Determinants of entrepreneurship in tourism in a developing country

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Abstract

In this paper, we investigate the determinants of entrepreneurship in the tourism sector in a developing country. To this end, we use the Mexican census data. Results reveal that entrepreneurship in the tourism sector are closely related with both gender and the informal economy, both possibly serving as stepping stones from unemployment and thus possibly poverty.

JEL Codes: **L26, L83, J24**

Keywords: Entrepreneurship, Tourism, Occupational choice, Informal economy, Mexico.

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1. Introduction

Entrepreneurship is well-documented to be a source of economic growth and development (Evans and Jovanovic, 1989, Kihlstrom and Laffont, 1978, Eeckhout and Jovanovic, 2012, Acs and Audretsch, 1988). Focusing on the tourism sector, Lewis and Green (1998) and Russell and Faulkner (1999) suggest that the evolution of tourism at a particular destination is determined by the entrepreneur's role as an agent of change. Reijonen (2008) has come to the conclusion that the dominant number of small business owners in the tourism sector has underemphasized the importance of the entrepreneurship. In this sense, many papers presented tourism entrepreneurs as not-for-profit- or growth oriented (Ateljevic and Doorne, 2000, Getz and Petersen, 2004, Hollick and Braun, 2005, Reijonen, 2008). However, Russell and Faulkner (2004) argue that the crucial role of entrepreneurs has been underestimated, therefore misleading entrepreneurial research in the industry.

Notwithstanding, the entrepreneurial profile of economic agents have been acknowledged as a very important dimension to be studied in tourism development (Jaafar et al., 2011). The existence of several socioeconomic factors that determine the choice between being an entrepreneur or employee are being studied. What encourages a person to be an entrepreneur? Why choose a particular sector? This paper investigates the determinants of entrepreneurship in the tourism sector in a developing country (Mexico). The literature, which relates entrepreneurship and tourism sector in a developing country, is scarce. Few authors have studied this topic. Notable exception in this strand are the papers by Haber and Reichel (2007) and Lerner and Haber (2001) who have studied the effect on human capital investment in entrepreneurial success in the tourism sector in Israel. Using a large and contextually very rich census data for Mexico, we study whether there are significant differences between commerce and tourism sectors as regards entrepreneurship. In the present research, we employ the occupational choice perspective. We investigate whether individuals chose to become business owners with employees or wage earners. It is an important question, since in developing countries like Mexico, with high inequality levels, it is of crucial importance to identify the empirical determinants of entrepreneurship fostering economic growth (Banerjee and Newman, 1993).

As Banerjee and Newman (1993) observe countries with high initial wealth inequality, regardless of their per capita income, experience a growth hampering, towards-wage-earning flocks of human capital instead of growth fostering entrepreneurial activity among its labor force. It is, thus, particularly interesting to see how the entrepreneurship is determined in such countries. Yet more, it is useful to see what shapes the entrepreneurial activity in the

tourism sector, being the tourism sector an example of a low initial investment industry, which can lead to high potential entrepreneurship levels in the long run (Wilson, 2008).

Our paper aims at filling this gap in the literatures both on entrepreneurship and on tourism economics. To our best knowledge, this is the first paper on the entrepreneurial activity determinants in reference to the tourism sector in a developing country.[4]

Results reveal that entrepreneurship in the tourism sector in a developing country is closely linked with both gender and informal economy, both possibly serving as stepping stones from unemployment (Bennett, 2010).

The paper is organized as follows. In next section, we present the theoretical background standing behind our hypothesis. In section 3, we describe the census data used in this paper and the econometric methods applied to data analysis. We provide the results in section 4 and conclude in section 5.

2. Theoretical background

There is a large empirical literature on the determinants of entrepreneurship coming from the business research (Praag and Versloot, 2007). However, the empirical papers on entrepreneurship in economics are rather scarce. Major research questions concerning entrepreneurship in economics have focused on the determinants of economic growth and development rather than empirical determinants of the entrepreneurial activity (Evans and Jovanovic, 1989, Kihlstrom and Laffont, 1978, Eeckhout and Jovanovic, 2012, Acs and Audretsch, 1988). A notable exception is the paper of Evans and Leighton (1989) which sets the basic setup for our research here.

