# Determinants of the Sustainability of Congolese VSEs and SMEs: A Cross-Sectional Analysis

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**Abstract**

*The purpose of this study is to analyse the factors that can influence the sustainability of very small businesses (VSEs) and small and medium-sized enterprises (SMEs) in the Congo.*

*Double least squares are the method used, based on census data from the Ministry of Small and Medium-sized Enterprises, Crafts and the Informal Sector and the National Institute of Statistics.*

*The results obtained show that the amount of capital invested, greater than or equal to five million CFA francs, has a positive influence on the duration of activity of Congolese VSEs and SMEs.*

*The results of our estimates may seem uncertain, as they do not allow us to identify the key factors that enable businesses to be sustainable. Similarly, how can the lack of an entrepreneurial culture, which is criticised in African countries, be considered when analysing sustainability.*

## I. Introduction

In September 2015, the United Nations adopted, in its Agenda 2030, seventeen (17) Sustainable Development Goals (SDGs) covering virtually the entire range of societal issues and the future of humanity. One target of one of the goals (SDG 8) gives major importance to the development of very small enterprises and small and medium-sized enterprises (VSEs and SMEs). The international community thus recognises the importance of VSEs and SMEs in an economy, and therefore the need for them to be sustainable. According to the ILO (2015, p. 3), small businesses play a decisive role in job and income creation and provide two-thirds of the world's formal jobs. According to the OECD (2000, p. 1), SMEs account for more than 95% of all businesses, 60-70% of employment and create a large proportion of new jobs in OECD economies [1].

There are more than 2.3 billion people working either in SMEs or on their own account. Small business units alone account for 70% of total employment, making them by far the biggest drivers of employment (0IT, 2022). According to the SME category (micro, small and medium), Eurostat (2022) estimates that the

proportion of companies in the non-financial sector in 2021 was respectively: 95.5%, 3.9% and 0.6% in Belgium; 83.8%, 14.1% and 2.1% in Germany; 94.8%, 4.5% and 0.7% in France; 87.9%, 10.0% and 2.1% in Luxembourg and finally 96.0%, 3.3% and 0.7% in the Netherlands.

Although VSEs and SMEs are essential elements of the economic dynamic in developing countries in general and in African countries in particular, no particular attention is paid to the collection and analysis of data centred on questions relating to the dynamism, capacity to grow and/or the weight of certain obstacles to the sustainability of these businesses. In African countries, surveys, especially household surveys, are used to provide information on the activities of VSEs and SMEs. In the Congo, there have only been two major household surveys, in 2005 (ECOM 1) and 2011 (ECOM 2). This situation makes it difficult to analyse changes in business survival rates. In 2017, the Ministry in charge of SMEs and the National Institute of Statistics (INS) counted 4,179 VSEs and 5078 SMEs, representing 83% of all Congolese businesses. However, the contribution of these businesses to gross domestic product (GDP)

is well below average. It is estimated at less than 20%, whereas it can be as high as 60%. [2]. These surveys are often difficult to compile. Some VSEs are not very visible or are hidden, thus compromising the exhaustiveness of the surveys, which requires regular monitoring of a sample of VSEs and SMEs over time.

According to Eurostat (2022), for companies in creative activities with employees, the disappearance rate in 2020 is 0.8 for Belgium, 8.2 for Germany, 11.9 for France and 8.3 for the Netherlands. The rate for Luxembourg in 2018 is 7.4. Most of the businesses that disappear are newly created. In Quebec, for example, in 2008 only 35% of businesses had been in existence for more than five years. One year after their creation, the survival rate was 75.4%. This falls to 48.2% three years later. In France and in all other European countries, only half of newly created businesses are still in operation after five years (Eurostat. 2022).

According to INSEE (2021, p. 1), in 2019, 61% of traditional businesses created five years earlier are still active. However, companies are more sustainable than sole proprietorships. Five years after their creation, 67% of companies are still active, compared with 53% of sole proprietorships, i.e. excluding the autoentrepreneur scheme. In 2015, the survival rate of small businesses in Cameroon was 28%, compared with 35% in Senegal in 2016 [3]. In Congo, of the small businesses created, less than 30% have been in existence for only 1 to 5 years, and more than three quarters (i.e. more than 75%) of these have been in existence for less than 10 years [4].

An INS survey of Congolese businesses found that the main obstacle was a lack of customers. These obstacles are compounded by a lack of qualified staff, poor management, access to credit, electricity supply and high taxation, among other difficulties. [5]. An INS survey of Congolese businesses found that the number-one obstacle is a lack of customers [5]. This situation can be likened to the fact that the products or services of Congolese companies fail to meet or exceed customer expectations. In short, there is no qualitative change through a break with continuous adaptations [6]. The problem is now to open up a new outlet, i.e. a market where the interested branch of companies has not yet been introduced, whether this market existed before or not . 41.0% of Congolese small businesses lack customers, so they're called to disappear, which leads us to wonder about the factors behind their longevity. Although innovation is a decisive factor in sustainability, the question of company sustainability is a delicate one, and the aim of this study is to analyze the sustainability factors of Congolese VSEs and SMEs, whose objectives are often reduced to those of their owner-managers.

The econometric approach used is based on a cross-sectional model. The estimation method used is double least squares (DLS) in order to take account of the endogenous selection problem.) in order to take account of the endogenous selection problem. Also, this study, which is based on work that places sustainability at the heart of the development of VSEs and SMEs, is structured as follows: (2) a brief review of the literature, (3) figures on VSEs and SMEs and (4) the model to be estimated and the data source.

## 2. Brief Review of the Literature
### 2.1 Conceptual Approaches
### 2.2 Concept of Sustainability
Maintaining an organisation (production, sales, service) can be a plausible way of ensuring its continuity. This can be ensured by the sale of a business by its owner-manager to a credible buyer . The objective is the continuity of the project, which covers two types of sustainability: business sustainability and organisational sustainability.

