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Analysis of the effect of financing mode on the duration of business formalisation in Cameroon

Vladimir Elsy MAWAFO KAMDOUM[*]
Monnet Benoît Patrick GBAKOU[**]
Benjamin FOMBA KAMGA[***]
Karl-I-Bond MENFO ZEMBONG[****]

Abstract - This work aims to examine the effect of the financing mode on the duration of business formalisation in Cameroon. We employ econometric duration models, specifically the Cox proportional hazards model. Data from a 2017 study on the transition to formality of small businesses in Cameroon, conducted by the ILO and the University of Yaoundé II, are used. The results show that formal financing is a factor in business formalisation, whereas informal financing is not. Therefore, it appears essential to facilitate businesses' access to formal financial services, notably by providing public mentoring, evaluating these programs, and granting public loans.

JEL classification
L2, G2, C41, O55

Key words
Business formalisation time
Financing mode
Duration model
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[*] Université Félix-Houphouët Boigny, Abidjan, Côte d'Ivoire ; kamdoumvladimir@gmail.com ;
[**] Université Félix-Houphouët Boigny, Abidjan, Côte d'Ivoire ; patrick.gbakou@gmail.com
[***] Université de Yaoundé II, Yaoundé, Cameroun ; fomba1@yahoo.fr
[****] Université de Dschang, Cameroun ; menfokarl@gmail.com

INTRODUCTION

Empirical research on entrepreneurship in developing countries, particularly in Africa, reveals that financing is a significant challenge for entrepreneurs (Nguimkeu, 2024). Indeed, poor access to formal financial services is concentrated among 33% of people aged 15 to 24 who lack a bank account (Kilara & Latortue, 2012). This poor access is partly due to these countries' limited promotion of financial education and culture (Bélisle, 2012). This situation leads to high use of informal financial services. In addition, limited access to formal employment, limited resources, and unwillingness to bear the tax burden, particularly in the early stages of the business life cycle, motivate entrepreneurs and women to operate in the informal sector (Abate, 2017).

However, there are many advantages to formalizing a business. Firstly, formalisation enables the business to benefit from legal protections, avoid harassment from corrupt controllers, and access formal financing (Abate, 2017). Secondly, formalisation contributes to enhanced productivity, reduced poverty and income inequality, and progress towards achieving the Sustainable Development Goals at the societal level. Thirdly, it benefits companies designated as State entities through comprehensive tax coverage.

An important aspect of formalisation is the time it takes (ILO, 2017). Aware of the benefits of formalisation, many informal entrepreneurs embark on the process once they are convinced they can generate a profit while bearing the tax burden it entails. The desire to formalise can also be justified because the costs of bargaining with government officials often exceed those of the formalisation process itself. As informal activities are often considered illegal, landowners are generally at a disadvantage in the event of a dispute.

This article aims to investigate the impact of financing mode on the transition of businesses from the informal to the formal sector of the economy. We would like to know: What is the effect of the financing mode (formal or informal) on the time it takes business owners to register their activities with the trade register? Does preferring a particular financing method affect how quickly companies formalise their operations?

While informality reduces access to formal finance (banking and microfinance), informal entrepreneurs can benefit from formal loans as individuals, using personal real estate as Collateral. Informal finance remains the primary source of financing for informal businesses. Thus, 62.2% of entrepreneurs finance their businesses through savings (OIT, 2017). The survival rate of informal businesses is relatively low. The low survival rate can be justified by limited access to financing. Thus, 8.9% of businesses under 2 years old consider access to credit the main obstacle to entrepreneurship. This figure is 11.6%, 8.1%, and 7.1%, respectively, for companies aged 3 to 5 years, 6 to 8 years, and over 8 years. Although time is acknowledged as a determinant of formalisation, to the best of our knowledge, no studies have examined this topic. The landscape of informal finance in Cameroon is summarised below, based on ILO (2017) and the World Bank Enterprise Survey (2024).

As a developing country, Cameroon's economy is characterized by duality, particularly in the financial sector, where the informal sector is dominant. Entrepreneurs often resort to informal and formal financing to establish and grow

their businesses. Studies emphasise the importance of finance for entrepreneurship (Garcia-Salirossas et al., 2022). However, we could not identify any studies that analysed the effect of financing mode on entrepreneurship or business formalisation. Formal financing is also complex in terms of accessibility for small businesses, including public funding. Studies in developing countries such as Cameroon and Mozambique have shown that despite the availability of financial products for small businesses, limited access to formal finance reduces firm performance in the informal sector (Kede & Tsafack, 2017; Kede & Zogning, 2022; Gobeia et al., 2022). Indeed, public financing for SMEs is constrained by environmental factors, primarily political stability and macroeconomic policies. On the legal and administrative front, mainly through tax policies, trade rules, red tape, and corruption. Finally, there is a lack of infrastructure and equipment, as well as weaknesses in governance structures.

