that being a returnee increases the chances of survival by 19 per centage points.

As described above, we control for education, sex and age, all characteristics that - as we saw in Table 3 - differ across migration status. Hence, the difference in the predicted probability of survival between returnees and non-returnee entrepreneurs cannot be attributed to the differences in relevant observable characteristics between the two groups. We also control for the value of capital, which might be related to the migration experience because - as Wahba and Zenou (2009) show - the amount of savings is a key determinant of the probability of being an entrepreneur. This

means that part of the effect of the migration experience, that is the amount of savings which have been accumulated and invested, is not captured by the migration experience. A similar argument holds for skills: in the model we include the variable "skills" - which generally indicates a period of apprenticeship -, but we do not know where the entrepreneur acquired these skills, so "skills" might include a part of the gains from the migration experience. So, what does our main variable of interest capture? First of all, it captures the effect of savings which have been accumulated but not yet invested, which can be used to face an adverse demand shock; second, it capture the foreign working experience and, more generally, all the unobservable skills, such as an entrepreneurial attitude, that may have been strengthened while abroad.

4.2   Threats to identification

The probit model showed that, controlling for other observable characteristics, return is associated with a higher survival rate of entrepreneurial activities. This does not prove the existence of any causal relationship between migration experience and the survival of the entrepreneurial activity, as migrants (and returnees) are likely to be non randomly selected in unobservables which also correlate with the probability of survival of an entrepreneurial activity. Thus, the relationship between return migration and survival might be spurious, and the probit model might simply be picking up confounding factors such as the attitude towards risks or innate talent. Indeed, the bias could be positive or negative: if returnees are positively self-selected in innate ability, this could bias the estimated effect of return migration on survival upwards. If return migrants are more risk-prone than stayers, then they could adopt overly risky entrepreneurial strategies and this could bias the estimated effect downwards. The same would occur if migrants are drawn from the set of individuals with a endowment of lower social capital. This gives rise to an endogeneity problem: the migration experience variable might be correlated with the stochastic term in (1).

The endogeneity of migrant status may also be due to the fact that the decision to migrate and the decision to become an entrepreneur could be simultaneously determined: "individuals

migrate temporarily because they plan to become entrepreneurs on their return" (Wahba and Zenou, 2009). If the two decisions are simultaneously determined, then migration can be seen as a part of a broader entrepreneurial strategy or - in other words - as a strategy to improve the chances of survival of the entrepreneurial activity. Again, this would also induce a correlation between the probability of survival of the entrepreneurial activity and the probability of migrating.

4.2.1 Recursive bivariate probit model

The situation suggests using a recursive bivariate probit model, where the probability of survival of the entrepreneurial activity and the probability of having a migration experience are simultaneously determined (Maddala, 1983; Greene, 1998, 2003).[31] The probability of having a migration experience M_i depends on the value of the latent variable M_i^*, where:

$$M_i^* = \beta_1' \mathbf{A}_i + \beta_2' P_i + \eta_i \tag{2}$$

In (2), the latent variable M_i^* is a function of a vector $\mathbf{A}_i$ of individual characteristics, which include age, sex, education, marital status and governorate of residence. The stochastic terms in (1)-(2) are correlated, and M_i is an endogenous regressor in (1). We impose an exclusion restriction on the model in order to improve identification,[32] using the rate of growth of the population in the year of birth of the individual (P_i). The choice to migrate is influenced by the size of the cohorts of young people who enter the labour market, and when cohorts are large, the unemployment rate is likely to increase and there will be higher pressure for emigration. Hatton and Williamson (1998) show that the birth rate of the origin country with a 20 year lag, representing the size of the young adult cohort, has been one of the most important determinants of the emigration rate for 48 countries from 1860 to 1913. Recently, Hanson and McIntosh (2009, 2010) demonstrated that emigration from Mexico and other Latin American countries in the last few decades had a strong demographic driver. The rate of growth of the population[33] is a proxy of the rate of birth, since

the latter is one of the main components of the former. A high rate of growth in the population in a year entails that after roughly two decades the country will have a large cohort of young individuals entering the labour market. It is a good instrument because it is not related to the probability of survival of an economic activity, while it is an important determinant of migration flows, especially in Egypt where the demographic pressure on resources has been growing up over the past few decades.[34]