In the same context, the maintenance of an organisation is ensured by resilient management where the transmission of knowledge and skills takes place continuously within the organisation, where possible with the introduction of new knowledge. This form of continuity is the continuity of power, to use Mignon's expression (1998, 2000) , because it is the continuity of control, since the capital remains in the hands of the same group (generally an individual or a family), and the continuity of management, since the managers come from the same group. This continuity is only possible when the organisation is resilient and innovative.

These typologies of sustainability mean that he notion of sustainability is multidimensional, due to the number of variables that can explain this notion, which raises the question of its definition and the different types of sustainability that can be identified. [7]. Beyond its multidimensional nature, sustainability symbolises the very purpose of managing an organisation. Defining sustainability means answering the question of why and how certain organisations defy time and shocks? For these authors, sustainability means being ambidextrous, i.e. having the ability to absorb, bounce back and learn.

Mignon (2002, p. 95) considers that the theme of sustainability, which seems fundamental, is insufficiently explored, because in addition to the social and economic stakes, there is the life expectancy of companies after their creation. Mignon (2009, p. 75) therefore focuses on organisational durability, which she defines as a company's ability to initiate or cope with external or internal upheavals over the course of its history, while preserving the essence of its identity [7].

Implicit in this definition are issues of resilience (coping with upheaval) and strengthening positioning (preserving identity). The work of Giget and Hillen (2021), for whom sustainability is a factor in the identity of historic companies, highlights the importance of innovation. Like many other authors, they detail the fundamental factors of sustainability and resilience through innovation. The French National Institute for Statistics and Economic Studies (INSEE) analyses the sustainability of new businesses after five years in business. To this end, a new cohort (Système d'information sur les nouvelles entreprises (SINE)) is set up every four years, enabling comparisons to be made between generations. In the light of the above, we can see that sustainability is measured by the number of years a company has been in business since it was founded.

## 2.3 Concept of VSEs and SMEs

The SME sector is highly varied. SMEs differ in size, sector, whether they are part of the rural or urban economy, degree of formality, turnover, growth and age of the enterprise, as do countries (ILO, 2022, p. 9).

This variety of SMEs shows the complexity of the concept. This complexity is linked to the elements that characterise these companies. Elements that differ according to a country's level of economic development, notably size, whether we are talking about VSEs or SMEs. This diversity makes it impossible to give an identical picture for all countries. Similarly, within the same country, the characteristics of VSEs and SMEs can change depending on the political regime. A number of images emerge from the literature. The first is that of a small family business (agricultural or otherwise), craft or commercial (petty trade) with a relatively low level of management or technology. The second is that of a small unit capable of managerial or technological prowess.

In the Congo, the law defines these companies. A very small business is one that employs no more than nine (9) permanent staff and has an annual turnover excluding tax of no more than twenty-five million (25,000,000) CFA francs (article 2). A small business is one which has a minimum share capital of one million (1, 000,000) CFA francs when it is set up, employs between ten and twenty employees and has an annual turnover excluding taxes of more than twenty-five million (25,000,000) CFA francs, but not exceeding one hundred million (100,000,000) CFA francs (article 3). A medium-sized company is one whose share capital at the time of creation is more than one million (1,000,000) CFA francs, which employs a permanent workforce of between twenty-one and one hundred employees and has an annual turnover excluding tax of more than one hundred million (100,000,000) CFA francs, but not more than two billion (2,000,000,000) CFA francs (article 4).

Small businesses are generally run and held by one and the same person: the owner-manager. The combination of the functions of owner and manager by a single individual at the heart of the company's relational networks is a recurrent feature of Congolese businesses, particularly VSEs and SMEs. Unlike large companies, the objectives of VSEs and SMEs are often reduced to those of their owner-managers. This situation can lead to decision-making being geared more towards the pursuit of personal objectives such as maximising personal wealth rather than maximising the value of the business [8].

## 3. Theoretical and Empirical Approaches
### 3.1 Theoretical Approaches

The economic literature distinguishes various concepts used to analyse sustainability. In particular, the concepts of length of activity, performance and viability make it possible to characterise the sustainability of a company [9]. This notion is very often confused with longevity survival and the number of years of activity [10-12]. However, sustainability most often refers to the viability, longevity and durability of the business [11]. In practice, some authors use the duration of activity to analyse the company's sustainability [3]. This is determined by the number of years the company has been in business since its creation. To this end, our work is part of this same perspective in order to study the sustainability of VSEs and SMEs in the Republic of Congo.

The issue of the determinants of the sustainability of VSEs and SMEs covers a variety of theoretical approaches. The various theories relating to the analysis of the determinants of company survival classify these factors into three categories: the entrepreneur, the company and the environment. These three categories enable us to make a significant distinction between companies that succeed and those that fail. However, some authors compare and attempt to evaluate the relative effect of each of these factors. They show that individual characteristics have an effect on success that is twice as great as that of firm characteristics, the environment being assumed to have a minor effect. [13].

According to the owner-manager-centred approach, the owner-manager is the foundation of the business and the basis of its sustainability. This approach considers that the small business is not just an economic operating unit, but a socio-cultural space directly influenced by the profile and values of the owner-manager. A number of factors are used to explain the impact of the owner-manager's characteristics on the company's longevity. These can be divided into three categories: the founder's motivation or entrepreneurial orientation, his human capital and his professional experience.

