

# **Female Entrepreneurship in Dakar: A Multidimensional Approach Where the Entrepreneurial Culture Reflects the Sociological Diversity of Female Entrepreneurs in Dakar**

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*We investigated female entrepreneurship in Dakar with the following objectives: the study of individual characteristics of female entrepreneurs, their motivations, the existence of an entrepreneurial culture and their insertion in the networks. We were also interested in the entrepreneurial choice and when they take on the choice of the “administrative” sector (informal/formal). We have thus shown the importance of entrepreneurial culture and social capital in the Senegalese female entrepreneurship, as well as the motivations that distinguish entrepreneurial engagement in the informal sector compared to the formal sector. Necessity entrepreneurship is found more in the “small informal” sector, it participates, thanks to the support from relatives, to the participation of women’s networks, in the smooth running of a developing economy since it is a source of employment that is adapted to the social and human capital of the majority of Senegalese women.*

*Keywords: female entrepreneurship, informal sector, entrepreneurial culture, discriminatory analysis, Dakar*

## **INTRODUCTION**

The GEM reports<sup>1</sup> highlight a high rate of entrepreneurship in countries with relatively low economic development. Total Early-stage Entrepreneurial Activity rates (TEA<sup>2</sup>) tend to be higher in production factor-oriented countries<sup>3</sup> and decrease with the level of development (GEM 2015-2016). As a result, Sub-Saharan African (SSA) countries have some of the highest Total Early-stage Entrepreneurial Activity rates (TEA) in the world, particularly for women. One explanation is that the high rate of women entrepreneurs in developing economies is related to motivations of necessity. The majority of women start businesses to support themselves and raise their families, especially since low access to education limits their chances of wage employment in adulthood (Olaewaju, 2020).

We know that opportunity entrepreneurship brings growth and that many Western researchers advocate for the quality rather than the quantity of new businesses created (Szerb et al., 2019). However, according to Simón-Moya et al. (2014), necessity-based entrepreneurship plays a more relevant role in countries with relatively low economic development and where inequality prevails. The economic structures of these countries do not create work opportunities, and the women rely on their own initiatives to start their own businesses, mainly in the easily accessible “small informal” sector (see below). Women’s entrepreneurship also contributes to their empowerment, for example, in terms of personal fulfillment, increased autonomy, improved livelihoods and better work-family balance (Kantor, 2003).

A large number of research support the positive effects of women’s entrepreneurship in Africa even though it is often driven by necessity. It is mainly a source of employment adapted to the social and human capital of women entrepreneurs, it is also a source of income, a source of fulfillment as they fully express their talents, as well as a source of innovation (Simen, 2020, Mendy, 2017, Diouf and Simen, 2014, and Guérin, 2002, in Senegal; Olarewaju et al, 2019, in Nigeria; Dokou and Rayaleh, 2016 in Djibouti; Smith-Hunter, 2013 in Ghana; Kane, 2009 in Mauritania; Rachidi, 2006 in Morocco; Tchoussi, 2002 in Cameroon). Female management seems particularly effective, as women mobilize their networks (family, relational, social, and cultural) to cope with impoverishment and the reduction of family resources in African countries<sup>4</sup>. Indeed, one of the primary motivations in this case is “necessity”, that is, the desire to get by and meet the needs of the family, albeit with a long-term vision.

In Senegal, it is by relying mainly on solidarity and mutual aid (Diouf and Simen, 2014) that the women entrepreneurs are able to develop businesses, the vast majority being in personal services and trade. They are the bearers of social innovations, but also of frugal innovations, i.e. ingenious combinations capable of creating added value<sup>5</sup>.

Based on an empirical study conducted in the Dakar region, this article highlights a specific African model in which the “African culture” plays an important role. African women, and Senegalese women in particular, who are more affected by poverty, develop strategies to escape poverty by creating in the small informal sector (Guérin, 2002; Sarr, 1998). Their motivations are therefore more constrained than those of female entrepreneurs in the formal and large informal sectors. The activity is directly linked to the search for additional family income and to knowledge of supply circuits and the market for products, facilitated by membership in women’s networks.

The variable of interest is business creation. The first survey (see below) focused on women who started their businesses in three types of “administrative” sectors: small-scale informal, large-scale informal, and formal. In simple terms, the small-scale informal sector is the sector that is not registered in the country’s activity, that is, the sector that does not file a tax return and therefore does not contribute to tax payments. The large-scale informal sector has all the characteristics to be formalized (registration, bookkeeping, declared employees, etc.), but firms choose to have deliberately false accounts to be able to reduce their tax contribution. Finally, the formal sector is made up of companies that fully respect their legal, social and fiscal obligations. A second survey was then conducted with women who had not started a business (Appendix A1). The motivations for creating a business are obviously not given for this category, as well as for the “administrative” and real sectors (commerce, industry and crafts, services, construction).

The results obtained confirm the hypothesis that, in developing countries where the informal sector is very important, the entrepreneurial culture and the social capital available to women favor entrepreneurship.

This article is organized as follows. In the first part, we will be presenting the context of entrepreneurship in developing countries and more specifically in Senegal. In four sections, we will discuss the complexity of motivations in developing countries; the disadvantaged status of Senegalese women and the entrepreneurial culture; the importance of informal networks and social capital in Senegal; and finally, we will present the model of the Senegalese woman entrepreneur.

In the second part, we will present the surveys conducted, the data collected, the methodology adopted to address the problem, the data analysis methods used, and the results of the study.

We will end with a summary of the results and a discussion, and with a conclusion that opens up some perspectives for the furthering of this work.

## **The Context of Female Entrepreneurship in Africa and More Specifically in Senegal**

The first works on female entrepreneurship appeared around 1970 in the United States, in England and in the OECD countries. Since then, many studies have been published on this topic, focusing on gender theories. In these studies, women are most often portrayed as being more vulnerable than men (Bosma and Harding, 2007, 2004; Robb, 2009), with lower levels of education (Davidsson and Honig, 2003; Arenius and Minniti, 2005, 2003), weaker relational networks (Aldrich and Cliff, 2003; Bosma, Van Praag, Thurik, and De Wit, 2004; Kraus, 2009), and few financial resources (Riding and Swift, 1990; Duchéneaut and Orthan, 2000; Bel, 2009; Nelson and Vosmek, 2014; Stivell and Zhan, 2014). These comparative studies emphasize the importance of networks, representations and the place of women as guarantors of household stability in Western economies.

In developing countries (DCs) and particularly in Africa, women-owned businesses in this region tend to be micro or small enterprises and they are also associated with high rates of cessation of activity (Kelley et al., 2017). In a few years, Africa has thus become the 1st continent of female entrepreneurship, with women accounting for 58% of “self-employed” among the total population (GEM, 2017). In African countries, female entrepreneurship is considered as one of the drivers of development. Indeed, African women play a greater economic role compared to other women around the world. They represent 70% of the active agricultural population and 60% of the population in the informal sector according to Stivell and Zhan (2014). They also represent half of the African population and produce 62% of economic goods (Women in Africa)<sup>6</sup>.

## **Complexity of the Motivations of Women Entrepreneurs in Developing Countries**

In recent works, the concept of “Motherhood”, which can be defined as potential motherhood that will play on the professional trajectory - the woman is above all considered as the genitor in the couple and the symbol of the transmission and continuation of life- is associated with the 3 classic M’s (Market, Management and Money) of the creation of a company and with the Macro and Meso environment -which represents the institutional context- to form the 5 M’s (Vial, Richomme, 2017). These 5 M’s represent the complex relationships that account for women’s engagement in entrepreneurship in different societies. These relationships explain the underrepresentation of women entrepreneurs in Western economies (about 1/3 women versus 2/3 men in France according to the SINE<sup>7</sup> source). In the French case, a late recognition of women’s empowerment within the couple (Vial, Richomme, 2017), but also cultural and socio-political aspects such as the woman being the guarantor of the household’s good bookkeeping -the woman cannot jeopardize the couple’s financial stability<sup>8</sup> - or a generous policy of support for the birth rate and the care of young children, are explanatory factors for this result<sup>9</sup>.

In developing countries, gender inequality is defined more in terms of access to paid work. In Africa, only 8.5% of women are formally employed (Women in Africa, 2018)<sup>10</sup>. 75% of them are in the informal economy. They are less likely to have salaried employment contracts, do not benefit from social protection and are often paid at the poverty line. This is why we often refer to necessity motivations, when they engage in entrepreneurship. Gabarret and Vedel (2015), however, criticize the classification of necessity motivations versus opportunity motivations. For example, job dissatisfaction or the desire to find job satisfaction (Hughes, 2003), depending on the wording of the question can have a negative or positive connotation. Similarly, there is a necessity-opportunity continuum with the existence of non-economic motivations; the glass ceiling for women can take the form of entrepreneurship to escape a painful situation (career stagnation) or the desire to achieve fulfilment by overcoming a blockage in the wage career. This motivation can either be interpreted negatively or positively, depending on whether the emphasis is on the first or the second interpretation.