Economics has put effort to identify through occupational choice models, how agents in the labor market decide whether to become self-employed or an employee (Eeckhout and Jovanovic, 2012, Evans and Leighton, 1989, Lucas, 1978, Inci, 2013, Naudé, 2009, Ben-Shahar, 2002, Parker, 1996). Economics studies consider models in which a rational agent decides to be an entrepreneur only if the expected utility associated with this occupation is greater than the expected utility of being employed (Congregado et al., 2014, Evans and Leighton, 1989, Blanchflower and Oswald, 1998).

Evans and Leighton (1989) found that the probability of switching to entrepreneurship is moderately independent of total labor-market experience and age. In contrast, the results obtained by Levesque and Minniti (2006) find

[4] The analysis of entrepreneurship in Mexico has been widely analyzed qualitatively. CERUTTI, M. 2000. *Propietarios, empresarios y empresa en el norte de México,* Mexico, Siglo XXI.

empirical evidence that young people are more likely to create new businesses than older ones. They show that the age distribution of the population is an important factor in the creation of new businesses. Furthermore, based on developments of the Lucas' (1978) model research on occupational choice points out towards the heterogeneity of agents which should be embedded in the empirical analyses.

Additionally, developments based on Becker's (1980) human capital model demonstrate that there is a U-shaped relationship between education and the entrepreneurial activity (Poschke, 2013, Blanchflower, 2000). Using a panel for 23 countries, Blanchflower (2000) demonstrates that self-employment is highest for individuals at the tails of the education distribution.

Greater investments in human capital allow greater mobility in the labor market, increase entrepreneurial skills and the ability to respond quickly to technological changes (Schultz, 1980).

There are also marked differences between men and women entrepreneurs (Devine, 1994b, Devine, 1994a). Research shows that women engage in the creation of firms significantly less than men due to childrearing and social roles (Boden, 1996). However, as before, the human capital plays an important role here mitigating the negative gender status for female entrepreneurs (Coleman, 2000, Coleman, 2004, Budig, 2006a). Recent empirical research on female entrepreneurship points towards a narrowing gender gap in start-up creation (Budig, 2006b).

Finally, a few papers have looked at the entrepreneurship from the illegal economy angle (Aidis and Van Praag, 2007, Maloney, 2004, Bennett, 2010). The major conclusion stemming from this research is that illegal entrepreneurship experience serves as a source of entrepreneurial skills, which are fully transferable to legal businesses. Aidis and Van Praag (2007) find that having previous illegal entrepreneurship experience augments significantly productivity of workers. Furthermore, Maloney (2004) shows that specifically for countries like Mexico working in an informal economy provides fair earnings opportunity and diminishes to some extent the negative effect of gender for female entrepreneurs. No less importantly, Bennett (2010) demonstrates that informal entrepreneurship "may be a stepping stone without which legality would never be achieved."

Tourism sector is a special case in the analysis of the occupational choice, between gainful employment and entrepreneurship, as it requires relatively low capital investment and low skilled labor in its basic setup at small scale (Getz and Carlsen, 2005, Jaafar et al., 2011). Jaafar et al. (2011) show that tourism sector is often characterized by not-for-growth orientation and thus dominated by small atomic enterprises with low investment and low return levels. In the same vein, Getz and Carlsen (2000) observe that specifically in the

tourism sector, individuals invest mainly in small, no-growth oriented entrepreneurial endeavors, which often include family members and oscillate at the edge of informal economy. This view is contested by Thomas et al. (2011) who claim that disproportionately many workers from tourism sector are actually employed in very large firms. However, this is mostly true for highly developed economies and applies to a lesser extent to countries like Mexico.[5] Furthermore, from the review of literature on the family entrepreneurship in the tourism sector Getz and Carlsen (2005) suggest that in post-colonial countries women may establish small companies in order to achieve additional earnings and thus a higher social status.

The informal economy plays an important role in the tourism sector in developing countries allowing, as we mentioned above, for creation of jobs where otherwise no employment existed (Thomas et al., 2011, Williams and Nadin, 2010). Additionally, as Hallak et al. (2012) show, tourism entrepreneurship can benefit from entrepreneur's strong ties with the local community. Such ties enhance entrepreneur's efficacy and thus contribute to the entrepreneurial success. It is thus necessary to control for the size of the municipality where tourism entrepreneurs act. It is so, not only because of the market size, as a standard supply-demand model would dictate, but also because of cultural reasons mentioned above.