Table 8 presents the estimates for the three specifications, obtained with the recursive bivariate probit model. The model fits the data well and the correlation coefficient ρ between the error terms in (1)-(2) is significantly different from zero in all specifications except for the first one, where it is only marginally insignificant. This means that the two equations are jointly determined. The negative sign of ρ entails that the unobserved factors that increase the probability of having a migration experience decrease the probability of survival of the entrepreneurial activity. There are several possible explanations for this pattern of selection in unobservables of the returnees. One is the lower risk aversion that generally characterizes migrants with respect to stayers. It is likely that individuals with a high risk propensity have fewer chances to last long as entrepreneurs, even if they may be better able to gain larger profits in the short run. Migrants might be selected among the individuals with a lower social capital, that could be a key factor in explaining the dynamic of the entrepreneurial activity.

The coefficient of migration experience is still positive and statistically significant across all the specifications. Controlling for unobservables, having a migration experience increases the probability to survive as entrepreneur by 35 percentage points. The coefficients of the other regressors remain stable.

Our estimates also show that formal education is not a key determinant of the survival of entrepreneurial activities; the estimated coefficient is negative but it is significant only for the intermediate level of education.[35] If the entrepreneur is a woman, there is a lower rate of survival of the entrepreneurial activity. Moreover, trained individuals and entrepreneurs who run an

activity as a first job are more likely to survive as entrepreneurs, confirming the importance of specific knowledge and motivation in running a business that is signalled in the literature. The results highlight the role of experience and family ties in explaining the chances of survival of the entrepreneurial activity: individuals at the head of youngest enterprises or those who share the property of the enterprise with other households are less likely to survive as entrepreneurs. Entrepreneurs employing an higher number of workers are more likely to survive as entrepreneurs, confirming the importance of enterprise size that is indicated in the literature. Conversely, the value of the capital is not a significant variable, suggesting that in the Egyptian context enterprises with larger installed capital do not necessarily last longer. Entrepreneurs in the trade sectors appear to be more likely to persist in their occupational choice over time, while the opposite is true for entrepreneurs in the manufacturing and transport sector.

4.2.2 Two-stages residuals inclusion estimation

We also rely on an alternative estimation strategy to test the robustness of our results: the two-stages residuals inclusion estimation (2SRI). In the first stage, we estimate an auxiliary regression, where the endogenous variable enters as the dependent variable; then, the generalized residuals (Gourieroux, Monfort, Renault, and Trognon, 1987) from the first-stage regression are included as an additional regressor in the second-stage. Intuitively, the generalized residuals are correlated with the unobservables that influence both the endogenous regressor and the dependent variable in the second-stage regression. Terza, Bazu, and Rathouz (2008) show that this method produces consistent estimates in non linear models, and recommend to use this model rather than the widely used two-stages predictor substitution (2SPS), where the endogenous variable is replaced by its predicted value from the first-stage.

Table 9 and 10 presents the estimates obtained with 2SRI. We can see that the estimated coefficient of our instrument is positive and statistically significant, from first stage estimation. We can observe that, even correcting for endogeneity, the coefficient of the variable migration experience is

positive and highly significant across the three specifications, from second-stage estimation. The estimated coefficient of the first-stage residuals is negative and statistically significant, and this still suggests that return migrants are positively selected in unobservable factors that *decrease* the probability of survival of the entrepreneurial activity. All the other results are confirmed.

5 Conclusions

This paper has analyzed the relationship between the past international migration experience of the entrepreneurs and the survival chances of their entrepreneurial activities in Egypt. The econometric analysis evidences the fact that returnees have a significantly higher probability of survive over time as entrepreneurs if compared to stayers. While self-selection in unobservables might have induced this pattern in the data, this effect survives once we control for the endogeneity of the migration decision through a recursive probit model or through a two-stages residuals inclusion estimation.

The differential in survival probability can be explained by several complementary factors connected to the migration experience, such as skills or financial savings accumulated while abroad. Specifically, savings can represent an important self-insurance device that helps the entrepreneurs to cope with the vulnerability that characterizes MSEs' sector, and can help keep their enterprises into business. Our results prove that the occupational choice of return migrants is stable over time, therefore return migration is likely to have long-lasting positive effect on investment and employment creation in the origin country.

