

Diversity of the Entrepreneurial Profile in Puebla, Mexico: A Probabilistic Approach

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Abstract

This article examines how individual characteristics influence the likelihood of choosing entrepreneurship over other employment options and provides insight into the diversity of entrepreneurs. Four occupational categories are considered: employers, subordinates and salaried workers, unpaid workers and the self-employed. The methodology used is multiple choice, allowing us to study individual decisions between alternatives. The study shows that higher education is associated with more salaried workers, while people with basic education tend to be more entrepreneurial at older ages. Gender differences in the likelihood of becoming an entrepreneur are also identified. The concept of an entrepreneurial threshold is proposed as a turning point in occupational choice.

Keywords: entrepreneur; employer; self-employment; subordinate; entrepreneurial threshold.

1. INTRODUCTION

Entrepreneurship has become consolidated as a phenomenon of great economic and social relevance in contemporary societies. The emergence and development of new companies generate various benefits, such as job creation, diversification of productive activity and the promotion of innovation. In this context, research into the profile of the entrepreneur understood as the main agent who identifies opportunities for entrepreneurship and creates new companies, acquires particular relevance.

In the Mexican state of Puebla, according to the National Occupation and Employment Survey (ENOE) (National Institute of Statistics and Geography [INEGI], 2020), the distribution of the population employed in economic activities is as follows: 64.98% are employees, i.e. people who work for an employer; 23.73% are self-employed, working autonomously; 3.94% are employers, hiring other workers; and 7.34% of the employed population perform work without pay. Based on this breakdown of the working population in the aforementioned organization, it is possible to identify the segment already involved in entrepreneurial activities.

The concepts of entrepreneurship and entrepreneur have multiple perspectives, with the organizational approach standing out, which defines an entrepreneur as the owner of a business and entrepreneurship as the economic unit they run. The organizational approach is frequently used in models of business choice, where individuals decide

between dependent or independent work (Audretsch, 2012). Consequently, this research adopts an organizational approach, intending to define both the employer and the self-employed worker as entrepreneurs since both are business owners. The study of the sociodemographic profile of these groups can provide valuable information on the characteristics of entrepreneurs. In turn, this will facilitate the identification of groups with the potential to become future entrepreneurs.

The opportunity cost in the labor market, i.e., an individual's choice of employment, is related to the benefits they give up by making one particular decision over another in order to obtain the highest level of economic and labor welfare. Consequently, revealed preferences result from how the individual prioritizes the opportunities that offer the highest return regarding the resources invested, such as time, effort, and money. Different views will give rise to assumptions and perceptions that can influence the choice to become an entrepreneur or to remain an employee. Understanding in detail the distribution and profile of the population engaged in economic activities is essential to identify both current entrepreneurs and those with potential, as well as to better assimilate the needs and characteristics of the entrepreneurial context.

The hypothesis is that the individual characteristics of the decision-maker, such as gender, age, marital status and level of education influence the probability of choosing to be an entrepreneur as opposed to rival options in the labor market, such as being a paid employee. In this respect, the objective is to examine the decisions made by the employed population, particularly by entrepreneurs in the state of Puebla, using a probabilistic approach. This requires an understanding of the variables that influence individual choices and how they contribute to the observed results. To this end, the methodology used corresponds to a multiple logit choice model that allows for the analysis of individual decisions between different choice alternatives. The results correspond to the estimation of the probability that an individual will choose one specific alternative over the others based on the attributes associated with each alternative and the individual characteristics of the decision-maker.

In this way, the population can be identified in groups with similar characteristics to facilitate the personalization of strategies and approaches according to each group's specific needs and behaviors. Hence, the aim is to obtain a deeper understanding of the diversity of the entrepreneurial profile in the state of Puebla, as well as of the factors that shape individual decisions in relation to entrepreneurship.

The paper is organized into five sections, including this introduction. The second section presents the results of the review of specialized literature on the profile of the entrepreneur in order to contextualize the study based on existing research. The third section describes the multiple-choice models, specifies the model proposed for the study and details the variables used for the econometric estimation. The fourth section deals with the results obtained. The document ends with the main conclusions of the study.

2. THE PROFILE OF THE ENTREPRENEUR

Nowadays, the term entrepreneurship is commonly associated with the emergence and development of companies. This phenomenon is recognized as a key element for nations due to the different economic benefits generated by the creation of new businesses, as studied by Stoica *et al.* (2020), who examine the influence of entrepreneurship on the economic growth of European nations. Their research analyzes the different forms of ventures, according to the motivation of their entrepreneurs, finding that opportunity-based ventures have a more significant impact on the economic growth of countries in transition, while necessity-based ventures influence the economic growth of developed countries.

In addition to the economic contribution generated by entrepreneurial activity, social studies, such as that of Lee and Rodríguez (2020), examine entrepreneurial initiative as an element that mitigates poverty. The results of the empirical study confirm their hypothesis that commercial entrepreneurship reduces poverty by generating increased positive effects in the community. In contrast, non-commercial entrepreneurship is more limited and, therefore, unable to reduce poverty. As such, the entrepreneurial dynamic creates jobs, which reduces unemployment rates, thus reducing poverty. For these reasons, governments strive to stimulate entrepreneurial activity by adopting strategic policies and actions that improve the business environment to achieve full development (Acs and Virgill, 2010).

Due to the economic and social advantages of entrepreneurial activity, we should study the individual as the main agent when starting their own business, which is why research exists that focuses on describing the entrepreneur. For example, Pitre-Redondo *et al.* (2020) identify the modern entrepreneur as being inclined to use technologies and having an initiative for innovation, which allows the organization to achieve high levels of productivity; it is noteworthy that this type of entrepreneur is characterized as being young, no older than 40 years of age. However, the relationship between age and entrepreneurial initiative is inconclusive due to the heterogeneity of the empirical results, where age can increase or decrease the intention to be an entrepreneur (Zhang and Acs, 2018). Unlike Pitre-Redondo *et al.* (2020), Williams and Krasniqi (2018) emphasize that the probability of entrepreneurship increases as men age and state that married men are more likely to be entrepreneurs.

Therefore, marriage can also be considered a favorable factor for starting a business, given that married people are more productive because their partner can help them in business and household activities (Constant and Zimmermann, 2006). This is also reported in the research by Nikina *et al.* (2015), whose objective is to investigate the man's role when his wife is an entrepreneur. Through interviews with married couples, they point out that the husband plays a key role in the business success of his partner, through emotional support and cooperation in household and business tasks. However, when there is no support from the spouse, domestic and business tasks can overwhelm the entrepreneur, limiting the potential of their venture by allocating part of their time to the home, primarily in the case of women entrepreneurs. Similarly, Babbitt *et al.* (2015) analyze the preferences of entrepreneurs with respect to the formality of their business, where the entrepreneur is presented as a married, older woman who wants to start a formal business, as opposed to male entrepreneurs who opt for informality. In addition, the authors mention that the entrepreneur's education positively affects the formalization of business.