Drawing on the conclusions of the aforementioned research, we expect to find several stylized facts in this paper. Firstly, one should expect that in a developing country like Mexico, tourism sector should attract a significant amount of entrepreneurship given its low entry barriers (**H1**). Furthermore given the possibility of observing informal economy in our sample, we expect to see a positive relationship between the informal business arrangement and entrepreneurship (**H2**). Furthermore, following Parker (2008, 2009) we expect to see important differences between genders as regards entrepreneurship likelihood, with clearly disadvantaged position of women (**H3a**). Expanding on that, and drawing on the aforementioned literature on tourism entrepreneurship in developing countries (Jaafar et al., 2011) and family business companies in tourism (Getz and Carlsen, 2000, 2005) we expect to find more women entrepreneurs than men in the tourism sector (**H3b**). The argument here is that tourism being a sector of low entry barriers should attract more women whose general position in the labor market should be lower as is the case in majority of developing countries. Furthermore, we expect to find a positive relationship between house ownership and entrepreneurship (**H4**). Research suggests that home ownership is positively related to

[5] In our case large companies would be yet one more form of entrepreneurship and thus their presence in our sample should not bias our results in any significant way.

entrepreneurship in a short run (Blanchflower and Oswald, 2013) However, recent evidence points towards a more ambiguous relationship between home ownership and entrepreneurship. In the short run the relationship being positive, it may turn into negative one, in the long run. While temporarily owning a property may serve as a good leverage for raising capital, in the long run it becomes an anchor for the capital and may prove harmful for the development of an enterprise (Bracke et al., 2012). Finally, we also control for more liquid forms of capital and introduce private health insurance as a proxy. We expect to find that individuals who can afford private health insurance should be more likely to enterprise (**H5**). The following section explains in detail our modeling strategy and provides information on the census data for Mexico.

3. Data and Methods

In order to analyze entrepreneurship determinants in the tourism sector, we use census data from INEGI (Mexican Central Statistical Office). We use a cross section wave from the 2010.

We define entrepreneur in the most restrictive way considering as entrepreneurs only those individuals who are business owners with employees (Blanchflower and Oswald, 1990, Evans and Jovanovic, 1989, Knight, 1921, Schumpeter, 1950, Kirzner, 1973).

Using this measure of entrepreneurship, Table 1 shows the percentages of entrepreneurs by sector. The highest percentages of entrepreneurs (greater than 11%) are observed in the sectors of agriculture and arts and sports. In the wholesale and retail, tourism and construction (8.09%, 6.92% and 6.17% respectively) sectors, the percentage is lower but much more alike. Education is the sector that has fewer entrepreneurs (0.5%).

[Table 1 about here]

As a set of explanatory variables we introduce gender, quadratic polynomial of age (Evans and Leighton, 1989, Holtz-Eakin et al., 1994), education levels (Unger et al., 2011), marital status (Holtz-Eakin et al., 1994), housing conditions (Blanchflower and Oswald, 2013, Bracke et al., 2012).

Apart from these variables, which are well documented in the entrepreneurship literature, we also include a very rarely observed information on working in an informal economy (Bennett, 2010, Maloney, 2004). This adds an additional inference into the entrepreneurship determinants in Mexico and is of particular use given the largely extended informal economy in this country. Table 2 shows entrepreneurship in the informal economy by nace.