Notes

[1]The term survival indicates the persistence over time.

[2]As pointed out by Santarelli and Vivarelli (2007), "innovative entrepreneurs are to be found together with passive followers, over-optimist gamblers and even escapees from unemployment".

[3]The role of gender in enterprise suriving has also been stressed by Liedholm (2002), who argues that the lower rate of survival of female entrepreneurs in African countries could be actually signalling a form of discrimination against them.

[4]Specific training is proved to be a more effective predictor of enterprise survival than generic education also for industrialized countries (Almus and Nerlinger, 1999; Colombo and Grilli, 2005).

[5]A number of proxy for enterprise size are used in the literature: Brüderl, Preisendörfer, and Ziegler (1992) use the value of the starting capital, while Vijverberg and Haughton (2004) use the value of the capital at the time of the survey. Brüderl, Preisendörfer, and Ziegler (1992), Audretsch and Mahmood (1995) and Mata, Portugal, and Guimaraes (1995) use the initial size of the enterprise, measured with the number of workers. Soderbom, Teal, and Harding (2006) use data from one of the rare panel surveys on enterprise survival collected in Africa and they include the value of the output per employee, together with the value of physical capital per employee, among the determinants of probability of enterprise exit from the market.

[6]Other factors that could be important to identify are the existence of partners (Arribas and Vila, 2007; Astebro and Bernhardt, 2003), the legal status of the enterprise (Astebro and Bernhardt, 2003; Brüderl, Preisendörfer, and Ziegler, 1992), and its branch of industry or sector (Brüderl, Preisendörfer, and Ziegler, 1992; Taylor, 1999; van Praag, 2003; Vijverberg and Haughton, 2004).

[7]The Economic Reform Program was launched in 1991, and Egypt began a process of economic reform, stressing the importance of the development of the private sector as an investor, producer and employer.

[8]Just 10 per cent of the enterprises operating in urban areas declare to use the last available technology (El Mahdi, 2006).

[9]Policies giving incentives to entrepreneurs to opt for the formalization of their economic activities have been implemented since the mid 1990s, for example simplifying the bureaucratic procedures to start up an enterprise. Still, the proportion of enterprises who do not comply with legal procedures has not been declining since then.

[10]One of the most common systems for borrowing money is the so called "gameia", a rotating informal saving association, which is usually formed by a group of participants where each of them contributes to the investment of the others in a rotation system (El Mahdi, 2002).

[11]El Mahdi (2006) also studies the determinants of success of a enterprise, measured through the value added per worker. The analysis shows that enterprises that are male-owned, are set within a positive business environment (low cost of labour, easiness to find qualified workers, availability of business and financial services), that are located in urban areas, and that have access to infrastructures, are more likely to be successful. An interesting result of this analysis is that education and training do not seem to play a role in explaining the chances of success of an

enterprise, while being located in a cluster is a key determinant. Rural enterprises, Upper Egypt enterprises and smaller-sized enterprises appear to perform better than the others.

[12]More than 90 per cent of the Egyptian migrants reside in Saudi Arabia, Jordan, Libya, Kuwait and Emirates.(Nassar, 2005).

[13]Other information on Egyptian returnees was collected between 1987 and 1988 by Reichert (1993), who gathered data on 649 returnees in six rural villages. Reichert (1993) argues that many returnees dreamed about establishing their own small project and that 7 per cent of them invested in manufacturing, transport or services, generally in a van, a taxi or in a small village shop. 20 per cent of the returnees invested in some micro agricultural project (livestock, land or machinery), and, according to the author, these investments were more a survival strategy than a capitalization of agriculture.

[14]Some villages that were known to send migrants to Europe were oversampled.

[15]Wahba (2007) - using ELMPS 2006 data - provides the first evidence that overseas employment result in a wage premium upon return, at least for salaried workers. On average, returnees who have a salaried job earn around 38 per cent more than non-migrants. In addition, the wage premium is higher for the uneducated (43 per cent) and lower for university graduates (19 per cent).

[16]The governorates along the border were excluded from the survey, but they represent less than 2 per cent of the Egyptian population.

[17]Assaad and Roushdy (2009) argue that the loss of these identifying records did not cause any significant problem in the sample, since it was random in nature. See Assaad and Roushdy (2009) for an analysis of the attrition process.