In this way, education increases human capital within business organizations, providing business owners with knowledge and competitive strategies (Fuentes *et al.*, 2016). Based on the above, an elementary characteristic of an entrepreneur is education. It would be assumed that entrepreneurial initiative benefits from education, as it provides people with useful business knowledge to venture into the business world. Ahn and Winters (2023) argue that education encourages female self-employment in any type of market but discourages the incorporation of male self-employment in unprofitable markets. In this respect, the research of these authors highlights some differences between men and women when it comes to entrepreneurship.

Regarding gender, women are generally considered less entrepreneurial than men as they are more cautious and prefer to avoid making large investments (Tinkler *et al.*, 2015). Pérez *et al.* (2020) report that men mostly dominate entrepreneurship; however, the gap has narrowed, and women could catch up. Despite these discrepancies and the lack of equal opportunities, men no longer enjoy greater success than female entrepreneurs (Quevedo *et al.*, 2010). However, according to Fairlie and Meyer's (1996) theory of marginalization, some people may choose entrepreneurship due to discrimination or barriers in the labor market.

In short, it is essential to identify particular characteristics and skills among the entrepreneurial population in order to highlight the personal qualities that contribute most to starting a business. The study by Hisrich and Grachev (1995) identifies some valuable skills for entrepreneurship, such as generating ideas and dealing with people; likewise, an energetic, independent, competitive and self-confident nature is common among entrepreneurs. In this respect, the individual's mentality is another influential factor in the decision to start one's own business. López-Núñez *et al.* (2020) try to explain the intention to become an entrepreneur through mental aspects such as self-confidence, tolerance, emotional intelligence and problem-solving. Their results describe the entrepreneur as a tolerant, emotionally intelligent person with self-confidence and the ability to resolve conflicts. In addition to the above, Obschonka *et al.* (2019) also examine psychological traits likely to influence people's intentions to become entrepreneurs. To do so, they develop an index using the *Big Five* approach to personality traits. In this way, the five aspects of personality are captured in a single indicator of entrepreneurial profile, assuming that a high profile would lead to a greater desire to become an entrepreneur in the individual. Their results indicate personality traits, through the entrepreneurial profile index, that are predictors of entrepreneurial passion.

3. TO BE AN ENTREPRENEUR OR AN EMPLOYEE?

The profile of the entrepreneur is described differently by workers and employers. In Mababu's work (2010), employers define themselves as creative, optimistic and fortunate, while workers describe them as confident, tolerant and with a sense of humor. This diversity of opinion gives rise to assumptions about why some people choose to set up their own businesses and others do not. Engle *et al.* (1997) argue that entrepreneurs tend to be more innovative and less conformist, although employees are seen as more obedient, unlike entrepreneurs who lack respect for authority. Likewise, Burt (1997) establishes independence, ambition and initiative as differentiating criteria between the worker and the entrepreneur, the former being more dependent, less ambitious and lacking initiative.

In addition to the discrepancies regarding character and mentality, there are other reasons for considering working as an employee or an entrepreneur. For example, in the United States, dependent workers have unemployment insurance, retirement, overtime pay, disability benefits, and the right to belong to a union, while the self-employed lack these benefits (Ravenelle, 2019). The loss of these labor rights has made working as a dependent less attractive, and the need to preserve these rights has created salaried workers who do not want to be employees, although some still prioritize their autonomy despite the labor benefits of being a dependent worker (Murgia and Pulignano, 2019).

Meanwhile, the economic factor is also an element to consider in the employee or entrepreneur discussion, where it is usually assumed that the businessperson with the greatest purchasing power is the entrepreneur. However, Hartog *et al.* (2010) state that the average entrepreneur will not generate higher returns than when they were an employee; only those entrepreneurs with skill will obtain high incomes. As such, personal skills play a differentiating role in people's economic income, and these skills are nurtured through education, which consequently creates productive skills in individuals, enabling them to earn higher incomes. In this respect, in economic literature, Shultz (1960 and 1961) recognizes that certain inherent attributes of people, such as their level of education, could be considered a form of capital. This is because these attributes generate economic benefits not only for the individuals who have them but also for their context.

This is explained in the study by Van Praag *et al.* (2012), in which they show how education has generated higher returns for both employers and employees and found no significant difference in the economic performance of employers and employees. Other economic situations are explained by the concept of opportunity cost, in which a

salaried individual with a high salary will choose to remain employed if they assimilate a lower income from running their own business, in which case their opportunity cost will be high. In relation to the above, the work of Aguilar and Acuña (2021) shows that a low salary in employment opportunities generates an increased preference for being self-employed.

Meanwhile, Burke *et al.* (2008) argue that early experience in self-employment generates entrepreneurial perseverance, i.e., a commitment by the subject to continue embarking on new ventures; likewise, inheritance and having an entrepreneurial parent are other circumstances that encourage entrepreneurship. Employees prefer friendly, dynamic work environments with managers who are concerned and attentive to their subordinates, so those who perceive these conditions will not seek to become entrepreneurs (Nystrom, 2019).

Finally, economically active individuals within society decide to work subordinately or independently, and in many cases, both employer and employee work cooperatively for the company's good. This coexistence between the two requires an entrepreneur capable of solving complex circumstances through creative solutions to exploit the resilience of their employees and improve business performance (Santoro *et al.*, 2020). In addition, entrepreneurial motivation will be fruitful when the entrepreneur has leadership skills, which will maintain the enthusiasm of workers during the many facets of the company's development (Murnieks *et al.*, 2019).

4. METHODOLOGY

A multiple logit choice model analyzed individual decisions with four possible occupational choices: employers, subordinates and paid workers, unpaid workers and self-employed workers. This model is part of the discrete choice theory and is based on the assumption that an individual makes a discrete decision between various options, each of which has an associated benefit for the individual, which reflects the preference for that option. Therefore, the probability of an individual choosing a specific option is calculated according to the benefit of that option compared with others. For this study, the multiple logit model is a specific way of modeling the probability of choice according to the characteristics of the employment options and the characteristics of the individuals.

The logit function is used to transform the benefits of the options into probabilities of choice. The specification of the logit multiple choice model is:

$$P_i = \frac{e^{U_{ij}}}{\sum_{j=1}^J e^{U_{ij}}} \quad (1)$$

Where:

P_j is the probability of choosing option i .

U_j is the benefit associated with alternative i .

j is the individual.

For this study, $i = 4$, and four categories of occupation are considered:

- Employer: refers to a self-employed person who hires one or more individuals to whom they provide financial remuneration in cash or kind for their services.

- Paid subordinate worker: refers to those persons who provide their labor services, either by the hour or full time, in a business or establishment, in exchange for an agreed remuneration.
- Unpaid worker: refers to any person who collaborates or carries out work activities in an establishment, firm or company, whether or not they have family ties, without receiving any kind of financial compensation.
- Self-employed workers (base category): refers to those persons who carry out their work activities autonomously, with the possibility of being assisted by family members or external collaborators, without implying the need to remunerate the services received.