Table 1: Overview of informal financing sources in Cameroon

Informal funding source	Typical use	Investment horizon
Personal savings	Start-up, fixed assets; working capital	Short to medium
Loans from family and friends	Start-up, fixed assets; working capital	Short to medium
Supplier credit (trade credit)	Working capital (inventory, inputs)	Short
Customer advances/ Prepayments	Working capital	Short
Pawn Brokers/ Moneylenders	Emergency liquidity; short-term working capital	Very short
ROSCAs/ Njangi	Working capital; small equipment	Short
Informal investors	Seed capital; small equipment	Medium
Retained earnings	Working capital; fixed assets	Medium

Source: Authors based on WBES data and literature.

One contribution of this study is the consideration of time as the number of years businesses take to begin the formalisation process with the commercial register, rather than the status of formalisation of companies at the time of the survey or the number of days required for a business to operate formally. (World Bank Group, n.d.) To our knowledge, no studies have addressed this issue to date. Additionally, we examine the combined effect of formal and informal financing, whereas previous analyses have focused on the impact of a single mode. Finally, duration models differ from the qualitative variable models we identified in the literature we surveyed (Lee & Persson, 2016; Nguyen & Cahn, 2021; Garcia-Salirossas et al., 2022).

The data are from the database "Enquête auprès des entreprises informelles au Cameroun" by the ILO and the University of Yaoundé II (ILO, 2017). 1,745 informal economic units were surveyed. They enable us to analyse the effects of financing modes on the duration of formalisation. In this vein, the data enables us to examine how the interest accorded to one mode of financing over another is decisive for a company's performance. This explains why formal financing is the main factor in the formalisation process. One limitation of the data is that it does not allow us to study the effect of each financing source individually.

Our study concludes that public policies to promote business formalisation should rely on formal financing, improve the business environment, and promote public entrepreneurship training programs. In fact, the estimation results show that businesses that adopt formal financing are at a high risk of default, whether used in first, second, or third position. We found both positive and negative relationships between financing mode and the time taken to formalise businesses in Cameroon. The underlying intuition is that informal financing reduces the risk of a company becoming formalised, while formal financing positively determines the time it takes companies to register.

The existing literature suggests that financing choice has a significant impact on a company's performance. On the one hand, it is essential to note that formalisation is perceived as a means to improve performance and as a factor in enhancing company performance (Nguyen & Cahn, 2021). On the other hand, the relationship between financing mode and business formalisation begins with a decision on financing mode. Garcia-Salirrosas et al. (2022) find that the factors determining business formalisation in Peru are gender, formalisation procedures, bank credit, loans, government programs, pandemic, entrepreneurial conditions, business experience, and initial investment. Previous studies have emphasised that gender and financing are the primary determinants of business performance and formalisation.

In this study, we determine the effect of financing mode on the duration of business formalisation in Cameroon. Our focus is not on formalisation per se, but on the time it takes businesses to formalise. It is worth noting, however, that although informality is prevalent in Cameroon, some structures can register their business as soon as it is established, or even years later. Formalisation brings many advantages to the business, as the costs of negotiating with officials often outweigh the costs of formalisation itself. Because informal activities are considered illegal, owners are generally at a disadvantage in litigation. In addition, formalisation enables access to state subsidies and supervision, as well as to state revenue (taxes collected).

As mentioned above, we utilize data on transition to business formality in Cameroon, collected by the ILO and the University of Yaoundé II in 2017, to achieve our objective. We employ an econometric duration model, specifically the semi-parametric Cox model. The data are right-censored because some structures did not register their activities during the survey. This is important because companies always need financing, and how they finance their activities determines the sales and profits that are useful for the company. In the remainder of this paper, we present the literature review, then proceed to the causality analysis, and finally discuss the results.

1. LITERATURE REVIEW

The purpose here is to present how companies choose their financing mode, then review the effects of each financing method on company performance, measured by formalisation. The article by Mawafo et al. (2023) presents the theoretical relationship between finance and corporate formalisation.

1.1. Company formalisation factors: the entrepreneurial ecosystem (EE) and theoretical framework

Formalizing informal businesses provides them with the visibility and identification typically associated with the formal economy (ILO, 2009; Williams &

Kedir, 2017) and increases resilience by reducing barriers to business growth (Thapakarki & Xheneti, 2018). This contributes to economic development, equal well-being, and empowerment (La Porta & Schleifer, 2008; ILO, 2009).