Human capital is expressed in terms of education, age, gender, professional experience and ethnicity. The level of education of the owner-manager plays a decisive role in the longevity of the business. The higher the level of education, the greater the chance that the owner-manager's business will remain sustainable. In the same vein, Bekele and Worku (2008), like Ngoa Tabi and Niyonsaba Sebigunda (2012), find that most firms that cease trading prematurely are characterised by a low level of human capital on the part of their owner-managers and a lack of managerial knowledge on the part of the latter [14]. [3]. To sustain themselves over the long term, companies must be capable of jointly developing a whole range of innovations, which make it possible to determine the fundamental factors of sustainability and resilience [7]. These innovations are linked to the people who hold the tacit knowledge on which the activities of organisations are based [7].

While survival is financed in part by the company's own funds, the company's long-term survival depends not only on internal financing, but above all on formal external financing, and therefore on reducing the financial exclusion of VSEs and SMEs, which in turn reduces their period of activity.

According to INSEE (2021), the financial resources invested in setting up a business have an impact on its longevity. Some business sectors require more resources to get started. While, on average, 47% of businesses start with at least €8,000, the figure is 71% in accommodation and catering, 67% in transport and

storage and 59% in commerce. 60% of sole proprietorships set up in France in 2014 with start-up resources of 40,000 euros or more are sustainable for at least five years. Among the determinants of sustainability is the legal category (INSEE, 2021). However, legal form can also have an influence on access to finance, and therefore on the sustainability of VSEs and SMEs. Credit institutions are reluctant to enter into contracts to finance the activities of sole proprietorships. In this way, the legal form of a sole trader's business can have a negative impact on access to credit and therefore on the company's long-term survival.

Understanding the impact of the third category of factors on the sustainability of Congolese VSEs and SMEs involves approaches centred on the environment, in particular contingency theory and the theory of the ecology of organisational populations [15]. Ecological theory is concerned with the evolution of a given population of organisations as a whole following change in the environment in which it evolves. Thus, in order to explain the inequalities in success between entrepreneurs, the focus is no longer on the entrepreneur and even less on the company, but on the environmental forces that determine the survival or, on the contrary, the disappearance of the company. Even if the owner-manager of a small business has the resources and skills needed to ensure the survival and growth of his business, he will have difficulty sustaining his productive activity if the economic environment is unfavourable.

The constraints depend on a variety of factors: tax policy, administrative malfunctions, market regulation, unfair competition, poor protection of intellectual property or weaknesses in startup support for new businesses. These constraints can have a negative impact on access to resources, particularly skilled labour, supplies of raw materials, distribution networks and/or information. Littunen, et al (1998) focus on the impact of a company's geographical location and conclude that the most important factors affecting company development are the various regional conditions, the most important of which are political conditions, infrastructure, the availability of qualified personnel, cultural conditions and lifestyles [16].

However, this location depends on the construction of an environment conducive to the growth and long-term development of SMEs, which is linked to the rule of law that promotes accessibility to information, coherent guidance, improved knowledge and capacity building for SMEs (ILO, 2022, p.9).

### 3.2 Empirical Approaches

Previous research has shown that gender has a positive impact on the durability of businesses. According to Cooper et al (1994), the gender of the entrepreneur has an unfavourable impact on the growth of small businesses, but absolutely none on their durability [17]. Nevertheless, several authors believe that businesses created by men are more sustainable than those created by women. The relationship between the age of the owner-manager and the longevity of his business has not been clearly established in previous research. For some authors, there is a positive relationship between age and longevity [18]. In fact, older ownermanagers have developed stronger networks, are more experienced and can raise funds and capital more easily than younger ones.

Studies carried out in Sub-Saharan Africa on the sustainability of SMEs show that the ownermanager's lack of managerial knowledge is a key factor in business closure [19]. The organisational characteristics of VSEs and SMEs also help to explain their longevity. Most authors agree that the size of the company and its financial resources are major determinants of its longevity. The size of the capital invested and sufficient financing in the first three years enable VSEs and SMEs to acquire the material resources necessary for their development [20]. The analysis by Fabre and Kerjosse (2006, p. 663) shows that invested capital increases the chances of a company's survival [21]. According to Viennet (1990, p. 663), investment is synonymous with robustness, and the size of the initial capital is one of the keys to longevity [22]. The greater the resources invested in launching a project, the greater the chances of survival, but also of long-term survival.

Financial capital and access to finance enable companies to equip themselves sufficiently to cope with an environment characterised by uncertainty and increasing competitiveness. They give the company access to a wider range of choices when it comes to the strategies it needs to put in place to ensure its long-term survival.

Giget and Hillen (2021), in a recent quantitative study of several hundred companies, supplemented by 21 interviews with managers of historical companies, have called into question the decline in the average age of companies. Instead of a decrease, the average age of the companies studied has increased by around ten years since 2000. Similarly, they detail the factors of durability and resilience, namely: promotion of employees, innovation, mastery of the long term, transmission, harmonious relations with society, intimacy with customers.

INSEE (2021) used logistic regression to measure the specific effect of each factor on business survival. The effects of each factor are presented as deviations from a reference situation. The results show that the survival rate of businesses created in the first half of 2010 and 2014 falls steadily year after year. 91.3% of businesses created in the first half of 2014 are sustainable for at least one year.

### 4. Figures on Congolese VSEs and SMEs
Figures on companies are obtained from surveys that are carried out regularly and on an ongoing basis. The example set by INSEE and other institutions is remarkable. In fact, as mentioned above, every four years a new cohort (Système d'information sur les nouvelles entreprises (SINE)) is set up, enabling comparisons to be made between generations. In the Congo, the size of the sample of VSEs and SMEs is proportional to the data collected by the INS in 2017. The aim is to analyse the demographic characteristics of these businesses over the entire period observed. This analysis is presented in three tables. The Table 1 breaks down the 4179 VSEs and 5078 SMEs in our research sample by legal form, the second presents these companies by sector of activity and the third breaks them down by branch of activity.

| Size | Legal form (LF) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | *EI* | | | *SCT* | | | *OTHER* | | |
| | N | % | %LF | N | % | %LF | N | % | %LF |
| VSEs | 4062 | 44% | 97% | 74 | 1% | 2% | 43 | 0,5% | 1% |
| SMEs | 4727 | 51% | 93% | 311 | 3% | 6% | 40 | 0,4% | 1% |
| **Total** | **8789** | **95%** | **95%** | **385** | **4%** | **4%** | **83** | **0,9%** | **0,9%** |

Source: Authors based on INS data Recensement des TPE, PME et des artisans au Congo". Note: N (number of companies), % (percentage of companies opting for an FJ) and FJ (legal form).