The base category is used as a reference point for estimating the coefficients. In this case, the self-employment category is taken as a reference because it represents the most frequent entrepreneurial activity.

According to the specification of the logit multiple choice model:

$$U_{ij} = \beta X_{ij} + \epsilon_{ij} \quad (2)$$

Where β is the coefficient estimated based on data observed from past choices, using maximum likelihood techniques; X_{ij} are the explanatory variables of option i for individual j . These variables correspond to the characteristics of the individual making the choice. Consequently, for this study, the unit of analysis corresponds to individuals in the employed population in the state of Puebla, for whom variables of interest and their occupational choice are examined. The data is from the second quarter of the ENOE for 2019-2021 (INEGI, 2019, 2020 and 2021). The sample comprises 6,491 individuals in 2019, 3,118 in 2020,¹ and 6,002 in 2021.

The variables used for this analysis are described below:

Gender: a dichotomous variable that indicates whether the individual is male or female. In the estimation of the model, "male" is taken as the base category. Considering the categories of the endogenous variable of the model, the estimation coefficients are:

- Female employer.
- Paid female subordinate.
- Unpaid female worker.

Age: number of years completed. Considering the categories of the endogenous variable of the model, the estimation coefficients are:

- Age of the employer.
- Age of paid subordinate worker.
- Age of unpaid worker.

Marital status: a dichotomous variable that indicates whether the individual is married, cohabiting or single. In the estimation of the model, "single" is taken as the base category. It is understood that married-cohabiting includes individuals who live with their partner in a common-law relationship and individuals who are married. Meanwhile, single covers the status of separated, divorced, widowed and specifically single. Taking into consideration the categories of the endogenous variable of the model, the coefficients of the model are:

- Married-cohabiting partner who is an employer.

- Married-cohabiting partner who is a subordinate and receives a salary.
- Married-cohabiting partner who is an unpaid worker.

Level of education: dichotomous variable indicating whether the individual has completed higher or basic education. In the estimation of the model, “basic education” is taken as the base category. Considering the categories of the endogenous variable of the model, the coefficients of the model are:

- Higher education of employer.
- Higher education of paid subordinate workers.
- Higher education of unpaid workers.

5. RESULTS

Table 1 shows the results of the logit multiple-choice models, estimated for the years 2019, 2020 and 2021. In principle, the relationship between signs and statistical significance is analyzed. For the coefficients of the gender variable, the base category is male. Consequently, the coefficient is negative and significant for all three years for female employers, suggesting that women are less likely to be employers than men. For the occupation of paid subordinate workers, the coefficient is negative but only significant in 2021, indicating that, in that year, women were less likely to belong to this category. The coefficient for unpaid workers is positive and significant for all three years, implying that women are more likely to fall into this category than men.

Table1 . Model estimation results, 2019-2021

<i>Estimation coefficients</i>	<i>2019</i>				
	<i>Estim.</i>	<i>S.E</i>	<i>Value z</i>	<i>Pr (> z)</i>	<i>Signif.</i>
Intercept					
Employers	-1.1108	0.2258	-4.9201	[8.649e-07]	***
PSW	3.2828	0.1178	27.8649	[< 2.2e-16]	***
UPW	1.7813	0.171	10.4184	[< 2.2e-16]	***
Gender- female					
Employers	-1.2258	0.1587	-7.7263	[1.110e-14]	***
PSW	-0.0647	0.0674	-0.9588	[0.3376737]	
UPW	1.0045	0.1089	9.2269	[< 2.2e-16]	***
Age					
Employers	-0.001	0.0043	-0.2418	[0.8089034]	
PSW	-0.0506	0.0024	-21.1682	[< 2.2e-16]	***
UPW	-0.0723	0.0042	-17.2258	[< 2.2e-16]	***
Married-cohabiting					
Employers	-0.1192	0.1465	-0.8137	[0.4158107]	
PSW	-0.4221	0.0721	-5.8538	[4.804e-09]	***
UPW	-0.3912	0.1124	-3.4803	[0.0005008]	***
Higher education					
Employers	0.3566	0.1434	2.487	[0.0128838]	*
PSW	0.535	0.0756	7.0789	[1.453e-12]	***
UPW	-0.8306	0.1472	-5.6436	[1.666e-08]	***
Log-Likelihood			-5819.7		

<i>Estimation coefficients</i>	<i>2020</i>				
	<i>Estim.</i>	<i>E.E</i>	<i>Value z</i>	<i>Pr (> z)</i>	<i>Signif.</i>
Intercept					
Employers	-1.8325	0.3853	-4.7564	[1.971e-06]	***
PSW	3.1319	0.1664	18.8227	[< 2.2e-16]	***
UPW	1.7038	0.2544	6.6972	[2.125e-11]	***
Gender- female					
Employers	-1.3108	0.2775	-4.7244	[2.308e-06]	***
PSW	-0.0333	0.0961	-0.3464	[0.7290460]	
UPW	0.9663	0.1641	5.8876	[3.919e-09]	***
Age					
Employers	0.0000	0.007	0.0021	[0.9983301]	
PSW	-0.0491	0.0034	-14.6858	[< 2.2e-16]	***
UPW	-0.0748	0.0064	-11.6	[< 2.2e-16]	***
Married-cohabiting					
Employers	0.3771	0.2555	1.4761	[0.1399128]	
PSW	-0.2655	0.1007	-2.6368	[0.0083699]	**
UPW	-0.3061	0.169	-1.8115	[0.0700667]	
Higher education					
Employers	0.3238	0.2289	1.4144	[0.1572481]	
PSW	0.5332	0.1053	5.0649	[4.085e-07]	***
UPW	-0.878	0.229	-3.8338	[0.0001262]	***
Log-Likelihood			-2665.3		

<i>Estimation coefficients</i>	<i>2021</i>				
	<i>Estim.</i>	<i>E.E</i>	<i>Value z</i>	<i>Pr (> z)</i>	<i>Signif.</i>
Intercept					
Employers	-1.6518	0.2536	-6.5143	[7.301e-11]	***
PSW	2.9997	0.1169	25.6612	[< 2.2e-16]	***
UPW	1.4508	0.1822	7.9621	[1.776e-15]	***
Gender- female					
Employers	-1.2878	0.1792	-7.1874	[6.604e-13]	***
PSW	-0.1795	0.0687	-2.6127	[0.008982]	**
UPW	1.0587	0.1169	9.0551	[< 2.2e-16]	***
Age					
Employers	0.0005	0.0048	0.1005	[0.919914]	
PSW	-0.0433	0.0024	-17.9793	[< 2.2e-16]	***
UPW	-0.0752	0.0047	-15.9766	[< 2.2e-16]	***
Married-cohabiting					
Employers	0.3209	0.1657	1.9364	[0.052819]	
PSW	-0.2611	0.0718	-3.6359	[0.000277]	***
UPW	-0.0422	0.1197	-0.3522	[0.724654]	
Higher education					
Employers	0.4835	0.1534	3.1507	[0.001629]	**
PSW	0.3033	0.0769	3.9443	[8.003e-05]	***
UPW	-0.5701	0.1438	-3.9654	[7.329e-05]	***
Log-Likelihood			-5297.3		

Notes: PSW: Paid subordinate workers; UPW: Unpaid workers; Estim: Estimators; S.E: Standard error; Significance, 0 '***'; 0.001 '**'; 0.01 '*'.