The entrepreneurial ecosystem (EE) model comprises six main elements: policy, finance, culture, resources, human capital, and markets. Several authors define the EE; for instance, Saude et al. (2020) define it as a territorial space or area encompassing various institutional and individual actors who implement, encourage, and support entrepreneurial spirit, innovation, and entrepreneurship in a coordinated manner. Kuckertz (2019), cited by Nguyen et al. (2021), defines it as a regional and complex agglomeration of entrepreneurial activity providing two categories of appropriate services, namely (a) enhanced entrepreneurial activity benefiting its wider economic and societal environment, and (b) several forms of formal and informal resources that improve the probability of successful entrepreneurial activity. This definition emphasises the joint use of formal resources for business expansion and growth. EE's definition leads to understanding that formalisation depends highly on the environment. According to some authors, developing business formalisation in emerging countries can be achieved by improving, both quantitatively and qualitatively, the foundational network applicable to entrepreneurship (Alvarado & Servantie, 2020).

Hireche & Douidi (2016) noted another important factor in entrepreneurial growth: religion, particularly Islam. This idea had already been highlighted by Weber (1930). Indeed, he emphasised that religion is a motivating factor for entrepreneurship. Other authors highlight the importance of public mentoring programs (Xhenetti et al., 2019; Barron, 2020), while Garcias-Salirossas et al. (2022) emphasises the significance of gender.

1.2. Conceptual framework and empirical literature review

The lower position of small businesses in the business hierarchy, combined with a lack of performance monitoring records, substantially reduces their chances of obtaining trade credit from suppliers and customers. Additionally, equity financing is an underutilized financing channel for most entrepreneurs in developing countries. Under these conditions, informal credit is the most widely used source of financing, although its effects on business performance are widely debated in the literature. To this end, studies in China have shown that the use of informal finance, particularly from friends and family, is positively correlated with sales growth in Chinese companies (Elston et al., 2016; Beck et al., 2015). Saeed (2009), on the other hand, believes that the change in financing mode (from informal to formal) is a key indicator of economic growth. Wu et al. (2016) synthesized these views and proposed that the relationship between firm performance and informal debt is inverted-U shaped. In other words, a balanced mix of formal and informal credit benefits small businesses, though excessive reliance on informal loans is detrimental.

Few studies explain the determinants of entrepreneurs' decisions regarding formal versus informal financing. However, some authors argue that social capital is an important determinant of the choice of informal financing (Chua et al., 2011; Menkhoff et al., 2012). Lee & Persson (2016) find that family ties are important for new entrepreneurs and small businesses. Access to solid financing is relatively complex due to the involvement of emotions of kinship and friendship. However,

weak ties become increasingly important as the business matures. Granovetter (1973) emphasises the strength of weak ties. He argues that weak ties are reliable but more likely to provide access to a broader range of potential financing opportunities.

Many studies focused on the relationship between business formalisation and finance in Africa. Using a randomized analysis, Campos et al. (2015) demonstrate that firms that benefit from costless formalisation, accompanied by information sessions with banks, leading to bank account ownership, receive more business formalisation certificates than those in the control group. Similarly, Djossou et al. (2020) find that formal credit has a significant impact on the performance of large firms in Benin. Investigating the determinants of informal entrepreneurship in Africa, Amanze et al. (2022) identify finance as a key factor.

In contrast to the results of the positive impact of finance on entrepreneurship, Adebowale & Lawson (2018) show that in Nigeria, to obtain an important effect of formal finance on small business growth, there is a need to complement formal finance with informal finance because formal finance alone does not significantly improve household business growth.

Choosing a financing mode is the first step in formalizing a business. This choice is guided by individual factors (who runs the business, i.e., the entrepreneur's characteristics), organizational factors (what does the business look like?), and contextual factors (where is the business located?). The individual characteristics of entrepreneurs include, on the one hand, cognitive financial constraints. In fact, small businesses often require external financing that they cannot obtain due to their small size and the inherent information asymmetry associated with their youth, making them vulnerable to credit rationing despite their need for bank credit (Fraser et al., 2015). Taste or preference-based theory suggests that economic agents seek financial partners similar to themselves, thereby reducing uncertainty and increasing perceived trust. Thus, when the agent with the need for financing and the agent with the ability to finance are from different tribes or families, the lender faces uncertainty, which leads to discrimination. Edmund's information-based theory (1972) also states that lenders tend to believe, based on the available information, that minorities (of ethnic or gender origin) are less productive, less capable, and less educated, and are therefore perceived as high-risk borrowers.

Individual characteristics then relate to individual social capital, which is strongly linked to the ability to seek external financing and sources of financing (formal or informal). Social connections can be classified into strong or weak ties. Strong or weak social ties refer to relationships characterized by high or low levels of emotional attachment. While family ties are substantial, those with business partners and the government are weak. Family financing is important for start-ups and small businesses.