[Table 2 about here]

Let EM stand for the entrepreneurial involvement taking only positive values ($EM \in \mathbb{R}^+$). If an individual $i \in \{1,2,...,\mathrm{n}\}$ decides to enterprise then: $EM > 0$ and, $EM = 0$ otherwise. Therefore, we treat entrepreneurship as a latent variable. We can only observe that individuals decided to enterprise without knowing "how much" of this entrepreneurial activity, they undertake. We define as entrepreneurs those individuals who are currently self-employed and hire at least one worker in their companies. Hence, we obtain that:

$$EM_i^* = \begin{cases} 1 \text{ if } EM > 0 \\ 0 \text{ otherwise.} \end{cases}$$

Furthermore, following the definition in de Wit and van Winden (1989), we define the entrepreneurial activity as: $EM_i = \alpha_1 \left(\ln w_i^S - \ln \mathrm{w}_i^E \right) + \alpha_2 \mathrm{X}_i + \varepsilon_i$, where w_i^S, w_i^E stand for salaries from self-employment and gainful employment, respectively. In the present analysis we assume that individuals are myopic in terms of predicting their future incomes from both sources and therefore: $E\left(\ln w_i^S - \ln \mathrm{w}_i^E \right) = 0$. This assumption, although very unrealistic simplifies greatly our modelling strategy and can be defended on the basis of one's knowledge of his/her ability to enterprise successfully. Individuals, in order to compare their wages as employees or entrepreneurs, need to have knowledge about their relative ability to successfully enterprise. However, as Dunn and Holtz-Eakin (2000) demonstrate in their model, it is very difficult for an individual to gain inference even on the shape of the distribution of this ability in their local community and much less on their own ability. This ability becomes revealed once the decision to enterprise has been taken. Therefore, it is not totally unrealistic to assume that individuals in Mexico do not possess this knowledge a priori and their decision may be somewhat myopic.
This leads us to the following re-formulation of our problem:

$$EM_i = \theta' \mathrm{X}_i + \xi_i .$$

We estimate the following empirical model derived from the above formulation:

$$\Pr(EM_i > 0 \mid \mathrm{X}) = \Pr(EM_i^* = 1 \mid \mathrm{X}) = \mathrm{F}(\boldsymbol{\beta}' \mathrm{X}_i + u_i)$$

where F(·) stands for cumulative distribution function of the logistic distribution. This part of analysis involves a standard logit model with entrepreneur as dependent variable defined as before and a series of explanatory variables introduced in a sequential way in a model-building strategy.

We start with estimation of a basic model of over-education including only the **X** matrix of regressors. Table 3 presents summarize definitions of all explanatory variables used in our analysis.

[Table 3 about here]

We employ a model building strategy in this paper. Firstly, in Model 1, we introduce basic demographic variables such as gender, age, age squared, and a marital status. We limit the age of our sample to the official working age in Mexico, which is between 15 and 67 years of age. Another set of basic controls is comprised of education levels serving as a proxy for human capital in our sample. Tourism sector is introduced along with ten other sector controls with wholesale and retail as the reference sector. We chose wholesale and retail as the reference because it is very similar to tourism in terms of the percentage of entrepreneurs. Similar concentration levels of entrepreneurs across sectors have also been observed elsewhere (Hurst and Lusardi, 2004). To complete Model 1 we introduce also a control for informal economy and three controls for house renting/ownership status, with ownership as the reference category. The informal economy control is constructed on the basis of filter question included in the original census questionnaire which asks whether an individual worked last week and if so what was their major labor activity. In another question, INEGI asks whether an individual possessed a gainful employment last week. All those individuals who reported any type of job in the first question and at the same time claimed to be unemployed in the filter question are classified as working in the informal economy. This is a truly unique data, which allows us not only to see the determinants of entrepreneurship in the legal economy but also its informal counterpart.

In the next step (Model 2), we introduce interaction terms for tourism sector with gender, marital status, housing conditions, and informal economy. Model 3 brings information on city size, which serves as a proxy of local market and thus simulates entry barriers for new business endeavors. The last model (Model 4) entails all previously described controls and adds a proxy for liquid capital through dummy on private health insurance.

Finally, Table 4 depicts the basic descriptive statistics for all explanatory variables.

[Table 4 about here]

4. Results

There is a significant amount of entrepreneurship within the tourism sector. Almost 7% of all entrepreneurs work in the tourism sector. Unfortunately, the census data do not permit to identify the size of the establishment that dominate each sector. However, other research suggests that in the developing countries mostly small no-growth oriented firms dominate the direct service sector (Jaafar et al., 2011). This paper aims at shedding some light on the determinants of entrepreneurship in tourism sector. We choose to concentrate on the tourism sector because it is one of the few sectors (if not the only one) which flourishes in the developing countries due to its low entry barriers in terms of initial capital needed to set up a business. In the following steps, we employ a model building strategy by gradually adding explanatory variables and thus testing their parsimony as predictors of entrepreneurship.