Source: prepared by the authors based on data from the National Employment Survey (ENOE), National Institute of Statistics and Geography (INEGI) 2019, 2020 and 2021.

Regarding the age variable, the coefficients for the employer category are not significant in any year, suggesting that age does not have an apparent effect on this choice. In the case of paid subordinate workers, the coefficients are negative and significant for all three years, which implies that the older the person, the lower the probability of occupying a position as a paid subordinate worker. The same applies to the case of unpaid workers.

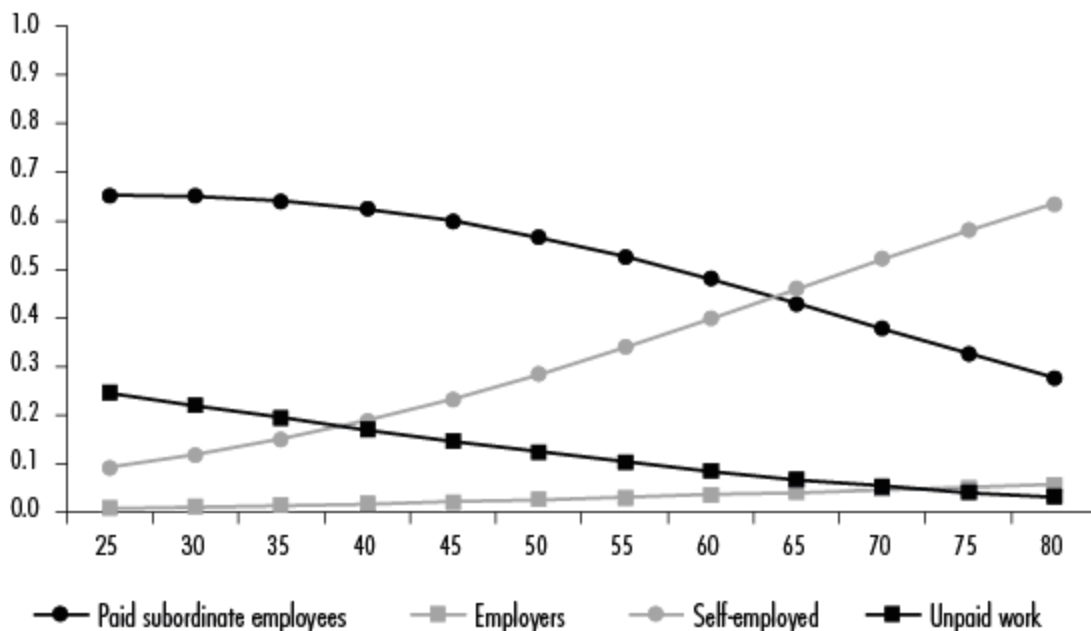
In the case of married-cohabiting partners, for employers, the coefficient is negative in 2019 and positive in 2020-2021 but not significant, so there is no apparent effect. For paid subordinate workers, the coefficient is negative and significant in 2019-2020, indicating that married-cohabiting partners were less likely to belong to this category based

on the evidence for those years. For unpaid workers, the coefficient is negative for all three years, significant only in 2019, suggesting that a married or cohabiting person is less likely to fall into this category.

When analyzing higher education, for employers, the coefficient is positive for all three years but only significant in 2019 and 2021, indicating that higher education increases the probability of being an employer compared to being self-employed. For paid subordinate workers, the coefficient is also positive and significant in all three years, implying that higher education increases the probability of belonging to this category. However, in the case of unpaid workers, the coefficient is negative and significant in all three years, suggesting that higher education reduces the probability of falling into this category. It is important to note that, due to methodological changes introduced during the pandemic, the results for 2020 and 2021 should be taken with caution.

Based on the econometric estimates (see Table 1), the results for the year 2019² were used to calculate the probabilities of a person choosing one of the four occupation options, taking into consideration specific conditions. The figures show the probabilities for each age for an individual with basic education to occupy one of the four employment options, distinguishing between gender and marital status (see figures 1-4). As can be seen in the figures, the horizontal axis represents age, ranging from 25 to 80 years in five-year intervals. Therefore, the first scenario considers the profile of single women with basic education for different ages (see Figure 1). The case of paid subordinate workers shows a high probability (around 0.6) for young ages, which gradually decreases with age until reaching approximately 0.2 at 80 years of age. In the case of entrepreneurs, i.e., self-employed and employers, the lines start with low probabilities, around 0.1 and close to 0, respectively. For self-employed workers, the probability is low in the first years of life but increases rapidly to reach a probability of around 0.6 at the age of 80. The line corresponding to employers remains relatively low (around 0.1) for most ages, with a slight increase at older ages. In the case of unpaid work, the probability starts at 0.3, showing a decrease at older ages, and it is practically the lowest option at the age of 80.

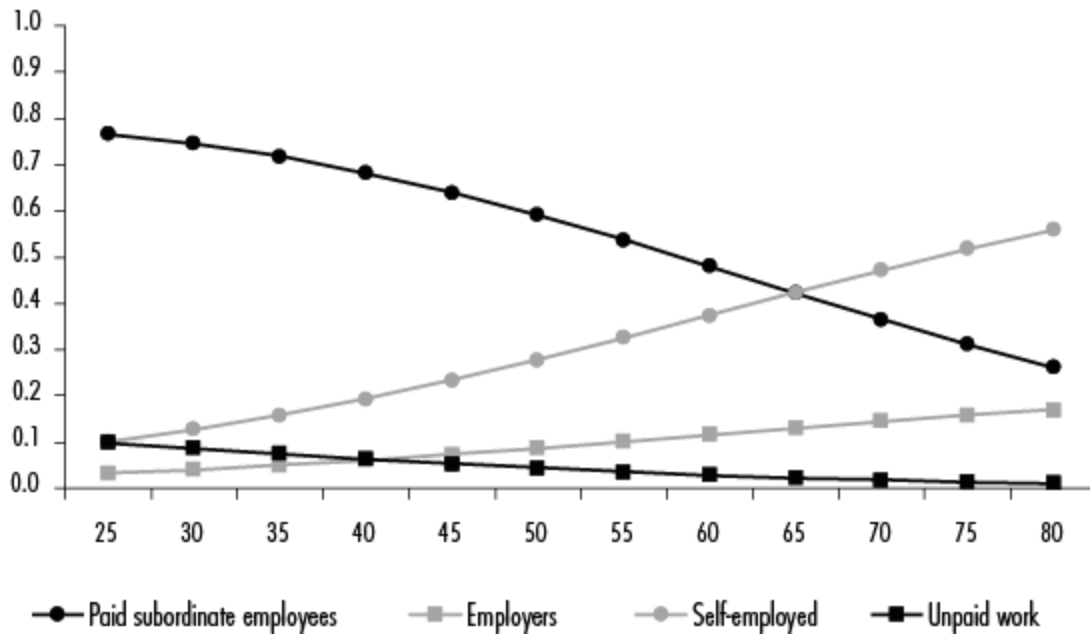
Figure 1. Probability of occupational status by age: single women with basic education



Source: prepared by the authors based on data from the National Employment Survey (ENOE), National Institute of Statistics and Geography (INEGI), 2019.