[18]We define an individual as a returnee if she has been living or working abroad before the 1998 round of the survey, irrespective of the duration of their staying abroad. The differences in the observed individual characteristics between returnees and stayers entrepreneurs discussed later in this section suggest our definition is able to correctly identify the returnees.

[19]The difference in the probability of attrition between the two groups is not significant also when we control for the observables that are included in the econometric analysis; results are available upon request from the author.

[20]The main inconsistencies relate to age (for 778 individuals the year of birth declared in 1998 differs from the one registered in 2006 by more than three years) and gender (for 134 individuals).

[21]If we extend the definition to the agricultural sector, the number of entrepreneurs in 1998, re-interviewed in 2006, goes up to 1,027. The difference between the two definitions is important, indicating that the private agricultural sector is by no means marginal. The section of the questionnaire on enterprises has been submitted

only to those households that declared to own a non-agricultural-activity.

[22]The nominal exchange rate with the US dollar stood at 3.39 LE per US dollar in 1998, at 5.73 in 2006 (WorldBank, 2008b)

[23]According to the Law 141/2004, in Egypt all the enterprises whose workforce does not exceed 50 workers and whose paid-up capital ranges between LE50,000 and LE1,000,000 are classified as small enterprises, while all the enterprises with a paid-up capital lower than LE50,000 are defined as micro enterprises.

[24]We define as *out of the labour force* the individuals who did not participate in any employment in the three months prior to the survey.

[25]Very often workers from the public sector go to work abroad for a couple of years, they accumulate savings and - upon their return - they open a small business where they can work as a second job: this is a quite common strategy to permanently increase the household income.

[26]We define an individual as a returnee - or as having a migration experience - if she has been living or working abroad, as described in section 3.

[27]All the time-varying variables included in the model are measured in 1998.

[28]We followed Filmer and Pritchett (2001) in the construction of the asset index, which represents a proxy for household wealth; following Assaad, Levison, and Zibani (2007), we conducted the principal component analysis separately for urban and rural households. We used two kind of variables: most relate to the ownership of durable goods, while some others indicate the quality of the housing. We retain only the first factor of the factor analysis, since it captures the largest amount of information common to all the variables. Table 5 reports the scoring coefficients for the first factor.

[29]Table 6 reports the definition of the variables used in the model

[30]We can not include in the model the legal status of the enterprise, because this information has been collected only for the activities with a fix location. Data constraints do not allow us to include in the model other variables identified by the literature on enterprise survival: for example we do not have any information on the availability of key infrastructure in the area the enterprise is located, on the characteristics of the enterprises at the start up or on the value of the output. Moreover, we have just a few information on the family entrepreneurial background of the individual: we tried to include the employment status of the father when the entrepreneur was 15 years old among the regressors, but the coefficient was not significant in all the specifications. We also tried to include among the regressors the number of household members, to control for the social capital effect as defined by Wahba and Zenou (2009), but it turned to be insignificant across all the specifications. The same is true for the marital status of the entrepreneur. Results are available from the author upon request.

[31]Following Wahba and Zenou (2009), we assume that there is no sample selection related to return migration, because almost all the individuals who emigrate from Egypt come back to the origin country.

[32]Wilde (2000) shows that identification in such a model is achieved if both equations have a varying exogeneous regressor, even if there are not exclusion restrictions. However, Monfardini and Radice (2004) point out that the availability of an instrument help to loose the assumptions on the funtional form of the distribution of errors.

[33]Source of data: WorldBank (2008b) from 1960, populationstat.info for the previous years.

[34]We are assuming that the share of migrants which returns home does not vary with the size of emigration: this is why we expect the rate of population growth to be correlated with return migration.

[35]This can be probably explained by the public sector option: educated Egyptians are ready to quit their economic activity when they are offered a job in the public sector, where the average wage is higher and there is the certainty of an open ended contract.