In the world of work, Ndiaye et al (2005) observed the low participation of Senegalese women in the modern wage sector, regardless of whether it is in the private or public sector. According to the ANSD’s 2017 report on the labor market, the activity rate for women is 47% compared to 65.4% for men. In addition, women are confined to so-called female jobs in intermediate categories and are almost absent from positions of responsibility. When they do start a business, they are motivated by opportunity (62.5% according to the GEM 2015), which may seem high, but it still leaves 37.1% of women motivated by necessity, which is a

lot given the low social desirability of the answer to the question. Motivations are more complex when one considers that these women may simultaneously satisfy a desire for independence, fulfillment, and social recognition within their community (Eddleston and Powell, 2012).

These complex, multidimensional motivations are, however, different depending on whether they are created in the informal or formal sector (see below).

**H1:** *The individual characteristics and motivations of Senegalese women entrepreneurs are different if the creation takes place in the formal or informal sector.*

### **The Devalued Status of Senegalese Women**

The cultural approach to female entrepreneurship is an anthropological approach. It concerns research on the female entrepreneur in her social group. This approach focuses on the culture of the social group through its rituals, norms of behavior, ideals and traditions. “Senegal is a secular country with 96% Muslims. The weight of the culture and the religion is a fundamental invariant that structures female entrepreneurship”, (Diouf and Simen, 2014). Muslim inheritance law grants women a share equal to half of the man’s share and thus reinforces women’s dependence. “From birth, the Senegalese women have unequal opportunities and possibilities vis-à-vis the men, which results from the assignment of their roles and place in the community. Her numerous social, cultural, and economic constraints reduce her participation in decision-making, increase her workload, weaken her access to resources, limit the realization of her potential, give her little control over her own life, and increase her impoverishment.” (Dia, 2016, p. 38).

In the family sphere, the dominant traditional ideology in Senegal, indeed, demands that the woman dedicates total submission to the man, her opinion never being taken into consideration. She is not even consulted on decisions that concern her. Her main role is limited to taking care of the home and ensuring the continuity of the family. When she fails to have children, she is often rejected by society. Similarly, the status of a single or divorced woman is very badly perceived. Also, after years of emancipation of polygamy which had regressed from 38.1% in 2002 to 35.2% in 2013, according to the National Agency of Statistics and Demography, and which concerned mostly illiterate women, we note that part of the new educated generation does not see the fact of being a second wife to significantly older husbands as being that bad (Kane, 2018). They thus respond to social pressure while appreciating the autonomy that the second wife status can give<sup>11</sup>.

The entrepreneurial culture itself can be read in relation to the perceived social appreciations or pressures that will encourage or discourage the setting up of an entrepreneurial activity. They correspond to the social pressures arising from what close people, family and friends think of the entrepreneur’s project (Tounès, 2003, Fayolle et al., 2006). The Senegalese woman entrepreneur will then have a positive or negative perception of society’s perception of her entrepreneurial activity.

**H2:** *Entrepreneurial culture distinguishes women entrepreneurs from non-entrepreneurs women and, among women entrepreneurs, the informal sector from the formal sector.*

### **A Diversified Community of Belonging That Favors Informal Networking**

Senegalese women are not immune to societal norms that are related to culture and religion. Among the societal norms that have a strong influence on women are:

- Marriages, most often traditional, which depend on the ethnic group to which the mother of the girl who is marrying belongs,
- Baptisms (always according to the tradition linked to the ethnic group),
- Circumcision of children,
- Activities related to neighborhood women’s groups or women’s associations,
- Activities related to castes (between women of higher castes “GUERR” in Wolof and women of lower castes “GUAWLO” in Wolof).

All of these activities require a certain amount of financial autonomy which can be obtained through entrepreneurship. In the context of entrepreneurial activity, self-help groups based on pertaining to the same lineage (Wolof, Fulani, etc.), the same neighborhood, or a tontine group are important because they constitute informal support that is more valued by Senegalese women entrepreneurs than state institutions. “Women entrepreneurs have a negative perception of loans from formal credit organizations because of high interest rates and the requirement of collateral,” (Simen, 2020, p.18)<sup>12</sup>.

*H3: Membership in different support groups differentiates women entrepreneurs in the informal sector from those in the formal sector.*

### **The Model of the Senegalese Woman’s Entrepreneurial Commitment**

How to build the model of the Senegalese woman’s entrepreneurial commitment? One of the most complete models, which takes into account a large set of explanatory variables from different domains, is the Shapero model (1975). It includes variables from:

- Provision to action (psychological variables), which assess motivations, attitudes, dogmatism and ideology, locus of control and intuitions.
- Credibility of the act (socio-economic variables), which evaluate the insertion in entrepreneurial networks, through the family environment, the reference group, the local environment, the organizational environment, and swarming.
- Feasibility (economic variables), which assess access to labor, financial resources, technology, markets and government support.
- Discontinuity and displacement (situational variables), which, according to the author, will constitute a trigger for action - we find unemployment, the situation of an immigrant, but also children who have experienced divorce... In the less constrained motivations, we find the benevolence of a mentor, a family business to take over, etc... Starting with the potential entrepreneur, who takes into account the person with his or her intellectual background and professional experience, Shapero will describe the entrepreneurial event, either a creation ex-nihilo, or a takeover, or a succession. Shapero and Sokol (1982) also highlighted the importance of entrepreneurial culture for the expression of entrepreneurial activity.

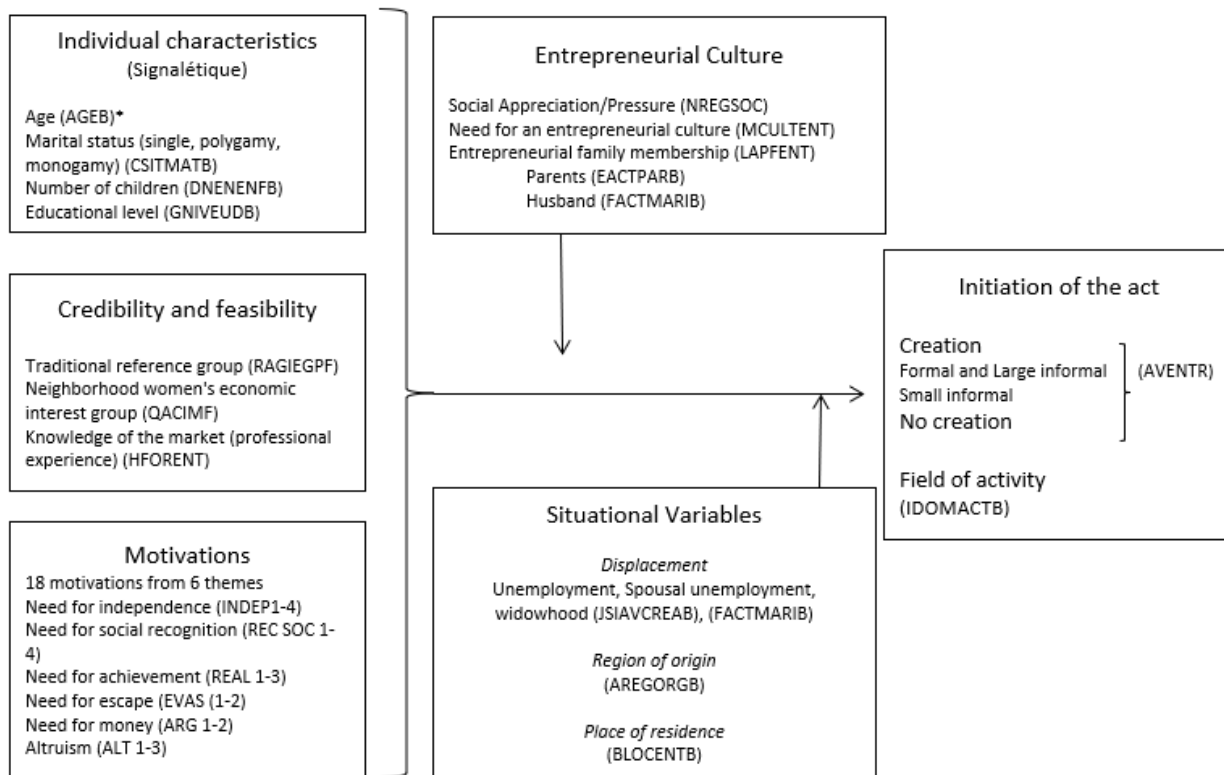
Our work consists of drawing from the structure of Shapero’s work to measure the entrepreneurial commitment of Senegalese woman and, when they are committed, to describe the choice of the type of enterprise according to the “administrative” sector of creation in three categories: small informal, large informal or formal in the first instance, then small informal, large informal and formal or no creation in the second instance.

