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Skills and entrepreneurship:
Are return migrants 'Jacks-of-all-trades'?
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"Occupational choice of return migrants: Is there a 'Jack-of-all-trades' effect?"

Skills and entrepreneurship: Are return migrants 'Jacks-of-all-trades'?

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Abstract

This paper examines whether and how return migrants may be more likely to be entrepreneurs. With reference to Lazear's Jack-of-all-trades hypothesis, we posit that return migrants may be more likely to choose self-employment as a result of the diverse work experience they gain as migrants. Using the 2012 Egyptian Labour Market Panel Survey, seemingly unrelated regression model estimates show that return migration increases the propensity to be self-employed, controlling for the possession of savings. This is found to be due to a Jack-of-all-trades effect, whereby migration helps accumulating more occupations and jobs. Sector-specific rather than multi-sector experience may also benefit entrepreneurship, as it was found that the more industries an emigrant worked in, the less the probability of self-employment upon return. Self-employed might thus need a generalist, balanced mix of occupational skills, within a relatively narrow set of industries. These findings hold for non-agricultural activities.

JEL classifications:	F22, J24, L26, O12, O15
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	Entrepreneurship, Human capital,
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1 Introduction

Entrepreneurship involves a variety of tasks such as identifying and seizing risky opportunities, designing business plans, budgeting, selecting location, production techniques and markets – being successful requires entrepreneurs[1] to be multi-skilled. 'Entrepreneurial human capital' or 'entrepreneurial ability' is recognized in the literature as an essential, if often elusive, determinant of entrepreneurship (Astebro and Bernhardt, 2005, Baptista et al., 2007, Evans and Jovanovic, 1989, Kihlstrom and Laffont, 1979, Lucas, 1978; *in* Hessels et al., 2014). There is however no consensus on whether one was born with innate entrepreneurial ability or whether entrepreneurial ability can be taught (Silva, 2007). According to Lazear (2005), entrepreneurial ability could be learnt, not only through education but also experience. Entrepreneurs need a generalist, balanced skills-mix profile: they need to be Jacks-of-all-trades, that is being exposed to a range of activities and contexts. Without the capacity to acquire a varied set of skills, one would be less likely to opt for self-employment, and less successful in starting up a firm.

A growing literature has examined Lazear's (2005) Jacks-of-all-trade hypothesis.[2] This paper contributes to this literature by investigating whether migration is a process that can affect the likelihood of return migrants to become entrepreneurs, and if so, whether this is due to a migration-induced Jack-of-all-trade effect on skill balance. Studying migrants' entrepreneurial behavior may be useful since (i) return migrants have been found to have a higher propensity to be self-employed (e.g. McCormick and Wahba, 2001; Wahba, 2015) and to survive as entrepreneurs (Marchetta, 2012); (ii) a possible explanation for these findings,[3] apart from the opportunity that migration gives to accumulate wealth, is that moving, living abroad or returning 'home' could impart the variety of skills needed in entrepreneurship such as tolerance for risk, persistence, planning, budgeting or communicating across cultures. If migration experience plays a role in forming entrepreneurial ability, unpacking migration as a learning process could be useful to inform entrepreneurship support policies.

This paper investigates these issues by using the 2012 Egyptian Labour Market Panel Survey (ELMPS) (Economic Research Forum and Central Agency For Public Mobilization & Statistics, 2013). It explicitly tests whether migration experience can affect self-employment upon return, through the accumulation of a balanced skills set. Reduced-form estimates of a seemingly unrelated regression (SUR) model show that having migrated increases the propensity to be self-employed by accumulating occupations and jobs, by respectively 4.64 and 1.22 percentage points. It is also found that relatively concentrated sector-specific experience may be more beneficial for entrepreneurship than multi-sector experience, since the more industries a migrant had worked in, the less the probability of self-employment upon return. Self-employed might thus need a generalist, balanced set of occupational skills, within a relatively narrow set of industries. Controlling for the possession of savings – migration-induced wealth effect

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[1] In this paper, an entrepreneur is defined as a person who owns and/or starts a business involved in creating new demand and supply dynamics, either out of inspiration, opportunism or necessity (Stel, 2013). This working definition relates to a wider, human development definition of entrepreneurship as 'the resource, process and state of being through which and in which individuals utilize positive opportunities in the market by creating and growing new business firms' (Gries and Naudé, 2011). Entrepreneurship as a field of academic study is relatively new, and at the crossroads of various disciplines. It is a 'multi-faceted concept' (Vivarelli, 2012), and so are related terms, definitions, and performance measures. Defining, as well as measuring entrepreneurship are still works in process; researchers tend to define an entrepreneur/entrepreneurship according to available data or (sub-)group(s) of interest (Sørensen and Chang, 2006).

[2] For a recent review, see Hessels et al. (2014).

[3] It may, of course, also be that those with innate entrepreneurial ability are more likely to migrate and/or to opt for self-employment, as both migrating and starting up a business involve taking risks (Nestorowicz, 2013).

– supports these results: having migrated increases the propensity to be self-employed by the accumulation of occupations by 5.04 percentage points, but decreases with the number of industries by 7.61 percentage points. These results only hold for return migrants setting up a firm in non-agricultural sectors.

The rest of this paper is structured as follows. Section 2 provides an overview of the relevant literature. Section 3 presents the methodology; Section 4, data and descriptive statistics; Section 5, estimation results. Section 6 concludes.

2 Relevant literature

2.1 Lazear's Jack-of-all-trades hypothesis

Entrepreneurs may need a different skills profile than employees do. Instead of being 'specialists', entrepreneurs would like a relatively balanced, varied set of skills – knowledge in financing, accounting, production process, marketing and management. Entrepreneurs may not be expert in all these fields, but they want some notion of each, in particular if they are to hire experts for each role (Lazear and Gibbs, 2010).

Lazear's (2005) Jack-of-all-trades (JAT) theory of entrepreneurship builds a framework in which an individual, who can have two skills, product design and/or marketing, has the choice between having a wage-employed specialised job or becoming an entrepreneur. If an employee specialises in his best skill, an entrepreneur needs some sort of knowlegde to carry out each task, or to supervise others – specialists – who perform them. An entrepreneur values his skills based on the level of each skill he possesses; his skills set is limited by his weakest skill. In other words, the more a potential entrepreneur is specialist (in one skill), the more he will be tied to his weakest skill: maximizing his income is limited by his knowledge level in his weakest skill.

As a consequence, the less balanced someone's skills set is, i.e. the more expert he is, the less likely he will opt for self-employment. Balanced skills are key for entrepreneurship. And, in particular in developing economies, with highly imperfect markets and numerous institutional barriers, (would-be) entrepreneurs have to tackle many issues, maybe unnecessary in developed economies, and so need even more a balanced skills profile (Lu and Tao, 2010, Yueh, 2009; *in* Chen and Feng, 2012). This suggests that potential entrepreneurs would give more value to a balanced investment in human capital, privileging investments in their weakest skill, in order to become less specialised. This prediction of the JAT hypothesis can be tested by looking at human capital investment patterns of self-employed and employed. Entrepreneurs should have a more generalist than specialised attitude to human capital – they should tend to invest in various skills at once.

Using a 1997 survey of about 5,000 Stanford MBA alumni, Lazear (2005) finds that entrepreneurs' past experience included a broader variety of activities and a greater number of jobs; they attended less specialised courses that widened their knowledge compared to classmates, rather specialised, who became wage-employed. Subsequent empirical research has supported (to some extent) and refined his findings, accounting for Silva's (2007) concern about endogeneity.[4] Astebro and Thompson (2011) use Canadian data to show that inventor-

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[4] Silva (2007) shows that individuals' unobservable characteristics such as innate abilities may simultaneously influence individuals' skills and occupational choice.

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entrepreneurs tend to have a more diverse experience on the labour market, but varied work experience is correlated with lower household income, contradicting the JAT prediction. Testing this theory with German data, Lechmann and Schnabel (2011) find that self-employed carry out more tasks, and that their work necessitates more skills than wage-employed's. However, self-employed are also found to want more expert skills; their results provide weak support for different human capital investment patterns between self- and wage-employed. Using data from Germany and the Netherlands, Hessels et al. (2014) show that those with more varied work experience are more likely to be self-employed, but being a generalist does not seem to be relevant.

In this regard, migration could be seen as a process that helps shaping entrepreneurship. Moving, living abroad or returning 'home' could induce being persistent, planning time and financing, communicating across cultures. By changing jobs in a different environment, temporary migration could affect the propensity to take risk and the accumulation of occupation- and sector-specific skills – experiences potentially developing a more balanced skills-mix, i.e. beneficial for entrepreneurial activities. Acting as a learning process, migration experience could contribute to making the entrepreneur. Upon return to their home country, migrants would differ from stayers in their propensity and attitudes towards self-employment, entrepreneurial abilities and business characteristics. Studying the behaviour of return migrants could thus be an insightful test of Lazear's (2005) hypothesis.

2.2 Return migration: Resource-enhancing or -depleting?

Dynamics between self-employment and (return) migration have been studied only relatively recently, revealing and affirming temporality in migration patterns (Mesnard, 2004). The determinants, impacts, occupational choice and performance of returnees are under-researched areas, mainly because of a lack of good quality data (Gubert and Nordman, 2011). In particular, whether migration only acts through the wealth channel – a 'lottery effect' – and/or contribute to forming and developing the entrepreneurial human capital necessary for setting up a firm has yet to be investigated.

First, in the absence or inefficiency of markets, such as insurance or credit markets, remittances and savings accumulated during migration can act as substitutes for formal insurance, by widening opportunities for income generation and gaining access to capitals. They could help surmounting financial and liquidity constraints, promoting investments in new/existing ventures, or enhance their productivity.[5]

Simultaneously, by moving abroad, emigrants are likely to weaken social ties with origin countries – a loss of social capital that may threaten any entrepreneurial activity upon return (Wahba and Zenou, 2012) – and/or enhance their employability as wage-employed upon return. Loss in social capital and attracting wage-earning alternatives could lower returnees' will to initiate business activities (Marchetta, 2012). And, if Wahba and Zenou (2012) find that a loss in social capital during migration can be offset by gains in financial and human capitals for returnees to successfully set their businesses in place in homeland Egypt, Obukhova et al.

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[5] Lianos and Pseiridis (2009) find for instance that the covariates increasing the likelihood of self-employment upon return differs between own-accounts and employers. Amount of remittances sent, qualifications acquired abroad, and stay duration increase returnees' probability to become a self-employed employer, compared to becoming a self-employed without employees. Another example is Piracha and Vadean (2010) who, studying the impact of Albanian returnees on growth, show that emigrating increases the probability of becoming an entrepreneur and the likelihood of would-be employers as opposed to own account workers.

([2012](#)) show that returnee entrepreneurs to China do not outperform non-migrant, 'homegrown' entrepreneurs. Because of a lack of 'local' social networks – in this case, school ties – where high-tech enterprises are set in place, returnees are likely to underperform non-migrant entrepreneurs or returnee entrepreneurs with such ties. Social capital – social networks – appears as a key determinant for entrepreneurship (Djankov et al., 2005, 2006).[6]

Opting for self-employment upon return results from the interaction of complementary factors, interrelated to the experience of migrating itself. For instance, Dustmann and Kirchkamp (2002) show that, among 1,200 Turkish immigrants returning from Germany in 1984, if more than half of the return migrants were active, the majority were self-employed, starting off a business, thanks to savings and capital acquired: they chose their optimal duration of stay overseas accordingly. Mesnard (2004) comes to similar conclusions for Tunisia. Assuming that migration duration is decided simultaneously with emigrants' occupational choice upon return, she shows that Tunisian emigrants who went back to Tunisia before 1986 would stay in France as long as they needed to acquire necessary capital, collateral to invest upon return in order to tackle domestic credit market imperfections.

Not only do savings accumulated and duration of stay abroad increase the propensity of returnees to opt for self-employment, the choice of destination country may also increase self-employment propensity upon return. Evidence was found supporting the hypotheses that savings, skill acquisition and duration of stay overseas have positive impacts to become an entrepreneur upon return, depending on skill levels and destination countries. Work experience abroad in a high-income economy, for instance, could explain returnees' propensity for self-employment (e.g. McCormick and Wahba (2001) for Egypt or Kilic et al. (2009) for Albania).

The empirical evidence on the influence of emigration on entrepreneurship upon return is mixed: emigration (return)-entrepreneurship dynamics appear highly context-specific. For example, Gibson et al. (2010) conclude from micro-economic evidence of five islands that, although return migration of the highly skilled, in particular, is common, their involvement in entrepreneurial activities once back to origin countries is seldom. That higher skilled migrants are less likely to opt for self-employment, in contrast with McCormick and Wahba's (2001), has been supported by Black and Castaldo (2009). Using data from Côte d'Ivoire and Ghana, Black and Castaldo (2009) show that human capital appears to be the most significant variable correlated with entrepreneurial activities upon return, but work experience rather than education – pursuit of education or training(s) abroad – either completed before or during emigration, results that would support the JAT hypothesis in a migration setting.

Moreover, Chen and Feng (2012), investigating Lazear's (2005) Jack-of-all-trade hypothesis among rural migrants in China, show that the variety of skills – how 'balanced' their skills mix is, measured by the number of professional fields (categories) as well as the number of accumulated skills, ranging from no skill, non-managerial skill only, managerial skill only, and managerial and non-managerial skills – accumulated during migration to urban areas significantly increases returnees' likelihood to opt for self-employment upon return. Démurger and Xu (2011) confirm this hypothesis. Return migrants are found to be more likely to engage in entrepreneurial activities upon return to origin rural areas than stayers; this probability is increased by savings accumulated and professional experience gained – in this case, migrants' job turnover.

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[6] If several studies have investigated the interactions between social networks and migration (e.g. Munshi, 2003; McKenzie and Rapoport, 2010), or specifically in job search (e.g. Wahba and Zenou, 2012), the dynamics involving social capital in origin countries upon return and occupational choice have been relatively under-studied so far; a potential explanation for contradictory results in the literature.

However, the human capital channel is relatively complex. If Gubert and Nordman (2011) find for a sample of 990 migrants who returned to native North Africa, that both those who had entrepreneurial experience before emigrating, and those who received vocational training abroad are more likely to become entrepreneurs upon return, experience but also occupation, integration process in and choice of destination country interact in the decision to set up a business upon return. That is, if a third of sampled returnees opt for self-employment upon return, those who became self-employed in destination country, specifically Germany and Italy, are more likely to become entrepreneurs upon return. In contrast, Algerian returnees show a lower propensity to self-employment: a sizable proportion of Algerians emigrated to France, where they had low-skill jobs, which may not have given them the entrepreneurial experience useful to start up a business back home. They also suggest that return migrants, somewhat 'forced' to return – who did not freely decide to go back to their origin country – tend to be under-represented among those who became self-employed upon return. Complementary mechanisms related to the migration experience itself are essential to explain choice and type of self-employment upon return.

Eventually, accumulated resources may be attracted by the perception of existing profitable investment opportunities in origin communities, reflected for instance by household business ownership. Or, existing family assets may attract investments as emigrants may later claim these assets, had they returned home – remittance inflows and business investments may reflect current emigrants' anticipation of inheritance (Amuedo-Dorantes and Pozo, 2006). Once an investement target is reached, decision to return can be made. Resources gathered during migration might then lead to business investments, but it could also be that existing businesses at home reveal greater investment opportunities, and, along with future claims for bequest, act as incentives to invest; hence, potential reverse causality.