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Table 1: Distribution of economic activities by number of workers, 1998

Workers	Per cent
1	47.8
2	18.8
3	11.6
4	9.0
5	2.4
6 to 9	5.0
10 to 50	5.6
more than 50	0.1
Observations	1,027

Source: ELMPS 2006

Table 2: Percentage of entrepreneurs among non migrants and returnees, 1998

Year	Non migrants	Returnees	t-test
1998	14.6	20.4	1.91*
Obs.	4,258	278	

Notes: the sample is limited to individuals in
the labour force, ** p<0.05, * p<0.1
Source: author's elaboration on ELMPS 2006

Table 3: Characteristics of entrepreneurs by migrant status, 1998.

Variable	Non migrant	Returnee	t-test
Age	42.5	39.7	-2.57***
Female, percent	16.4	0.9	-7.71***
Urban areas, percent	53.0	45.7	0.91
Greater Cairo, percent	13.0	11.7	-0.59
Education, percent			
None	46.7	15.7	
Low	20.9	18.6	
Intermediate	19.7	49.8	
High	12.7	15.9	
Skills, percent	22.3	22.0	-0.04
Asset index	44.7	50.3	1.75*
First job	88.4	68.0	-2.39**
Shared property	8.5	18.8	-1.61
Establishment of the enterprise			
prior to 1970	13.1	0.8	
1970-1989	42.2	47.3	
after 1990	44.7	51.9	
Sector			
Trade	56.0	47.2	
Manufacturing	16.7	16.0	
Service	13.7	20.5	
Transport	8.0	11.2	
Others	5.6	5.1	
Number of employed hh members	1.2	1.3	0.61
Employs external workers, percent	26.6	35.5	1.21
Estimated value of capital			
Low	47.2	25.0	
Medium	27.4	41.5	
High	25.4	33.5	
Observations	669	64	

Notes: ***p<0.01, ** p<0.05, * p<0.1
Source: author's elaboration on ELMPS 2006

Table 4: Working status of entrepreneurs whose entrepreneurial activity did not survive, 2006.

Status	Per cent
Employed	*62.3*
Employee, private sector	24.2
Employee, public sector	23.5
Employer, agricultural sector	6.8
Unpaid family worker	7.8
Unemployed	*2.2*
Out of the labour force	*35.5*
Housewife	11.1
Retired, less than 65 years	7.8
Above 65 years and does not want to work	9.2
Disabled, permanent	2.8
Temporary disabled	2.1
Student, full time	0.3
Does not want to work	0.6
Other	1.6
Observations	232

Source: author's elaboration on ELMPS 2006

Table 5: Principal component analysis for the asset index

Variables	Urban scoring coeff.	Urban mean	Urban s.d.	Rural scoring coeff.	Rural mean	Rural s.d.
Fridge	0.269	0.860	0.346	0.303	0.415	0.493
Freezer	0.145	0.074	0.261	0.115	0.149	0.121
Dishwasher	0.074	0.025	0.156	0.071	0.004	0.066
Colour TV set	0.292	0.726	0.446	0.292	0.305	0.461
BW TV set	-0.155	0.267	0.443	-0.114	0.447	0.497
Video recorder	0.205	0.198	0.398	0.170	0.032	0.175
Air conditioning	0.136	0.058	0.234	0.081	0.004	0.065
Microwave	0.038	0.017	0.128	0.055	0.014	0.116
Cooker	0.235	0.831	0.375	0.265	0.524	0.499
Kerosene cooker	-0.194	0.429	0.495	-0.162	0.702	0.457
Electric fan	0.227	0.745	0.436	0.246	0.438	0.496
Water heater	0.291	0.535	0.499	0.273	0.102	0.302
Heater (gas, oil or electric)	0.158	0.984	0.298	0.131	0.021	0.145
Sewing machine	0.136	0.219	0.413	0.130	0.082	0.274
Iron (electric or other)	0.270	0.752	0.432	0.295	0.411	0.492
Radio, tape recorder	0.194	0.821	0.383	0.179	0.644	0.479
Washing machine	0.218	0.889	0.314	0.251	0.599	0.490
Camera	0.184	0.153	0.360	0.178	0.041	0.199
Bicycle	0.074	0.141	0.348	0.087	0.144	0.351
Motorcycle	0.023	0.012	0.111	0.080	0.014	0.116
Car	0.176	0.102	0.302	0.145	0.018	0.133
Taxi	0.026	0.010	0.101	0.022	0.009	0.093
Van	0.029	0.008	0.090	0.052	0.004	0.059
Telephone	0.262	0.482	0.499	0.245	0.135	0.342
Walls, good quality materials	0.177	0.958	0.199	0.191	0.657	0.475
Floor, good quality materials	0.211	0.944	0.229	0.241	0.585	0.493
Roof, good quality materials	0.217	0.893	0.309	0.236	0.496	0.500
Sanitation facilities	0.175	0.850	0.356	0.156	0.269	0.444
Number of rooms per capita	0.070	1.431	1.064	0.033	1.402	1.299
Observations (households)	3,290			1,526		
Sampling weights	Yes			Yes		