**Table 1 : Size Distribution by Legal Form**

Referring to the results of the census carried out by the MPMEASI and INS, it can be seen that the company is not the first choice for business creation in the Congo. Of the 4179 VSEs and 5078 SMEs surveyed in 2017, it was found that 95% of them are sole proprietorships. However, those registered as partnerships and other forms represent respectively 385 VSEs and 83 SMEs, i.e. 4% and respectively. 1% of all the companies included. The companies included in this study operate mainly in the tertiary sector.

Table 2 gives a detailed breakdown of these companies by business sector.

| Size | Business sector (BS) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | *Primary* | | | *Secondary* | | | *Tertiary* | | |
| | N | % | %LF | N | % | %LF | N | % | %LF |
| TPE | 162 | 1,8% | 4% | 143 | 2% | 3% | 3874 | 41,8% | 93% |
| PME | 24 | 0,3% | 0% | 30 | 0,3% | 1% | 5024 | 54% | 99% |
| **Total** | **186** | **2%** | **2%** | **173** | **2%** | **2%** | **8898** | **96%** | **96%** |

Source: Authors based on INS data Recensement des TPE, PME et des artisans au Congo".
Note: N (number of companies), % (percentage of companies by sector) and SA (sector of activity)

**Table 2 : Size Distribution by Sector of Activity**

Reading the Table 2 shows a high concentration of VSEs and SMEs in the tertiary sector. This sector includes 3874 VSEs and 5024 SMEs, i.e. 96% of all the companies selected. The primary sector, on the other hand, only includes 162 VSEs and only 24 SMEs, i.e. 2% of all the companies selected.

The secondary sector is naturally linked to the production of the primary sector, i.e. the performance of the primary sector affects the secondary sector positively or negatively. VSEs and SMEs operating in this primary sector represent only 2% of all the companies selected. It can be seen that these companies are mainly established on local and regional markets. To this end, the goods and services produced by small businesses are almost exclusively oriented towards the domestic market, as only 0,8% of these businesses export their products directly (INS, 2017). This study is based on a sample of 4179 VSEs and 5078 SMEs operating in six sectors: farming, agriculture, industry, construction and public workscommerce and services. The table below shows the breakdown of the companies selected by sector of activity au-dessous.

| Business Line (BL) | Type of company | | | | | |
|---|---|---|---|---|---|---|
| | *VSEs* | | | *SMEs* | | |
| | N | % | %BL | N | % | %BL |
| Exploitation | 46 | 0,5% | 1% | 5 | 0,1% | 0,1% |
| Agriculture | 116 | 1% | 3% | 19 | 0,2% | 0,4% |
| Industrie | 26 | 0,3% | 1% | 10 | 0,1% | 0,2% |
| BTP | 117 | 1% | 3% | 20 | 0,2% | 0,4% |
| Commerce | 1963 | 21% | 47% | 2630 | 28% | 52% |
| Services | 1749 | 19% | 42% | 2352 | 25% | 46% |
| Non Déclarée | 162 | 2% | 4% | 42 | 0,5% | 1% |
| **Total** | **4179** | **45%** | **100%** | **5078** | **55%** | **100%** |

Source: Authors based on INS data Recensement des TPE, PME et des artisans au Congo".
Note: N (number of companies), % (percentage of companies in the branch) and BA (branch of activity).

**Table 3 : Size Distribution by Branch of Activity**

Analysis of Table 3 shows that the majority of VSEs and SME in our sample operate in the trade and services sector, which respectively accounts for 4593 and 4101 companies, i.e. 94% of all the VSEs and SMEs in our sample. Companies operating in the exploitation, agriculture and construction and public works sectors each account for 1% of all Congolese VSEs and SMEs. Industry accounts for only 26 VSEs and 10 SMEs representing

0,4% of the 9572 companies selected. The other companies that did not declare their activity were 204 and represent 2% of our research sample with regard to the major difficulties encountered, which can cause small Congolese businesses to disappear, it appears that the lack of customers (41.0%) is the main difficulty for all the businesses included in our study.
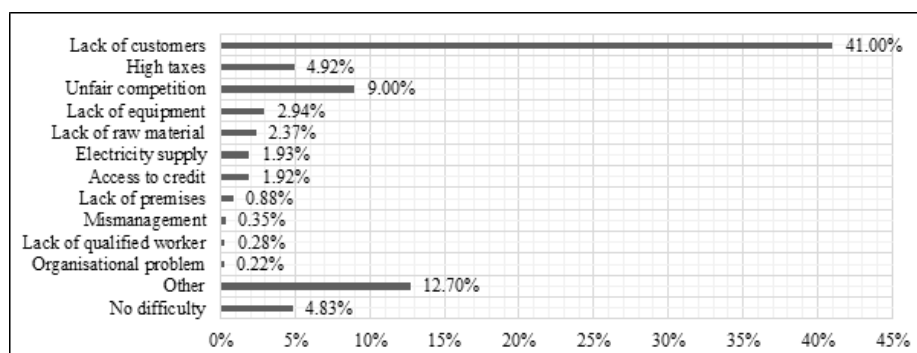


**Figure 1:** Provides a Detailed Breakdown of these Companies According to the Major Difficulty Encountered.
*Source : Authors based on INS data Recensement des TPE, PME et des artisans au Congo".*

Competition is the second biggest problem (9%), and is considered unfair. The graph also shows that just 178 VSEs and SMEs (1.92%) see access to credit as a major difficulty. Similarly, lack of equipment (2.94%), lack of raw materials (2.37%), electricity supply (1.93%), lack of premises (0.88%), poor management (0.35%), lack of skilled labour (0.28%) and organisational problems (0.22%) are also considered by these businesses to be major difficulties.