The first model (Model 1) reveals several well-documented facts with respect to entrepreneurship determinants. Firstly, we can observe that the U-shaped relationship between age and entrepreneurship is present in our data (Levesque and Minniti, 2006). Next, married individuals are more entrepreneurial than their single or widowed peers are. The difference is very small though with only 0.8% higher likelihood for the married individuals to enterprise. This is so, because married couples may serve as workforce as well as capital investors to each other (Parker, 2008).

Concerning levels of education, we observe that higher levels of education increase the likelihood of entrepreneurship in all four models. Adding up controls does not alter the effect of higher human capital on the probability to enterprise. As (Blanchflower, 2000) and further Unger et al. (2011) show, the human capital plays an important role in the process of enterprising and is often a good predictor of further entrepreneurial success. In our sample, individuals with upper secondary education are, on average, 2.5% more likely to enterprise than others with just the basic education in writing and calculus. This difference doubles for the tertiary level graduates with over 5% difference. What regards the economic sectors, only agriculture and, arts and sports are more entrepreneurial than wholesale and retail. Interestingly, in Model 1 tourism sector does not come as significantly more entrepreneurial than sales. Yet, when we interact it with other controls in Model 2, the tourism sector becomes significantly more prone for entrepreneurship than sales and all the interaction terms come significant as well. Finally, the informal economy, considered by Bennett (2010) as a stepping stone out of poverty in the developing counties comes significantly and positively related to entrepreneurship. Situating their companies in the informal economy makes individuals around 5% more likely than their legal peers to set up a company, which employs at least one person.

This result persists across all four models in our analysis. Lastly, we observe that being an owner of a house is better for entrepreneurship than other housing arrangement (renting, using free of charge family house etc.). Notwithstanding, Blanchflower and Oswald (2013) show that home ownership is only positively related to entrepreneurship in a cross-section settings and this relationship does not necessarily hold in a panel data. This leads us to call for caution when interpreting the results in Table 5.

Turning back to the specific controls for the tourism sector in Models 2 to 4, we observe that working in the informal economy in the tourism sector gives additional 0.5% higher likelihood to enterprise than it would be in the sales sector. This is a very important result for a developing country. If we assume that the tourism sector has low entry barriers and we join it with one of the highest entrepreneurship likelihoods among all sectors we achieve a sector which may well serve as the major stepping stone out of unemployment (and hence poverty) in a developing country in general and in the Mexican economy in particular. It is an easy access sector, with large potential of development due to the geographical situation of Mexico. As Wilson (2008) shows creation of jobs through the tourism sector and reducing unemployment and poverty exposure has been the major goal of the Mexican government during the last decade. This result has far-reaching policy-oriented implications, which we explicit in the conclusions.

Another very interesting result for the tourism sector comes from the female gender dummy interaction with the tourism sector dummy. Meanwhile women were consistently found to be less likely to enterprise across all our models we find that women working in the tourism sector are as likely to enterprise as in the sales sector. This finding apparently unimportant becomes very significant if we account that sales sector is typically classified as high initial capital sector (Hurst and Lusardi, 2004). If women are as likely to enterprise in the low entry barriers tourism sector as in the high capital sales sector, then we have just identified another avenue for social mobility in a developing country like Mexico. This result should, however, be further investigated given the lower overall likelihood of entrepreneurship in tourism compared to sales sectors. Observing further the results in Table 5 for Models 2 to 4 we notice that married couples are more likely to enterprise and this result comes even stronger in the tourism sector (1.3% more likely than single or widowed individuals). Home ownership interacted with the tourism sector comes as a positive factor contributing to entrepreneurship. This result goes in line with the previous research claiming family establishments as a successful way for doing business in the tourism sector (Getz and Carlsen, 2000, 2005). Having enough resources to contract private health insurance increases the likelihood of setting up a business by further 5.6% (see Model 4 in Table 5).