Company-level characteristics determine the choice of financing method. These characteristics include, first and foremost, entrepreneurial orientation. This strategy development process provides companies with a framework for informed decision-making and effective action. It refers to a strategic organizational posture that captures specific entrepreneurial aspects of decision-making, modes, methods, and behaviour (Lomberg et al., 2017). Entrepreneurial orientation conventionally comprises three mutually exclusive dimensions: innovation, productivity, and

risk-taking capabilities. Nguyen & Cahn (2021) measure entrepreneurial orientation using two indicators: innovation (i.e., the introduction of new products or the adoption of new production processes) and exporting (firms that export satisfy the three dimensions of entrepreneurial orientation: innovation, proactivity, and risk-taking). Export and innovating firms tend to seek external financing, but are unlikely to obtain formal financing because they are young, small, and high-risk. Companies with an entrepreneurial orientation thus seem more inclined to use informal financing.

Organizational social capital is a crucial element in the decision to finance a business. These can include local industry associations, which offer access to external resources such as information, business opportunities, and even informal financing such as trade credits from other members (Oparaocha, 2015). They also enable small businesses to establish a legitimate presence in local markets.

Finally, contextual factors, particularly the quality of local governance and informal institutions, are also important. First, institutional contracts are important determinants of small business performance, especially in developing countries. This is justified by the fact that firms located in regions with good governance experience lower transaction costs and a higher level of generalized trust. The effect of local governance on the choice of financing mode is unclear. However, Wu et al. (2016) demonstrate that informal financial markets operate transparently in a developed institutional environment to establish legitimacy.

Once the financing choice has been made, it affects business performance. Indeed, strong ties contribute to the development of fledgling companies. On the other hand, weak links help provide access to a wide range of financing options. Regardless of the chosen financing method, the goal is to enhance business performance. This performance improvement is likely to prompt companies to formalise their activities in order to protect them. At the same time, the quest for performance may lead businesses to register to benefit from the advantages of formalisation, such as seminars and training, public coaching, and access to financing.

2. METHODOLOGICAL APPROACH

The purpose here is to present the estimation method first, and the data and variables secondly.

2.1. Data source and variable measurement

The data come from a 2017 survey on the transition to formality of small businesses in Cameroon, conducted by the University of Yaoundé II in partnership with the International Labour Organization. In fact, 1,745 economic units were surveyed – the survey aimed to study the transition towards business formality in Cameroon. Of the businesses surveyed, 736 are partially informal.[1] 1,009 are totally informal, and 1,650 businesses employ 10 or fewer employees. Additionally, 95

[1] Formalisation covers several aspects, including formalisation with the trade register, the Caisse Nationale de Prévoyance Sociale, the taxpayer card, etc. A company is considered partially formal if it has subscribed to at least one of these services. In this section, we will concentrate on formalisation in the Commercial Register.

businesses have no employees (ILO, 2017). After processing the variables, the number of businesses retained for our analysis is 993. One limitation of the data is that it does not allow us to measure the effect of each financing mode; therefore, we were unable to capture their individual effects. In fact, individuals were asked to identify the three primary sources of finance they use to fund their activities. We have grouped their answers into formal and informal sources. It is unclear which financing source has a greater impact on business formalisation. In this study, we do not consider the enterprise's sector of activity or the type of activity it develops. We consider small businesses, as these elements can significantly impact the results, as they often have different activities and economic outcomes. We could not correct this because, for some activities, the number of firms included would have been small for econometric analysis.

Table 2: Variable definitions

Variables	Definition
Use formal finance	Defines whether and how companies use formal financing sources to fund their activities.
Use of informal finance	Defines whether and how companies use informal sources of finance to finance their activities.
Institutional variables	
Appreciation of the public-private relationship. 1= good	reflects companies' appreciation of the relationship between the private and public sectors (the administration and its agents).
Perception of regulatory environment	Companies' perception of the business environment
Has benefited from public coaching	Captures whether companies have benefited from public administration mentoring (1) or not (0).
Received private coaching	Captures whether the company promoter received mentoring from a private institution (1) or not (0).
Economic variables	
Evolution of company revenues	Enables us to assess how the company's revenues have evolved since the promoter took over management. 1=increasing, 2=stable and 3=decreasing
Socio-demographic characteristics of the promoter	
Gender	Captures the gender of the company's promoter. 1= Male
Age	Age in years of the company promoter
Level of education	Highest diploma obtained by the promoter, ranging from a primary school certificate (CEP) to a Master's degree or higher.
Religion 1=Islam	Captures the promoter's religious affiliation. It takes the value 1 if the promoter is Muslim and 0 otherwise.
Household size	Number of people living in the promoter's household.
Number of years under management	Number of years the promoter has managed the business.
Promoter's income	Income excluding the promoter's activities. Three income brackets are used: less than 50,000 CFA francs, between 50,000 and 100,000 CFA francs, and at least 100,000 CFA francs.
Company characteristics	
Company founder	Captures company ownership. It takes the value 1 if the promoter is a co-creator, 2 if the family, and 3 if it is another person.
Business sector	Defines the sector to which the company's main activity belongs. 1= primary, 2= secondary, 3= tertiary
Access to basic infrastructure	Measured by distance from the asphalt road.