Gaps in the existing literature, in particular regarding how temporary migration affects occupational choice upon return, thus remain to be filled. Despite few works, such as Chen and Feng (2012), Démurger and Xu (2011) or Black and Castaldo (2009), the relative importance of the abilities gained during migration compared to remittances and repatriated savings, that is whether it is 'wealth' rather than 'skills' that are affected by migration, is not clear. Migrating, by inducing greater job turnover could indeed affect returnees' mindsets, for instance, their propensity to take risk, be it for taking a new job and/or setting up a firm, as well as capabilities, that is their skills, know-hows – work experience itself – influencing their skills-mix. This paper will attempt to provide further evidence investigating the human capital channel, for the case of Egypt.

2.3 Entrepreneurship and return migration in Egypt

As described by Ghanem (2013), micro and small enterprises (MSEs) constitute almost 99 percent of Egypt's total enterprises, and around 80 percent of total employment, providing work for about 75 percent of new entrants to the job market. Mainly family businesses offering simple services to households, with low capital-labour ratios and using simple, traditional techonologies, they have limited access to financing, to infrastructure and public services, which may explain low compliance to formality requirements. Its relatively high importance could offer socially and economically excluded youth better living standards as, in 2008, 72 percent of new entrants to the labour market with secondary education found themselves working in the informal MSE sector, many times as unpaid family workers. Indeed, governments' former strategy to assist youth by creating jobs in the public sector could not be maintained – in 2008, they represented around 95 percent of Egypt's unemployed.

To develop its MSE sector, Egypt could set in place measures to encourage young entrepreneurs through programmes to equip them with the skills necessary for successful entrepreneurship (Ghanem, 2013). In this respect, if migration can contribute to making the entrepreneur, unpacking migration as a learning experience could help better informing what is neccessary for entrepreneurship education in Egypt.

A survival strategy to escape poor social and economic development (Zohry, 2009), international emigration from Egypt is on the other hand mainly function of overseas labour demand, and is strongly affected by the economic and political conditions of (Arab) labour importing countries (Wahba, 2009). Egypt has been labour exporter since the 1970s economic reforms and opening of the country; it is the biggest labour exporter of the Middle East and North Africa (MENA) region (Wahba, 2014). Two main trends can be depicted: a relatively temporary migration to Arab countries, involving male household heads, for one to five years; and a more permanent migration to Western countries, involving the entire nuclear family. Egyptians' first destination was labour-importing Arab countries, in particular oil-producing Gulf States, Libya and Iraq because of labour shortages. Since the 1980s and 1990s, the political instability some experienced and the replacement of Arab workers with Asian have had a significant effect on emigration destinations of Egyptians. Although the majority is still heading to Arab and Gulf States, around 30 percent of Egyptian migrants were residing in OECD countries in 2000 (Wahba, 2009).

The profile of Egyptian migrants has changed over the last decades (Wahba, 2014). 1970s-1990s international migration flows originated from urban areas. In the 2000s, they mainly come from rural areas. Educational level of migrants has evolved, reflecting the improvements in education of the Egyptian population, i.e. both urban and rural migrants are more educated in the 2010s than in the 1980s, but urban migrants remain relatively more than rural. Egypt's international migration counts both educated and less educated migrants (Wahba, 2014). The early 1980s saw highly educated professionals temporarily leaving the country (physicians, health workers, teachers), and less educated, usually working in construction, to Arab countries. Nowadays, the proportion of less educated Egyptian migrants have decreased over the proportion of the more educated as labour-importing Arab countries have replaced the former with Asians. Emigration flows have thus become more educated on average; Gulf States and Western countries tend to host the most educated Egyptian workers; Libya, Jordan and Iraq, the least.

Empirical research on return migration and entrepreneurhsip in Egypt has mainly used the ELMPS (Economic Research Forum and Central Agency For Public Mobilization & Statistics, 2013) to look at occupational choice upon return. McCormick and Wahba (2001), for instance, show that overseas savings and the acquisition of skills over a stay abroad increase the propensity to become self-employed of literate returnees; overseas savings alone raise illiterate returnees' propensity for self-employment. Controlling for the endogeneity of temporary migration, Wahba and Zenou (2012) find that an international migrant has a higher probability to become self-employed upon return than a non-migrant, the accumulation of savings and skills abroad (over)compensating their potential loss of social capital. Exploiting the longitudinal dimension of these data and controlling for selection in international return migration, Marchetta (2012) finds that being a return migrant significantly increases the prospect of survival of entrepreneurial activities in Egypt.

Although it has been found that return migants are more likely to start a business upon return to Egypt, and to be more productive than stayers, the role of the migration experience remains unclear. Opting for self-employment upon return could occur through migration-induced wealth effects – remittances and repatriated savings – or the formation of a balanced

6

skills-set, migration-induced Jack-of-all-trades effects.

3 Methodology

3.1 Estimation

A major analytical issue is the endogeneity of temporary migration. Migrating is subject to both negative and positive selection biases due to unobservable features, likely to affect occupational choice and business performance upon return (Marchetta, 2012).

Those who emigrate and return may do so because they are more endowed, have more balanced skills before departure, than non-migrants. In this case, empirical results would be biased when comparing performance. On the other hand, dynamics between return migration and entrepreneurship may be biased if returnees are more risk-takers, and so initiate riskier business strategies, or if returnees opt for self-employment by lack of social capital and/or greater wage-employed opportunities upon return. Emigrating itself could also be driven by the desire to set up an enterprise upon return. They could be simultaneous decisions, and temporary migration, part of would-be entrepreneurs' business strategies upon return (Wahba and Zenou, 2012; Batista et al., 2014).

To tackle endogeneity, we use an instrumental variable approach. As in Wahba and Zenou (2012), Marchetta (2012) or Bertoli and Marchetta (2015), changes in the real price of oil are used to obtain an exogenous source of variation in the probability of temporary migration. Inflation-adjusted prices of oil are assumed to drive the demand for non-native labour either directly in oil-producer countries, through employer-based immigration policies, responsive to change in local economic conditions; or indirectly in non oil-producer countries, such as Jordan or Lebanon, as replacement workers. As argued by these authors, fluctuations in the historical real price of oil should influence the decision to migrate, but should not be directly related to occupational choice upon return. And, because migration to Arab countries tends to be temporary (Richards, 1994; *in* Bertoli and Marchetta, 2015), predicting emigration should suffice to instrument return migration. Following Bertoli and Marchetta (2015), selecting the age at which individuals have to be matched to the real oil price then relies on an optimality criterion, to choose out of 11 alternatives, from 18 to 28 years old.

To assess the effect of migration experience on being an entrepreneur through the human capital channel on working-age (16-64) individuals, a seemingly unrelated regression (SUR) linear probability model is used since the three decisions – temporarily migrating, having a balanced skills set and being self-employed – form a non-recursive model with direct causal paths and correlated disturbances.[7]

$$Returnee_i = \delta_{10} + \delta_{11}X_{Ri} + \delta_{12}Z_{Ri} + \epsilon_{1i} \tag{1}$$

$$BalancedSkills_{ij} = \alpha_{20} + \alpha_{21}X_{BSi} + \alpha_{22}Z_{BSi} + \alpha_{23}Returnee_i + \epsilon_{2i} \tag{2}$$

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[7] Correlated disturbances assume that corresponding endogenous variables share at least one common omitted explanatory variable.

$$SelfEmployed_i = \gamma_{30} + \gamma_{31}X_{SEi} + \gamma_{32}Z_{SEi} + \gamma_{33}BalancedSkills_{ij} + \epsilon_{3i} \qquad (3)$$

Where $Returnee$ is alternatively a binary variable, taking unity if a working-age individual i has worked at least six months abroad, and a continuous variable of years abroad. $BalancedSkills$ is a continuous variable, with $j = 1, 2, 3$, alternatively measuring the number of different occupations or industries accumulated over the last four job spells, or the number of positions over the entire job history. $SelfEmployed$ is a binary variable taking unity if an individual is currently self-employed.

X_R is a vector of individual and household characteristics capturing gender, age, marital status, education, whether an individual's mother is literate,[8] and child dependency ratio. X_{BS} controls for the same variables as X_R, except age. X_{SE} controls for gender, household characteristics and lagged unemployment rates at the governorate level.

Z_R, exclusion restriction for equation (1), is the price of crude oil in US Dollars (USD), inflation-adjusted for March 2015, as explained earlier. Z_{BS}, exclusion restriction for equation (2), is a binary variable taking unity if an individual worked in a micro-firm over his/her last four job spells, assumed to influence occupational choice only through the accumulation of entrepreneurial skills or abilities. Small, micro-firms tend to lack complex hierarchical structures, and are less likely to be highly-specialised work places: working conditions give employees the opportunity to perform a variety of tasks (Parker, 2009; Bublitz and Noseleit, 2013; in Stuetzer et al., 2013). Performing various tasks might then develop balanced skills via learning-by-doing (Wagner, 2004; in Stuetzer et al., 2013). Z_{SE} is a vector of variables thought to influence occupational choice such as vocational high school, whether an individual's father was self-employed, whether his/her first job was self-employed, years of unemployment, tenure and tenure squared in years at current job, potential years of work experience and potential years of work experience squared. Labour force related information are measured over the last four job spells available in the Module 6 of the ELMPS.

As Z_R, Z_{BS} and Z_{SE} are unique to each structural equation, the above model can be solved, and its structural parameters uniquely identified. These three structural model equations can be rewritten as three reduced form equations in the endogenous variables $Returnee$, $BalancedSkills$ and $SelfEmployed$, so that each of these variables will depend on the exogenous variables in the entire system as well as the structural errors. The reduced form is estimated via a generalized simultaneous equations model (GSEM) estimator; then adding governorate fixed-effects;[9] excluding individuals living in a household with current or return migrants; eventually, excluding those working in agriculture. Standard errors are clustered at the household level to account for potential correlation within families.

$$Returnee = f(.; Z_R, \delta) \qquad (4)$$

$$BalancedSkills = f(.; Z_{BS}, \alpha; Z_R, \beta) \qquad (5)$$

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[8] Mother's education proxies potential inequalities of opportunities individuals might face based on their family background (Paxson and Schady, 2004; Paxson and Schady, 2007; in Atinc et al., 2005).

[9] First level of Egypt's administrative subdivision.

$$SelfEmployed = f(.; Z_{BS}, \gamma) \tag{6}$$

By estimating the relationship between having a balanced skills set and being a returnee, controlling for the endogeneity of return migration, we obtain the marginal effect of balanced skills over return migration. By estimating the relationship between being self-employed and having a balanced skills set, controlling for the endogeneity of a balanced skills mix, we obtain the marginal effect of self-employment over balanced skills. The marginal effect of self-employment over return migration through skill accumulation is computed by multiplying these two marginal effects.

$$\frac{\partial BalancedSkills}{\partial Returnee} = \frac{\beta}{\delta} \tag{7}$$

$$\frac{\partial SelfEmployed}{\partial BalancedSkills} = \frac{\gamma}{\alpha} \tag{8}$$

Hence the marginal effect of migration experience on self-employment through the development of a balanced skills set:

$$\frac{\partial SelfEmployed}{\partial Returnee} = \frac{\partial SelfEmployed}{\partial BalancedSkills} \cdot \frac{\partial BalancedSkills}{\partial Returnee} = \frac{\gamma}{\alpha} \cdot \frac{\beta}{\delta} \tag{9}$$

3.2 Identification strategy

The selection of the age, i.e. year of potential emigration, at which an individual is matched to the real price of oil heavily draws on Bertoli and Marchetta (2015). To do so, we estimate equation (1), and examine the strength of this instrument at different matching ages, ranging from 18 to 28 years old, by testing for each alternative the null hypothesis that the estimated coefficient on the real price of oil equals zero through a Wald test, implemented by Stata's *test* command. Cameron and Trivedi (2009, p.196) note that 'a widely used rule of thumb [...] views an F statistic of less than 10 as indicating weak instruments. This rule of thumb is ad hoc and may not be sufficiently conservative [...]'. In this case, we select the age of potential emigration giving the highest F statistic.

Figure 1 depicts the values of the F-statistics for equation (1), being a return migrant and the number of years abroad as alternative dependent variables, at each age, as well as the 10 F-statistic rule of thumb. The F-statistic is the highest for 19 years old for the two dependent variables, close to Bertoli and Marchetta's (2015) choice of 20 years old, but below 10 for 26, age selected by Wahba and Zenou (2012) and El-Mallakh and Wahba (2016). We thus opt for the real price of oil when individuals were 19 as instrument for temporary migration to Arab countries. Table 1 supports the selection of 19 as matching age: real oil prices were, on average, statistically significantly higher for return migrants (USD49.87) at 19 years old than for stayers (USD43.45), confirming the rationale behind this instrument.

Following Bertoli and Marchetta (2015), Figure 2 shows the relation between the share of returnees of the estimation sample, their year of birth and the real price of oil when they were

9

19 years old, from 1950 to 1990. Similarly, the proportion of return migrants is the highest, 25% or almost for those born in mid-1950s and early 1960s, who might have emigrated following the sharp increases in oil prices in the 1970s and 1980s. The proportion of returnees then falls, till the end of the series, 1989.[10] The steady decrease in the share of returnees does not match the peak in real oil price starting in the late 1980s. Egyptians, born in the late 1980s and onwards, who emigrated to Arab countries in the early 2000s may not have returned to Egypt yet. Or, if they already returned to Egypt, they may have failed their migratory project: they may not well represent the pool of Egyptians who left in the 2000s, which could induce bias.

Figure 1: First stage test statistics (F-stats) for the real oil price at different ages
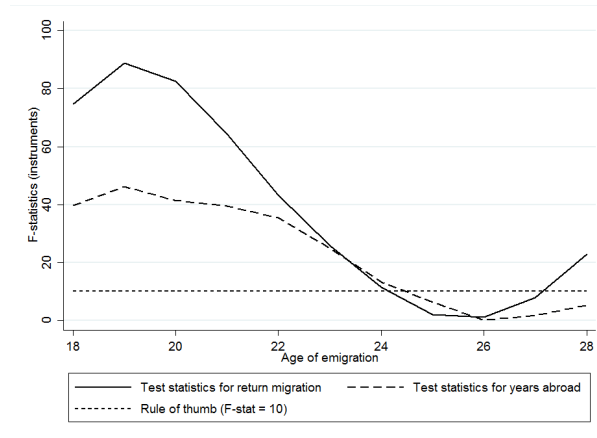
Figure 2: Share of returnees by year of birth and real oil price at the age of 19
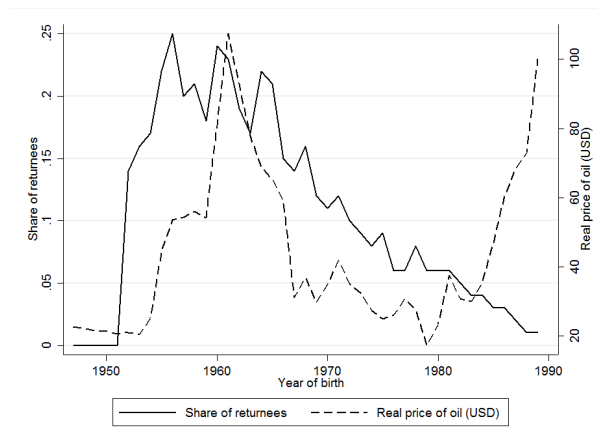
4 Data

We use a longitudinal and nationally representative household survey, the ELMPS, administered since 1998 by the Economic Research Forum in cooperation with the Central Agency for Public Mobilization and Statistics. The ELMPS is made of four cross-sections – 1988, 1998, 2006 and 2012 – the last three constituting a three-round panel. This paper uses its last wave, as a cross-section since some variables only collected in its last wave are used. The 2012 round covers 12,060 households and 49,186 individuals, tracking households and individuals

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[10] No return migrants born in 1990 or later were surveyed; the estimation sample thus only includes individuals with no missing information, who were born in 1989 or before.

surveyed in 2006, plus a refresher sample or interviewed in 1998. The 2012 refresher sample of 2,000 households over-samples by design areas with high migration rates. More details on data collection are available in Assaad and Kraft (2013). The ELMPS contains information on a variety of topics. Modules on labour market outcomes (Modules 4-6), residential mobility (3), current (12) and return (international) migration (10)[11] are of particular interest.