In developing countries, individual characteristics are essential to account for entrepreneurial activity. We can assume that illiterate women from polygamous households with many children often undertake entrepreneurship for economic survival and do so in the small informal sector.

In Senegal, the credibility of the act of creation depends on the environment wherein the woman entrepreneur grows, in particular her membership in the traditional reference group (lineage) and in women’s social networks, including the economic interest groups of neighborhood women (tontine). We can assume that this credibility is all the more important in the informal sector because it allows access to financing without guarantees; with the problem of financing being crucial (Diouf and Simen, 2014). Feasibility also depends on market knowledge, either through training or work experience.

The motivations are more or less emancipating, more or less chosen or endured. We can assume that the motivations for creation in the small informal sector are more suffered than chosen. Shortage and scarcity (of financial means, qualified people, various resources, etc.) are the main characteristics of the informal sector. For the actors in the informal sector, having to “do more with less” has been their condition for survival.

**FIGURE 1**  
**THE SENEGALESE ENTREPRENEUR MODEL (ADAPTED FROM SHAPERO (1975), SHAPERO AND SOKOL, (1982))**



\* designation of the variable in the database (Appendix A2).

The entrepreneurial culture is assessed here by the appreciation of the entrepreneur's entourage of the merits of her entrepreneurial commitment. She may also feel that having an entrepreneurial culture is necessary to start a business. Finally, the entrepreneurial culture may be synonymous to belonging to a family of entrepreneurs (see Appendix A3).

The situation variables also play an important role in Senegal (positive or negative situation of the woman that will trigger the act, for example the unemployment of the spouse). The region of origin and the place of residence in Dakar can provide information on possible regional or local entrepreneurial cultures.

The variable of interest is business creation. The first survey (see below) focused on women who started their businesses in three types of "administrative" sectors: small informal, large informal and formal. A second survey was then conducted among women who had not created a business. The motivations for creating a business are obviously not given for this category, just as with the "administrative" and real sectors (commerce, industry and crafts, services, construction).

## **SURVEYS, METHODOLOGY, RESULTS, OVERVIEW AND DISCUSSION SURVEYS**

Two surveys were used to create the database (the surveys are available from the authors upon request). The first survey consists in identifying information on women who have created a business, with the objective of distinguishing between the creation in the formal sector and in the informal sector -in the latter case with the distinction, small and large informal- (cf. Appendix A1).

A second survey consists of repeating the questions to interview a population of women in Dakar who had not started a business.

The study of female entrepreneurship in Senegal requires an adequate definition of the different “administrative” sectors (small informal, large informal, and formal) of business creation. These definitions were summarized by Benjamin and Mbaye in 2012. They distinguished between the small informal sector, which is largely outside legal constraints, vis-à-vis tax declaration and payment of taxes; the formal sector, which can be identified with the classic sector of Western companies when they work within the rules (excluding black or illegal labor); and the large informal sector, which is intermediate to both aforementioned sectors. These latter companies all have the characteristics to be formalized but choose to have deliberately false accounts in order to escape the tax authorities. The informal sector is a major component of the Senegalese economy and provides between 60 and 70% of GDP depending on the sector of activity (DPS, 2002). It includes all social strata and employs 80% of the Senegalese working population (ANDS, 2012, 2017).

In a second step, we have grouped together the large informal and formal sectors for statistical reasons, but also because they have common bases (registration, bookkeeping, declared employees, etc.). The variable of interest, the variable (AVENTR), thus includes three modalities: Creation in the formal sector and the large informal sector, Creation in the small informal sector and No creation. Finally, the field of activity refers to the classic distinction according to branches of activity (trade, industry and crafts, services and construction).

## **METHODOLOGY**

The data used in this article come from a two-phase empirical survey conducted in Dakar in 2012 and 2014. The final sample based on the quota method yielded 153 exploitable observations that can be classified into 4 modalities (creation in the informal sector, creation in the formal sector, creation in the large informal sector, and no creation) (See Appendix A3).

The approach adopted is based on a complementarity of multidimensional data analysis methods, which take into account the personal characteristics of women entrepreneurs, the local environment wherein they evolve, as well as cultural, sociological and economic criteria.

First, a Hierarchical Ascending Classification (HAC) (Lebart and Morineau, 2000; Saporta, 2006) according to Ward’s criterion<sup>13</sup> was applied to the main factors of the Multiple Correspondence Analysis (MCA) in order to characterize homogeneous groups of women entrepreneurs with respect to the theme of entrepreneurial culture whose variables are presented in Appendix A8. Then, discriminant analyses (DA) (Celeux and Nakache, 1994 and Huberty, 1994), also known as supervised classifications, were applied in order to highlight the possible links between target variables to be explained such as the business creation variable with two groups (Creation, Non-creation), the sector of creation (Formal, Small Informal, Large Informal, Non-creation), the motivations or the groups of women according to the entrepreneurial culture obtained by the HAC, and a set of qualitative explanatory variables relating to the identification of female entrepreneurs. In other words, we want to know if the groups differ on all of the predictor variables; which groups are different and what are the modalities of the variables that differentiate them. Finally, a Correspondence Factorial Analysis (CFA) was applied to characterize the possible links between entrepreneurial culture and business creation.

## **RESULTS**

### **Discriminant Effects of Individual Characteristics on Business Creation**

Statistically, discriminant analysis (DA) is a multivariate method that consists of studying the effect of a set of explanatory variables of a homogeneous theme on a qualitative variable to be explained, in this case, the binary qualitative variable relating to the creation of activity (Creation, Non-creation) of the 153 Senegalese women interviewed in Dakar and its suburbs. We can observe that the DA approach is close to the regression approach. In each of the cases, we try to explain or predict a dependent variable by a linear combination of explanatory variables. In regression the explained variable is continuous or quantitative, in DA it is qualitative.

The objective here is to highlight the descriptive modalities which best differentiate and separate women who start their own business, all sectors combined, from those who do not start a business. In other words, we want to know if the explanatory variables of the theme individual characteristics (age, marital status, number of children and level of education) of women has a significant effect on the targeted variable to be explained (the creation of activity) with two modalities (Creation / Non creation).

**TABLE 1**  
**NUMBERS AND PERCENTAGES OF GOOD RANKINGS BY WOMEN ENTREPRENEURS**  
**VERSUS NON-ENTREPRENEURS**

Groups of origin	Well-classified	Misclassified	Total
Creation	97 (90,65%)	10 (9,35%)	107 (100%)
Non Creation	41 (89,13%)	5 (10,87%)	46 (100%)
Total	138 (90,20%)	15 (9,80%)	153 (100%)

Table 1 summarizes the model's confusion table and provides the total percentage of good rankings in each group. It shows that 90.65% of women in the start-up group and 89.13% of women in the non-start-up group are correctly classified by the model. The total number of well classified is 138 out of 153, i.e. a percentage of 90.20%, which underlines the excellent quality of the discriminant model.

**TABLE 2**  
**SIGNIFICANT METHODS OF THE FISHER'S LINEAR FUNCTION**

Variables		Discriminant Function Coefficient	Standard deviation	Coeff./Std. dev.
<b>Creation</b>				
N°	<i>Caption</i>			
1	More than 50 years	4.6637	0.2076	5.11**
2	Monogamous marriage	4.4437	0.3124	3.24*
2	Polygamous marriage	4.5568	0.2988	3.47*
3	More than 3 children	2.4749	0.2438	2.31*
4	Illiterate-primary	5.7087	0.1723	7.54**
<b>Non Creation</b>				
N°	<i>Caption</i>			
1	25 to 50 years	-1.9009	0.2211	-1.96*
1	Less than 25 year	-3.8992	0.5269	-1.68
2	Single	-8.0961	0.1691	-10.90**
2	Divorced	-7.2238	0.5444	-3.02*
3	From 1 to 3 children	-1.9325	0.2572	-1.71
3	No children	-2.1737	0.4321	-1.14
4	Secondary	-4.4761	0.5010	-2.03*
4	Higher Education	-9.7364	0.3138	-7.06**
	CONSTANT	3.897898		
D2 = 4.88835		T2 = 157.25777	p-value = 0.0001**	

Significance level  $\alpha$  : \*\* $\alpha \leq 1\%$  ; \* $\alpha \in ]1\% ; 5\%$ ]



Table 2 of the Fisher's linear function shows that the model as a whole is highly significant ( $p\text{-value} = 0.0001 < 1\%$ ) and that the four signaling variables introduced into the model are discriminative. It remains to be determined which modalities of these variables best differentiate and separate the two groups of women, in other words, which are the significant signage methods that characterize or favor the creation of activity and those that characterize the non-creation of activity. The significantly discriminating modalities (indicated by one or two stars) are those whose probability is less than or equal to the chosen risk of error = 5%. The sign of the coefficient of the discriminant linear function makes it possible to locate the characteristics of each group. Thus, we can conclude that women entrepreneurs who start their own business are older, married (monogamous or polygamous) with more than three children and have a primary or even illiterate level of education. As for the women who do not start their own business, they are single or divorced, between 25 and 50 years of age and have a higher or secondary level of education.