A general result that comes from our econometric models is that pertaining to an informal economy and running a family business, most likely out of own dwelling increase significantly the likelihood to enterprise. The total aggregate increase in probability compared to sales sector (which requires high initial investment) reaches 8%. This coupled with higher capital (proxied here by possessing private health insurance) raises this probability to over 13% making the tourism sector one of the major ways out of unemployment and poverty. These results come yet more reinforced by the observation that the entrepreneurship is mostly located in smaller towns (the larger the city the lower the marginal effect of its dummy variable on the probability of entrepreneurship in Models 3 and 4 in Table 5).

These results bring important new insights on the largely understudied question of tourism entrepreneurship in a developing country like Mexico in the economic literature. The next section concludes our research and provides some policy implications that stem from it.

5. Conclusions

Although the evolution of tourism at a particular destination is determined by the entrepreneurial activity, literature on the entrepreneurship in the tourism industry is scarce, especially in developing countries. As far as we are concerned, only Haber and Reichel (2007) and Lerner and Haber (2001) have studied entrepreneurial success in the tourism sector in Israel. The aim of this paper is to shed light on this largely understudied topic. In particular, we investigate the determinants of entrepreneurship in the tourism sector in a developing country. In particular, we focus on Mexico. In the first instance, we find the well documented facts from the entrepreneurship literature such as positive influence of human capital on entrepreneurial activity (Unger et al., 2011, Blanchflower, 2000) or the inverse U-shaped relationship between age and the entrepreneurship (Levesque and Minniti, 2006). Notwithstanding, once we investigate in a more detailed manner the tourism sector we identify some potentially politically powerful processes. Firstly, we see that tourism sector's share in the entrepreneurship is among the highest of all sectors. Only arts and sports, and agriculture surpass the level of entrepreneurship in tourism. Very similar in terms of the percentage of entrepreneurs is the sales sector, which we establish as the reference category for our analysis. However, sales are characterized by high entry capital and tourism is its exact opposite (Hurst and Lusardi, 2004). This leads us to the next point, where we find that tourism has one of the highest levels of informal economy entrepreneurship among all sectors. The informal economy entrepreneurship serves, however, as the way out of persistent unemployment, hence becoming a stepping-stone out of poverty (Bennett, 2010). Indeed, other evidence for the tourism sector indicates that despite its largely spread informal employment it is a very important sector contributing strongly to the economic and social growth of the country (Wilson, 2008). Our findings show that working in the informal economy in the tourism sector is particularly beneficial for

married women, who dispose of some minimal liquid capital. Their aggregate propensity to enterprise is on average 13% higher than in the sales sector. This added up with the very low entry barriers brings tourism as the most promising sector when it comes to supporting social development through entrepreneurship. It seems that letting women set up their own companies through tax exemptions might serve as the policy aimed at bringing social cohesion. It may also narrow significantly the gender gap, and indirectly, contribute to accelerated economic growth. This, supported with policies aimed at increasing levels of education, should be the policy targeted at the tourism sector. Our results contradict the widespread view, whereby entrepreneurs from low investment, no-growth oriented industries, do not contribute to the economic development of the countries (Baumol, 1990). We demonstrate that the tourism sector serves as a counterexample of "bad entrepreneurship". This should call for policy interventions, which would foster further entrepreneurship in the tourism sector and possibly implement tax reliefs in this sector in order to avoid it pertaining in the informal economy.

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Table 1. Entrepreneurship by sector in Mexico

Sector (NACE)	Entrepreneurship (percentages by sector)		
	0	1	Total
Agriculture	**88.84**	**11.16**	**100.00**
Mining, water, gas &	98.81	1.19	100.00
Construction	93.83	6.17	100.00
Manufacturing	96.50	3.50	100.00
Wholesale & retail	**91.91**	**8.09**	**100.00**
Transportation & mail	96.83	3.17	100.00
Business activities	95.67	4.33	100.00
Education	99.50	0.50	100.00
Health & welfare	97.64	2.36	100.00
Arts & sports	**88.13**	**11.87**	**100.00**
Administration	97.39	2.61	100.00
Tourism	**93.08**	**6.92**	**100.00**
Total	95.36	4.64	100.00