Figure 2 shows the probabilities of occupational status of single men with basic education at different ages. The figure suggests that the probability of being a paid subordinate worker is high at a young age (0.8) but decreases with age. Meanwhile, the probability of being self-employed increases significantly at older ages, especially from the age of 45, reaching a probability of around 0.55 at the age of 80. Meanwhile, the probability of being an employer, while starting from a very low level at the age of 25, increases until it reaches almost 0.2 at the age of 80. Finally, unpaid work has a probability of 0.1 at the age of 25, which decreases with age.

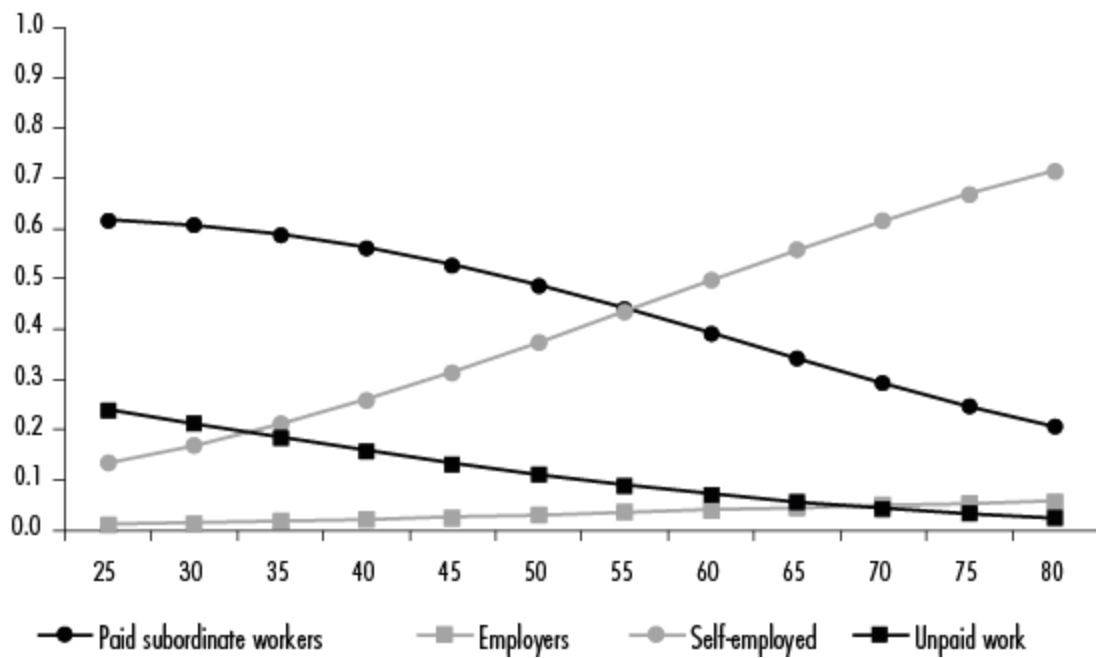
Figure 2. Probability of occupational status by age: single men with basic education



Source: prepared by the authors based on data from the National Employment Survey (ENOE), National Institute of Statistics and Geography (INEGI), 2019.

Regarding the probabilities of occupational status by age for people with basic education, grouped by marital status, two more figures are presented (see Figures 3 and 4). Figure 3 refers to the case of cohabiting women with basic education and shows us that the probability of choosing the occupation of paid subordinate worker starts high (around 0.6), gradually decreasing to approximately 0.4 at 45 years of age, and then continuing to slowly decrease to 0.2 at 80 years of age. The probability of being an employer is very low (below 0.1) for most ages. In the case of being self-employed, the probability is very low up to the age of 35 but increases rapidly to approximately 0.7 at the age of 80. The probability of being engaged in unpaid work is 0.3 for the youngest but gradually decreases to practically 0 at the age of 80.

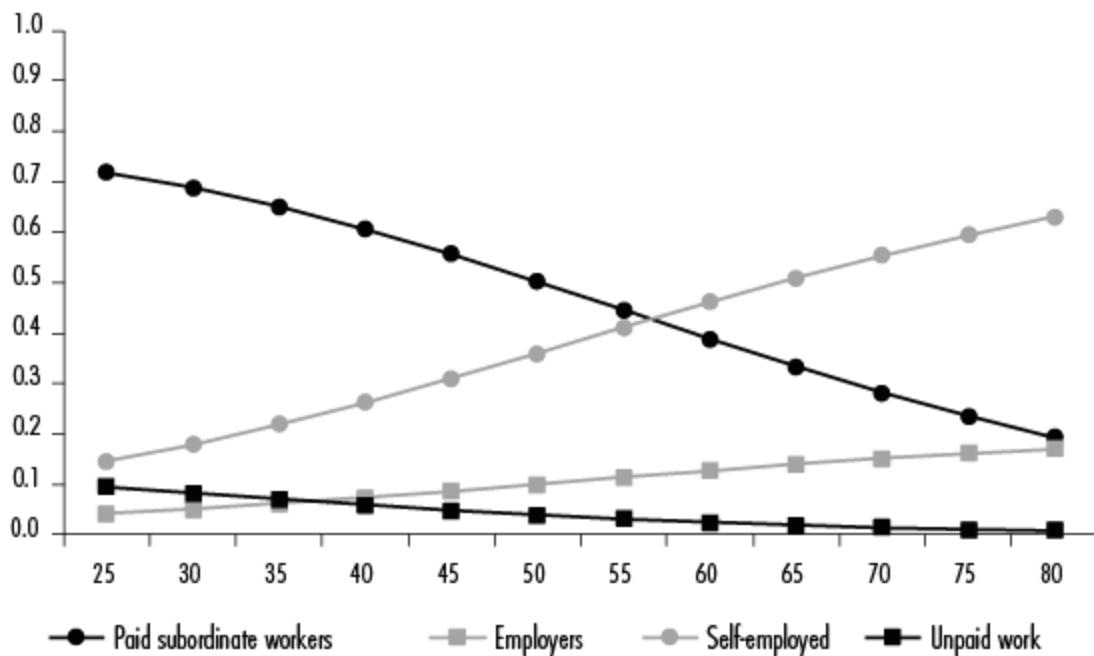
Figure 3. Probability of occupational status by age: married-cohabiting women with basic education



Source: prepared by the authors based on data from the National Employment Survey (ENOE), National Institute of Statistics and Geography (INEGI), 2019.