The estimation sample includes individuals born before 1990, as no return migrants are reported in the database for individuals born after 1990. This is to avoid potential bias in the use of the IV approach. The sample excludes individuals who changed job after the January 2011 Uprising. It is eventually limited to those whose first destination country was an Arab country, as listed in Bertoli and Marchetta (2015) – Algeria, Iraq, Jordan, Kuwait, Lebanon, Libya, Oman, Qatar, Saudi Arabia, Syria, United Arab Emirates and Yemen. Doing so helps better focusing on the effects induced by temporary migration since (i) Egyptians emigrating to Western countries tend to stay permanently; and (ii) the majority of Egyptians emigrates to Arab countries (cf. Section 2).

Table 1 presents the estimation sample, obtained after dropping observations with missing information, for the full sample, broken down by occupation, by migration experience, and limited to self-employed individuals by migration. The outcome of interest is a binary variable taking unity if a working-age (16-64) individual is self-employed; null, if employed. Out of 11,224 observations, 22.84 percent are self-employed.

Three measures of a balanced skills profile are alternatively used: (i) accumulated occupations, a continuous variable capturing the *number of occupational skills* an individual has accumulated over the four last spells of his job history, either as low-skilled blue-collar, high-skilled blue-collar, low-skilled white-collar and high-skilled white-collar;[12] (ii) accumulated industries, a continuous variable representing the *number of industries* (or sectors) an individual has worked in over the four last spells of his job history;[13] and (iii) accumulated jobs, a continuous variable recording the *number of jobs* an individual has had over his entire job history.

These three measures of skills-mix balance are not aggregated as each one may capture different dynamics. For instance, if accumulating occupational skills is likely to increase the degree of balance and how generalist an individual is, working in various industries may be correlated with a specialised skills profile: only those with specialist occupational skills, either low- or high-skilled, would be able to work in different sectors, keeping the same occupation. Job accumulation – job turnover – in contrast, may affect the degree of risk aversion that plays in changing jobs. Individuals in the full estimation sample seem to have a relatively low degree of skills-mix balance. They have accumulated, on average, 1.30 occupations, and worked in 1.20 sectors over their last four job spells; they have had 2.03 jobs on average over their entire job history.

Table 1 reveals notable differences between self-employed and employees. On average, those self-employed are more likely to be men, married, older and less educated than individuals employed. They are more likely to come from a poorer family, with a father who was also self-employed at their fifteenth birthday. They tend to have been self-employed in the past, as well as their first job, to have worked in a micro-enterprise, and to have experienced less years of unemployment than employees. Self-employed also tend to work relatively more in

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[11] This paper uses this newly added module on return migration that surveys individuals between 15 and 59 years old, who worked abroad for at least six months, to classify individuals as return migrants.

[12] Following the International Standard Classification of Occupations (ISCO-88).

[13] Following the International Standard Industrial Classification of all economic activities (ISIC4).

agriculture and in trade; employees, as public servants. Figure 3 shows that those self-employed have accumulated significantly more occupational skills (1.38), sectors (1.22) and jobs (2.20), compared to employees (respectively 1.28, 1.99 and 1.9).

Figure 3: Skills-mix profile by occupation
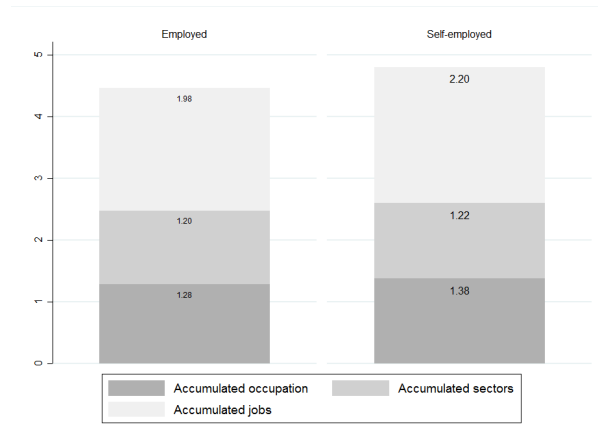
Being a return migrant is defined as a binary variable, taking 1 if an individual has emigrated at 15 or older for work for at least six months, and returned to Egypt at the time of the survey; 0, otherwise. 10 percent of the estimation sample are return migrants who, on average, spent 4.55 years abroad; those self-employed are more likely to have migrated than employees. Return migrants are on average significantly more men, older, and less educated than stayers. They come from poorer households with a greater number of dependents. They are more likely to have had a vocational training, a father self-employed and been self-employed in the past. They tend to work relatively more in agriculture and construction. The average real price of oil at 19 years old is significantly greater for return migrants – USD49.87 compared to USD43.45 for stayers. Similarly, they are much more likely to have worked in a micro-enterprise (76.70 percent against 35.66 percent). Returnees show a higher rate of self-employment: 33.12 compared to 21.74 percent of stayers are self-employed, the rest being wage-employed. They also display a significantly greater number of occupational skills, sectors and jobs, accumulated over their work experience, suggesting that they have a more balanced skills-mix profile, as shown in Figure 4.

Figure 4: Skills-mix profile by migration experience
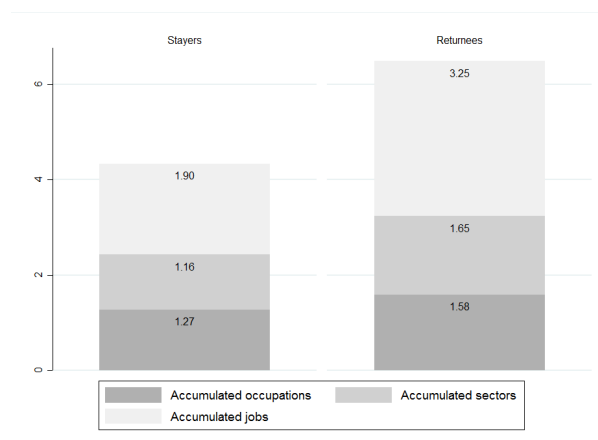
Eventually, limiting the sample to working-age self-employed, those who migrated appear to be relatively more men, older, more likely to be married and coming from poorer families than

those who did not. The former are also more likely to have had a vocational training, to have set up a firm in the past, but less likely to have been self-employed for first job. Figure 5 reveals that self-employed returnees have significantly obtained more occupational skills (1.56, 1.55 and 3.23), worked in more sectors, and had a greater number of jobs than self-employed who have not migrated (respectively 1.35, 1.17 and 2.04).

Figure 5: Skills-mix profile of self-employed by migration experience
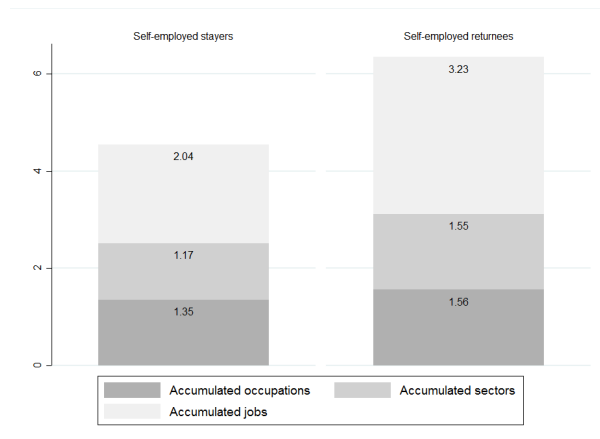
The below econometric analysis further investigates if migration experience contributes to returnees' higher propensity to start up a business through the development of a migration-specific human capital.

5 Results

5.1 Benchmark specifications

Tables 2, 3, and 4 present GSEM reduced-form coefficient estimates of a SUR linear probability model of return migration, number of occupational skills, sectors or jobs accumulated, and self-employment. Table 2 measures how balanced a skills-mix is by the number of occupations accumulated over the last four job spells; Table 3, by the number of sectors; and Table 4, by the number of jobs accumulated over the entire job history. Observations are 16-64 year-old individuals, self-employed or employees.

Columns (1)-(3) include working-age individuals with no migration experience or return migrants from abroad. Columns (4)-(6) add governorate fixed-effects. Columns (7)-(9) exclude individuals living in a household with members currently abroad, as the out-migration of a household member is likely to influence the occupational choice of left-behind relatives (Binzel and Assaad, 2011). Columns (10)-(12) exclude individuals living in a household with members who returned from migration abroad, since return migrants, if found relatively more entrepreneurial, could have spillover effects on non-migrant household members, and affect their occupational choice (Giulietti et al., 2013). Columns (13)-(15) exclude both. Columns (16)-(18) exclude in addition those working in agriculture – occupational choice dynamics in agriculture are likely to differ from other sectors'.

Columns (1), (4), (7), (10), (13) and (16) present GSEM coefficient estimates of self-employment

equation; Columns (2), (5), (8), (11), (14) and (17) present GSEM coefficient estimates of balanced skills-mix (accumulated skills, fields or jobs) equation; and Columns (3), (6), (9), (12), (15) and (18) present GSEM coefficient estimates of return migration equation. F-statistics and associated p-values testing the strength of the instrumental variable used to identify the model, historical real price of oil at 19 years old, are reported. This instrument is strong and relevant.

Opting for self-employment

The sign and significance of the control variables do not appear to significantly differ across specifications. Being male, having a father who was self-employed, reflecting a 'family' – cultural – entrepreneurial capital, having been self-employed as first job, a measure of entrepreneurial motivation, and tenure at current job, tend to increase the probability of a working-age to be self-employed. Years of potential work experience seem to have a non-linear relationship with self-employment, that is younger Egyptians, privileging wage-employed positions, and older, more averse to risk, have a lower propensity than middle-age working-age individuals to set up a firm. Having had a vocational training and past self-employment appear to decrease the propensity to be self-employed, suggesting that it takes to have varied, non self-employed occupations to, eventually, start up a firm. Having to support children tends to increase the likelihood of becoming self-employed, maybe out of necessity. Having worked in a micro-firm appears to be a strong, positive factor of skill accumulation, working in diverse fields and having had several jobs. This is consistent with the hypothesis that working in a micro-firm gives employees the opportunity to perform a variety of tasks, helping to develop a balanced skills-mix via learning-by-doing (Wagner, 2004; *in* Stuetzer et al., 2013). Inflation-adjusted price of oil at 19 years old is a strong, statistically significant instrument, despite a relatively small magnitude of its coefficient estimates.

The marginal effects of being a return migrant on self-employment through the development of a balanced skills profile are displayed at the bottom of the tables. Columns (1) to (16) of Table 2 suggest that having migrated statistically significantly decreases the probability of being self-employed, as accumulating occupational skills decreases the likelihood of setting up a firm, from 1.88 to 2.23 percentage points. However, when individuals working in agriculture are excluded from the estimation sample, a sector in which 15.16 percent of the full sample work – 9.57 of those employed and 34.01 percent of those self-employed – Columns (16) to (18) suggest that this effect is reversed. Having migrated does increase the propensity to be self-employed in non-agricultural sectors by accumulating diverse occupational skills over the last four job spells by 4.64 percentage points. This change in sign suggests that either agricultural entrepreneurship does not require the same set of occupational skills than in non-agricultural sectors, but a rather specialist skills-mix; or that return migration affects self-employment in agricultural sectors through channels other than by the accumulation of human capital, but through migration-induced monetary flows. This might support McCormick and Wahba's (2001) findings: overseas savings might have a stronger effect on self-employment in agriculture than human capital if self-employed in agriculture are of a lower educational attainment, or if they did not change occupations while away or upon return, that is if migrating did not give them the opportunity to accumulate diverse occupational skills.

In contrast, Table 3 indicates that having migrated has a statistically significantly negative effect on the likelihood of self-employment, the more sectors individuals worked in, from 7.82, when excluding those working in agriculture, to 10.98 percentage points. These estimates suggest that changing industries could decrease self-employment propensity upon return by preventing the acquisition of a sector-specific capital, necessary for venture success: self-employed might need a generalist, balanced set of occupational skills, within a relatively

narrow set of industries. Changing sectors could also be correlated with a higher degree of (occupational) skill specialisation, as only those having a specific set of skills, either relatively low or high, would be interchangeable between industries.

Table 4 shows that the job accumulation channel is weaker. Being a return migrant increases the probability of self-employment with the number of jobs by 0.82 percentage point; 1.22, when the sample excludes those working in agriculture. In this case, dynamics might differ. Changing jobs – job turnover – would affect entrepreneurial mindsets[14] by lowering the degree of risk aversion in changing job, rather than entrepreneurial capabilities,[15] like accumulating occupations and sectors do.

Table 5, using the number of years abroad, a continuous variable, instead of a binary variable for return migration, supports these findings, despite coefficient estimates of a smaller magnitude. An additional year abroad increases the likelihood of starting up a business in non-agricultural sectors by 0.87 percentage point via occupational skill accumulation; decreases this probability by 1.46 percentage points via sector accumulation; the number of jobs being statistically insignificant.

These results suggest that having migrated can contribute to the formation of entrepreneurial abilities by building skills within a (relatively) narrow set of sectors of occupation, in non-agricultural sectors, supporting empirical findings of Lechmann and Schnabel (2011) or Hessels et al. (2014) for instance. Migration appears as a process shaping entrepreneurs, to the extent that they remain in the same, or similar sectors of occupation. Changing industries may indeed prevent from building enough sector-specific capital, necessary for successful entrepreneurship. The weaker effect of the number of jobs may imply that this is not a relevant measure of, or does not contribute to the formation of a balanced skills-mix conducive to entrepreneurship as such, but by an alternative channel, the degree of risk aversion for instance.

Dynamics at stake in agriculture may be different, as shown by Table 6: none of the three human capital channels investigated significantly affects the propensity of self-employment upon return. This may reflect the fact that the Egyptian agricultural sector is the result of archaic measures, leading to a high degree of land fragmentation (Morsy et al., 2014). As a consequence, a substantial part of individual farmers keep working on small plots, of low productivity, unable to benefit from economies of scale. Working in agriculture, in particular, being farmer, may not require the experience gathered while working abroad – having migrated may not be 'enough' or relevant, as it may not provide the capital necessary to start up agricultural-based activities or access land. In addition, Tables 7 and 8 show that, among those working in non-agricultural industries, return migration increases the likelihood of business start-up with occupational skills (5.73 percentage points) and jobs (2.10), but decreases with sectors of occupation (8.53) only in rural areas. This suggests that return migration in Egypt might affect entrepreneurship only in rural off-farm sectors of the economy, potentially contributing to the strutural reallocation of its labour force.

Eventually, since return migrants are significantly more likely to have savings (9.27 percent) than non-migrants (7.23), not accounting for potentially migration-induced savings could bias the estimates. In the absence of an additional instrumental variable, we attempt to disentangle the financial from the human capital channel by running the above SUR linear probability model

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[14] Entrepreneurial mindsets are defined as 'the socio-emotional skills and overall awareness of entrepreneurship associated with entrepreneurial motivation and future success as an entrepreneur' such as self-confidence, leadership, creativity, risk propensity, resilience, etc. (Valerio et al., 2014, p. 36).

[15] Entrepreneurial capabilities are defined as 'entrepreneurs' competencies, knowledge, and associated technical skills', e.g. general business skills and basic skills to set up a firm (Valerio et al., 2014, p. 38).

on two sub-samples, differentiated by the possession of savings. Tables 9 and 10 reveal that having migrated increases the probability to be self-employed upon return with occupational skills (5.04 percentage points), but decreases in sectors of occupation (7.61) only for those who do not have savings; the job accumulation channel is statistically insignificant. Our instrument being weak for the sub-sample with savings, these estimates support the previous set of results for individuals who do not have savings, supporting the development of a migration-induced entrepreneurial human capital, beyond any potential wealth effect.