Source: author's elaboration on ELMPS 2006

Table 6: Description of the variables

Variable	Definition
Age	Age in 1998, years
Education, none	Dummy, =1 if individual has no formal education
Education, low	Dummy, =1 if individual has less than intermediate education
Education, intermediate	Dummy, =1 if individual has less than tertiary education
Education, high	Dummy, =1 if individual has tertiary education
Female	Dummy, =1 if individual is female
Married	Dummy, =1 if individual is married
Skills	Dummy, =1 if individual has acquired a specific skill out of school
Asset index	Obtained through PCA, rescaled between 0 and 100
First job	Dummy, =1 if employer or self-employed as first job
Migration experience	Dummy, =1 if individual has worked or lived abroad prior to 1998
Shared property	Dummy, =1 if property of the enterprise is shared with non hh members
Age of the enterprise, young	Dummy, =1 if enterprise established after 1990
Age of the enterprise, medium	Dummy, =1 if enterprise established between 1970 and 1989
Age of the enterprise, old	Dummy, =1 if enterprise established prior to 1970
Capital, low	Dummy, =1 if estimated value of capital is < LE1,000
Capital, medium	Dummy, =1 if estimated value of capital LE1,000-LE10,000
Capital, high	Dummy, =1 if estimated value of capital is > LE10,000
Sector	Trade, manufact,, service, transport, constr., finance, mining
Governatorate	Categorical variable, enumerates Egyptian governatorates
Network	Share of entrepreneurs in the village/shiakha
Population growth	Rate of growth of the population in year of birth of each individual

Table 7: Probability of survival of the entrepreneurial activity, probit model

Variables	(1) Survival	(2) Survival	(3) Survival
Age	-0.010	-0.009	-0.001
	(0.008)	(0.008)	(0.007)
Education, low	-0.210	-0.176	-0.177
	(0.200)	(0.187)	(0.180)
Education, medium	-0.375*	-0.303	-0.318
	(0.221)	(0.197)	(0.197)
Education, high	-0.175	-0.062	-0.050
	(0.296)	(0.240)	(0.230)
Female	-0.588***	-0.618***	-0.730***
	(0.202)	(0.198)	(0.190)
Shared property	-0.633***	-0.621***	
	(0.211)	(0.213)	
Age of the enterprise, medium	0.508***	0.525***	
	(0.154)	(0.157)	
Age of the enterprise, old	0.184	0.186	
	(0.261)	(0.259)	
Number of employees	0.128***	0.145***	
	(0.048)	(0.046)	
First job	0.727***	0.737***	0.792***
	(0.206)	(0.206)	(0.200)
Skills	0.749***	0.787***	0.696***
	(0.220)	(0.214)	(0.204)
Capital, medium	0.022		
	(0.166)		
Capital, high	0.128		
	(0.210)		
Asset index	0.003		
	(0.005)		
Migration experience	0.639***	0.641***	0.633***
	(0.225)	(0.225)	(0.223)
Sampling weights	Yes	Yes	Yes
Spatial dummies	Yes	Yes	Yes
Sector dummies	Yes	Yes	Yes
Observations	694	694	694

Notes: standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
Source: author's elaboration on ELMPS 2006

Table 8: Probability of survival of entrepreneurial activity, recursive bivariate probit