Figure 4 gives an overview of cohabiting men with basic education. In the case of paid subordinate work, the highest probability corresponds to 25-year-olds (around 0.6), with the probability decreasing with age to 0.2 at the age of 80. On the other hand, the probability of being self-employed starts at around 0.1 and is slightly higher than 0.6 at the age of 80. Meanwhile, the probability of being an employer is low for young people, but as they get older, men show an increase in the probability of falling into this category, and even at the age of 80, it is equal to the probability of being a paid subordinate worker, which is around 0.2. In the case of unpaid work, it is slightly less than 0.1 at the age of 25, while the older the cohabiting man with basic education, the lower his probability of falling into this category, which is practically zero at the age of 80.

Figure 4. Probability of occupational status by age: married-cohabiting men with basic education



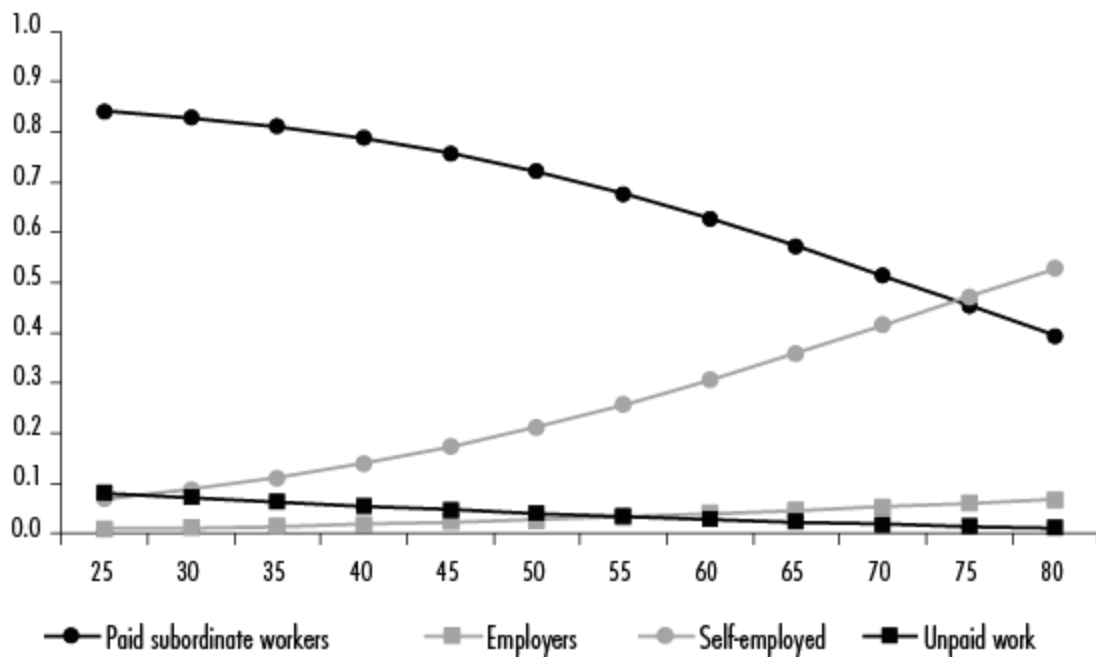
Source: prepared by the authors based on data from the National Employment Survey (ENOE), National Institute of Statistics and Geography (INEGI), 2019.

According to the groups analyzed (single men and women, married-cohabiting men and women with basic education), there is a tendency to move from paid subordinate employment at a young age to self-employment at an older age. In terms of gender in these groups, there are notable differences between men and women.

Young men (single or married) are more likely to be paid subordinate workers (around 0.8) than women (around 0.6). Conversely, women are more likely to be self-employed at an older age, especially if they are married or cohabiting. There is also a point of intersection between the probability lines of being a dependent employee and being self-employed. This intersection indicates a change in the choice between these two job categories as people age. This situation is referred to as the entrepreneurship threshold, which represents the approximate age at which the probability of being self-employed exceeds the probability of being an employee. As can be seen, it occurs at different ages depending on gender and marital status; for single women, this point occurs just before the age of 65 with a probability of around 0.45, while for single men, it occurs at the age of 65 with a probability of around 0.40. For married-cohabiting women, the entrepreneurship threshold occurs at age 55 with a probability of around 0.45. For married or cohabiting men, the entrepreneurship threshold occurs at just over the age of 55, with a probability of just over 0.40.

Considering the population with higher education, Figure 5 shows the probability of occupational status for single women. The probability of being a paid subordinate worker is highest for the oldest age group, starting at approximately 0.85 and remaining above 0.5 up to the age of 70. The probability of being an employer or self-employed is low at the beginning of working life (less than 0.1) and increases with age, with the self-employed category showing significant growth. The probability of participating in unpaid work is low and relatively constant at all ages. Unpaid work is unlikely at all ages.

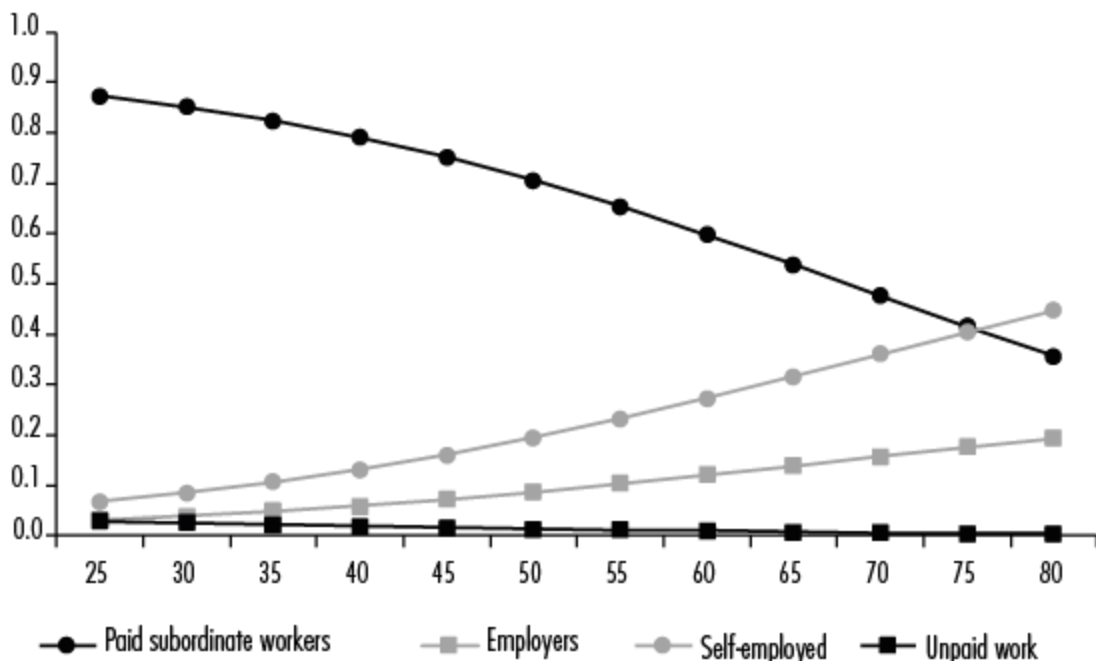
Figure 5. Probability of occupational status by age: single women with higher education



Source: prepared by the authors based on data from the National Employment Survey (ENOE), National Institute of Statistics and Geography (INEGI), 2019.