### **Discriminating Effects of Individual Characteristics on Creation in the “Administrative” Sectors**

Table 3 presents the distribution of the 107 women entrepreneurs according to the variable sector of creation reduced to two modalities by grouping the modalities “formal” and “large informal”. As before, we then applied a Fisher linear discriminant analysis on the qualitative explanatory variables of the individual characteristics theme.

**TABLE 3**  
**DISTRIBUTION OF THE SAMPLE ACCORDING TO THE TARGET VARIABLE TO BE DISCRIMINATED**

Sectoral creation	Number	Percentage
Formal or Large informal	40	37.38%
Small informal	67	62.62%
Total	107	100%

The objective is also to highlight the signage modalities that best differentiate and separate women entrepreneurs in the formal or large informal sector from those who create their activity in the small informal sector. The main results of this analysis, given in Appendix A4, show that the discrimination model is significant as a whole and of good quality with a percentage of well classified being 95.33%. There is therefore an effect of the entrepreneurs' identification on the sector of creation.

Among the four explanatory variables introduced in the model, only the marital status variable was not discriminating. No modality of this variable differentiates the two groups. Thus, being over 50 years old with at most three children and a secondary or higher level of education favors creation in the “formal” or “large informal” sectors. As for women entrepreneurs in the small informal sector, they are between 25 and 50 years old, have more than three children and a primary or illiterate level of education.

### **Discriminant Effects of Individual Characteristics on Creation in the “Administrative” Sectors Versus Non-Creation**

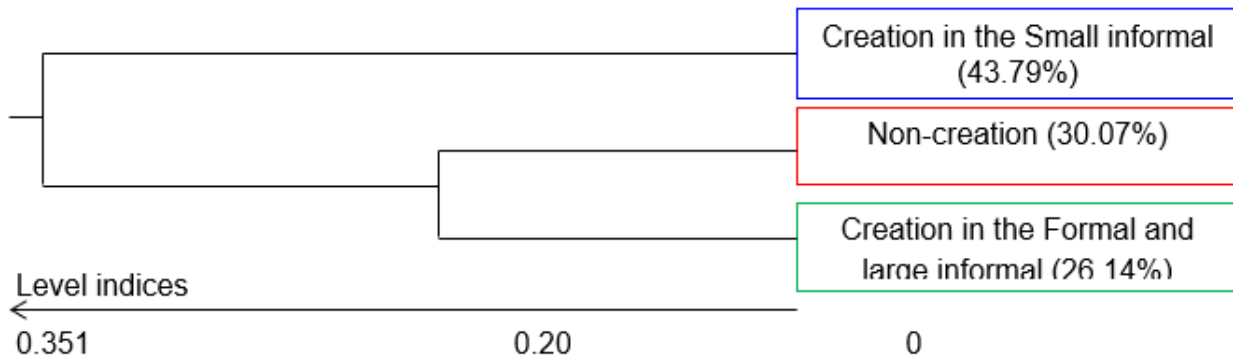
Table 4 presents the distribution of the 153 women interviewed according to the three-modality entrepreneurship variable.

**TABLE 4**  
**DISTRIBUTION OF THE SAMPLE ACCORDING TO THE TARGET VARIABLE**  
**TO BE DISCRIMINATED**

Entrepreneurship	Number	Percentage
Formal or Large-Informal	40	26.14%
Small Informal	67	43.79%
Non-creation	46	30.07%
Total	153	100%

In order to characterize and differentiate the three groups as well as possible, the proposed structural analysis is a Barycentric Discriminant Analysis (BDA) (Celeux and Nakache, 1994) designed to study the links between a target qualitative variable to be explained and a set of qualitative explanatory variables. This method consists of linking two analyses, namely a HAC on the principal components of the CFA (Benzecri, 1973) of a particular table: this one is a juxtaposition of contingency tables, with the three modalities of the entrepreneurship variable to be explained in rows, and all the modalities of the explanatory variables of the descriptive theme in columns.

**FIGURE 2**  
**HIERARCHICAL TREE OF ENTREPRENEURS AND NON-ENTREPRENEURS ACCORDING**  
**TO THEIR SIGNAGE**



The dendrogram in Figure 2 represents the hierarchical tree of the three groups of women according to their signage. Table A5 in the Appendix summarizes the main results of the statistical characterization of the groups.

The women who create in the formal or large informal sector (group 1) are older, live in a monogamous family with 1 to 3 children and have a secondary education. Non-creative women (group 2) are younger (less than 25 years old), single without children and with a higher education level. As for the women who create in the small informal sector (group 3), they differ from the other groups in that they are between 25 and 50 years old, live in a polygamous family with more than 3 children and are illiterate or with a primary level of education.

#### **Discriminant Effects of Motivations in the “Administrative” Sectors**

Table 4 presents the distribution of the 107 women according to the two-modality sectoral creation variable.

**TABLE 4**  
**DISTRIBUTION OF THE SAMPLE ACCORDING TO THE TARGET VARIABLE**  
**TO BE DISCRIMINATED**

Entrepreneurship	Number	Percentage
Formal or Large Informal	40	37,38%
Small Informal	67	62.62%
Total	107	100%

In order to characterize and differentiate the two creation sectors as well as possible, according to their motivations for creation, we carried out a DA on the 18 motivation score variables presented in appendix A6. This method amounts to linking two factorial analyses, i.e. a linear DA on the significant factors of the Principal Component Analysis (PCA) (Saporta, 2006) of the explanatory variables that motivates the female entrepreneurs in the creation process. Tables A7 in the appendix summarize the main results of the statistical characterization of the two groups.

The women who create in the formal or the large informal sector are motivated by both a pecuniary motivation (Make more money to be rich), altruistic motivations (Help the community in which I live, Ensure the well-being of my family), personal motivations (Take up a challenge, Be my own boss) but also motivations related to their professional and educational past (Escape from the frustrations suffered - previous job-, Take advantage of my training and my talents). These are diverse motivations that are rather conducive to the emancipation and mastery of their destiny.

The women who create in the small informal sector are motivated by tradition (To continue the family tradition; To take care of family and work affairs; To raise the status and prestige of the family); by family constraints (To establish my own work schedule); as well as subsistence constraints (Need of money to survive). These are prosaic motivations on the one hand and determined motivations on the other, reflecting an environment that is more endured than chosen.

### **Analysis of the Link Between Entrepreneurial Culture and Entrepreneurship**

Based on the variables from the questionnaire, we defined and explained the construction of new entrepreneurial culture variables (Appendix A8).

A typology was used to group the women interviewed into homogeneous classes according to the entrepreneurial culture theme. Specifically, a HAC was applied on the main factors of the MCA applied on the entrepreneurial culture variables. This HAC led to a better partition into four homogeneous classes. The table presented in Appendix A9 summarizes the main characteristics of these four entrepreneurial culture classes.