Productivity

With reference to benchmark specifications (Tables 2, 3 and 4), we attempt to assess whether return migration influences entrepreneurship through the formation of a balanced skills-set not only in terms of occupational choice, but also productivity, as a measure of performance.

Tables 11 and 12 consider the 'survival' of return migrants as self-employed; Tables 13, 14 and 15, at the effect of return migration on firms' job creation potentials. Using the number of years of the current self-employed position, Table 11 suggests that having migrated significantly increases the number of years of current self-employment with occupations (0.63 years) and jobs (0.38), and decreases in sectors of occupation (0.85), supporting the dynamics between return migration and occupational choice found above. Using as outcome variable the average number of years of self-employment over the four last spells of job, Table 12 shows that the average tenure of self-employment is signficantly affected by return migration through the number of jobs an individual has accumulated (increase by 0.11 years) and the number of industries (decrease by 0.36 years), the number of occupational skills being statistically insignificant.

In comparison, the accumulation of occupational skills abroad appears to be the main channel through which migration influences the type of entrepreneurship upon return. If return migration is found to increase the propensity to be an employer over wage-employment in the number of occupations (3.02 percentage points) and jobs (0.50), and decrease in sectors (8.17) (cf. Tables 13), return migration increases the likelihood to be an own-account worker over wage-employment, and to be an employer over an own-account worker only through the accumulation of occupational skills, by respectively 2.52 and 7.03 percentage points (cf. Tables 14 and 15). These estimates confirm the influence of migration experience in the development of human capital critical for entrepreneurship, not only to set up a business, but also to survive and to create jobs as an entrepreneur, the accumulation of occupational skills, i.e. task and role diversification, affecting entrepreneurial abilities, potentially being the most important channel.

5.2 Robustness of identification strategy

Following Bertoli and Marchetta (2015), we then check the robustness of our identification strategy. First, Figure 2 shows that the steady decrease in the share of returnees from 1979 till the end of the series, in 1989, does not match the peak in real oil price starting in the late 1980s. Egyptians who were born in 1979 or later, and who emigrated to Arab countries in the early 2000s may not have returned to Egypt yet; or, if they have, may have failed their migratory project, and not be representative of the pool of Egyptians who left in the 2000s. This trend may not necessarily mirror a change in the relationship between historical real price of oil and temporary migration used to control for the endogeneity of migration. Table 16 presents estimates of the estimation sample limited to working-age individuals born before 1979, for which we used the real price of oil at the age of 20, applying the same selection criterion for the instrument as above. Coefficient estimates and marginal effects of return migration on

self-employment do not differ much from benchmark results: being a return migrant increases the likelihood of self-employment with the number of skills (3.22 percentage points) and jobs (3.53), but decreases in the number of sectors of occupation (11.19).

Second, if the historical price of oil is assumed to drive the demand for non-native labour both directly, in oil-producer countries, and indirectly, in non-oil producer countries, some could argue that the later effect is weaker, if not insignificant. As in Bertoli and Marchetta (2015), we exclude of the estimation sample individuals whose first emigration was to non-oil producer countries – Jordan, Lebanon, Syria and Yemen. Table 17 shows that coefficient estimates and marginal effects of return migration on self-employment follow the same pattern as benchmark results'. Being a return migrant increases the likelihood of self-employment with the number of skills (4.20 percentage points), and decreases in the number of sectors of occupation (11.19); the job accumulation channel is, however, statistically insignificant.

Lastly, an alternative instrumental variable is used to obtain exogenous variations in return migration, changes in the yearly average of the official exchange rate of the Egyptian Pound to US dollar, in local currency unit per US dollar.[16] The lower Egypt's official exchange rate, that is the weaker the Egyptian Pound, the greater the incentive to emigrate. Exchange rates are assumed to act as a pull factor, reflecting how profitable, in monetary terms, working abroad is for Egyptians. Exchange rates could influence the profitability of some industries over others, and affect occupational choice upon return. However, by including both wage- and self-employed occupations in all sectors of the economy, exchange rates should not be directly related to occupational choice upon return. And, because emigration to Arab countries is temporary in nature, predicting emigration should suffice to instrument return migration. We proceed as in Bertoli and Marchetta (2015) to select the age at which individuals have to be matched to the exchange rate, and rely on an optimality criterion to choose out of 11 alternative ages, from 18 to 28 years old. The F-statistic is the highest for 24 years old for return migration (binary variable); for 25, for the number of years abroad. We thus opt for the official exchange rate at 24 years old to instrument for temporary migration to Arab countries. Benchmark specifications yield similar estimates, although greater in significance and magnitude. Table 18 suggests that, in non-agricultural sectors, return migration increases the probability to be self-employed upon return with the number of occupational skills (by 8.08 percentage points) and jobs (7.60), but decreases in the number of industries (12.35).

6   Concluding remarks

This paper contributes to filling gaps in the empirical literature on entrepreneurship abilities and return migration by unpacking migration as a learning experience for business start-up. Using Lazear's (2005) Jack-of-all-trades hypothesis, it was posited that migration led to a more balanced skills-set, resulting in a greater propensity to self-employment among return migrants. Robust to the endogeneity of migration, estimates show that in non-agricultural sectors, having migrated increases the propensity to be self-employed by affecting entrepreneurial mindsets and capabilities. Migrating increases the likelihood to opt for self-employment, to survive and to generate jobs by developing entrepreneurial abilities – in this paper, the accumulation of occupational skills. By inducing changes in jobs, migrating leads to greater job turnover, likely to enhance the propensity to take risk, to either change jobs or opt for self-employment.

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[16] Data on official exchange rates in local currency unit per US dollar are available on the website of the World Bank.

Migration could thus contribute to the formation of a balanced human capital conducive to entrepreneurship by accumulating skills within a (relatively) narrow set of non-agricultural sectors. Migration may also be seen as a process shaping entrepreneurial abilities, to the extent that they remain in the same, or similar sectors of occupation. Changing industries may disperse sector-specific knowledge, or even prevent from building enough sector-specific capital, necessary for successful entrepreneurship, as suggests the decrease in the likelihood to be self-employed with the number of industries.

This paper found significant differences across sectors and how they may benefit from migration in Egypt. International migrants originating relatively more from rural areas, that temporary migration has a positive effect on self-employment in rural areas through the accumulation of skills excluding those working in agriculture suggests that the latter may not 'fully' benefit from migration (for self-employment), but only through remittances or savings repatriated upon return, if they do. The skills necessary for agricultural self-employment may be relatively specialised, or dynamics other than human capital may be critical. Indeed, an easier access to land, land consolidation, or modernisation of the farming sector could enable farmers to get away from subsistence farming to benefit from economies of scale and higher efficiency, and to reallocate its labour force towards sectors of higher productivity – potentially seizing more of what migration can bring (Morsy et al., 2014).

In conclusion, to answer the questions asked in the introduction of this paper: yes, entrepreneurship can be taught, as the results of this paper confirm. What should entrepreneurship education include? Based on this paper, developing entrepreneurial mindsets, for instance the propensity to take risk, as well as entrepreneurial capabilities, e.g. having a broad set of skills in a relatively concentrated set of industries, are interesting venues for research. Entrepreneurship education should eventually account for the differences between sectors and location, as agricultural entrepreneurship may be facing institutional and geography-specific challenges, and so require an easier access to land as well as specialisation rather than diversification of the human capital critical for successful entrepreneurship.

Table 1: Descriptive statistics of estimation sample

	Full sample		By status		By migration		Self-employed	
			Employees	Self-employed	Stayers	Returnees	Stayers	Returnees
	Mean	Std. Dev.	Mean	Mean	Mean	Mean	Mean	Mean
Dependent variables								
Self-employment	.2284	.4198	0	1	**.2174**	.3312	1	1
Independent variables								
Return migrant	.0971	.2961	**.0842**	.1408	0	1	0	1
Years abroad	.4423	2.0201	**.3426**	.7789	0	4.55	0	5.5319
Accumulated occupation	1.3035	.5096	**1.2809**	1.3795	**1.2732**	1.5844	**1.3495**	1.5623
Accumulated sectors	1.2041	.4713	**1.1994**	1.22	**1.1562**	1.6495	**1.1652**	1.554
Accumulated jobs	2.0336	.8774	**1.9829**	2.2048	**1.903**	3.2477	**2.0368**	3.2299
Male	.8370	.3694	**.8221**	.8873	**.8213**	.9826	**.8702**	.9917
Age	38.2099	10.7902	**37.081**	42.021	**37.581**	44.057	**41.532**	45.006
Married	.8248	.3802	**.8082**	.8807	**.8102**	.9596	**.8656**	.9723
Illiterate	.1865	.3895	**.1348**	.3612	**.1832**	.2174	.3609	.3629
Literate (without diploma)	.0445	.2063	**.0382**	.0659	**.0421**	.0670	.0654	.0693
Elementary school	.0948	.2929	**.0867**	.1221	.0944	.0982	.1235	.1136
Middle school	.0503	.2187	.0504	.0503	.0504	.0495	.0499	.0526
High school	.3564	.4790	**.3848**	.2605	**.3500**	.4156	**.2533**	.3047
Post-secondary, university and higher	.2675	.4427	**.3052**	.1400	**.2799**	.1523	**.1471**	.0970
Literate mother	.2128	.4093	**.2352**	.1373	**.2226**	.1220	**.1444**	.0942
Children dependency ratio	.2958	.2305	**.2910**	.3119	**.2932**	.3196	.3099	.3245
2007 unemployment rate (gov.)	.0903	.0300	**.0916**	.0861	**.0905**	.0886	.0860	.0870
Vocational high school	.3339	.4716	**.3622**	.2383	**.3269**	.3991	**.2288**	.2964
Father was self-employed	.3568	.4791	**.3034**	.5374	**.3464**	.4541	.5361	.5457
Past self-employment	.0385	.1924	**.0269**	.0776	**.0324**	.0954	**.0617**	.1745
First job was self-employed	.0618	.2409	**.0129**	.2270	**.0656**	.0266	**.2565**	.0471
Years of unemployment	.6875	1.9623	**.7682**	.4150	**.7000**	.5725	.4181	.3961
Tenure of current job	14.0906	9.9730	**13.668**	15.52	**13.994**	14.99	15.614	14.945
Potential years of work experience	22.4186	12.6758	**20.521**	28.828	**21.702**	29.076	**28.327**	31.884
Savings	.0770	.2666	**.0746**	.0850	**.0753**	.0927	.0831	.0970
Agriculture	.1516	.3586	**.0957**	.3401	**.1452**	.2110	**.33**	.4017
Mining	.0025	.0499	**.0031**	.0004	.0025	.0028	.0005	0
Manufacturing	.1270	.3330	**.1386**	.0881	**.1310**	.0908	.0899	.0776
Utilities	.0197	.1389	**.0255**	0	.0200	.0165	0	0
Construction	.1131	.3167	**.1282**	.0620	**.1093**	.1477	**.0554**	.1025
Trade	.1687	.3745	**.1146**	.3518	**.1728**	.1312	**.3663**	.2632
Transport	.0887	.2844	**.0912**	.0803	.0877	.0982	**.0758**	.1080
Business services	.0355	.1852	.0366	.0320	**.0365**	.0266	.0336	.0222
Government	.2579	.4375	**.3322**	.0070	.2595	.2431	.0077	.0028
Personal services	.0349	.1836	.0340	.0382	.0353	.0312	**.0409**	.0222
Extraterritorial organisations	.0003	.0163	.0004	.0009	.0002	.09	0	0
Experience in micro-enterprise	.3965	.4892	**.3320**	.6143	**.3566**	.7670	**.5688**	.8920
Oil price at average age of emigration (19 years old)	44.0754	21.9640	**44.705**	41.949	**43.452**	49.867	**40.779**	49.086
N		11,224	8,660	2,565	10,134	1,090	2,203	361

Notes: Summary statistics for variables included in the analysis. The sample consists of 16-64 individuals (N=11,224). Means between treated (self-employed, returnees and self-employed returnees) and control groups (respectively employees, stayers and self-employed stayers) statistically significantly different at the 10 percent significance level are in bold.

Table 2: SUR coefficient estimates, accumulated occupations (return migration instrumented by oil price at 19 years old)