Figure 6 shows the probability of occupational status by age for single men with higher education. It shows that paid subordinate employment is most likely at all ages, starting at around 0.9 for the youngest men and decreasing sharply to just over 0.3 for 80-year-old men. The probabilities of being self-employed increase with age and are higher in relation to being an employer, although this category shows greater dynamism as age increases. Unpaid work is very unlikely.

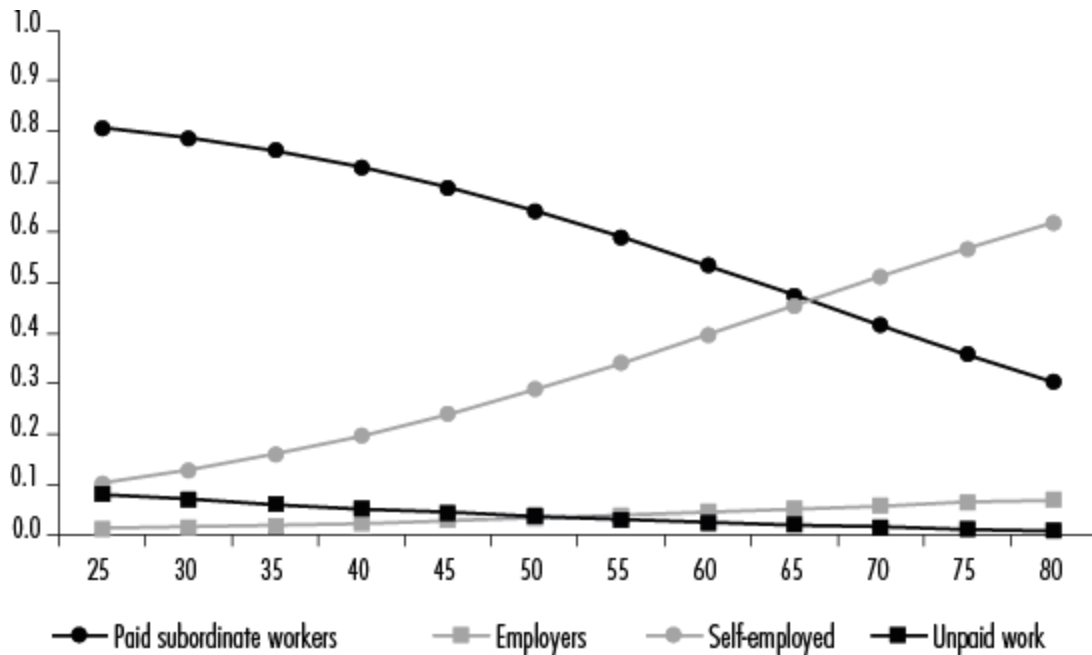
Figure 6. Probability of occupational status by age: single men with higher education



Source: prepared by the authors based on data from the National Employment Survey (ENOE), National Institute of Statistics and Geography (INEGI), 2019.

Figure 7 shows the case of married-cohabiting women with higher education. As in the previous cases, paid subordinate work is still the most likely option for all ages, but it decreases rapidly with age compared to men. The probability of being self-employed increases with age and is significantly higher than that of being an employer; at the age of 80, the probability is high, around 0.6. The probabilities of being an employer and doing unpaid work are low for all ages, with the probability of being an employer slightly higher than that of doing unpaid work from the age of 55. Unpaid work remains unlikely.

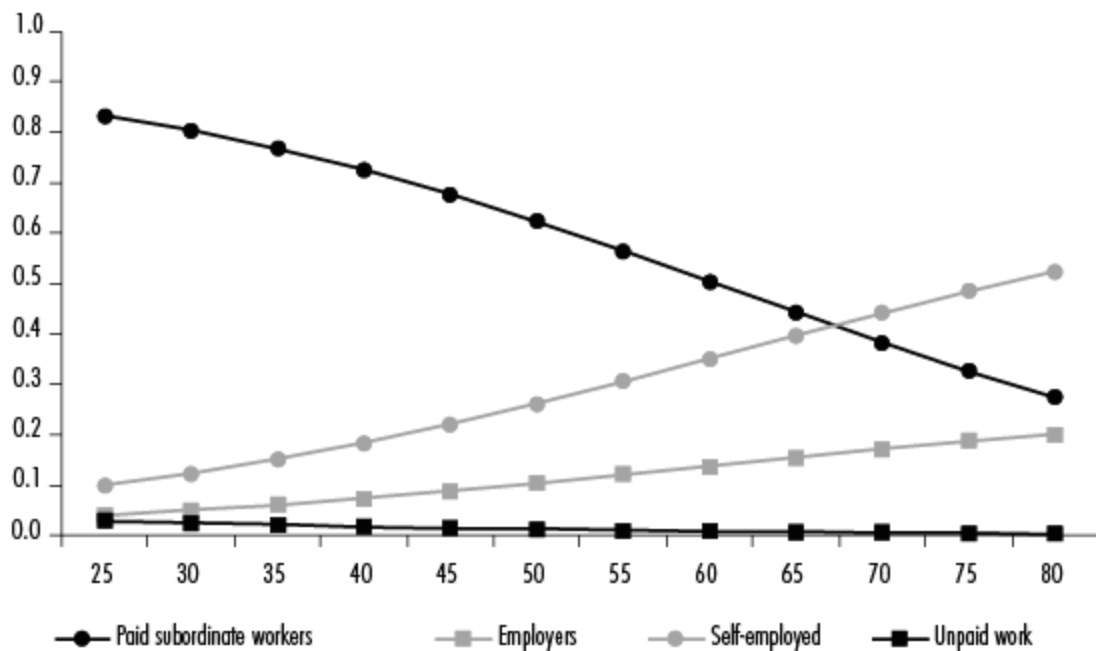
Figure 7. Probability of occupational status by age: married or cohabiting women with higher education



Source: prepared by the authors based on data from the National Employment Survey (ENOE), National Institute of Statistics and Geography (INEGI), 2019.