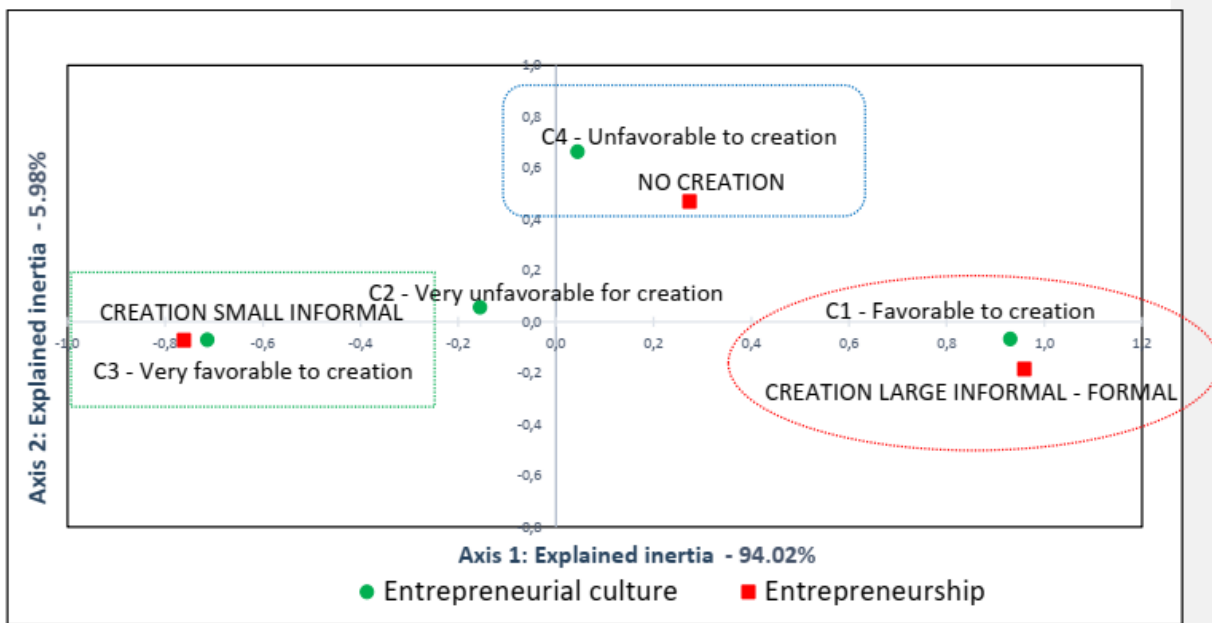
- Culture class 1, which we call “entrepreneurial culture favorable to creation”, includes 34.64% of the women entrepreneurs. These women do not have anyone in their immediate family circle (apart from their parents or husband) who has owned a business. They do not consider it necessary to have a family entrepreneurial subculture for starting a business. They recognize a positive evolution in society’s view/perception of women entrepreneurs.
- Culture 2 class, an “entrepreneurial culture that is very unfavorable to creation”: the 16.99% of women in this class have a very negative perception of the Senegalese society with respect to women who carry out an entrepreneurial activity and have unemployed parents.
- Culture class 3, called “entrepreneurial culture”, is very favorable to creation. It includes 41.83% of women who have someone in their family who has already owned a business or has a business. They believe in the necessity of having an entrepreneurial subculture for starting a business. They recognize a positive evolution in society’s perception of women entrepreneurs and live with a husband who is an employee or entrepreneur.

- The culture class 4 is made up of 6.54% of women whose profile is qualified as an “entrepreneurial culture that is unfavorable to creation”: the women entrepreneurs of this class have entrepreneurial parents and live with working class husbands.

In order to analyze the link between entrepreneurial culture and entrepreneurship, we conducted a CFA on the contingency table, crossing the entrepreneurship variable and the summary variable of entrepreneurial culture from the HAC.

In order to describe *a posteriori* the significant links characterized by the modalities of the two active variables of entrepreneurial culture and entrepreneurship, we consider a wide range of so-called illustrative or supplementary variables that allow for a better understanding of the specific characteristics of the women that constitute these links. These variables are likely to provide additional information to consolidate and enrich the interpretation of these links characterized by the two active variables. They are positioned and projected as additional variables in the CFA of the active variables. They do not in any way influence the determination of the links, but they can possibly bring an external interpretation to these links. We consider all explanatory variables presented in the table in Appendix A2 as illustrative variables. The main results of this analysis are reported in Appendix A10.

**FIGURE 3**  
**GRAPHICAL REPRESENTATION OF THE LINKS ON THE FIRST FACTORIAL PLANE**



The CFA leads to two factorial axes representing all the information to be summarized, that is, the dependence between entrepreneurship and entrepreneurial culture of women in Dakar. The hypothesis of independence is obviously rejected since the  $p\text{-value} = 0.001 < = 5\%$ . We can therefore conclude that there is a significant relationship between these two variables. The three strong links between the two variables are illustrated in Figure 3.

The first factorial axis, which summarizes 94.02% of the dependence, contrasts women with an entrepreneurial culture that is favorable to the creation in the formal sector or the informal sector to the women with a culture that is very favorable to the creation in the informal sector.

The former are women over 50 years of age, with a secondary level of education and one to three dependent children, from the central or south-eastern regions of Senegal, who live in downtown Dakar, married to an entrepreneur or an employee, and who have wage-earning parents and were wage-earners before starting their business. They have not received entrepreneurial training, have not had access to

microfinance institutions to get started, do not belong to women's networks and do not consider the existence of an entrepreneurial subculture necessary for starting their activities. They consider that Senegalese society has a positive perception/view of women entrepreneurs.

For the second group, they were married polygamists, aged between 25 and 50, with a primary education or even illiterate, having more than three children, from the northwestern region of Senegal, living in the suburbs of Dakar or Dakar West, with an unemployed husband and parents who are either unemployed, employees, workers or entrepreneurs. They had received entrepreneurial training and were unemployed or housewives before starting their business. These women consider the existence of an entrepreneurial subculture as necessary for starting an activity in the informal sector. They have access to microfinance institutions and this is facilitated by their membership in women's networks. They tend to think that society has a negative perception of women's entrepreneurship, and most of them have created businesses in the service, trade, craft industry or construction sector.

As for the second factorial axis, it summarizes 5.98% of the dependence and characterizes non-entrepreneurial women with an entrepreneurial culture that is unfavorable to the creation of businesses; they are rather young, single or divorced without children, with a higher level of education and still studying, with a salaried husband and parents who are entrepreneurs or salaried. They come from the central or southeastern regions of Senegal and live in central Dakar. They consider that the Senegalese society has a negative perception of women entrepreneurs. These women, due to the fact that they live in a family with parents who are entrepreneurs in the informal sector with low yields, and with their high level of education, tend to negatively evaluate entrepreneurship and prefer to look for formal employment.

## **SUMMARY AND DISCUSSION**

Considering creation alone, the analysis showed that creation in the formal sector or in the large informal sector (which has all the characteristics of the formal sector) requires a certain level of human capital. Women entrepreneurs in the formal or large informal sector are better educated, older, and therefore very experienced in their field. They live in monogamous families with less than 3 children. Their husband often being their primary moral and financial partner. In these monogamous families there is a strong conjugal cooperation. The husband, often a salaried employee or entrepreneur, puts his experience and financial support at the service of his wife. Their motives are therefore to emancipate themselves and control their destinies.

Women in the small-scale informal sector differ from those in the formal or large-scale informal sector in their low level of human capital. Women creators in the small informal sector are most often illiterate, live in polygamous families with several children, and face increasing financial and family burdens. In polygamous families, where they live, competition between co-wives and the husband's disengagement from the children's education and welfare mean that they are called upon to contribute more and more to the family's burdens. The small-scale informal sector offers the flexibility they seek to combine work and household responsibilities (Roberts, 1989). Women in the small-scale informal sector also belong to local and traditional women's networks (Guérin, 2002). These are personal networks or strong ties, made up of close family, friends or relatives, which are very useful for starting their activities in a context of scarcity and uncertainty (Fillion, 2008). These networks, along with their low level of education and inaccessibility to formal networks or their desire to stay away from them (Formal network) (Simen, 2020), allow them to have the human and financial resources necessary to run their businesses (Ferrier, 2002). However, the motivations reflect an environment that is more endured than chosen. Despite all, this does not prevent certain innovations since innovation is also the result of constraint and not just a fruit of research. For example, the activity of one of the small-scale informal businesses consisted of making soap with high added value, since it was made from the shell of peanuts, which is an almost free raw material. Another enterprise manufactured natural bleach from white vinegar and bicarbonate soda as well as natural perfumes. Both products were very successful in the market.

Non-creative women are often young, single, college-educated, and have ambitions to hold a formal job in the public or private sector. They prioritize a professional career over a family life and consider marriage and children as a constraint.

The potential Senegalese woman entrepreneur therefore most often has a low level of human and financial capital but a very high level of social capital, through membership in different groups and through membership in a family of entrepreneurs, this social capital is at the heart of the creation process. These groups are often anchored on cultural values where the role of women remains very important. They can evolve to become economic interest groups (EIGs) and have lucrative activities. Women's assessment of self-employment in Senegal is mostly positive, even though they are often "pushed" rather than "pulled" into starting a business. This is the case when they have no other choice or avenue for earning a living. The entrepreneurial culture will then explain the different modalities of the chosen sector of activity (small informal, large informal and formal).

The results of the analysis on the link between entrepreneurial culture and entrepreneurship show that the women belonging to the entrepreneurial culture class that is favorable to creation launch their activity in the large informal or formal sector. These are women who have a very favorable perception of entrepreneurship, linked to their level of education and their experiences. They consider that women "entrepreneurs" are well perceived in society and occupy privileged positions. For these women, creating a business reflects their need for freedom, their taste for risk, their personal fulfillment and their concern for independence (Gabarret and Vedel, 2015).