Variables	Self-employed (1)	Accumulated occupations (2)	Returnee (3)	Self-employed (4)	Accumulated occupations (5)	Returnee (6)	Self-employed (7)	Accumulated occupations (8)	Returnee (9)	Self-employed (10)	Accumulated occupations (11)	Returnee (12)	Self-employed (13)	Accumulated occupations (14)	Returnee (15)	Self-employed (16)	Accumulated occupations (17)	Returnee (18)
Accumulated occupations	-0.0194** (0.0093)			-0.0196** (0.0093)			-0.0183** (0.0093)			-0.0208** (0.0093)			-0.0199** (0.0094)			0.0464*** (0.0098)		
Micro-enterprise	0.1592*** (0.0100)	0.4632*** (0.0107)		0.1513*** (0.0100)	0.4632*** (0.0107)		0.1499*** (0.0101)	0.4669*** (0.0108)		0.1536*** (0.0101)	0.4612*** (0.0108)		0.1521*** (0.0102)	0.4654*** (0.0110)		0.0921*** (0.0107)	0.5346*** (0.0123)	
Oil price (19)		0.0006*** (0.0002)	0.0013*** (0.0001)		0.0006*** (0.0002)	0.0013*** (0.0001)		0.0006*** (0.0002)	0.0013*** (0.0001)		0.0007*** (0.0002)	0.0014*** (0.0001)		0.0007*** (0.0002)	0.0014*** (0.0002)		0.0007*** (0.0002)	0.0013*** (0.0002)
Male	0.0192** (0.0077)	0.0984*** (0.0083)	0.1039*** (0.0046)	0.0248*** (0.0077)	0.0984*** (0.0083)	0.1039*** (0.0046)	0.0222*** (0.0079)	0.0989*** (0.0085)	0.1053*** (0.0047)	0.0273*** (0.0080)	0.1021*** (0.0086)	0.1019*** (0.0047)	0.0247*** (0.0082)	0.1030*** (0.0086)	0.1029*** (0.0086)	0.0153* (0.0081)	0.1148*** (0.0091)	0.1005*** (0.0052)
Age			0.0049*** (0.0003)			0.0049*** (0.0003)			0.0051*** (0.0003)			0.0050*** (0.0003)			0.0052*** (0.0003)			0.0053*** (0.0003)
Married	-0.0102 (0.0091)	0.0688*** (0.0108)	0.0348*** (0.0060)	-0.0142 (0.0092)	0.0688*** (0.0108)	0.0348*** (0.0060)	-0.0163* (0.0094)	0.0656*** (0.0110)	0.0344*** (0.0062)	-0.0212** (0.0095)	0.0674*** (0.0112)	0.0346*** (0.0063)	-0.0221** (0.0096)	0.0629*** (0.0114)	0.0344*** (0.0065)	-0.0148 (0.0099)	0.0749*** (0.0123)	0.0237*** (0.0068)
Literate (without diploma)		0.1363*** (0.0271)	0.0294* (0.0167)		0.1363*** (0.0271)	0.0294* (0.0167)		0.1321*** (0.0274)	0.0300* (0.0170)		0.1386*** (0.0276)	0.0312* (0.0171)		0.1358*** (0.0278)	0.0323* (0.0174)		0.0485 (0.0319)	0.0380** (0.0191)
Elementary school		0.1048*** (0.0186)	0.0095 (0.0114)		0.1048*** (0.0186)	0.0095 (0.0114)		0.1047*** (0.0189)	0.0089 (0.0117)		0.1064*** (0.0189)	0.0095 (0.0117)		0.1076*** (0.0191)	0.0093 (0.0119)		0.0126 (0.0231)	0.0158 (0.0132)
Middle school		0.0837*** (0.0231)	-0.0010 (0.0139)		0.0837*** (0.0231)	-0.0010 (0.0139)		0.0813*** (0.0234)	-0.0019 (0.0142)		0.0833*** (0.0236)	-0.0007 (0.0144)		0.0824*** (0.0239)	-0.0013 (0.0147)		-0.0334 (0.0273)	0.0059 (0.0157)
High school		0.1750*** (0.0129)	0.0407*** (0.0087)		0.1750*** (0.0129)	0.0407*** (0.0087)		0.1736*** (0.0132)	0.0410*** (0.0089)		0.1763*** (0.0132)	0.0425*** (0.0090)		0.1759*** (0.0135)	0.0429*** (0.0092)		0.0764*** (0.0171)	0.0517*** (0.0104)
Post-secondary, university and higher		0.1168*** (0.0139)	-0.0009 (0.0088)		0.1168*** (0.0139)	-0.0009 (0.0088)		0.1138*** (0.0141)	-0.0023 (0.0090)		0.1171*** (0.0143)	-0.0015 (0.0092)		0.1167*** (0.0145)	-0.0026 (0.0094)		0.0006 (0.0178)	0.0095 (0.0105)
Father was self-employed	0.1023*** (0.0077)			0.0975*** (0.0078)			0.0964*** (0.0079)			0.0984*** (0.0080)			0.0972*** (0.0081)			0.0639*** (0.0084)		
Vocational high school	-0.0184*** (0.0071)			-0.0197*** (0.0071)			-0.0198*** (0.0072)			-0.0198*** (0.0073)			-0.0194*** (0.0074)			-0.0273*** (0.0075)		
Past self-employment	-0.1865*** (0.0290)			-0.1872*** (0.0288)			-0.1796*** (0.0290)			-0.1816*** (0.0290)			-0.1757*** (0.0293)			-0.1717*** (0.0323)		
First job was self-employed	0.6943*** (0.0146)			0.6937*** (0.0147)			0.6929*** (0.0151)			0.6901*** (0.0150)			0.6891*** (0.0154)			0.7003*** (0.0185)		
Years of unemployment	-0.0026 (0.0018)			-0.0031* (0.0018)			-0.0030* (0.0018)			-0.0035* (0.0018)			-0.0035* (0.0018)			-0.0010 (0.0018)		
Tenure	-0.0027* (0.0014)			-0.0026* (0.0014)			-0.0027* (0.0015)			-0.0025* (0.0014)			-0.0025* (0.0015)			-0.0033** (0.0017)		
Tenure squared	-0.0001*** (0.0000)			-0.0001*** (0.0000)			-0.0001*** (0.0000)			-0.0001*** (0.0000)			-0.0001*** (0.0000)			-0.0001* (0.0000)		
Years of potential work experience	-0.0023* (0.0014)			-0.0021 (0.0014)			-0.0018 (0.0014)			-0.0024* (0.0014)			-0.0021 (0.0014)			0.0019 (0.0016)		
Years of potential work experience squared	0.0003*** (0.0000)			0.0003*** (0.0000)			0.0002*** (0.0000)			0.0003*** (0.0000)			0.0002*** (0.0000)			0.0001*** (0.0000)		
Literate mother	0.0139* (0.0081)	0.0070 (0.0110)	-0.0096 (0.0064)	0.0141* (0.0084)	0.0070 (0.0110)	-0.0096 (0.0064)	0.0146* (0.0085)	0.0079 (0.0111)	-0.0103 (0.0066)	0.0138 (0.0086)	0.0070 (0.0114)	-0.0105 (0.0067)	0.0144* (0.0087)	0.0071 (0.0115)	-0.0112 (0.0068)	0.0138 (0.0088)	-0.0046 (0.0118)	-0.0085 (0.0070)
Under 15 dependency ratio	0.1214*** (0.0174)	0.0040 (0.0212)	0.0619*** (0.0141)	0.1224*** (0.0174)	0.0040 (0.0212)	0.0619*** (0.0141)	0.1250*** (0.0177)	0.0052 (0.0216)	0.0600*** (0.0144)	0.1293*** (0.0177)	0.0038 (0.0217)	0.0604*** (0.0145)	0.1316*** (0.0180)	0.0049 (0.0221)	0.0580*** (0.0148)	0.0926*** (0.0187)	0.0011 (0.0239)	0.0632*** (0.0155)
2007 unemployment rate	-0.4122*** (0.1156)			-0.8055 (0.5276)			-0.8164 (0.5391)			-0.8613 (0.5402)			-0.8598 (0.5409)			-0.9685* (0.5850)		
Constant	0.0741*** (0.0186)	0.8380*** (0.0188)	-0.2966*** (0.0176)	0.1178* (0.0687)	0.8380*** (0.0188)	-0.2966*** (0.0176)	0.1192* (0.0701)	0.8424*** (0.0192)	-0.3030*** (0.0180)	0.1309* (0.0705)	0.8332*** (0.0191)	-0.2984*** (0.0180)	0.1304* (0.0707)	0.8369*** (0.0194)	-0.3048*** (0.0184)	0.0917 (0.0755)	0.9269*** (0.0225)	-0.3102*** (0.0197)
Governorate fixed-effects	No			Yes			Yes			Yes			Yes			Yes		
Observations		11,224			11,224			10,952			10,830			10,592			9,005	
F-stat (instruments)			88.93			88.93			86.91			87.93			86.42			66.29
P-value (instruments)			0.0000			0.0000			0.0000			0.0000			0.0000			0.0000
Variance of errors Self-employed		0.1231*** (0.0020)			0.1221*** (0.0020)			0.1229*** (0.0020)			0.1235*** (0.0020)			0.1242*** (0.0020)			0.1128*** (0.0023)	
Variance of errors Accumulated occupations		0.2007*** (0.0037)			0.2007*** (0.0037)			0.2021*** (0.0037)			0.2042*** (0.0038)			0.2055*** (0.0038)			0.2046*** (0.0042)	
Variance of errors Returnee		0.0817*** (0.0020)			0.0817*** (0.0020)			0.0834*** (0.0020)			0.0844*** (0.0021)			0.0860*** (0.0021)			0.0802*** (0.0023)	
$\frac{2}{\alpha} \cdot \frac{\beta}{\delta}$		-.0188* (.0111)			-.0189* (.0111)			-.0165 (.0104)			-.0223* (.0123)			-.0201* (.0116)			.0464*** (.0177)	

Notes: The dependent variable is a binary variable taking unity if a working-age individual is self-employed; 0, if employed, wage-employed or unpaid, contributing to family work. Columns (1)-(3) include working-age individuals with no migration experience or return migrants from abroad. Columns (4)-(6) add governorate fixed-effects. Columns (7)-(9) only exclude individuals living in a household with members currently abroad. Columns (10)-(12) only exclude individuals living in a household with members who returned from migration abroad. Columns (13)-(15) exclude both. Columns (16)-(18) exclude in addition those working in agriculture. Columns (1), (4), (7), (10), (13) and (16) present GSEM coefficient estimates of self-employment equation; Columns (2), (5), (8), (11), (14) and (17) present GSEM coefficient estimates of balanced skills-mix (accumulated occupational skills) equation; and Columns (3), (6), (9), (12), (15) and (18) present GSEM coefficient estimates of return migration equation. Standard errors clustered at the household level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 3: SUR coefficient estimates, accumulated sectors (return migration instrumented by oil price at 19 years old)

Variables	Self-employed	Accumulated sectors	Returnee	Self-employed	Accumulated sectors	Returnee	Self-employed	Accumulated sectors	Returnee	Self-employed	Accumulated sectors	Returnee	Self-employed	Accumulated sectors	Returnee	Self-employed	Accumulated sectors	Returnee
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Accumulated sectors	-0.0458*** (0.0090)			-0.0479*** (0.0090)			-0.0479*** (0.0091)			-0.0499*** (0.0091)			-0.0499*** (0.0092)			-0.0307*** (0.0094)		
Micro-enterprise	0.1595*** (0.0095)	0.2795*** (0.0106)		0.1515*** (0.0095)	0.2795*** (0.0106)		0.1506*** (0.0096)	0.2815*** (0.0108)		0.1538*** (0.0096)	0.2817*** (0.0108)		0.1526*** (0.0097)	0.2829*** (0.0109)		0.1180*** (0.0100)	0.2956*** (0.0125)	
Oil price (19)		0.0008*** (0.0002)	0.0013*** (0.0001)		0.0008*** (0.0002)	0.0013*** (0.0001)		0.0008*** (0.0002)	0.0013*** (0.0001)		0.0009*** (0.0002)	0.0014*** (0.0001)		0.0009*** (0.0002)	0.0014*** (0.0002)		0.0010*** (0.0002)	0.0013*** (0.0002)
Male	0.0227*** (0.0077)	0.0999*** (0.0071)	0.1039*** (0.0046)	0.0290*** (0.0077)	0.0999*** (0.0071)	0.1039*** (0.0046)	0.0266*** (0.0079)	0.1002*** (0.0072)	0.1053*** (0.0047)	0.0315*** (0.0080)	0.0995*** (0.0074)	0.1019*** (0.0047)	0.0291*** (0.0082)	0.0999*** (0.0075)	0.1029*** (0.0049)	0.0260*** (0.0081)	0.1096*** (0.0080)	0.1005*** (0.0052)
Age			0.0049*** (0.0003)			0.0049*** (0.0003)			0.0051*** (0.0003)			0.0050*** (0.0003)			0.0052*** (0.0003)			0.0053*** (0.0003)
Married	-0.0091 (0.0091)	0.0803*** (0.0101)	0.0348*** (0.0060)	-0.0132 (0.0092)	0.0803*** (0.0101)	0.0348*** (0.0060)	-0.0153 (0.0094)	0.0775*** (0.0103)	0.0344*** (0.0062)	-0.0202** (0.0094)	0.0776*** (0.0105)	0.0346*** (0.0063)	-0.0211** (0.0096)	0.0756*** (0.0107)	0.0344*** (0.0065)	-0.0124 (0.0099)	0.0784*** (0.0118)	0.0237*** (0.0068)
Literate (without diploma)		0.0960*** (0.0275)	0.0294* (0.0167)		0.0960*** (0.0275)	0.0294* (0.0167)		0.0910*** (0.0278)	0.0300* (0.0170)		0.0978*** (0.0282)	0.0312* (0.0171)		0.0936*** (0.0285)	0.0323* (0.0174)		0.0574* (0.0337)	0.0380** (0.0191)
Elementary school		0.0574*** (0.0179)	0.0095 (0.0114)		0.0574*** (0.0179)	0.0095 (0.0114)		0.0563*** (0.0182)	0.0089 (0.0117)		0.0584*** (0.0182)	0.0095 (0.0117)		0.0582*** (0.0185)	0.0093 (0.0119)		0.0200 (0.0230)	0.0158 (0.0132)
Middle school		0.0489** (0.0221)	-0.0010 (0.0139)		0.0489** (0.0221)	-0.0010 (0.0139)		0.0469** (0.0224)	-0.0019 (0.0142)		0.0511** (0.0226)	-0.0007 (0.0144)		0.0499** (0.0229)	-0.0013 (0.0147)		0.0186 (0.0268)	0.0059 (0.0157)
High school		0.1180*** (0.0124)	0.0407*** (0.0087)		0.1180*** (0.0124)	0.0407*** (0.0087)		0.1171*** (0.0127)	0.0410*** (0.0089)		0.1214*** (0.0128)	0.0425*** (0.0090)		0.1208*** (0.0131)	0.0429*** (0.0092)		0.0873*** (0.0172)	0.0517*** (0.0104)
Post-secondary, university and higher		0.0871*** (0.0136)	-0.0009 (0.0088)		0.0871*** (0.0136)	-0.0009 (0.0088)		0.0859*** (0.0138)	-0.0023 (0.0090)		0.0888*** (0.0140)	-0.0015 (0.0092)		0.0873*** (0.0142)	-0.0026 (0.0094)		0.0459** (0.0179)	0.0095 (0.0105)
Father was self-employed	0.1013*** (0.0077)			0.0965*** (0.0078)			0.0954*** (0.0079)			0.0973*** (0.0080)			0.0961*** (0.0080)			0.0633*** (0.0084)		
Vocational high school	-0.0163** (0.0070)			-0.0175** (0.0070)			-0.0174** (0.0071)			-0.0174** (0.0072)			-0.0168** (0.0073)			-0.0195*** (0.0075)		
Past self-employment	-0.1771*** (0.0292)			-0.1776*** (0.0290)			-0.1701*** (0.0292)			-0.1716*** (0.0291)			-0.1660*** (0.0294)			-0.1574*** (0.0324)		
First job was self-employed	0.6887*** (0.0147)			0.6883*** (0.0147)			0.6873*** (0.0152)			0.6845*** (0.0151)			0.6882*** (0.0155)			0.6882*** (0.0186)		
Years of unemployment	-0.0024 (0.0018)			-0.0038 (0.0018)			-0.0027 (0.0018)			-0.0033* (0.0018)			-0.0032* (0.0018)			-0.0013 (0.0018)		
Tenure	-0.0031** (0.0014)			-0.0030** (0.0014)			-0.0030** (0.0014)			-0.0028** (0.0014)			-0.0029** (0.0015)			-0.0042** (0.0017)		
Tenure squared	-0.0001*** (0.0000)			-0.0001*** (0.0000)			-0.0001*** (0.0000)			-0.0001*** (0.0000)			-0.0001*** (0.0000)			-0.0001* (0.0000)		
Years of potential work experience	-0.0018 (0.0014)			-0.0016 (0.0014)			-0.0013 (0.0014)			-0.0018 (0.0014)			-0.0015 (0.0014)			0.0029* (0.0016)		
Years of potential work experience squared	0.0003*** (0.0000)			0.0002*** (0.0000)			0.0002*** (0.0000)			0.0002*** (0.0000)			0.0002*** (0.0000)			0.0001*** (0.0000)		
Literate mother	0.0158* (0.0081)	0.0200* (0.0111)	-0.0096 (0.0064)	0.0158* (0.0083)	0.0200* (0.0111)	-0.0096 (0.0064)	0.0163* (0.0085)	0.0195* (0.0113)	-0.0103 (0.0066)	0.0155* (0.0086)	0.0169 (0.0115)	-0.0105 (0.0067)	0.0161* (0.0087)	0.0168 (0.0117)	-0.0112 (0.0068)	0.0165* (0.0088)	0.0159 (0.0120)	-0.0085 (0.0070)
Under 15 dependency ratio	0.1214*** (0.0173)	-0.0088 (0.0214)	0.0619*** (0.0141)	0.1226*** (0.0174)	-0.0088 (0.0214)	0.0619*** (0.0141)	0.1252*** (0.0177)	-0.0054 (0.0219)	0.0600*** (0.0144)	0.1293*** (0.0180)	-0.0091 (0.0220)	0.0604*** (0.0145)	0.1316*** (0.0187)	-0.0061 (0.0224)	0.0580*** (0.0148)	0.0953*** (0.0252)	0.0007 (0.0252)	0.0632*** (0.0155)
2007 unemployment rate	-0.4074*** (0.1153)			-0.9036* (0.5337)			-0.9134* (0.5467)			-0.9632* (0.5473)			-0.9588* (0.5473)			-1.0847* (0.5835)		
Constant	0.0942*** (0.0185)	0.8287*** (0.0185)	-0.2966*** (0.0176)	0.1530** (0.0695)	0.8287*** (0.0185)	-0.2966*** (0.0176)	0.1552** (0.0709)	0.8305*** (0.0189)	-0.3030*** (0.0180)	0.1670** (0.0713)	0.8293*** (0.0189)	-0.2984*** (0.0180)	0.1667** (0.0715)	0.8297*** (0.0192)	-0.3048*** (0.0184)	0.1721** (0.0754)	0.8523*** (0.0228)	-0.3102*** (0.0197)
Governorate fixed-effects	No			Yes			Yes			Yes			Yes			Yes		
Observations		11,224			11,224			10,952			10,830			10,592			9,005	
F-stat (instruments)			88.93			88.93			86.91			87.93			86.42			66.29
P-value (instruments)			0.0000			0.0000			0.0000			0.0000			0.0000			0.0000
Variance of errors Self-employed	0.1227*** (0.0020)			0.1217*** (0.0020)			0.1225*** (0.0020)			0.1231*** (0.0020)			0.1238*** (0.0020)			0.1130*** (0.0023)		
Variance of errors Accumulated sectors		0.1980*** (0.0050)			0.1980*** (0.0050)			0.1995*** (0.0051)			0.2028*** (0.0052)			0.2040*** (0.0053)			0.2154*** (0.0059)	
Variance of errors Returnee			0.0817*** (0.0020)			0.0817*** (0.0020)			0.0834*** (0.0020)			0.0844*** (0.0021)			0.0860*** (0.0021)			0.0802*** (0.0023)
$\frac{2}{\alpha} \cdot \frac{\beta}{\delta}$	-.0992*** (.0316)			-.1038*** (.0326)			-.1036*** (.0326)			-.1089*** (.0336)			-.1098*** (.0337)			-.0782** (.0308)		