**4.2 Model to be Estimated and Data Sources**
In order to achieve our objective and address our concern, we used an econometric approach based on a cross-sectional model. However, various estimation methods can be used to analyse the determinants of business sustainability. Unlike Sambou (2019), who used the ordinary least squares (OLS) method, we opted for double least squares (DLS) in order to take into account the endogenous selection problem.

**4.3 Presentation of the Model**
The simple econometric model presented below explains the sustainability variable for VSEs and SME

$$Y_i = \beta_0 + \beta_i\ X_i + \varepsilon_i$$
- $Y_i$ : the company's long-term future $i$ ;
- $\beta_0$ : constant, interpreted as the average survival rate of companies ;
- $\beta_i$ : Parameters to be estimated ;
- $X_i$ : vector of explanatory variables for company sustainability $i$ ;
- $\varepsilon_i$ : random variable or error term ;
- Number of companies $i = 1, ... 9257$

**Measuring Variables and Data Sources**
Here we present each of the variable constructs in our research model, starting with the explained or endogenous variable,

followed by the variables explaining the sustainability of Congolese MSEs and SMEs and the data source.

**4.3.1 Measuring Variables**
The longevity of the company is the variable explained in our research model. This sustainability is observed qualitatively by means of an ordinal scale and operationalised as follows: we first determined the age of the company corresponding to the difference between the year of observation (2017) and the date of creation of the company. Companies whose age is greater than five years are considered to be perennial, and those whose age is less than five years are not.

The variables selected to explain sustainability are classified into five groups and are presented in the table below. Table 5 in the appendices. It should be noted that many of these variables are measured using an ordinal scale. Finally, it should be noted that there are several determinants of small business sustainability that differ from one analysis to another.

**4.3.2 Data Source**
The selection of the sample of VSEs and SMEs in this study requires a definition. We therefore use the definition of VSEs and SMEs in reference to articles 2; 3 and 4 of the law $n°46$-2014 of 3 November 2014 on measures to promote and develop Congolese VSEsand development of Congolese VSEs, PEs and MEs.

The data used in this research come from the report drawn up by the MPMEASI and the INS and cover a period from 2016 à 2017. Our sample is made up of 4179 MSES and 5078 SMEs representing 83% of all the small businesses counted by these government bodies.

## 5. Results of Estimates

The results of the estimates of the sustainability research model are presented in the table below au-dessous.

| Source | SS | Df | MS | Number of obs | = | 9,257 |
|---|---|---|---|---|---|---|
| Model | 1797.20991 | 52 | 34.5617291 | F (52, 9204) | = | 5574.91 |
| Residual | 57.0603701 | 9,204 | .006199519 | Prob > F | = | 0.0000 |
| Total | 1854.27028 | 9,256 | .200331707 | R-squared | = | 0.9692 |
| | | | | Adj R-squared | = | 0.9691 |
| **Durability** | **Coef .** | **Std. Err.** | **t** | **Root MSE** | = | **.07874** |
| *Les caractéristiques personnelles du propriétaire-dirigeant* | | | | | | |
| *Under_20* | -.1157278 | .0271239 | -4.27 | 0.000 | -.1688967 | -.062559 |
| *20_29* | -.0680238 | .0217386 | -3.13 | 0.002 | -.1106363 | -.0254113 |
| *30_39* | -.0811129 | .0203599 | -3.98 | 0.000 | -.1210228 | -.0412031 |
| *40_49* | -.0429285 | .0176844 | -2.43 | 0.015 | -.0775938 | -.0082633 |
| *60_69* | 7.13e-12 | .0131862 | 0.00 | 1.000 | -.0258479 | .0258479 |
| *MAST1* | 3.09e-14 | .0265945 | 0.00 | 1.000 | -.0521312 | .0521312 |
| *SEX* | .012754 | .0055099 | 2.31 | 0.021 | .0019534 | .0235546 |
| *Les caractéristiques organisationnelles* | | | | | | |
| *TCAPIN* | .0106227 | .0049159 | 2.16 | 0.031 | .0009865 | .0202589 |
| *CROIS* | -.0261349 | .0017334 | -15.08 | 0.000 | -.0295328 | -.0227371 |
| *EI* | .0261561 | .0122033 | 2.14 | 0.032 | .002235 | .0500772 |
| *APFAM* | -.023825 | .011166 | -2.13 | 0.033 | -.0457127 | -.0019372 |
| *Les caractéristiques environnementales* | | | | | | |
| *DIFAC* | -.0296667 | .0079268 | -3.74 | 0.000 | -.0452049 | -.0141285 |
| *DIFFE* | -.0296667 | .007902 | -3.75 | 0.000 | -.0451564 | -.0141769 |
| *DIFMPR* | -.0296667 | .0099948 | -2.97 | 0.003 | -.0492587 | -.0100747 |
| *Brazzaville* | .9974399 | .0339558 | 29.37 | 0.000 | .9308789 | 1.064001 |
| *Likouala* | 1.033484 | .0340717 | 30.33 | 0.000 | .966696 | 1.100272 |
| *PointeNoire* | .9537378 | .034765 | 27.43 | 0.000 | .8855906 | 1.021885 |
| *Sangha* | .7895955 | .0339877 | 23.23 | 0.000 | .7229721 | .8562189 |
| *cons_* | .1384285 | .0873141 | 1.59 | 0.113 | -.0327266 | .3095836 |
| *(no endogenous regressors)* | | | | | | |

**Source**: *Authors using STATA 14 software*

**Table 4 : Model Estimation Results**

The coefficients of the explanatory variables *Moins_*20, 20_29 and 30_39 are significant at the 1%. In fact, the statistic $t$ of *student* in absolute value for each of the above variables is greater than the threshold value of 1,96 and the *p-value* less than 1%. In addition, the confidence interval at 95% of each of these variables does not include the value 0. We therefore reject the null hypothesis ($h0$) and accept the alternative hypothesis ($h\square$). Since only the variables relating to the characteristics of the owner-manager are significant, we can only validate our first research hypothesis. With the exception of the above-mentioned variables, the other variables relating to the owner-manager's characteristics are not significant at the threshold of 1%.