Source: Author's compilation.

Dependent variable: This refers to the time taken by companies to formalise. It is obtained by comparing the year the survey was carried out (2017) with the creation date of each company (2017-t; t designates the year the enterprise was created, and t is no greater than 2017). It is a positive, continuous variable.

Variables of interest: Firstly, formal finance is used. It measures the use of financing from formal sources to fund business activities. The company can use formal financing in first, second, or third position. The second variable of interest is the use of informal finance: this measures the use of funding from informal sources to finance business activities. The company can use informal finance in the first, second, or third position. The variables are listed in Table 2.

2.2. Estimation method

To perform the empirical analysis, we employ econometric methods for duration models. Duration models are estimated using nonparametric, semiparametric, and parametric methods. The non-parametric model does not impose a particular distributional form on durations, but it does not allow the inclusion of explanatory control variables. Conversely, parametric models will enable control over other explanatory factors but require a choice of data distribution. However, we do not have arguments to define the form of the risk function. The semi-parametric model is intermediate between the two previous models. Thus, we restrict the analysis to the semi-parametric method. This is justified by the fact that it makes no assumptions about the model's functional form, and on the other hand, allows for the integration of covariates.

The Cox proportional hazards model (1972, 1975) is used. In fact, we distinguish between Cox proportional-hazards models and non-proportional-hazards models. The choice of the proportional hazards model is justified by the fact that the proportionality test allows us to conclude that we are in the presence of a proportional hazards model. The Cox model will enable us to evaluate the effect of different variables on the survival time. It is fascinating when working with continuous variables. It employs two fundamental notions, particularly survival: the survival function S(t) is the probability that an event does not occur after time t. It allows us to determine the probability of registering a company after it has been created. We generally do not know the exact theoretical survival function, but we can approximate it with a Kaplan-Meier curve, which has a characteristic staircase shape.

The model considers that the part of the hazard function that depends on time is unknown, and it is called the basic hazard function, which is denoted by $h_0(t)$. It depends only on time. The part of the hazard function that depends on X is assumed to follow an exponential distribution. It is denoted by $h(x) = exp^{(\beta.X)}$. $X$is a set of covariates assumed to be fixed over time (Quantin, 2018). The hazard function for individual i can be written as:

$$h(t|x) = h_0(t)e^{x_i'\beta}, \forall t \geq 0 \qquad (1)$$

$h_0(t)$is the basic risk curve. If the variable X has a substantial impact on the risk, β It is high and vice versa. In fact, the risk does not always follow an exponential distribution. Cox proposes this model as a simplified representation of reality. It allows for capturing the general trend and for answering whether the variable X impacts survival.

The model is semi-parametric, as no assumptions are made about the shape of the basic risk curve $h_0(t)$. If variable X strongly impacts risk, β is high; conversely, if variable X has little impact on risk, β is low. Risk does not always follow an exponential distribution. Cox proposes this model as a simplified representation of reality. It allows us to capture the general trend and answer the question: Does variable X affect survival? The assumptions of the Cox model are:
- H1: Over time, risk is proportional. The curve can take any shape, but the ratio between the curves (for two individuals) over time must remain constant.
- H2: For variable X, the model imposes an exponential distribution. Risk h increases as an exponent of X. On a logarithmic scale of h, this corresponds to a straight line.

The Cox model enables, on the one hand, the estimation of whether the variable X significantly explains the observed survival function. The observed p-value measures this. On the other hand, it calculates the ratio of risks observed in the dataset (hazard ratio (hr), which corresponds to the ratio of instantaneous risks) given that the model imposes proportional risk. The hazard ratio indicates how much the risk increases when variable X increases by 1 unit. Finally, the model can predict the survival probability of new companies.

Let X be a binary risk factor that equals 1 if the company adopts a formalisation measure, such as registering in the commercial register; $\theta * hr$ denotes the instantaneous risk. When the company has not adopted this dimension, X = 0, and the instantaneous risk is θ. In this case, $\widehat{e}$ θ represents the relative risk, constant over time, of an individual experiencing the event using a formal/informal source of financing. However, the model does not calculate the risk function $h(t, x)$ at any point. It directly estimates the model's β coefficients by maximizing Cox's partial likelihood. Under these conditions, knowing the basic risk function is unnecessary. The data are right-censored because some structures did not register their activities during the survey. The nature of the data supports the use of the proportional model.