Table 2. Entrepreneurship in the informal economy by sector in Mexico

Sector (NACE)	Entrepreneurs in the informal economy (percentages by sector)
Agriculture	**1.72**
Mining, water & gas	0.27
Construction	0.58
Manufacturing	1.21
Wholesale & retail	**3.37**
Transportation & mail	0.63
Business activities	1.38
Education	0.79
Health & welfare	1.24
Arts & sports	4.93
Administration	2.35
Tourism	**2.77**
Total	1.74

Table 3. Variable definitions

Variable	Definition
Female	Female (d)
Age	Age
Age^2	Age squared
Married	Married (d)
Home owner (ref. category)	Owns the home where lives (d)
Renting	Pay rent form home (d)
Other arrangement	Lives in a house in other than renting or owning arrangement (d)
Informal economy (IE)	Informal economy (d)
Primary	Primary education (d)
Lower secondary	Grade lower secondary education (d)
Higher secondary	Grade higher secondary education (d)
Tertiary	Degree (masters and doctorates included) (d)
Agriculture	Sector: Agriculture (d)
Mining, water, gas and electricity supply	Sector: Mining, water, gas and electricity supply (d)
Construction	Sector: Construction (d)
Manufacturing	Sector: Manufacturing (d)
Transportation and mail	Sector: Transportation and mail (d)
Business activities	Sector: Business activities (d)
Education	Sector: Education (d)
Health & welfare	Sector: Health & welfare (d)
Arts & sports	Sector: Arts & sports (d)
Administration	Sector: Administration (d)
Tourism	Sector: Tourism (d)
IE*tourism	Interaction term: informal economy & tourism sector (d)
Female*Tourism	Interaction term: female & tourism (d)
Married*Tourism	Interaction term: married & tourism (d)
Renting*Tourism	Interaction term: renting & tourism (d)
Other*Tourism	Interaction term: other housing arrangement & tourism (d)
2500-15k inhabitants	Size of locality (2500-14999 inhabitants) (d)
15k-100k inhabitants	Size of locality (15000-99999 inhabitants) (d)
More than 100k inhabitants	Size of locality (more than 100000 inhabitants) (d)
Private insurance	Private health As insurance (d)

(d) indicates a dummy variable

Table 4. Descriptive statistics for the working sample

Variable	Obs	Mean	Std. Dev.	Min	Max
Female	520441	0.368	0.482	0	1
Age	520441	34.873	11.583	15	66
Age^2	520441	1350.29 1	881.817	225	4356
Married	520441	0.626	0.484	0	1
Ownership	520441	0.785	0.411	0	1
Renting	520441	0.136	0.343	0	1
Other arrangement	520441	0.079	0.269	0	1
Informal economy (IE)	520441	0.017	0.131	0	1
Basic	520441	0.027	0.162	0	1
Primary	520441	0.230	0.421	0	1
Lower secondary	520441	0.322	0.467	0	1
Higher secondary	520441	0.215	0.411	0	1
Tertiary	520441	0.206	0.404	0	1
Agriculture	520441	0.062	0.242	0	1
Mining, water, gas and electricity supply	520441	0.018	0.133	0	1
Construction	520441	0.081	0.273	0	1
Manufacturing	520441	0.187	0.390	0	1
Wholesale & retail	520441	0.152	0.359	0	1
Transportation and mail	520441	0.051	0.221	0	1
Business activities	520441	0.077	0.267	0	1
Education	520441	0.101	0.301	0	1
Health & welfare	520441	0.039	0.194	0	1
Arts & sports	520441	0.005	0.072	0	1
Administration	520441	0.169	0.375	0	1
Tourism	520441	0.056	0.230	0	1
IE*tourism	520441	0.002	0.047	0	1
Female*Tourism	520441	0.029	0.167	0	1
Married*Tourism	520441	0.028	0.166	0	1
Renting*Tourism	520441	0.011	0.106	0	1
Other*Tourism	520441	0.005	0.067	0	1
2500-15k inhab.	520441	0.245	0.430	0	1
15k-100k inhab.	520441	0.197	0.398	0	1
More than 100k inhab.	520441	0.316	0.465	0	1
Private insurance	520441	0.021	0.145	0	1

Table 5. Determinants of entrepreneurship. Marginal effects from logit regressions