With regard to the difficulties encountered by VSEs and SMEs, the coefficients linked to difficulties in accessing credit (*DIFAC*) electricity supply (*DIFFE*) and raw materials (*DIFMPR*) are negatively linked to the sustainability of these businesses and are significant at the threshold of 1%. Because the statistics *t-stat* statistics are greater than 1,96 in absolute value and the *p-value* less than 1%. We therefore accept the alternative hypothesis ha and reject the nullity of these variables. To this end, we can validate the hypothesis ($h5$) of our research: the problems encountered by VSEs and SMEs have an unfavourable impact on sustainability.

Finally, the coefficients associated with the variables relating to the regional specificity of these companies, such as Brazzaville, Likouala, Pointe-Noire and Sangha, are positive and significant

at the 1% because the associated $t$ are greater than 1,96 in absolute value and *p-values* less than 1%. We therefore reject the nullity of these variables, as the companies operating in these departments are perennial. Variables relating to organisational characteristics such as: *TCAPIN, EI* and *APFAM* are not significant at the 1% but rather at the 5%. The coefficients of the variables relating to the personal characteristics of the owner-manager 40_49 and *SEX* have negative and positive signs respectively, and are significant at the threshold of 5%threshold, the statistics *t-stat* statistics are greater than the threshold value of 1,96 and the *p-values* are below 1%. In effect, we accept the alternative hypothesis (*ha*) and reject the null hypothesis.

The sign of the coefficient associated with the variable size of capital invested (*TCAPIN*) is positive (0,0106227) and this variable is significant at the 1% level. $t$ of *student* in absolute value is greater than the threshold value of 1,96 and the *p-value* less than 1%. Furthermore, the value 0 is not included in the confidence interval at 95% confidence interval for all these coefficients. We therefore accept the alternative hypothesis ha and validate the research hypothesis $h3$. The size of the initial capital has a positive influence on the sustainability of the business if it is greater than one million CFA francs.

The coefficient linked to the legal status variable *EI* is positively related (0,0261561) to the endogenous variable and significant at the threshold of 5%. It should be noted that all means of financing have a negative impact on the sustainability of companies . Only *APFAM* is significant at the 5%. We therefore reject the nullity of this variable. The results obtained from estimating the research model are presented in Table 4 indicate a *Pseudo R*2 *ajust*é greater than 0,5 or 0,9691. The probability associated with the *F* of *Fisher* is much lower than 1% or 0,0000. Thus, our research model is globally significant at the threshold of 1%. We therefore accept the alternative hypothesis (*ha*) relating to the significance of all the coefficients and conclude that our research hypotheses are valid, given that the explanatory variables have the expected sign.

## 6. Conclusion
We are interested in studying the sustainability of businesses for the billions of people employed by them. Can Congolese VSEs and SMEs survive? It appears that the personal characteristics of the owner-manager, in particular age, level of education and gender, have an impact on the lifespan of the business.

When the owner-manager of a VSE and/or SME opts for a legal form other than sole proprietorship, he or she has difficulty sustaining the business. Thus, the legal form of partnership businesses, although not significant, has a negative influence on the sustainability of businesses. The results obtained show that the amount of capital invested, greater than or equal to five million CFA francs, has a positive influence on the duration of activity of Congolese VSEs and SMEs. They therefore confirm the findings of INSEE (2021).

Although the choice of location is often motivated by reasons specific to the entrepreneur, such as proximity to the place of

residence, the economic environment can have a negative effect on the long-term viability of a business, regardless of its location. However, the results of our estimates may seem uncertain, as they do not allow us to identify the key factors that enable businesses to be sustainable. In the Congo, businesses face a number of constraints linked, among other things, to parafiscality and weaknesses in start-up support for new businesses. As a result, a business that performs well in its start-up year may or may not be sustainable. Similarly, how can the lack of an entrepreneurial culture, which is criticised in African countries, be considered when analysing sustainability.

In the Congo, the long-term survival of Congolese VSEs and SMEs in particular, and Congolese businesses in general, may be compromised. It seems that in the field of education (a source of training for graduate entrepreneurs), there is a gap between the official discourse, in particular the world declaration on education for all adopted at the Jomtien Conference in Thailand in March 1990, to which the government committed itself, and the actions taken by the government. These actions are marked by a lack of incentives to invest in the future, which is synonymous with problems of educational quality.

Companies exist and will always exist, because every nation is made up of a group of companies. A company that disappears is replaced by another, or other competitors share market share. However, it is worth pointing out that many of these companies may be of foreign origin, given that the founder's highest level of education is one of the main determinants of five-year survival (INSEE, 2021) and that companies that survive are those that innovate (Mignon (2009), Giget and Hillen [23-37].