Notes: The dependent variable is a binary variable taking unity if a working-age individual is self-employed; 0, if employed, wage-employed or unpaid, contributing to family work. Columns (1)-(3) include working-age individuals with no migration experience or return migrants from abroad. Columns (4)-(6) add governorate fixed-effects. Columns (7)-(9) only exclude individuals living in a household with members currently abroad. Columns (10)-(12) only exclude individuals living in a household with members who returned from migration abroad. Columns (13)-(15) exclude both. Columns (16)-(18) exclude in addition those working in agriculture. Columns (1), (4), (7), (10), (13) and (16) present GSEM coefficient estimates of self-employment equation; Columns (2), (5), (8), (11), (14) and (17) present GSEM coefficient estimates of balanced skills-mix (accumulated sectors of occupation) equation; and Columns (3), (6), (9), (12), (15) and (18) present GSEM coefficient estimates of return migration equation.

Table 4: SUR coefficient estimates, accumulated jobs (return migration instrumented by oil price at 19 years old)

Variables	Self-employed (1)	Accumulated jobs (2)	Returnee (3)	Self-employed (4)	Accumulated jobs (5)	Returnee (6)	Self-employed (7)	Accumulated jobs (8)	Returnee (9)	Self-employed (10)	Accumulated jobs (11)	Returnee (12)	Self-employed (13)	Accumulated jobs (14)	Returnee (15)	Self-employed (16)	Accumulated jobs (17)	Returnee (18)
Accumulated jobs	0.0176***			0.0165***			0.0162***			0.0163***			0.0158***			0.0196***		
	(0.0053)			(0.0054)			(0.0055)			(0.0055)			(0.0056)			(0.0056)		
Micro-enterprise	0.1424***	0.9138***		0.1356***	0.9138***		0.1348***	0.9127***		0.1378***	0.9154***		0.1367***	0.9142***		0.1030***	0.8443***	
	(0.0099)	(0.0160)		(0.0099)	(0.0160)		(0.0100)	(0.0162)		(0.0100)	(0.0163)		(0.0101)	(0.0165)		(0.0103)	(0.0185)	
Oil price (19)		0.0004	0.0013***		0.0004	0.0013***		0.0005	0.0013***		0.0006	0.0014***		0.0007*	0.0014***		0.0007*	0.0013***
		(0.0003)	(0.0001)		(0.0003)	(0.0001)		(0.0003)	(0.0001)		(0.0004)	(0.0001)		(0.0004)	(0.0002)		(0.0004)	(0.0002)
Male	0.0116	0.1648***	0.1039***	0.0169**	0.1648***	0.1039***	0.0146*	0.1666***	0.1053***	0.0193**	0.1675***	0.1019***	0.0169**	0.1707***	0.1029***	0.0148*	0.2101***	0.1005***
	(0.0077)	(0.0180)	(0.0046)	(0.0078)	(0.0180)	(0.0046)	(0.0079)	(0.0184)	(0.0047)	(0.0080)	(0.0190)	(0.0047)	(0.0082)	(0.0194)	(0.0049)	(0.0081)	(0.0207)	(0.0052)
Age			0.0049***			0.0049***			0.0051***			0.0050***			0.0052***			0.0053***
			(0.0003)			(0.0003)			(0.0003)			(0.0003)			(0.0003)			(0.0003)
Married	-0.0146	0.2903***	0.0348***	-0.0181*	0.2903***	0.0348***	-0.0200**	0.2904***	0.0344***	-0.0250**	0.2746***	0.0346***	-0.0258**	0.2772***	0.0344***	-0.0167*	0.2871***	0.0237***
	(0.0091)	(0.0195)	(0.0060)	(0.0092)	(0.0195)	(0.0060)	(0.0094)	(0.0199)	(0.0062)	(0.0095)	(0.0203)	(0.0063)	(0.0096)	(0.0206)	(0.0065)	(0.0099)	(0.0227)	(0.0068)
Literate (without diploma)		0.2189***	0.0294*		0.2189***	0.0294*		0.2171***	0.0300*		0.2129***	0.0312*		0.2115***	0.0323*		0.1966***	0.0380**
		(0.0348)	(0.0167)		(0.0348)	(0.0167)		(0.0353)	(0.0170)		(0.0356)	(0.0171)		(0.0361)	(0.0174)		(0.0412)	(0.0191)
Elementary school		0.1157***	0.0095		0.1157***	0.0095		0.1137***	0.0089		0.1074***	0.0095		0.1067***	0.0093		0.0911***	0.0158
		(0.0246)	(0.0114)		(0.0246)	(0.0114)		(0.0250)	(0.0117)		(0.0249)	(0.0117)		(0.0252)	(0.0119)		(0.0300)	(0.0132)
Middle school		0.1490***	-0.0010		0.1490***	-0.0010		0.1500***	-0.0019		0.1548***	-0.0007		0.1576***	-0.0013		0.1283***	0.0059
		(0.0318)	(0.0139)		(0.0318)	(0.0139)		(0.0322)	(0.0142)		(0.0327)	(0.0144)		(0.0332)	(0.0147)		(0.0371)	(0.0157)
High school		0.3163***	0.0407***		0.3163***	0.0407***		0.3130***	0.0410***		0.3178***	0.0425***		0.3140***	0.0429***		0.2871***	0.0517***
		(0.0188)	(0.0087)		(0.0188)	(0.0087)		(0.0191)	(0.0092)		(0.0193)	(0.0090)		(0.0196)	(0.0092)		(0.0240)	(0.0104)
Post-secondary, university and higher		0.3154***	-0.0009		0.3154***	-0.0009		0.3114***	-0.0023		0.3168***	-0.0015		0.3131***	-0.0026		0.2504***	0.0095
		(0.0226)	(0.0088)		(0.0226)	(0.0088)		(0.0230)	(0.0090)		(0.0233)	(0.0092)		(0.0236)	(0.0094)		(0.0273)	(0.0105)
Father was self-employed	0.1034***			0.0984***			0.0974***			0.0994***			0.0982***			0.0650***		
	(0.0077)			(0.0078)			(0.0079)			(0.0080)			(0.0081)			(0.0084)		
Vocational high school	-0.0244***			-0.0256***			-0.0256***			-0.0259***			-0.0253***			-0.0262***		
	(0.0071)			(0.0071)			(0.0072)			(0.0073)			(0.0074)			(0.0075)		
Past self-employment	-0.2000***			-0.1997***			-0.1915***			-0.1939***			-0.1875***			-0.1763***		
	(0.0290)			(0.0288)			(0.0290)			(0.0290)			(0.0293)			(0.0321)		
First job was self-employed	0.7074***			0.7052***			0.7042***			0.7016***			0.7002***			0.7071***		
	(0.0146)			(0.0146)			(0.0151)			(0.0150)			(0.0154)			(0.0185)		
Years of unemployment	-0.0037**			-0.0040**			-0.0039**			-0.0045**			-0.0044**			-0.0027		
	(0.0018)			(0.0018)			(0.0018)			(0.0019)			(0.0019)			(0.0019)		
Tenure	-0.0015			-0.0015			-0.0016			-0.0013			-0.0014			-0.0028		
	(0.0015)			(0.0015)			(0.0015)			(0.0015)			(0.0015)			(0.0017)		
Tenure squared	-0.0001***			-0.0001***			-0.0001***			-0.0001***			-0.0001***			-0.0001*		
	(0.0000)			(0.0000)			(0.0000)			(0.0000)			(0.0000)			(0.0000)		
Years of potential work experience	-0.0038***			-0.0036**			-0.0032**			-0.0039***			-0.0035**			0.0010		
	(0.0014)			(0.0014)			(0.0014)			(0.0014)			(0.0015)			(0.0017)		
Years of potential work experience squared	0.0003***			0.0003***			0.0003***			0.0003***			0.0003***			0.0001***		
	(0.0000)			(0.0000)			(0.0000)			(0.0000)			(0.0000)			(0.0000)		
Literate mother	0.0098	0.0417**	-0.0096	0.0109	0.0417**	-0.0096	0.0114	0.0379*	-0.0103	0.0106	0.0106	-0.0105	0.0113	0.0335	-0.0112	0.0125	0.0210	-0.0085
	(0.0082)	(0.0204)	(0.0064)	(0.0084)	(0.0204)	(0.0064)	(0.0085)	(0.0207)	(0.0066)	(0.0086)	(0.0210)	(0.0067)	(0.0087)	(0.0213)	(0.0068)	(0.0088)	(0.0218)	(0.0070)
Under 15 dependency ratio	0.1231***	-0.1060***	0.0619***	0.1235***	-0.1060***	0.0619***	0.1260***	-0.0960***	0.0600***	0.1305***	-0.0900***	0.0604***	0.1327***	-0.0817**	0.0580***	0.0953***	-0.0635	0.0632***
	(0.0174)	(0.0361)	(0.0141)	(0.0174)	(0.0361)	(0.0141)	(0.0177)	(0.0368)	(0.0144)	(0.0177)	(0.0368)	(0.0145)	(0.0180)	(0.0375)	(0.0148)	(0.0187)	(0.0415)	(0.0155)
2007 unemployment rate	-0.4287***			-0.6204			-0.6381			-0.6785			-0.6840			-0.8319		
	(0.1156)			(0.5285)			(0.5399)			(0.5414)			(0.5420)			(0.5798)		
Constant	0.0436**	1.0716***	-0.2966***	0.0623	1.0716***	-0.2966***	0.0662	1.0689***	-0.3030***	0.0751	1.0765***	-0.2984***	0.0768	1.0694***	-0.3048***	0.0980	1.1130***	-0.3102***
	(0.0175)	(0.0323)	(0.0176)	(0.0688)	(0.0323)	(0.0176)	(0.0702)	(0.0329)	(0.0180)	(0.0706)	(0.0333)	(0.0180)	(0.0709)	(0.0338)	(0.0184)	(0.0749)	(0.0383)	(0.0197)
Governorate fixed-effects	No			Yes			Yes			Yes			Yes			Yes		
Observations	11,224			11,224			10,952			10,830			10,592			9,005		
F-stat (instruments)			88.93			88.93			86.91			87.93			86.42			66.29
P-value (instruments)			0.0000			0.0000			0.0000			0.0000			0.0000			0.0000
Variance of errors Self-employed		0.1230***			0.1220***			0.1229***			0.1235***			0.1242***			0.1130***	
		(0.0020)			(0.0019)			(0.0020)			(0.0020)			(0.0020)			(0.0023)	
Variance of errors Accumulated jobs		0.5452***			0.5452***			0.5487***			0.5531***			0.5560***			0.5781***	
		(0.0077)			(0.0077)			(0.0078)			(0.0079)			(0.0080)			(0.0087)	
Variance of errors Returnee		0.0817***			0.0817***			0.0834***			0.0844***			0.0860***			0.0802***	
		(0.0020)			(0.0020)			(0.0020)			(0.0021)			(0.0021)			(0.0023)	
$\frac{2}{\alpha}\cdot\frac{\beta}{\delta}$		.0064			.0060			.0071			.0073			.0082*			.0122*	
		(.0050)			(.0048)			(.0049)			(.0048)			(.0049)			.0074	

Notes: The dependent variable is a binary variable taking unity if a working-age individual is self-employed; 0, if employed, wage-employed or unpaid, contributing to family work. Columns (1)-(3) include working-age individuals with no migration experience or return migrants from abroad. Columns (4)-(6) add governorate fixed-effects. Columns (7)-(9) only exclude individuals living in a household with members currently abroad. Columns (10)-(12) only exclude individuals living in a household with members who returned from migration abroad. Columns (13)-(15) exclude both. Columns (16)-(18) exclude in addition those working in agriculture. Columns (1), (4), (7), (10), (13) and (16) present GSEM coefficient estimates of self-employment equation; Columns (2), (5), (8), (11), (14) and (17) present GSEM coefficient estimates of balanced skills-mix (accumulated jobs) equation; and Columns (3), (6), (9), (12), (15) and (18) present GSEM coefficient estimates of return migration equation.

Table 5: SUR coefficient estimates, with years abroad instrumented by real price of oil at 19 years old

Variables	Self-employed (1)	Accumulated occupations (2)	Years abroad (3)	Self-employed (4)	Accumulated sectors (5)	Years abroad (6)	Self-employed (7)	Accumulated jobs (8)	Years abroad (9)
Accumulated occupations	0.0464*** (0.0098)								
Accumulated sectors				-0.0307*** (0.0094)					
Accumulated jobs							0.0196*** (0.0056)		
Micro-enterprise	0.0921*** (0.0107)	0.5346*** (0.0123)		0.1180*** (0.0100)	0.2956*** (0.0125)		0.1030*** (0.0103)	0.8443*** (0.0185)	
Oil price (19)		0.0007*** (0.0002)	0.0070*** (0.0013)		0.0010*** (0.0002)	0.0070*** (0.0013)		0.0007* (0.0004)	0.0070*** (0.0013)
Control variables		Yes			Yes			Yes	
Governorate fixed-effects		Yes			Yes			Yes	
Observations		9,005			9,005			9,005	
F-statistic (instrument)			29.91			29.91			29.91
P-value (instrument)			0.0000			0.0000			0.0000
Variance of errors Self-employed		0.1128*** (0.0023)			0.1130*** (0.0023)			0.1130*** (0.0023)	
Variance of errors Balanced skills-mix		0.2046*** (0.0042)			0.2154*** (0.0059)			0.5781*** (0.0087)	
Variance of errors Years abroad		3.6231*** (0.3228)			3.6231*** (0.3228)			3.6231*** (0.3228)	
$\frac{\gamma}{\alpha} \cdot \frac{\beta}{\delta}$		.0087** (.0035)			-.0146** (.0060)			.0023 (.0014)	

Notes: The dependent variable is a binary variable taking unity if a working-age individual is self-employed; 0, if employed, wage-employed or unpaid, contributing to family work. Observations are working-age individuals with no migration experience or return migrants from abroad, not living in a migrant household, and not working in agriculture. Columns (1), (4), and (7) present GSEM coefficient estimates of self-employment equation; Columns (2), (5) and (8) present GSEM coefficient estimates of balanced skills-mix (respectively accumulated occupations, sectors and jobs) equation; and Columns (3), (6) and (9) present GSEM coefficient estimates of return migration equation, defined as number of years abroad.