Figure 8 shows the probability of occupational status by age for married-cohabiting men with higher education. The probability of being a paid subordinate worker is also the highest in all categories, but it is worth noting that it starts very close to 0.9, a pattern observed only for men with higher education (see Figures 6 and 8). The probabilities of being self-employed and being an employer are low at the beginning of working life, below 0.1, but they increase with age, although a greater preference for self-employment is observed, 0.5 at the age of 80. Meanwhile, a married-cohabiting man shows no probability of choosing unpaid work.

Figure 8. Probability of occupational status by age: married men or living with a partner with higher education



Source: prepared by the authors based on data from the National Employment Survey (ENOE), National Institute of Statistics and Geography (INEGI), 2019.

Regarding the last four figures, paid subordinate work is the most common for all groups with higher education, but the probabilities of being an employer, self-employed and doing unpaid work vary by gender and, to a lesser extent, by marital status, especially as age increases. There are also some notable differences in the probabilities compared to those with only basic education.

In general, the threshold for entrepreneurship varies according to people's profiles. Regarding gender, men are more likely to be employers than women in Puebla. This result is consistent with the study by Real *et al.* (2020) for the state of Sonora, Mexico, where women are more likely to be self-employed. For people with higher education, paid subordinate work is still the most likely status at all ages, even in old age, in contrast to the Mexican states of Saltillo, Oaxaca de Juárez, State of Mexico and Chiapas, where higher education facilitates entrepreneurship by developing innovation and identifying business opportunities (Paredes *et al.*, 2023; Castro *et al.*, 2022). Meanwhile, basic education seems to limit opportunities in paid subordinate employment, which could explain the transition to self-employment. This finding is in some ways consistent with González *et al.* (2021), who consider basic education in Puebla as insufficient for entrepreneurship in larger firms with more workers. Also, entrepreneurship becomes more likely as people age, suggesting that the entrepreneurial profile is associated with people in more advanced stages of life. A similar result was obtained in the city of Saltillo, Coahuila, and contrasts with Oaxaca de Juárez (Paredes *et al.*, 2023). Finally, with regard to marital status, a smaller effect on the likelihood of entrepreneurship was observed compared to gender. In addition, the probability of doing unpaid work is generally low, but a slight increase is observed at older ages, especially for married women.

Regarding unpaid work, the likelihood of undertaking this type of work is generally low, but there is a slight increase in older age groups, especially among married women. This may be related to unpaid family or community activities.

6. CONCLUSIONS

The profile of the entrepreneur in Puebla is diverse and is shaped by the interaction of individual and social factors. While paid subordinate employment remains the most likely option throughout a person's working life, the results suggest that the propensity to become an entrepreneur varies according to factors such as age, gender, education and marital status. Although the likelihood of being an employer and self-employed increases slightly with age, there is no clear transition to entrepreneurship as in the case of people with basic education. This could indicate that higher education provides more opportunities and stability in paid subordinate employment, reducing the need or incentive to become an entrepreneur. Consequently, people with basic education show a stronger preference for entrepreneurship as they get older.

Gender differences were also found in Puebla's entrepreneurial profile. Men are more likely to be employers than women, which may indicate clear differences in the conditions that favor entrepreneurship, such as access to capital or support networks for starting a business. Women, for their part, are more likely to be self-employed, which may reflect a preference for self-employment as a strategy for reconciling work and family responsibilities or the existence of barriers to developing female-owned businesses.

Marital status seems to affect the likelihood of entrepreneurship less than gender. We observe that married-cohabiting men are more likely to be self-employed than single men, which may imply that family responsibilities influence men's decision to become entrepreneurs. Married-cohabiting women, on the other hand, show a greater tendency towards self-employment.

In relation to the impact of education on the decision to become an entrepreneur, for people with higher education, paid employment remains the most likely position at all ages, even the oldest. This finding suggests that university-based or high-human-capital entrepreneurship is rare in the Puebla region, which could indicate a lack of incentives for highly qualified professionals to choose to start their own businesses.

The concept of the entrepreneurship threshold represents a turning point in the choice of employment, where entrepreneurship becomes more attractive than salaried employment. This situation marks a significant change in choice of employment, where people go from being employees to entrepreneurs. In this respect, the results of this study coincide with findings from previous research. In accordance with the gender differences observed in the entrepreneurial profile, which show a greater tendency for women to be self-employed, this coincides with the marginalization theory of Fairlie and Meyer (1996), which suggests that people belonging to disadvantaged groups may resort to self-employment to overcome barriers in the traditional labor market. In a similar vein, there is some overlap with the work of Pérez *et al.* (2020) with regard to male-dominated entrepreneurship, given that men were more likely than women to be employers, but this study also reveals that women are more likely to be self-employed than men. In addition to the previous finding, if we can reasonably assume that the employer has a larger and therefore more profitable company compared to the self-employed worker's business, this research agrees with the study by Ahn and Winters (2023) in which the male entrepreneur is shown to be more determined by his preference to venture into more profitable markets, while the female entrepreneur starts businesses regardless of profitability. The entrepreneurship threshold is a point of transition in employment where the probability of working for oneself exceeds that of being a subordinate employee. In this research, the threshold represents the approximate age at which an individual develops the necessary skills and resources to transition from traditional employment to entrepreneurship, marking a change in their career path. It also highlights the alignment with Schultz's (1960 and 1961) human capital theory on the conception that attributes inherent to individuals, such as education, skills and knowledge, influence their career decisions and expected returns.

Likewise, the findings of the employer could be associated with the profile of the opportunity entrepreneur, as they view the size of their business as a sign of profitability and success. In contrast, self-employed workers could be linked to the profile of the entrepreneur by necessity, who is an involuntary entrepreneur. As such, they are assumed to be self-employed workers with a desire to engage in another, more profitable, occupational activity and with no interest in business growth, resulting in them being the only ones to work there. However, the above interpretations need to be validated in future research, which should include information on the economic motivation for entrepreneurship. Furthermore, future research should include psychological and mental variables and other personal qualities that influence the decision to become an entrepreneur, either as an employer or a self-employed person. The ENEO, the data source used for this research, does not include variables on people's mentality, which limited the analysis of the entrepreneurial profile.

As a main conclusion, this study contributes to the literature by identifying and quantifying the “entrepreneurship threshold,” a critical point where the probability of becoming an entrepreneur exceeds that of being a subordinate employee. Its importance lies in the fact that it reveals differentiated patterns according to specifically sociodemographic characteristics, facilitating the understanding of how different groups make decisions in relation to entrepreneurship. It also provides a quantitative tool for predicting better-targeted public policies and support programs, as well as for identifying potential entrepreneurs and developing more effective support strategies.

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¹ Reduction attributable to changes in methodology during the pandemic.

² Due to the changes in methodology made to the ENOE (Spanish National Employment Survey) during 2020 due to the COVID-19 pandemic, it was decided to use the data corresponding to 2019 for this analysis.