Variables	(1) Survival	(1) Migration	(2) Survival	(2) Migration	(3) Survival	(3) Migration
Age	-0.011	-0.012	-0.009	-0.012	-0.001	-0.013
	(0.007)	(0.010)	(0.007)	(0.010)	(0.006)	(0.010)
Education, low	-0.257	0.374	-0.216	0.372	-0.210	0.367
	(0.193)	(0.318)	(0.180)	(0.320)	(0.175)	(0.319)
Education, intermediate	-0.523**	0.969***	-0.445**	0.977***	-0.439**	0.975***
	(0.225)	(0.287)	(0.199)	(0.286)	(0.197)	(0.286)
Education, high	-0.249	0.824***	-0.135	0.823***	-0.117	0.816***
	(0.285)	(0.283)	(0.233)	(0.285)	(0.229)	(0.288)
Female	-0.466**	-1.273***	-0.503**	-1.278***	-0.642***	-1.358***
	(0.217)	(0.477)	(0.207)	(0.448)	(0.191)	(0.441)
Shared property	-0.594***		-0.590***			
	(0.196)		(0.195)			
Age of the enterprise, medium	0.487***		0.507***			
	(0.141)		(0.147)			
Age of the enterprise, old	0.221		0.218			
	(0.246)		(0.245)			
Number of employees	0.121***		0.137***			
	(0.044)		(0.042)			
First job	0.704***		0.711***		0.779***	
	(0.209)		(0.206)		(0.197)	
Skills	0.691***		0.730***		0.655***	
	(0.207)		(0.199)		(0.193)	
Capital, medium	0.022					
	(0.153)					
Capital, high	0.081					
	(0.191)					
Asset index	0.003					
	(0.004)					
Migration experience	1.748***		1.706***		1.507***	
	(0.446)		(0.395)		(0.333)	
Married		1.411***		1.441***		1.509***
		(0.490)		(0.467)		(0.445)
Population growth		0.550**		0.552**		0.575**
		(0.240)		(0.241)		(0.247)
ρ	-0.735		-0.700		-0.560	
Wald test, $H_0 : \rho = 0$	2.115		3.087*		5.345**	
Sampling weights	Yes	Yes	Yes	Yes	Yes	Yes
Spatial dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sector dummies	Yes	No	Yes	No	Yes	No
	695		695		695	

Notes: standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Source: author's elaboration on ELMPS 2006

Table 9: Probability of having a migration experience, 2SRI, first stage

Variables	Migration
Age	-0.010
	(0.011)
Education, low	0.387
	(0.316)
Education, intermediate	1.037***
	(0.276)
Education, high	0.820***
	(0.289)
Female	-1.523***
	(0.452)
married	1.491***
	(0.466)
Population growth	0.547**
	(0.259)
Sampling weights	Yes
Spatial dummies	Yes
Sector dummies	No
Observations	695

Notes: standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: author's elaboration on ELMPS 2006

Table 10: Probability of survival of the entrepreneurial activity, 2SRI, second stage

Variables	(1) Survival	(2) Survival	(3) Survival
Age	-0.011	-0.010	-0.001
	(0.008)	(0.008)	(0.007)
Education, low	-0.250	-0.214	-0.221
	(0.202)	(0.190)	(0.182)
Education, intermediate	-0.523**	-0.457**	-0.491**
	(0.242)	(0.225)	(0.220)
Education, high	-0.233	-0.127	-0.125
	(0.302)	(0.248)	(0.237)
Female	-0.510**	-0.537***	-0.641***
	(0.204)	(0.201)	(0.194)
Shared property	-0.633***	-0.624***	
	(0.211)	(0.211)	
Age of the enterprise, medium	0.500***	0.517***	
	(0.156)	(0.159)	
Age of the enterprise, old	0.205	0.205	
	(0.260)	(0.258)	
Number of employees	0.130***	0.145***	
	(0.049)	(0.046)	
First job	0.790***	0.797***	0.856***
	(0.205)	(0.206)	(0.200)
Skills	0.740***	0.774***	0.682***
	(0.220)	(0.213)	(0.204)
Capital, medium	0.025		
	(0.167)		
Capital, high	0.096		
	(0.212)		
Asset index	0.003		
	(0.005)		
Migration experience	1.790**	1.819**	1.948***
	(0.727)	(0.734)	(0.741)
Generalized residuals	-0.105*	-0.108*	-0.121*
	(0.062)	(0.063)	(0.063)
Observations	694	694	694
Sampling weights	Yes	Yes	Yes
Spatial dummies	Yes	Yes	Yes
Sector dummies	Yes	Yes	Yes

Notes: standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: author's elaboration on ELMPS 2006

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