Table 6: SUR coefficient estimates, sub-sample working in agriculture

Variables	Self-employed (1)	Accumulated occupations (2)	Returnee (3)	Self-employed (4)	Accumulated sectors (5)	Returnee (6)	Self-employed (7)	Accumulated jobs (8)	Returnee (9)
Accumulated occupations	0.0232 (0.0428)								
Accumulated sectors				-0.0395 (0.0318)					
Accumulated jobs							0.0665*** (0.0206)		
Micro-enterprise	0.2736*** (0.0296)	0.1137*** (0.0154)		0.2764*** (0.0299)	0.2173*** (0.0184)		0.2271*** (0.0334)	1.2419*** (0.0314)	
Oil price (19)		-0.0003 (0.0004)	0.0020*** (0.0004)		0.0001 (0.0005)	0.0020*** (0.0004)		0.0003 (0.0007)	0.0020*** (0.0004)
Control variables		Yes			Yes			Yes	
Governorate fixed-effects		Yes			Yes			Yes	
Observations		1,587			1,587			1,587	
F-statistic (instrument)			20.27			20.27			20.27
P-value (instrument)			0.0000			0.0000			0.0000
Variance of errors Self-employed		0.1277*** (0.0046)			0.1275*** (0.0046)			0.1266*** (0.0046)	
Variance of errors Balanced skills-mix		0.0847*** (0.0074)			0.1287*** (0.0082)			0.3590*** (0.0171)	
Variance of errors Returnee		0.1170*** (0.0058)			0.1170*** (0.0058)			0.1170*** (0.0058)	
$\frac{\gamma}{\alpha} \cdot \frac{\beta}{\delta}$		-.0261 (.0573)			-.0102 (.0410)			.0086 (.0192)	

Notes: The dependent variable is a binary variable taking unity if a working-age individual is self-employed; 0, if employed, wage-employed or unpaid, contributing to family work. Observations are working-age individuals with no migration experience or return migrants from abroad, not living in a migrant household, and working in agriculture. Columns (1), (4), and (7) present GSEM coefficient estimates of self-employment equation; Columns (2), (5) and (8) present GSEM coefficient estimates of balanced skills-mix (respectively accumulated occupations, sectors and jobs) equation; and Columns (3), (6) and (9) present GSEM coefficient estimates of return migration equation, defined as a binary variable taking unity if an individual has worked at meast six months abroad and came back to Egypt atthe time of the survey.

Table 7: SUR coefficient estimates, urban sub-sample

Variables	Self-employed (1)	Accumulated occupations (2)	Returnee (3)	Self-employed (4)	Accumulated sectors (5)	Returnee (6)	Self-employed (7)	Accumulated jobs (8)	Returnee (9)
Accumulated occupations	0.0506*** (0.0141)								
Accumulated sectors				-0.0200 (0.0140)					
Accumulated jobs							0.0180** (0.0074)		
Micro-enterprise	0.0994*** (0.0155)	0.5145*** (0.0174)		0.1242*** (0.0144)	0.2685*** (0.0172)		0.1132*** (0.0147)	0.8143*** (0.0259)	
Oil price (19)		0.0004 (0.0003)	0.0009*** (0.0002)		0.0006* (0.0003)	0.0009*** (0.0002)		0.0002 (0.0005)	0.0009*** (0.0002)
Control variables		Yes			Yes			Yes	
Governorate fixed-effects		Yes			Yes			Yes	
Observations		4,940			4,940			4,940	
F-statistic (instrument)			21.92			21.92			21.92
P-value (instrument)			0.0000			0.0000			0.0000
Variance of errors Self-employment		0.1065*** (0.0029)			0.1069*** (0.0029)			0.1069*** (0.0029)	
Variance of errors Balanced skills-mix		0.1859*** (0.0056)			0.1878*** (0.0076)			0.5849*** (0.0119)	
Variance of errors Returnee		0.0650*** (0.0029)			0.0650*** (0.0029)			0.0650*** (0.0029)	
$\frac{\gamma}{\alpha} \cdot \frac{\beta}{\delta}$		.0455 (.0334)			-.0486 (.0429)			.0059 (.0131)	

Notes: The dependent variable is a binary variable taking unity if a working-age individual is self-employed; 0, if employed, wage-employed or unpaid, contributing to family work. Observations are working-age individuals with no migration experience or return migrants from abroad, not living in a migrant household, and not working in agriculture. Columns (1), (4), and (7) present GSEM coefficient estimates of self-employment equation; Columns (2), (5) and (8) present GSEM coefficient estimates of balanced skills-mix (respectively accumulated occupations, sectors and jobs) equation; and Columns (3), (6) and (9) present GSEM coefficient estimates of return migration equation, defined as a binary variable taking unity if an individual has worked at meast six months abroad and came back to Egypt atthe time of the survey.

Table 8: SUR coefficient estimates, rural sub-sample

Variables	Self-employed (1)	Accumulated occupations (2)	Returnee (3)	Self-employed (4)	Accumulated sectors (5)	Returnee (6)	Self-employed (7)	Accumulated jobs (8)	Returnee (9)
Accumulated occupations	0.0523*** (0.0136)								
Accumulated sectors				-0.0319** (0.0125)					
Accumulated jobs							0.0236*** (0.0085)		
Micro-enterprise	0.0873*** (0.0145)	0.5484*** (0.0173)		0.1168*** (0.0137)	0.3189*** (0.0181)		0.0981*** (0.0145)	0.8768*** (0.0267)	
Oil price (19)		0.0011*** (0.0004)	0.0018*** (0.0003)		0.0015*** (0.0004)	0.0018*** (0.0003)		0.0014** (0.0006)	0.0018*** (0.0003)
Control variables		Yes			Yes			Yes	
Governorate fixed-effects		Yes			Yes			Yes	
Observations		4,065			4,065			4,065	
F-statistic (instrument)			43.94			43.94			43.94
P-value (instrument)			0.0000			0.0000			0.0000
Variance of errors Self-employment		0.1171*** (0.0034)			0.1175*** (0.0034)			0.1175*** (0.0034)	
Variance of errors Balanced skills-mix		0.2252*** (0.0062)			0.2472*** (0.0091)			0.5676*** (0.0128)	
Variance of errors Returnee		0.0963*** (0.0034)			0.0963*** (0.0034)			0.0963*** (0.0034)	
$\frac{\gamma}{\alpha} \cdot \frac{\beta}{\delta}$		.0573** (.0249)			-.0853** (.0402)			.0210* (.0111)	

Notes: The dependent variable is a binary variable taking unity if a working-age individual is self-employed; 0, if employed, wage-employed or unpaid, contributing to family work. Observations are working-age individuals with no migration experience or return migrants from abroad, not living in a migrant household, and not working in agriculture. Columns (1), (4), and (7) present GSEM coefficient estimates of self-employment equation; Columns (2), (5) and (8) present GSEM coefficient estimates of balanced skills-mix (respectively accumulated occupations, sectors and jobs) equation; and Columns (3), (6) and (9) present GSEM coefficient estimates of return migration equation, defined as a binary variable taking unity if an individual has worked at meast six months abroad and came back to Egypt atthe time of the survey.

Table 9: SUR coefficient estimates, sub-sample with savings

Variables	Self-employed (1)	Accumulated occupations (2)	Returnee (3)	Self-employed (4)	Accumulated sectors (5)	Returnee (6)	Self-employed (7)	Accumulated jobs (8)	Returnee (9)
Accumulated occupations	0.0344 (0.0349)								
Accumulated sectors				-0.0716** (0.0356)					
Accumulated jobs							-0.0150 (0.0172)		
Micro-enterprise	0.3044*** (0.0456)	0.5517*** (0.0508)		0.3327*** (0.0414)	0.2592*** (0.0529)		0.3271*** (0.0413)	0.6540*** (0.0784)	
Oil price (19)		0.0003 (0.0007)	0.0013** (0.0006)		0.0005 (0.0009)	0.0013** (0.0006)		0.0007 (0.0015)	0.0013** (0.0006)
Control variables		Yes			Yes			Yes	
Governorate fixed-effects		Yes			Yes			Yes	
Observations		756			756			756	
F-statistic (instrument)			5.30			5.30			5.30
P-value (instrument)			0.0216			0.0216			0.0216
Variance of errors Self-employed		0.1121*** (0.0067)			0.1113*** (0.0068)			0.1122*** (0.0068)	
Variance of errors Balanced skills-mix		0.1809*** (0.0143)			0.2169*** (0.0210)			0.6536*** (0.0303)	
Variance of errors Returnee		0.0952*** (0.0076)			0.0952*** (0.0076)			0.0952*** (0.0076)	
$\frac{\gamma}{\alpha} \cdot \frac{\beta}{\delta}$		.0146 (.0334)			-.1144 (.1866)			-.0122 (.0297)	

Notes: The dependent variable is a binary variable taking unity if a working-age individual is self-employed; 0, if employed, wage-employed or unpaid, contributing to family work. Observations are working-age individuals with no migration experience or return migrants from abroad, not living in a migrant household, and not working in agriculture. Columns (1), (4), and (7) present GSEM coefficient estimates of self-employment equation; Columns (2), (5) and (8) present GSEM coefficient estimates of balanced skills-mix (respectively accumulated occupations, sectors and jobs) equation; and Columns (3), (6) and (9) present GSEM coefficient estimates of return migration equation, defined as a binary variable taking unity if an individual has worked at meast six months abroad and came back to Egypt atthe time of the survey.

Table 10: SUR coefficient estimates, sub-sample without savings

Variables	Self-employed (1)	Accumulated occupations (2)	Returnee (3)	Self-employed (4)	Accumulated sectors (5)	Returnee (6)	Self-employed (7)	Accumulated jobs (8)	Returnee (9)
Accumulated occupations	0.0462*** (0.0102)								
Accumulated sectors				-0.0286*** (0.0096)					
Accumulated jobs							0.0214*** (0.0059)		
Micro-enterprise	0.0800*** (0.0109)	0.5314*** (0.0126)		0.1052*** (0.0103)	0.2973*** (0.0129)		0.0892*** (0.0107)	0.8570*** (0.0190)	
Oil price (19)		0.0008*** (0.0002)	0.0013*** (0.0002)		0.0010*** (0.0003)	0.0013*** (0.0002)		0.0007* (0.0004)	0.0013*** (0.0002)
Control variables		Yes			Yes			Yes	
Governorate fixed-effects		Yes			Yes			Yes	
Observations		8,249			8,249			8,249	
F-statistic (instrument)			61.18			61.18			61.18
P-value (instrument)			0.0000			0.0000			0.0000
Variance of errors Self-employed		0.1110*** (0.0024)			0.1113*** (0.0024)			0.1112*** (0.0024)	
Variance of errors Balanced skills-mix		0.2060*** (0.0043)			0.2147*** (0.0061)			0.5649*** (0.0091)	
Variance of errors Returnee		0.0786*** (0.0024)			0.0786*** (0.0024)			0.0786*** (0.0024)	
$\frac{\gamma}{\alpha} \cdot \frac{\beta}{\delta}$		.0505*** (.0192)			-.0761** (.0317)			.0133 (.0081)	

Notes: The dependent variable is a binary variable taking unity if a working-age individual is self-employed; 0, if employed, wage-employed or unpaid, contributing to family work. Observations are working-age individuals with no migration experience or return migrants from abroad, not living in a migrant household, and not working in agriculture. Columns (1), (4), and (7) present GSEM coefficient estimates of self-employment equation; Columns (2), (5) and (8) present GSEM coefficient estimates of balanced skills-mix (respectively accumulated occupations, sectors and jobs) equation; and Columns (3), (6) and (9) present GSEM coefficient estimates of return migration equation, defined as a binary variable taking unity if an individual has worked at meast six months abroad and came back to Egypt atthe time of the survey.

Table 11: SUR coefficient estimates, length of current self-employment

Variables	Years of self-employment (1)	Accumulated occupations (2)	Returnee (3)	Years of self-employment (4)	Accumulated sectors (5)	Returnee (6)	Years of self-employment (7)	Accumulated jobs (8)	Returnee (9)
Accumulated occupations	0.6321*** (0.1540)								
Accumulated sectors				-0.3326** (0.1490)					
Accumulated jobs							0.6161*** (0.0884)		
Micro-enterprise	1.7120*** (0.1722)	0.5346*** (0.0123)		2.0489*** (0.1649)	0.2956*** (0.0125)		1.6924*** (0.1680)	0.8443*** (0.0185)	
Oil price (19)		0.0007*** (0.0002)	0.0013*** (0.0002)		0.0010*** (0.0002)	0.0013*** (0.0002)		0.0007* (0.0004)	0.0013*** (0.0002)
Control variables		Yes			Yes			Yes	
Governorate fixed-effects		Yes			Yes			Yes	
Observations		9,005			9,005			9,005	
F-statistic (instrument)			66.29			66.29			66.29
P-value (instrument)			0.0000			0.0000			0.0000
Variance of errors		32.3356***			32.3911***			32.2598***	
Years of self-employment		(1.0078)			(1.0094)			(1.0006)	
Variance of errors		0.2046***			0.2154***			0.5781***	
Balanced skills-mix		(0.0042)			(0.0059)			(0.0087)	
Variance of errors		0.0802***			0.0802***			0.0802***	
Returnee		(0.0023)			(0.0023)			(0.0023)	
$\frac{\gamma}{\alpha} \cdot \frac{\beta}{\delta}$		0.6324** (0.2500)			-0.8485* (0.4405)			0.3837* (0.2136)	

Notes: The dependent variable is a continuous variables measuring the number of years of the current self-employed position. Observations are working-age individuals with no migration experience or return migrants from abroad, not living in a migrant household, and not working in agriculture, who emigrated from Egypt for the first time to an Arab country. Columns (1), (4), and (7) present GSEM coefficient estimates of years of self-employment equation; Columns (2), (5) and (8) present GSEM coefficient estimates of balanced skills-mix (respectively accumulated occupations, sectors and jobs) equation; and Columns (3), (6) and (9) present GSEM coefficient estimates of return migration equation, defined as a binary variable taking 1 if an individual migrated at at least 15 years old for work for at least six months, and returned to Egypt at the time of the survey.

Table 12: SUR coefficient estimates, average tenure of self-employment

Variables	Average number of years as self-employed (1)	Accumulated occupations (2)	Returnee (3)	Average number of years as self-employed (4)	Accumulated sectors (5)	Returnee (6)	Average number of years as self-employed (7)	Accumulated jobs (8)	Returnee (9)
Accumulated occupations	0.6321*** (0.1540)								
Accumulated sectors				-0.1448** (0.0720)					
Accumulated jobs							0.1819*** (0.0474)		
Micro-enterprise	1.7120*** (0.1722)	0.5346*** (0.0123)		0.4771*** (0.0879)	0.2956*** (0.0125)		0.3644*** (0.0926)	0.8443*** (0.0185)	
Oil price (19)		0.0007*** (0.0002)	0.0013*** (0.0002)		0.0010*** (0.0002)	0.0013*** (0.0002)		0.0007* (0.0004)	0.0013*** (0.0002)
Control variables		Yes			Yes			Yes	
Governorate fixed-effects		Yes			Yes			Yes	
Observations		9,005			9,005			9,005	
F-statistic (instrument)			66.29			66.29			66.29
P-value (instrument)			0.0000			0.0000			0.0000
Variance of errors		32.3356***			14.6656***			14.6564***	
Average self-employment years		(1.0078)			(0.7268)			(0.7251)	
Variance of errors		0.2046***			0.2154***			0.5781***	
Balanced skills-mix		(0.0042)			(0.0059)			(0.0087)	
Variance of errors		0.0802***			0.0802***			0.0802***	
Returnee		(0.0023)			(0.0023)			(0.0023)	
$\frac{\gamma}{\alpha} \cdot \frac{\beta}{\delta}$		0.1256 (0.0874)			-0.3694* (0.2083)			0.1132* (0.0670)	

Notes: The dependent variable is a continuous variables measuring the number of years of self-employment divided by the number of positions over the last five spells of job. Observations are working-age individuals with no migration experience or return migrants from abroad, not living in a migrant household, and not working in agriculture, who emigrated from Egypt for the first time to an Arab country. Columns (1), (4), and (7) present GSEM coefficient estimates of average number of years of self-employment equation; Columns (2), (5) and (8) present GSEM coefficient estimates of balanced skills-mix (respectively accumulated occupations, sectors and jobs) equation; and Columns (3), (6) and (9) present GSEM coefficient estimates of return migration equation, defined as a binary variable taking 1 if an individual migrated at at least 15 years old for work for at least six months, and returned to Egypt at the time of the survey.