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**A.1 Explanatory variables**
The explanatory variables of sustainability used in our research model are highly dependent on the characteristics of owner-managers of VSEs and SMEs, Congolese small businesses, the environment in which they operate, and the data available to us. Table 5 presents our different explanatory variables for sustainability, as well as the assumed relationships between the endogenous and exogenous variables.

| Table 5 : Explanatory variables for sustainability | | | |
|---|---|---|---|
| **Measurement indicators** | **Variability** | **Code** | **Durability** |
| *Personal characteristics of the owner-leader* | | | |
| Age | | | |
| Under 20 years | Yes and No[1] | Under 20 years | - |
| 20_29 | Yes and No | 20_29 | - |
| 30_39 | Yes and No | 30_39 | - |
| 40_49 | Yes and No | 40_49 | +/- |
| 50_59 | Yes and No | 50_59 | + |
| 60_69 | Yes and No | 60_69 | + |
| 70 +_ | Yes and No | 70 +_ | + |
| Highest obtained degree | | | |
| No degree and ND [2] | Yes and No | No degree and ND | - |
| CEPE (Primary school) | Yes and No | CEPE (Primary school) | - |
| BEPC/CAP (Junior high school) | Yes and No | BEPC/CAP (Junior high school) | +/- |
| BAC (Senior high school) | Yes and No | BAC (Senior high school) | +/- |
| BTS/DUT/DEUG (Diploma) | Yes and No | BTS/DUT/DEUG (Diploma) | +/- |
| Bachelor's degree | Yes and No | Bachelor's degree | + |
| 1st year Master's degree | Yes and No | 1st year Master's degree | + |
| Master's and higher | Yes and No | Master's and higher | + |
| Nationality | Foreigner=0 and Congolese=1 | Nationality | +/- |
| Sex | Feminin=0 and Masculin=1 | Sex | +/- |
| *Organizational and industrial characteristics* | | | |
| Initial capital size | | Initial capital size | +/- |
| Legal status | | | |
| Society | Yes=1 and No=0 | Society | +/- |
| individual enterprise | Yes=1 and No=0 | individual enterprise | +/- |
| Others | Yes=1 and No=0 | Others | +/- |
| Growth | Yes=1 and No=0 | Growth | +/- |
| Financial structure | | | |
| Self-financing | Yes=1 and No=0 | Self-financing | +/- |
| Credits | Yes=1 and No=0 | Credits | - |
| Family support | Yes=1 and No=0 | Family support | - |
| Grant | Yes=1 and No=0 | Grant | + |
| Gift | Yes=1 and No=0 | Gift | +/- |
| Activity sector | | | |
| Agriculture | Yes=1 and No=0 | Agriculture | +/- |
| Exploitation | Yes=1 and No=0 | Exploitation | +/- |
| Industry | Yes=1 and No=0 | Industry | +/- |
| Construction | | | |
| Yes=1 and No=0 | Construction | | |

| | | | |
|---|---|---|---|
| +/- | | | |
| Commerce | Yes=1 and No=0 | Commerce | +/- |
| Services | Yes=1 and No=0 | Services | +/- |
| *Environmental characteristics* | | | |
| Strategic locations | | | |
| Local market | Yes=1 and No=0 | Local market | + |
| International market | Yes=1 and No=0 | International market | - |
| Major challenges | | | |
| Access to credit | Yes=1 and No=0 | Access to credit | - |
| Disloyal concurrence | Yes=1 and No=0 | Disloyal concurrence | - |
| High taxation | Yes=1 and No=0 | High taxation | - |
| Electricity | Yes=1 and No=0 | Electricity | - |
| Equipment | Yes=1 and No=0 | Equipment | - |
| Client | Yes=1 and No=0 | Client | - |
| Bad management | Yes=1 and No=0 | Bad management | - |
| Access to premise | Yes=1 and No=0 | Access to premise | - |
| Raw material | Yes=1 and No=0 | Raw material | - |
| Working force | Yes=1 and No=0 | Working force | - |
| Organizational problem | Yes=1 and No=0 | Organizational problem | |
| Regional specialties | | | |
| Kouilou | Yes=1 and No=0 | Kouilou | +/- |
| Niari | Yes=1 and No=0 | Niari | +/- |
| Lékoumou | Yes=1 and No=0 | Lékoumou | +/- |
| Bouenza | Yes=1 and No=0 | Bouenza | +/- |
| Pool | Yes=1 and No=0 | Pool | +/- |
| Plateaux | Yes=1 and No=0 | Plateaux | +/- |
| Cuvette | Yes=1 and No=0 | Cuvette | +/- |
| Cuvette-Ouest | Yes=1 and No=0 | Cuvette-Ouest | +/- |
| Sangha | Yes=1 and No=0 | Sangha | +/- |
| Likouala | Yes=1 and No=0 | Likouala | +/- |
| Brazzaville | Yes=1 and No=0 | Brazzaville | +/- |
| Pointe-Noire | Yes=1 and No=0 | Pointe-Noire | +/- |

## A.2 Results of econometric analysis

Taken as a whole, the estimation results of our sustainability research model are presented in the table below.