The results then show that women belonging to the unfavorable and very unfavorable entrepreneurial culture classes do not go into business. These women consider that female entrepreneurship is very poorly viewed by the Senegalese society. They are often college graduates and prefer to work as employees, with this [according to them] being better appreciated by the society.

Finally, the results show that women who belong to the entrepreneurial culture that is very favorable to entrepreneurship launch their activities in the small informal sector. These are women who live in an environment with a very strong entrepreneurial subculture (entourage that has or has had activities in the informal sector). They most often start their activities by relying on the experience and help of their entourage. They recognize a positive evolution in society's perception of women entrepreneurs. The motivations of these women to create [businesses] in the informal sector are mainly linked to necessity. They have difficulty accessing a formal job market (they have no diploma), they have limited know-how and are socially disadvantaged when they have single parents and when they are married in a polygamous household (Gabarret and Vedel, 2015). The informal sector provides a favorable setting for these women to conduct income-generating economic activity to provide for their needs. When the spouse is no longer there or no longer has the income to support the household, entrepreneurship becomes a means of survival (Guerin, 2002).

## CONCLUSION

The purpose for this work was to research the characteristics of female entrepreneurship in Dakar, Senegal. We show that it is judicious to distinguish entrepreneurship in the formal sector from entrepreneurship in the informal sector. Indeed, these two types of entrepreneurship do not respond to the same determinants and the hypotheses posed are validated:

- The woman creator in the formal sector or in the large informal sector is qualified, is of advanced age and lives in a monogamous family with less than 3 children, while benefitting from a strong marital cooperation. Her high level of human capital facilitates access to the information and resources needed to start a business. She has an entrepreneurial culture that is favorable to creation and entrepreneurship is a response to her need for empowerment and independence.
- The woman entrepreneur in the small informal sector is illiterate, married, lives in a polygamous family with several children and faces significant financial burdens. She has a great informal entrepreneurial culture that is linked to her socio-cultural environment which is very favorable to the entrepreneurial process in the informal sector. The low level of human capital and the high level

of social capital which she has have a positive effect on the launching of her activity in a sector where businesses require little capital to exist. Her motivations are determined by her social status and partly constrained by her financial needs.

The results obtained confirm the hypothesis that in developing countries with a large informal sector, the entrepreneurial culture and social capital available to women favor entrepreneurship in the informal sector. Even if this engagement is partly predetermined by the resumption of a family activity and driven mainly by necessity, it remains essential in loosely structured economies whose economy is, as GEM calls it, driven by the factors of production. In these economies, companies that can offer stable salaried jobs are in the minority, and the prevailing rule is to create one's own activity.

The qualities attributed to women, especially to their use of team spirit and collective skills, their ability to manage in the long term, combined with this "resourcefulness" that is linked to the informal sector, can be mobilized in Western economies to face the new environmental challenges. Indeed, in our relationship with natural resources, the example of Senegalese women allows us to think in terms of long-term management, development and sustainability, rather than in terms of exploitation, maximization and immediate profit (Weiss d'Anglade, 2014). Haidar El Ali, former Senegal's Minister of Ecology, recently appointed to head the National Agency for Reforestation, illustrates action rather than talking. "In any country, you can find people on the ground with real solutions for the planet. They must be able to live from what they do for nature". With his association he replanted more than 152 million mangrove trees to preserve the Senegalese mangrove ecosystem by raising awareness and mobilizing local populations (Laplace, 2020).

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## ENDNOTES

1. The Global Entrepreneurship Monitor (GEM) project is an annual assessment of entrepreneurial activity, aspirations, and attitudes of individuals in a wide range of countries. Launched in 1999 as a partnership between the London Business School and the Babson College, the first study covered 10 countries; since then, nearly 100 national teams from all parts of the world had participated in the project, which continues to grow each year. <http://www.gemconsortium.org/What-is-GEM>
2. The total rate of early-stage entrepreneurial activity (TEA) is defined as the percentage of individuals between the ages of 18 and 64 who have been actively involved in starting a business or running a business for less than 42 months.
3. GEM studies bring together countries according to their primary growth driver: factor-driven economies for the less developed, efficiency-driven economies for the middle class, and innovation-driven economies for the more developed.
4. Although the GDP growth rate may appear relatively high compared to developed countries, very high population growth negates the gains in GDP/capita.
5. The model of the Senegalese "entrepreneur" can then be illustrated by the theory of effectuation (Sarasvathy, 2001), it emphasizes the entrepreneurial culture and the "resourcefulness" of African women in a constrained developing economy.
6. <https://wia-initiative.com/>
7. Information System on New Enterprises
8. Argument given by the Normandy delegate for equal opportunities
9. Comparison by Franck Lasch, (Professor of Entrepreneurship, Montpellier Business School), to the situation in Germany
10. Marrakech, September 28, 2018.
11. It can be noted that a number of recent actions are being implemented to reduce gender inequalities. The priority actions of the Plan for an Emerging Senegal (PES) (2019-2023) integrate gender for an inclusive, equitable or equal participation of actors in the development process. In addition, the National Strategy on Gender Equity and Equality II (SNEEG) has established a national reference framework for sectoral gender

policies. Having been validated in 2005, then updated in 2015, for a time span ranging from 2016-2026, it aims at “contributing towards making Senegal an emerging country with a society based on the rule of law, without discrimination, where men and women have the same opportunities to participate in its development and to enjoy its growth.”

12. Senegal has created a Ministry dedicated to Microfinance and the Social and Solidarity Economy, whose priority target is women. To facilitate access to credit and strengthen women’s entrepreneurship, the government has also set up various funds. However, the negative perception of formal networks encourages Senegalese women entrepreneurs to favor informal networks that are less restrictive and based on trust.
13. A step-by-step optimization method that consists in aggregating at each iteration the groups whose aggregation causes the least loss of inter-class inertia or, alternatively, in order to have a minimum gain in intra-class inertia.
14. UFCE: Union des Femmes Chefs d’Entreprises ; FDEA: Femme Développement Entreprise Afrique ; COCOGES: Collectif des Femmes Commerçantes des Groupements Economiques Sénégalais ; AFEPEPES: Association des Femmes pour la Promotion de l’Entreprise au Sénégal ; FP2A: Fédération des Professionnels de l’Agro-Alimentaire ; UGFPE: L’Union des Groupements Féminins de Pikine-Est.

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## APPENDICES

### A1 - Surveys

The first questionnaire was administered in the Dakar region from December 19, 2011 to February 17, 2012 based on a directory of women's associations made available by the Ministry of Women, Family and Women's Entrepreneurship. Seven structures were selected, in proportion to the demographic weight of each department, three (3) in the department of Pikine, two (2) in the department of Dakar, one (1) in the department of Rufisque, and one (1) in the department of Guédiawaye. The total membership of the seven structures, which are UFCE, FDEA, UGFPE, AFEPEs, COCOGES, FP2A, and RAFAO is 1388<sup>14</sup>.

Two quotas were respected:

- the percentage of each structure in the parent population. For example, the UGFPE represents 36% of the population, so its membership in the sample is 38 women out of the 107 women interviewed, which is about the same percentage.
- The composition between the formal and informal sectors. For example, for FDEA, which is composed of 20% women in the formal sector and 80% women in the informal sector, the sample size is 5 in the formal sector and 19 in the informal sector.

The following table highlights our methodology:

**TABLE A1-1**  
**QUOTA SAMPLING**

Structures	Number	% Num. Parent Pop.	Num. in Sample	% SF	Num. SF	% SI	Num. SI
UFCE	125	9%	10	25%	3	75%	7
FDEA	300	22%	24	20%	5	80%	19
UGFPE	495	36%	38	10%	4	90%	34
AFEPEs	200	14%	15	25%	4	75%	11
COCOGES	107	8%	9	20%	2	80%	7
FP2A	61	4%	4	15%	1	85%	3
AFAO	100	7%	7	25%	2	75%	5
<b>TOTAL</b>	<b>1388</b>	<b>100%</b>	<b>107</b>		<b>21</b>		<b>86</b>

The choice was made to conduct the survey on 8% of this population. We therefore contacted 111 women but only 107 responses proved to be usable. 5 questionnaires were invalidated because of retraction

and non-finalization of the questionnaire and also because of important inconsistencies during the counting of the results.

The classification of respondents according to “administrative” sectors was done according to the classification of Nancy Benjamin et al, (2012).