Estimating model (1) is based on the partial likelihood function introduced by Cox (1972, 1975). Censoring and duration are two independent variables. In the case of right-hand censoring, it is expressed as a function of the densities and distribution function of the T distribution with parameter θ:

$$L_n = \prod_{i=1}^{n} [f_\theta(T_i, x_i)]^{\delta_i} [\bar{F}_\theta(T_i, x_i)]^{1-\delta_i} \qquad (2)$$

with δ_i an indicator which is 1 if the lifetime of individual *i* is not censored $\bar{F} = 1 - F$. The estimators obtained by partial likelihood maximization are convergent, efficient, and asymptotically normal. Hypothesis tests on the estimated β The parameters are Wald, score, and likelihood-ratio tests. Finally, to test the robustness of our results, we estimate using the Kaplan-Meier method, treating both sources of financing as the first alternative.

3. RESULTS AND DISCUSSION

3.1. Results

The choice of the proportional hazards model is justified by the validity of the proportionality test, as shown in the results in Table 3.

Table 3: Proportionality test results

Model	Chi 2	Df	Prob>chi2
Model for informal finance	123,77	30	0,000
Model for formal finance	124,57	30	0,0000

Source: authors' calculations.

The result of Cox proportional hazards model estimation is given in Table 4.

Table 4: Results of financing mode effect estimation

	Formal finance (Model 1)		**Informal finance (Model 2)**	
	Hazard ratio	Standard error	Hazard ratio	Standard error
Financial use				
As 1st source	1,8962***	0,3750	0,5380***	0,1071
As 2th source	1,3031	0,2813	0,8474	0,1811
As 3rd source	1,4409**	0,2505	0,7923	0,1355
Institutional variables				
Pub.-priv. relations 1= good	0,9664	0,1577	0,9705	0,1584
Regulatory environment	1,4153**	0,2312	1,3816**	0,2244
Received public coaching	2,0486	1,1154	2,1970	1,1864
Received private coaching	0,5969	0,2825	0,5776	0,2738
Economic variables				
Stable revenues	0,9889	0,1797	0,9755	0,1770
Lower revenues	0,7156	0,1465	0,7155*	0,1456
Socio-demographic characteristics of the promoter				
Sex 1= Male	1,3627*	0,2519	1,3526	0,2499
Age	0,9992	0,0100	0,9983	0,0100
Study level				
CEP	1,3083	0,6393	1,2874	0,6291
BEPC	2,1628*	0,9607	2,1781*	0,9679
Probatory	3,3631**	1,6098	3,3515**	1,6046
Baccalaureate	3,3932***	1,5087	3,3774***	1,5022
BTS	4,2391***	2,2089	4,2360***	2,2083
License	4,4267***	2,1336	4,4263***	2,1388
Master's and more	1,5280	1,0818	1,4935	0,9975
Religion 1=Islam	1,2787	0,2993	1,2531	0,2934
Household size	1,00013	0,017	1,0020	0,0317
years under management	0,8501***	0,0171	0,8505***	0,01711
Income Less than $50,000	0,9305	0,11827	0,9462	0,1857
Income [50000- 100000[	0,9099	0,2180	0,9176	0,2198
At least 100,000	1,2202	0,2632	1,2415	0,2678
Company's ownership				
Some people and the promoter	0,8886	0,2331	0,9297	0,2409
The family	0,9288	0,2127	0,9226	0,4072
Other person	0,4862**	0,1424	0,4655*	0,1383
Sector of activity				
Secondary	0,6922	0,2417	0,6392	0,2409
Commercial	0,6851	0,2099	0,9226	0,2109
Access to an asphalt road	1,0000	0,0004	1,0000	0,0004
Number of observations	993		993	
LR Chi	203,11		199,7	
Prob> chi (2)	0,0000		0,0000	

*Source: Authors based on transition to formality. ***, **, and * indicate significance at 1, 5, and 10%.*

3.2. Discussion

Discussion of the effect of formal financing

For Model 1, in Table 4, the chi-square test indicates the model is globally significant ($p < 0.01$). The use of formal finance increases the risk that a company will become formalised. Indeed, when a company uses formal finance as its primary funding source, the associated risk of being registered in the commercial register is 89.62% higher than for other companies. This can be justified by the fact that, while informal businesses generally do not have access to formal financing, the owner or manager may have the means or collateral to resort to formal institutions. To benefit from the advantages available to small businesses (notably financing opportunities and mentoring), they can utilize formal financing to formalise and profit from this process. This result aligns with Xheneti et al. (2019), who emphasise the importance of bank credit for formalizing a business.

Among the selected institutional variables, only the perception of the regulatory environment has a high associated risk ratio. Indeed, companies that positively assess the regulatory environment are 1.4153 times more likely to register with the commercial register. This result highlights the significance of the entrepreneurial ecosystem, particularly its institutional dimension, in facilitating business formalisation, as noted by Saude et al. (2020).