	Model1	Model2	Model3	Model4
Female (d)	-0.007***	-0.008***	-0.007***	-0.007***
	(0.000)	(0.000)	(0.000)	(0.000)
Age	0.003***	0.003***	0.003***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)
Age^2	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Married (d)	0.009***	0.008***	0.008***	0.008***
	(0.000)	(0.000)	(0.000)	(0.000)
Informal economy (d)	0.053***	0.051***	0.049***	0.049***
	(0.003)	(0.003)	(0.003)	(0.003)
Primary (d)	0.008***	0.008***	0.008***	0.008***
	(0.001)	(0.001)	(0.001)	(0.001)
Lower secondary (d)	0.012***	0.012***	0.014***	0.013***
	(0.001)	(0.001)	(0.001)	(0.001)
Higher secondary (d)	0.025***	0.025***	0.027***	0.026***
	(0.002)	(0.002)	(0.002)	(0.002)
Tertiary (d)	0.053***	0.053***	0.060***	0.055***
	(0.002)	(0.002)	(0.003)	(0.002)
Agriculture (d)	0.009***	0.008***	0.006***	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)
Mining, water, gas & electricity supply (d)	-0.024***	-0.024***	-0.023***	-0.023***
	(0.000)	(0.000)	(0.000)	(0.000)
Construction (d)	-0.008***	-0.008***	-0.009***	-0.009***
	(0.000)	(0.000)	(0.000)	(0.000)
Manufacturing (d)	-0.017***	-0.017***	-0.017***	-0.016***
	(0.000)	(0.000)	(0.000)	(0.000)
Transportation & mail (d)	-0.019***	-0.019***	-0.019***	-0.018***
	(0.000)	(0.000)	(0.000)	(0.000)
Business activities (d)	-0.017***	-0.017***	-0.017***	-0.017***
	(0.000)	(0.000)	(0.000)	(0.000)
Education (d)	-0.035***	-0.035***	-0.035***	-0.034***
	(0.000)	(0.000)	(0.000)	(0.000)
Health & welfare (d)	-0.022***	-0.022***	-0.022***	-0.022***
	(0.000)	(0.000)	(0.000)	(0.000)
Arts & sports (d)	0.012***	0.012***	0.011***	0.011***
	(0.002)	(0.002)	(0.002)	(0.002)
Administration (d)	-0.023***	-0.023***	-0.023***	-0.023***
	(0.000)	(0.000)	(0.000)	(0.000)
Tourism (d)	-0.000	-0.006***	-0.006***	-0.006***
	(0.001)	(0.001)	(0.001)	(0.001)
Renting (d)	-0.004***	-0.003***	-0.003***	-0.003***

	(0.000)	(0.000)	(0.001)	(0.001)
Other arrangement (d)	-0.011***	-0.011***	-0.010***	-0.010***
	(0.001)	(0.001)	(0.001)	(0.001)
IE*tourism (d)		0.005*	0.006*	0.005*
		(0.003)	(0.003)	(0.003)
Female*Tourism (d)		0.009***	0.008***	0.009***
		(0.002)	(0.002)	(0.002)
Married*Tourism (d)		0.005***	0.005***	0.005***
		(0.002)	(0.002)	(0.002)
Renting*Tourism (d)		-0.002*	-0.002	-0.002
		(0.002)	(0.002)	(0.001)
Other*Tourism (d)		-0.006***	-0.006**	-0.006**
		(0.002)	(0.002)	(0.002)
tam_loc==2 500 a 14 999 habitantes (d)			0.001	0.000
			(0.000)	(0.000)
tam_loc==15 000 a 99 999 habitantes (d)			-0.001*	-0.001**
			(0.001)	(0.000)
tam_loc==100 000 y más habitantes (d)			-0.007***	-0.008***
			(0.000)	(0.000)
Private insurance (d)				0.056***
				(0.002)
Observations	520441	520441	520441	520441
Pseudo R^2	0.146	0.146	0.148	0.156
AIC	166877.8	166831.1	166433.7	164911.6
BIC	167134.6	167143.6	166779.7	165268.8

Marginal effects
(d) for discrete change of dummy variable from 0 to 1
* p<0.10, ** p<0.05, *** p<0.01