Table 13: SUR coefficient estimates, being employer

Variables	Employer (1)	Accumulated occupations (2)	Returnee (3)	Employer (4)	Accumulated sectors (5)	Returnee (6)	Employer (7)	Accumulated jobs (8)	Returnee (9)
Accumulated occupations	0.0394*** (0.0082)								
Accumulated sectors				-0.0358*** (0.0075)					
Accumulated jobs							0.0089** (0.0044)		
Micro-enterprise	0.0544*** (0.0085)	0.5425*** (0.0130)		0.0790*** (0.0083)	0.3072*** (0.0135)		0.0678*** (0.0084)	0.8345*** (0.0197)	
Oil price (19)		0.0005** (0.0002)	0.0012*** (0.0002)		0.0009*** (0.0003)	0.0012*** (0.0002)		0.0006 (0.0004)	0.0012*** (0.0002)
Control variables		Yes			Yes			Yes	
Governorate fixed-effects		Yes			Yes			Yes	
Variance of errors Employer		0.0660*** (0.0021)			0.0660*** (0.0021)			0.0662*** (0.0022)	
Variance of errors Balanced skills-mix		0.1958*** (0.0043)			0.2133*** (0.0063)			0.5818*** (0.0092)	
Variance of errors Returnee		0.0786*** (0.0024)			0.0786*** (0.0024)			0.0786*** (0.0024)	
Observations		8,060			8,060			8,060	
F-statistic (instrument)			53.81			53.81			53.81
P-value (instrument)			0.0000			0.0000			0.0000
$\frac{\gamma}{\alpha} \cdot \frac{\beta}{\delta}$		0.0302** (0.0147)			-0.0817*** (0.0298)			0.0050 (0.0042)	

Notes: The dependent variable is a binary variable taking unity if an individual is self-employed and an employer; 0, otherwise. Observations are working-age individuals with no migration experience or return migrants from abroad, not living in a migrant household, not working in agriculture, and not self-employed as own-account workers, who emigrated from Egypt for the first time to an Arab country. Columns (1), (4), and (7) present GSEM coefficient estimates of average number of years of self-employment equation; Columns (2), (5) and (8) present GSEM coefficient estimates of balanced skills-mix (respectively accumulated occupations, sectors and jobs) equation; and Columns (3), (6) and (9) present GSEM coefficient estimates of return migration equation, defined as a binary variable taking 1 if an individual migrated at at least 15 years old for work for at least six months, and returned to Egypt at the time of the survey.

Table 14: SUR coefficient estimates, being own-account worker

Variables	Own-account (1)	Accumulated occupations (2)	Returnee (3)	Own-account (4)	Accumulated sectors (5)	Returnee (6)	Own-account (7)	Accumulated jobs (8)	Returnee (9)
Accumulated occupations	0.0205** (0.0089)								
Accumulated sectors				-0.0004 (0.0084)					
Accumulated jobs							0.0118** (0.0048)		
Micro-enterprise	0.0479*** (0.0094)	0.5252*** (0.0129)		0.0567*** (0.0087)	0.3189*** (0.0134)		0.0508*** (0.0089)	0.8449*** (0.0193)	
Oil price (19)		0.0008*** (0.0002)	0.0012*** (0.0002)		0.0011*** (0.0003)	0.0012*** (0.0002)		0.0006 (0.0004)	0.0012*** (0.0002)
Control variables		Yes			Yes			Yes	
Governorate fixed-effects		Yes			Yes			Yes	
Observations		8,322			8,322			8,322	
F-statistic (instrument)			55.10			55.10			55.10
P-value (instrument)			0.0000			0.0000			0.0000
Variance of errors Own-account		0.0775*** (0.0023)			0.0775*** (0.0023)			0.0775*** (0.0023)	
Variance of errors Banlanced skills-mix		0.1991*** (0.0043)			0.2129*** (0.0061)			0.5801*** (0.0092)	
Variance of errors Returnee		0.0762*** (0.0023)			0.0762*** (0.0023)			0.0762*** (0.0023)	
$\frac{\gamma}{\alpha} \cdot \frac{\beta}{\delta}$		0.0252* (0.0132)			-0.0013 (0.0240)			0.0067 (0.0052)	

Notes: The dependent variable is a binary variable taking unity if an individual is self-employed as an own-account worker; 0, otherwise. Observations are working-age individuals with no migration experience or return migrants from abroad, not living in a migrant household, not working in agriculture, and not self-employed as employers, who emigrated from Egypt for the first time to an Arab country. Columns (1), (4), and (7) present GSEM coefficient estimates of average number of years of self-employment equation; Columns (2), (5) and (8) present GSEM coefficient estimates of balanced skills-mix (respectively accumulated occupations, sectors and jobs) equation; and Columns (3), (6) and (9) present GSEM coefficient estimates of return migration equation, defined as a binary variable taking 1 if an individual migrated at at least 15 years old for work for at least six months, and returned to Egypt at the time of the survey.

Table 15: SUR coefficient estimates, being employer (self-employed sub-sample)

Variables	Employer (1)	Accumulated occupations (2)	Returnee (3)	Employer (4)	Accumulated sectors (5)	Returnee (6)	Employer (7)	Accumulated jobs (8)	Returnee (9)
Accumulated occupations	0.0586** (0.0238)								
Accumulated sectors				-0.0855*** (0.0260)					
Accumulated jobs							-0.0118 (0.0220)		
Micro-enterprise	0.0254 (0.0331)	0.5036*** (0.0285)		0.0483 (0.0320)	0.1588*** (0.0253)		0.0489 (0.0325)	0.8865*** (0.0434)	
Oil price (19)		0.0014** (0.0006)	0.0023*** (0.0004)		0.0007 (0.0006)	0.0023*** (0.0004)		0.0018* (0.0009)	0.0023*** (0.0004)
Control variables		Yes			Yes			Yes	
Governorate fixed-effects		Yes			Yes			Yes	
Observations		1,628			1,628			1,628	
F-statistic (instrument)			28.29			28.29			28.29
P-value (instrument)			0.0000			0.0000			0.0000
Variance of errors Employer		0.2214*** (0.0035)			0.2207*** (0.0035)			0.2222*** (0.0034)	
Variance of errors Balanced skills-mix		0.2679*** (0.0107)			0.2301*** (0.0127)			0.5427*** (0.0182)	
Variance of errors Returnee		0.1066*** (0.0055)			0.1066*** (0.0055)			0.1066*** (0.0055)	
$\frac{\gamma}{\alpha} \cdot \frac{\beta}{\delta}$		0.0703* (0.0419)			-0.1537 (0.1441)			-0.0101 (0.0196)	

Notes: The dependent variable is a binary variable taking unity if an individual is self-employed as an employer; 0, otherwise. Observations are working-age self-employed individuals with no migration experience or return migrants from abroad, not living in a migrant household, not working in agriculture, who emigrated from Egypt for the first time to an Arab country. Columns (1), (4), and (7) present GSEM coefficient estimates of average number of years of self-employment equation; Columns (2), (5) and (8) present GSEM coefficient estimates of balanced skills-mix (respectively accumulated occupations, sectors and jobs) equation; and Columns (3), (6) and (9) present GSEM coefficient estimates of return migration equation, defined as a binary variable taking 1 if an individual migrated at at least 15 years old for work for at least six months, and returned to Egypt at the time of the survey.

Table 16: SUR coefficient estimates, sample restricted to individuals born before 1979

Variables	Self-employed (1)	Accumulated occupations (2)	Returnee (3)	Self-employed (4)	Accumulated sectors (5)	Returnee (6)	Self-employed (7)	Accumulated jobs (8)	Returnee (9)
Accumulated occupations	0.0275** (0.0126)								
Accumulated sectors				-0.0478*** (0.0112)					
Accumulated jobs							0.0179** (0.0072)		
Micro-enterprise	0.1080*** (0.0143)	0.5232*** (0.0159)		0.1292*** (0.0133)	0.3117*** (0.0166)		0.1133*** (0.0133)	0.7424*** (0.0244)	
Oil price (20)		0.0013*** (0.0003)	0.0021*** (0.0002)		0.0015*** (0.0003)	0.0021*** (0.0002)		0.0030*** (0.0005)	0.0021*** (0.0002)
Control variables		Yes			Yes			Yes	
Governement fixed-effects		Yes			Yes			Yes	
Observations		5,425			5,425			5,425	
F-statistic (instrument)			69.21			69.21			69.21
P-value (instrument)			0.0000			0.0000			0.0000
Variance of errors Self-employed	0.1317*** (0.0029)			0.1313*** (0.0029)			0.1317*** (0.0029)		
Variance of errors Balanced skills-mix	0.2239*** (0.0055)			0.2564*** (0.0079)			0.6065*** (0.0107)		
Variance of errors Returnee	0.1077*** (0.0031)			0.1077*** (0.0031)			0.1077*** (0.0031)		
$\frac{\gamma}{\alpha} \cdot \frac{\beta}{\delta}$		.0322** (.0163)			-.1119*** (.0374)			.0353** (.0152)	

Notes: The dependent variable is a binary variable taking unity if a working-age individual is self-employed; 0, if employed, wage-employed or unpaid, contributing to family work. Observations are working-age individuals with no migration experience or return migrants from abroad, not living in a migrant household, and not working in agriculture, who were born before 1979. Columns (1), (4), and (7) present GSEM coefficient estimates of self-employment equation; Columns (2), (5) and (8) present GSEM coefficient estimates of balanced skills-mix (respectively accumulated occupations, sectors and jobs) equation; and Columns (3), (6) and (9) present GSEM coefficient estimates of return migration equation, defined as a binary variable taking 1 if an individual migrated at at least 15 years old for work for at least six months, and returned to Egypt at the time of the survey.

Table 17: SUR coefficient estimates, sample restricted to oil producer countries

Variables	Self-employed (1)	Accumulated occupations (2)	Returnee (3)	Self-employed (4)	Accumulated sectors (5)	Returnee (6)	Self-employed (7)	Accumulated jobs (8)	Returnee (9)
Accumulated occupations	0.0427*** (0.0099)								
Accumulated sectors				-0.0289*** (0.0096)					
Accumulated jobs							0.0191*** (0.0056)		
Micro-enterprise	0.0911*** (0.0108)	0.5297*** (0.0123)		0.1145*** (0.0101)	0.2884*** (0.0125)		0.1006*** (0.0104)	0.8327*** (0.0186)	
Oil price (19)		0.0006*** (0.0002)	0.0012*** (0.0002)		0.0009*** (0.0002)	0.0012*** (0.0002)		0.0005 (0.0004)	0.0012*** (0.0002)
Control variables		Yes			Yes			Yes	
Government fixed-effects		Yes			Yes			Yes	
Observations		8,879			8,879			8,879	
F-statistic (instrument)			60.58			60.58			60.58
P-value (instrument)			0.0000			0.0000			0.0000
Variance of errors Self-employed	0.1118*** (0.0023)			0.1120*** (0.0023)			0.1120*** (0.0023)		
Variance of errors Balanced skills-mix	0.2006*** (0.0042)			0.2105*** (0.0059)			0.5718*** (0.0088)		
Variance of errors Returnee	0.0707*** (0.0022)			0.0707*** (0.0022)			0.0707*** (0.0022)		
$\frac{\gamma}{\alpha} \cdot \frac{\beta}{\delta}$		.0420** (.0179)			-.0786** (.0331)			.0095 (.0076)	

Notes: The dependent variable is a binary variable taking unity if a working-age individual is self-employed; 0, if s/he employed, wage-employed or unpaid, contributing to family work. Observations are working-age individuals with no migration experience or return migrants from abroad, not living in a migrant household, and not working in agriculture, who emigrated from Egypt for the first time to an oil-producer country. Columns (1), (4), and (7) present GSEM coefficient estimates of self-employment equation; Columns (2), (5) and (8) present GSEM coefficient estimates of balanced skills-mix (respectively accumulated occupations, sectors and jobs) equation; and Columns (3), (6) and (9) present GSEM coefficient estimates of return migration equation, defined as a binary variable taking 1 if an individual migrated at at least 15 years old for work for at least six months, and returned to Egypt at the time of the survey.

Table 18: SUR coefficient estimates, return migration instrumented by official exchange rate at 24 years old

Variables	Self-employed (1)	Accumulated occupations (2)	Returnee (3)	Self-employed (4)	Accumulated sectors (5)	Returnee (6)	Self-employed (7)	Accumulated jobs (8)	Returnee (9)
Accumulates occupations	0.0464*** (0.0098)								
Accumulated sectors				-0.0307*** (0.0094)					
Accumulated jobs							0.0196*** (0.0056)		
Micro-enterprise	0.0921*** (0.0107)	0.5279*** (0.0122)		0.1180*** (0.0100)	0.2871*** (0.0124)		0.1030*** (0.0103)	0.8222*** (0.0180)	
Exchange rate (24)		-0.0286*** (0.0025)	-0.0311*** (0.0050)		-0.0359*** (0.0026)	-0.0311*** (0.0050)		-0.0989*** (0.0042)	-0.0311*** (0.0050)
Control variables		Yes			Yes			Yes	
Governorate fixed-effects		Yes			Yes			Yes	
Observations		9,005			9,005			9,005	
F-statistic (instrument)			38.81			38.81			38.81
P-value (instrument)			0.0000			0.0000			0.0000
Variance of errors Self-employment		0.1128*** (0.0023)			0.1130*** (0.0023)			0.1130*** (0.0023)	
Variance of errors Balanced skills-mix		0.2018*** (0.0041)			0.2111*** (0.0057)			0.5425*** (0.0082)	
Variance of errors Return migration		0.0805*** (0.0023)			0.0805*** (0.0023)			0.0805*** (0.0023)	
$\frac{\gamma}{\alpha} \cdot \frac{\beta}{\delta}$		0.0808*** (0.0223)			-0.1235*** (0.0428)			0.0760*** (0.0250)	

Notes: The dependent variable is a binary variable taking unity if an individual is self-employed as an employer; 0, otherwise. Observations are working-age self-employed individuals with no migration experience or return migrants from abroad, not living in a migrant household, not working in agriculture, who emigrated from Egypt for the first time to an Arab country. Columns (1), (4), and (7) present GSEM coefficient estimates of average number of years of self-employment equation; Columns (2), (5) and (8) present GSEM coefficient estimates of balanced skills-mix (respectively accumulated occupations, sectors and jobs) equation; and Columns (3), (6) and (9) present GSEM coefficient estimates of return migration equation, defined as a binary variable taking 1 if an individual migrated at at least 15 years old for work for at least six months, and returned to Egypt at the time of the survey.

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