**TABLE A1-2**  
**DEFINITION OF FORMAL, LARGE INFORMAL AND SMALL INFORMAL SECTORS**

	<b>Formal</b>	<b>Large Informal</b>	<b>Small Informal</b>
<b>Regular payment of income tax</b>	Yes	At times	Very rarely
<b>Keeping honest accounts</b>	Yes	No	Very rarely
<b>Registered</b>	Yes	Yes	A few times
<b>Turnover exceeding 50 million CFA francs</b>	Yes	Yes	No
<b>Fixed premises</b>	Yes	Yes	No
<b>Eligibility for bank loans</b>	Yes	Yes	No
<b>Level of formality</b>	6	4-5	0-3

Source : Nancy Benjamin et al, 2012

A second field survey of 55 non-creation women took place from July 14 to July 30, 2014 under the same conditions, within the established criteria of geographic space. It should be noted that the method of dissemination of our questionnaire was direct interview. The questionnaires were completed by the women in our presence. In order not to bias the answers, we explained to the women the purpose of the survey, which is purely academic, guaranteeing the confidentiality of the data collected.

## **A2 - Dictionary of Variables**

### *List of Selected Explanatory Variables*

- 1 Age (AGEB)  
- Under 25 years old - 25 to 50 years old - Over 50 years old
- 2 Marital status (CSITMATB)  
- Single - Married Monogamous - Married Polygamous - Divorced - Widowed/Other
- 3 Number of children (DNENENFB)  
- No children - 1 to 3 children - More than 3 children
- 4 Level of education (GNIVEUDB)  
- Higher - Secondary - Primary / Illiterate
- 5 Membership in women’s networks (RAGIEGPF)  
- Yes - No
- 6 Access to Microfinance Institutions (QACIMF)  
- Yes - No
- 7 Experience/Training in the creative sector (HFORENT)  
- Yes - No
- 8 Society’s perception by the entrepreneur (NREGSOC)  
- Positive - Negative
- 9 Entrepreneurial family affiliation (LAPFENT)\*  
- Yes - No
- 10 Need for an entrepreneurial culture (MCULTENT)\*
- 11 Parents’ activity (EACTPARB)  
- Employed - Entrepreneur - Worker/farmer - Unemployed
- 12 Husband’s activity (FACTMARIB)  
- Employee - Entrepreneur - Worker/farmer - Unemployed

- 13 Situation before creation (JSIAVCREAB)  
 - employee - Studying - Unemployed/housewife/Other
- 14 Region of origin in Senegal (AREGORGB)  
 - Central region - South-East - North-West
- 15 Place of residence in Dakar (BLOCENTB)  
 - Suburbs of Dakar - Central Dakar - West Dakar
- 16 Fields of activity (IDOMACTB)  
 - Commerce - Industry and handicrafts - Services – Construction (BTP)
- \* See the annex A8 for the construction of the variable

List of selected variables to be explained

- 17 “Administrative” Sectors  
 - Formal - Large Informal - Small Informal - Not created
- 18 Creation of activity  
 - Yes creation - No creation
- 19 Entrepreneurship,  
 - Creation Formal or Large Informal - Creation Small Informal - No creation

### A3 - Descriptive Statistics

**TABLE A3-1**  
**DISTRIBUTION OF THE SAMPLE ACCORDING TO THE CREATION OF A BUSINESS**

Creation	Number	Percentage
Yes creation	107	69.93%
No creation	46	30.07%
Total	153	100%

**TABLE A3-2**  
**DISTRIBUTION OF THE SAMPLE ACCORDING TO THE SECTOR OF CREATION**

Sectors	Number	Percentage
Formal (SF)	21	13.73%
Large -informal (SGI)	19	12.42%
Small Informal (SPI)	67	43.79%
Non-creators	46	30.07%
Total	153	100%

#### A4 - Results of the Fisher Discriminant Analysis

**TABLE A4-1  
PERCENTAGE OF WOMEN ENTREPRENEURS' RANKINGS ACCORDING TO THE  
SECTORS IN WHICH THEY SET UP THEIR BUSINESS (FORMAL AND LARGE  
INFORMAL/SMALL INFORMAL)**

Groups of origin	Well classified	Poorly classified	Total
Formal and Large Informal	39 (97,50%)	1 (2,50%)	40 (100%)
Small Informal	63 (94,03%)	4 (5,97%)	46 (100%)
Total	102 (95,33%)	5 (4,67%)	107 (100%)

**TABLE A4-2  
FISHER LINEAR FUNCTION RECONSTRUCTION**

Variables		Coeff. Discriminant function	Standard deviations	Coeff./Standard deviation
<b>Creation in the Formal or Large Informal</b>				
N°	Caption			
1	less than 25 years old	5.7853	1.1874	0.56
1	over 50 years old	16.9297	0.1777	10.94**
2	Single	3.3066	0.6426	0.59
2	Divorced	2.3754	0.6182	0.44
2	Married monogamous	1.8955	0.2732	0.80
3	From 1 to 3 children	16.0411	0.2499	7.37**
3	No children	13.3950	0.5383	2.86*
4	secondary	14.3216	0.5979	2.75*
4	Higher education	11.6133	0.5683	2.35*
<b>Creation in the Small Informal</b>				
N°	Caption			
1	25 to 50 years old	-12.7044	0.1203	-12.13**
2	Polygamous married	-2.8521	0.2355	-1.39
3	More than 3 children	-13.3748	0.1073	-14.31**
4	Illiterate - Primary	-3.9039	0.1212	-3.70*
	CONSTANT	-6.966320		
D2 = 13.80364		T2 = 345.73593	p-value = 0.001**	

Significance level  $\alpha$ : \*\* $\alpha$  1%; \* $\alpha$  ]1%; 5%]

### A5 - Barycentric Discriminant Analysis

Results		Variable to be discriminated		
		Entrepreneurship		
Barycentric Discriminant Analysis		Group 1	Group 2	Group 3
		Creation Large Informal - Formal	No Creation	Creation Small Informal
Number (%)		40 (26.14%)	46 (30.07%)	67 (43.79%)
Discriminant variables Signage Theme	Discriminating modalities	Over 50 years old Monogamous married Secondary From 1 to 3 children	Less than 25 years old Single Higher education No children	25 to 50 years old Polygamous married More than 3 children Illiterate - Primary

### A6 - Motivation Variables for the Creation

What are the motivations that led you to create your business among the motivations listed in the following table? Give a score from 1 to 5 with: 1=not great at all; 2=not very big; 3=somewhat great; 4=fairly great; 5=very great

1. Being my own boss (INDEP 1)
2. Being free with regards to my work (INDEP 2)
3. To set my own work schedule (INDEP 3)
4. To be financially independent (INDEP 4)
5. Continue the family tradition (REC SOC 1)
6. To be more influential in one's community (REC SOC 2)
7. To raise the status and prestige of the family (REC SOC 3)
8. To take care of family and work affairs (REC SOC 4)
9. Take on a challenge (REAL 1)
10. Following the example of someone I admire (REAL 2)
11. Take advantage of my education and talents (REAL 3)
12. To leave the unemployed situation (EVAS 1)
13. Escape the frustrations of my previous job (glass ceiling) (EVAS 2)
14. Need of money to survive (ARG 1)
15. Make more money to become rich (ARG 2)
16. Provide for my family (ALT 1)
17. Help the community in which I live (ALT 2)
18. Ensure the future of my children (ALT 3)

### A7 - Results of Fisher's Discriminant Analysis

**TABLE A7-1**  
**PERCENTAGE RANKINGS OF WOMEN ENTREPRENEURS BY THE SECTORS IN WHICH THEY START (FORMAL AND LARGE INFORMAL/SMALL INFORMAL)**

Groups of origin	Well classified	Poorly classified	Total
Formal and Large Informal	33 (82,50%)	7 (17,50%)	40 (100%)
Small Informal	20 (70,10%)	47 (29,85%)	67 (100%)

Total	53 (74,77%)	54 (25,23%)	107 (100%)
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**TABLE A7-2  
RECONSTITUTION OF THE FISHER LINEAR FUNCTION**

Variables	Discriminant function coeff.	Standard deviation	Coeff./ Std dev.
<b>Creation in the Formal or Large Informal</b>			
M11-Being my own boss	0.211	0.030	2.300*
M14-Being financially independent	0.043	0.014	1.027
M31-Taking on a challenge	0.447	0.032	4.597**
M32-Following the example of someone I admire	0.124	0.027	1.525
M33-To take advantage of my education and talents	0.259	0.040	2.147*
M42-Ending the frustrations of my previous job	0.122	0.018	2.291*
M52-Making more money to become rich	0.384	0.026	4.858**
M61-To provide for my family	0.250	0.019	4.350**
M62-Helping the community in which I live	0.146	0.011	4.342**
M63-Providing for my children's future	0.033	0.010	1.043
<b>Creation in the Small Informal</b>			
M12-To be free with my work	-0.079	0.027	-0.944
M13- To set my own work schedule	-0.289	0.025	-3.818**
M21-Continuing the family tradition	-0.322	0.021	-5.141**
M22-To have more influence in my community	-0.041	0.030	-0.452
M23-To elevate family status and prestige	-0.323	0.027	-3.980**
M24-To take care of family and work affairs	-0.403	0.026	-5.021**
M41-Breaking free from the jobless situation	-0.076	0.019	-1.325
M51-The need of money to survive	-0.365	0.032	-3.718**
CONSTANT	-2.620		
D2 = 2.09496      T2 = 52.47185      p-value = 0.001**			

Significance level  $\alpha$  : \*\* $\alpha$  1%; \* $\alpha$  ]1%; 5%]

### A8 - Explanation of the Entrepreneurial Culture Variables

The variable LAFENT (membership in an entrepreneurial family), is created from the following two questions:

1- Does any member of your immediate circle own or have owned a business?