When the promoter benefited from public coaching, the structure had a 2.0486 risk of exiting informality. This result corroborates those of Barron (2020), who demonstrates that entrepreneurship training programs contribute to business formalisation through three channels: revising the original business plan, clarifying taxation procedures, and accessing seed capital. However, strengthening public mentoring would have a significant impact. The level of education is a crucial factor in business formalisation, as indicated by the table's results. However, the more time the entrepreneur spends at the head of the business, the less likely it is to be formalised.

Discussion of the effect of informal financing

The estimation results for the model with informal financing as the variable of interest (Model 2) also show that the estimated models are significant overall. However, regarding individual significance, we can say that the probability of registering with the trade register is 0.5379 times significantly lower for companies that finance their activities first through informal mechanisms than for others. Similarly, companies that finance their activities through informal channels are at a 0.8474 higher annual risk of formalisation than other companies. In contrast, it is 0.7923 for companies that use informal financing, ranking third. However, these results are not significant. Thus, informal financing is not a factor in the formalisation of businesses in Cameroon. Indeed, although informal sources of financing are decisive in creating businesses, they prove incapable of sustaining and formalizing them (Lee & Persson, 2016).

The adverse effect of informal financing confirms Lee & Peerson's (2016) view that financing from strong ties is useful for fledgling businesses. However, those aspiring to larger projects must resort to financing from weak ties (banks, microfinance institutions, etc.).

Both estimates indicate that men are more likely than women to register their businesses. Thus, gender is a determining factor in the survival of businesses in the informal sector. This can be explained by the fact that men involved in the informal sector have fewer constraints than women, whose reproductive role is more important. Men have more time to manage the business and have a long-term vision for it. Due to their natural aptitude for business development, they are generally risk-takers, and advancing to the next level requires at least formalizing the activity. This result corroborates those of Garcia-Salirrosas et al. (2022).

Management experience is a disadvantage when registering companies. This can be explained by the fact that, over time, company directors have built personal relationships with government inspectors, so they no longer find registering advantageous. This result suggests that corruption is present in tax inspections, indicating that public officials may encourage businesses to remain informal. This result highlights moral hazard behaviour in the principal-agent relationships. Our analyses highlight the importance of human capital. Authors such as Heilbrunn (2018) and Wolfe et al. (2021) have also found similar results.

3.3. Robustness analysis

The robustness analysis (Figure 2) using the Kaplan-Meier nonparametric method confirms the effect of financing mode on the duration of business formalisation in Cameroon.

Principle of estimation

Suppose we have a sample of n durations, censored or observed on the right, and $0 = t_{(0)} < t_{(1)} < t_{(2)} \ldots < t_{(j)} \ldots t_{(m-1)} < t_m < \infty$, the distinct, ordered dates at which we observe a change in status (and not a censorship). Let d_j be the number of events at $t_{(j)}$ and $n_{(j)}$ the number of people still at risk just before$t_{(j)}$, the Kaplan-Meier estimator or boundary product estimator is given by:

$$\hat{S}(t) = \prod_{j:t_{(j)} \leq t} \left(1 - \frac{d_j}{n_j}\right) \qquad (3)$$

where $t_{(j)}$ denotes the ordered event times, $d_j$is the number of events occurring at time d_j , and is the number of individuals at risk immediately prior to $t_{(j)}$, and n_j is the number of individuals at risk immediately prior to. The estimator is constructed as a sequence of conditional survival probabilities. Specifically, $\frac{d_j}{n_j}$ represents the conditional probability of experiencing the event at time $t_{(j)}$, given survival up to that point. Accordingly, $1 - \frac{d_j}{n_j}$ is the conditional probability of surviving beyond $t_{(j)}$.

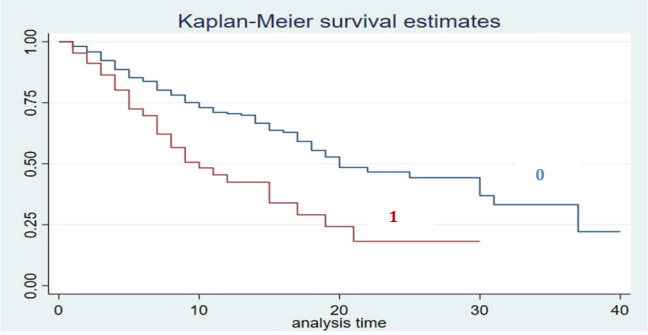
By taking the product of these conditional survival probabilities over all event times up to t, the Kaplan-Meier estimator yields the unconditional probability of surviving beyond time t. This multiplicative structure allows the estimator to incorporate right-censored observations while preserving the nonparametric nature of the survival function.

The Kaplan-Meier estimator is therefore a staircase function with jumps only at the dates $t_{(j)}$ when an event is observed, estimating the survival function beyond the last observed event date is virtually impossible without additional assumptions.