| Table 6: Model estimation results | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| Source | SS | df | MS | Number of obs | = | 9,257 |
| Model | 1797.20991 | 52 | 34.5617291 | F (52, 9204) | = | 5574.91 |
| | | | | Prob > F | = | 0.0000 |
| Residual | 57.0603701 | 9,204 | .006199519 | R-squared | = | 0.9692 |
| | | | | Adj R-squared | = | 0.9691 |
| Total | 1854.27028 | 9,256 | .200331707 | Root MSE | = | .07874 |
| | | | | | | |
| Perennity | Coef. | Std. Err. | t | P>|t| | [95% Conf. | Interval] |
| *Personal characteristics of the owner-leader* | | | | | | |
| Under 20 years | -.1157278 | .0271239 | -4.27 | 0.000 | -.1688967 | -.062559 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 20_29 | -.0680238 | .0217386 | -3.13 | 0.002 | -.1106363 | -.0254113 |
| 30_39 | -.0811129 | .0203599 | -3.98 | 0.000 | -.1210228 | -.0412031 |
| 40_49 | -.0429285 | .0176844 | -2.43 | 0.015 | -.0775938 | -.0082633 |
| 50_59 | .0058096 | .0164024 | 0.35 | 0.723 | -.0263428 | .037962 |
| 60_69 | 7.13e-12 | .0131862 | 0.00 | 1.000 | -.0258479 | .0258479 |
| BAC | -.0295292 | .0154543 | -1.91 | 0.056 | -.0598231 | .0007646 |
| BEP_CAP | -.0295292 | .0187329 | -1.58 | 0.115 | -.0662499 | .0071914 |
| BTS_DUT | -.0295292 | .0155184 | -1.90 | 0.057 | -.0599488 | .0008903 |
| CEPE | -.0295292 | .0216708 | -1.36 | 0.173 | -.0720087 | .0129503 |
| LICEN | .006458 | .0142644 | 0.45 | 0.651 | -.021503 | .0344199 |
| MAST1 | 3.09e-14 | .0265945 | 0.00 | 1.000 | -.0521312 | .0521312 |
| SANSD | -.0034736 | .0227216 | -0.15 | 0.878 | -.048013 | .0410658 |
| NAT | 2.30e-11 | .0174696 | 0.00 | 1.000 | -.0342444 | .0342444 |
| SEX | .012754 | .0055099 | 2.31 | 0.021 | .0019534 | .0235546 |
| *Organizational characteristics* | | | | | | |
| TCAPIN | .0106227 | .0049159 | 2.16 | 0.031 | .0009865 | .0202589 |
| CROIS | -.0261349 | .0017334 | -15.08 | 0.000 | -.0295328 | -.0227371 |
| EI | .0261561 | .0122033 | 2.14 | 0.032 | .002235 | .0500772 |
| SCTE | -.0039627 | .0134006 | -0.30 | 0.767 | -.0302309 | .0223054 |
| APFAM | -.023825 | .011166 | -2.13 | 0.033 | -.0457127 | -.0019372 |
| AF | -0.023825 | .0185963 | -1.28 | 0.200 | -.0602779 | .0126279 |
| CRED | -.023825 | .0130348 | -1.83 | 0.068 | -.0493761 | .0017262 |
| SUBV | -.0169828 | .0169655 | -1.00 | 0.317 | -.0502389 | .0162733 |
| AGRI | -.0119982 | .0204257 | -0.59 | 0.557 | -.052037 | .0280406 |
| BTP | -.012754 | .0204946 | -0.62 | 0.534 | -.052928 | .0274199 |
| COMMER | -.013942 | .0256193 | -0.54 | 0.586 | -.0641614 | .0362775 |
| INDUST | -.012754 | .0233877 | -0.55 | 0.586 | -.0585991 | .0330911 |
| SCES | -.036075 | .0268271 | -1.34 | 0.179 | -.0886621 | .0165121 |
| *Environmental characteristics* | | | | | | |
| DIFAC | -.0296667 | .0079268 | -3.74 | 0.000 | -.0452049 | -.0141285 |
| DIFCD | -.0263693 | .0153012 | -1.72 | 0.085 | -.0563631 | .0036244 |
| DIFIS | -.0007735 | .0145488 | -0.05 | 0.958 | -.0292923 | .0277452 |
| DIFFE | -.0296667 | .007902 | -3.75 | 0.000 | -.0451564 | -.0141769 |
| DIFEQ | -.0096964 | .0133214 | -0.73 | 0.467 | -.0358093 | .0164164 |
| DIFCL | -.020687 | .0221862 | -0.93 | 0.351 | -.0641769 | .0228029 |
| DIFGES | -.0249691 | .0326412 | -0.76 | 0.444 | -.088953 | .0390148 |
| DIFALO | -.0232354 | .0273127 | -0.85 | 0.395 | -.0767743 | .0303036 |
| DIFMPR | -.0296667 | .0099948 | -2.97 | 0.003 | -.0492587 | -.0100747 |
| DIFMO | -.0271981 | .0355042 | -0.77 | 0.444 | -.0967942 | .042398 |
| DIFPOR | -.0296667 | .0179728 | -1.65 | 0.099 | -.0648975 | .0055641 |
| MLOC | 6.30e-14 | .0792896 | 0.00 | 1.000 | -.1554251 | .1554251 |
| Bouenza | .0203949 | .033029 | 0.62 | 0.537 | -.443492 | .085139 |
| Brazzaville | .9974399 | .0339558 | 29.37 | 0.000 | .9308789 | 1.064001 |
| Cuvette | .0250898 | .0338918 | 0.74 | 0.459 | -.0413457 | .0915252 |
| Cuvette-Ouest | .033484 | .034281 | 0.98 | 0.329 | -.0337144 | .1006824 |
| Likouala | 1.033484 | .0340717 | 30.33 | 0.000 | .966696 | 1.100272 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Lékoumou | .0203949 | .0296344 | 0.69 | 0.491 | -.0376951 | .0784849 |
| Niari | .0252638 | .0235346 | 1.07 | 0.283 | -.0208692 | .0713968 |
| Plateaux | -.0081632 | .0332372 | -0.25 | 0.806 | -.0733155 | .0569891 |
| Pointe-Noire | .9537378 | .034765 | 27.43 | 0.000 | .8855906 | 1.021885 |
| Pool | -.0263571 | .0334751 | -0.79 | 0.431 | -.0919757 | .0392616 |
| Sangha | .7895955 | .0339877 | 23.23 | 0.000 | .7229721 | .8562189 |
| Cons_ | .1384285 | .0873141 | 1.59 | 0.113 | -.0327266 | .3095836 |

*Source: Authors based on STATA 14 software*