1. Yes       2. No

2- If yes, who is it\*? You can check several answers

1. Father       2. Mother       3. Father and mother  
 4. Elder sister(s)       5. Brother(s)       6. My co-wives  
 7. My aunts       8. My husband       9. Others to be specified

\*It represents the *family entrepreneurial environment*.

The MCULTENT variable is an opinion on the necessity of having a family entrepreneurial culture to get started. It is created from the following question:

Is the existence of a family entrepreneurial culture a determining factor in the creation of your business? (MCULTENT)

1. yes       2. No



Some who have an entrepreneurial entourage - either parents or close relatives - may nevertheless answer no.

**A9 - Typology (CAH) Entrepreneurial Culture In 4 Classes of Women Entrepreneurs**

V.TEST	PROBA	Culture class 1 - Entrepreneurial culture that is favorable to creation			MODALITIES	WEIGHT
		PERCENTAGE		GLOBAL		
		CLA/MOD	MOD/CLA	GLOBAL	CHARACTERISTICS OF THE VARIABLES	
				34.64	Class 1/4	53
8.76	0.000	68.49	94.34	47.71	Non-LAPFENT	73
7.32	0.000	61.54	90.57	50.98	Non-MCULTENT	78
4.60	0.000	88.24	28.30	11.11	Entrepreneur-FACTMARIB	17
3.05	0.001	38.41	100.00	90.20	positive perception	NREGSOC
2.08	0.019	42.35	67.92	55.56	Employee-EACTPARB	85
1.98	0.024	51.61	30.19	20.26	Employee-FACTMARIB	31
-1.88	0.030	0.00	0.00	5.23	Entrepreneur-EACTPARB	8
-2.42	0.008	6.25	1.89	10.46	Unemployed-EACTPARB	16
-3.05	0.001	0.00	0.00	9.80	negative perception	NREGSOC
-7.24	0.000	1.72	1.89	37.91	Unemployed-FACTMARIB	58
-7.32	0.000	6.67	9.43	49.02	Yes-MCULTENT	75
-8.76	0.000	3.75	5.66	52.29	Yes-LAPFENT	80

V.TEST	PROBA	Class Culture 2 - Entrepreneurial culture that is very unfavorable to creation			MODALITIES	WEIGHT
		PERCENTAGE		GLOBAL		
		CLA/MOD	MOD/CLA	GLOBAL	CHARACTERISTICS OF THE VARIABLES	
				16.99	Class 2/4	26
7.49	0.000	100.00	57.69	9.80	negative perception	NREGSOC
7.13	0.000	93.75	57.69	10.46	Unemployed-EACTPARB	16
-1.71	0.044	11.76	38.46	55.56	Employee-EACTPARB	85
-1.82	0.035	0.00	0.00	11.11	Entrepreneur-FACTMAR	17
-3.01	0.001	2.38	3.85	27.45	Worker-EACTPARB	42

-7.49	0.000	7.97	42.31	90.20	positive perception	NREGSOC	138
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Culture class 3 - Entrepreneurial culture that is very favorable to creation							
V.TEST	PROBA	PERCENTAGE			MODALITIES		WEIGHT
		CLA/MOD	MOD/CLA	GLOBAL	CHARACTERISTICS OF THE VARIABLES		
				41.83	Class 3/4		64
8.70	0.000	73.75	92.19	52.29	Yes-LAPFENT	LAPFENT	80
7.51	0.000	72.00	84.38	49.02	Yes-MCULTENT	MCULTENT	75
6.24	0.000	74.14	67.19	37.91	Unemployed-FACTMARIB	FACTMARIB	58
3.58	0.000	46.38	100.00	90.20	positive perception	NREGSOC	138
2.54	0.006	59.52	39.06	27.45	Worker/Farmer-EACTPARB	EACTPARB	42
-2.28	0.011	22.58	10.94	20.26	Employee-FACTMARIB	FACTMARIB	31
-2.28	0.011	0.00	0.00	5.23	Entrepreneur-EACTPARB	EACTPARB	8
-2.53	0.006	11.76	3.13	11.11	Entrepreneur-FACTMARIB	FACTMARIB	17
-3.58	0.000	0.00	0.00	9.80	negative perception	NREGSOC	15
-3.74	0.000	0.00	0.00	10.46	Unemployed-EACTPARB	EACTPARB	16
-7.51	0.000	12.82	15.63	50.98	Non-MCULTENT	MCULTENT	78
-8.70	0.000	6.85	7.81	47.71	Non-LAPFENT	LAPFENT	73

Class Culture 4 - Entrepreneurial culture that is unfavorable to creation							
V.TEST	PROBA	PERCENTAGE			MODALITIES		WEIGHT
		CLA/MOD	MOD/CLA	GLOBAL	CHARACTERISTICS OF THE VARIABLES		
				6.54	Class 4/4		10
6.75	0.000	100.00	80.00	5.23	Entrepreneur-EACTPARB	EACTPARB	8
1.93	0.027	20.00	40.00	13.07	Worker-EACTMARIB	EACTMARIB	20
-1.80	0.036	0.00	0.00	27.45	Worker-EACTPARB	EACTPARB	42
-3.54	0.000	0.00	0.00	55.56	Employee-EACTPARB	EACTPARB	85

## A10 - CFA Summary - Links Between Entrepreneurship and Entrepreneurial Culture

		Entrepreneurial Culture				
		Culture 1	Culture 2	Culture 3	Culture 4	Overall
Entrepreneurship	Creation Large informal - Formal	32	5	2	1	40
		80,0	12,5	5,0	2,5	100,0
		60,4	19,2	3,1	10,0	26,1
	Creation Small Informal	1	13	50	3	67
		1,5	19,4	74,6	4,5	100,0
		1,9	50,0	78,1	30,0	43,8
	No Creation	20	8	12	6	46
		43,5	17,4	26,1	13,0	100,0
		37,7	30,8	18,8	60,0	30,1
	Overall	53	26	64	10	153
		34,6	17,0	41,8	6,5	100,0
		100,0	100,0	100,0	100,0	100,0

Number of theoretical employees < 5	3	Value of the Chi-2 independence test statistic	84,093
Number of degrees of freedom	6	Significance level: P-value	0,001**

Significance level  $\alpha$ : \*\* $\alpha \leq 1\%$ ; \* $\alpha \in ]1\% ; 5\%$ ]

Description		Entrepreneurship		
		Creation in the Large Informal - Formal	No Creation	Creation Small Informal
Number (%)		40 (26.14%)	46 (30.07%)	67 (43.79%)
Entrepreneurial Culture	Profile (+)	+ Culture 1	+ Culture 4	+ Culture 3
	Anti-Profile (-)	- Culture 3		- Culture 1
Illustrative variables	Signage/descriptive	Over 50 years old Married monogamous From 1 to 3 children Secondary education	Less than 25 years old Single Divorced No children Higher education	25 to 50 years old Polygamous married Monogamous married More than 3 children illiterate-primary
	Place of residence in Dakar	Central Dakar	Central Dakar	Suburbs of Dakar Dakar West
	Region of Senegal	Central region Southeast	Central region Southeast	Northwest
	Experience Informal/Training	No	No	Yes

	Belonging to an entrepreneurial Family	No	No	Yes
	Situation before creation	Employee	Still in school	Unemployed/housewife/other
	Membership in women networks	No	No	Yes
	Access to Micro finance institutions	No	No	Yes
	Entrepreneurial culture	No	No	Yes
	Perception of the Society	Positive perception	Negative perception	Negative perception
	Fields of activity	Non Construction	Not concerned	Services, Commerce, Industry & Handicraft, Construction
	Husband's activity	Entrepreneur Employee	Employee	Unemployed, Worker/Farmer
	Parents' activity	None Unemployed, No Employee, No Entrepreneur, No Worker/farmer	Entrepreneur Employee	Unemployed, Employee, Entrepreneur, Worker/farmer