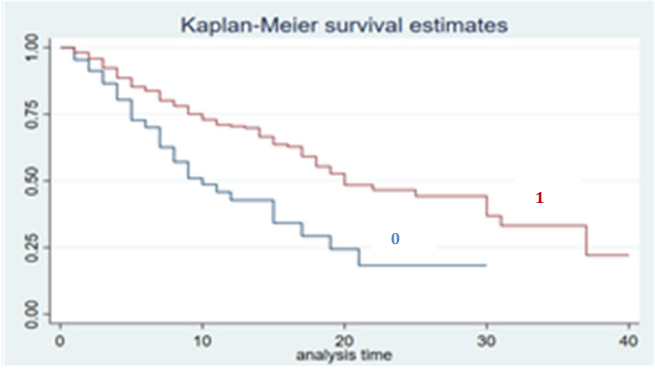
This is a nonparametric maximum-likelihood estimator. Peterson (1977) shows that this estimator is convergent. Generally, all survival functions exhibit a monotonic and decreasing profile. The analysis focuses on the rate of decay of the survival function profile. It thus provides evidence of the hazard function's profile (Quantin, 2018).

- When chance is high, the survival function decreases rapidly.
- When the hazard is low, the decay is slight.
- When the hazard is zero, the survival function is stable.

Figure 2: Kaplan-Meier robustness analysis



Source: Authors.



Source: Authors from the database.

On the one hand, the graphs in Figure 2 indicate that companies are at greater risk of formalisation when formal financing is the primary funding source. This is reflected in the curve of companies using formal finance, which is positioned below that of other companies. The opposite analysis is made for informal finance. The distance between curves on each graph evolves with time, showing that the risk for a firm to register is higher when it uses formal finance as the first source of formalisation. On the contrary, when a firm uses an informal source as its primary source, the likelihood of formalisation is low and decreases over time. These results confirm those obtained from the semi-parametric analysis.

CONCLUSION

The issues of entrepreneurship and finance remain pressing concerns. This study addresses a distinct aspect of entrepreneurship: business formalisation. The aim was to analyse the effect of financing methods on the time it takes for businesses to be formalised, i.e., to register their activities with the commercial register. Using the database on the transition to formalisation of small businesses in Cameroon, the econometric analysis, conducted using the Cox proportional hazards model, shows that formal finance encourages the formalisation of businesses in Cameroon, particularly when it is used as the primary source of financing. This is because financing from the formal financial sector typically requires the company to be formally established. However, for businesses that obtain formal financing without being formalised through the principal manager and/or promoter, several factors accelerate the transition to formalisation, including the possibility of securing additional financing, establishing credibility with creditors, customers, and suppliers, and accessing public subsidies. Similarly, variables such as the gender of the promoter, perceptions of the regulatory environment, and whether the promoter and/or principal manager has benefited from public coaching are factors favorable to the formalisation of businesses in Cameroon.

Conversely, reliance on informal finance is associated with a lower probability of business formalisation, as it requires fewer tangible assets. Moreover, it is short-term, low-value financing, so it cannot sufficiently support the company's long-term projects. This is why some authors argue that strong-tie financing is important for start-ups, but that firms need weak-tie financing for larger projects. The adverse effect of informal finance and the positive impact of formal finance confirm Lee & Perrson (2016), who explained that credit from strong ties (informal credit) is helpful for new businesses when it comes to growing (like formalizing in this case), businesses need credit from weak ties, i.e., formal credit. The positive effects of gender and public program mentoring are corroborated by Garcia-Salirrosa (2022) and Barron (2020). We therefore suggest promoting and facilitating access to formal financial services for businesses in Cameroon. In the short term, this could be achieved by promoting and popularizing public mentoring programs. This would provide businesses not only with entrepreneurial but also with financial education. Additionally, these programs will enable the government to identify companies with innovative projects that can boost growth and provide them with enhanced support. In the medium term, we need to evaluate the impact of these programs on company performance. In the long term, granting public loans to these companies and improving the regulatory framework would boost business formalisation.

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Effet du mode de financement sur la durée de formalisation des entreprises au Cameroun

Résumé - Ce travail vise à étudier l'effet du mode de financement sur le temps de passage de l'informel à la formalisation des entreprises au Cameroun. Pour ce faire, nous utilisons des modèles économétriques de durée, notamment le modèle à risques proportionnels de Cox. Les données utilisées proviennent de l'étude sur la transition vers la formalité des petites entreprises au Cameroun, réalisée par le BIT et l'Université de Yaoundé II (Cameroun) en 2017. Les résultats montrent que le financement formel est un facteur de formalisation des entreprises, contrairement au financement informel. Ainsi, il apparaît utile de faciliter l'accès des entreprises aux services financiers formels, notamment par l'intermédiaire du coaching public, de l'évaluation de ces programmes de coaching et de l'octroi de prêts publics.

Mots-clés

Durée de formalisation des entreprises
Mode de financement
Modèle de durée
Cameroun