DOES FINANCIAL DEVELOPMENT AND IMPROVED INSTITUTIONS REALLY ~~IMPROVE~~ADVANCE FORMAL ENTREPRENEURSHIP IN DEVELOPING COUNTRIES?

Abstract: To effectively combat poverty worldwide, many developments policies place particular emphasis on entrepreneurship because of its ability to drive economic growth. However, there is the challenge of reducing the informal sector and promoting the formal sector. Many initiatives have therefore been undertaken to promote formal entrepreneurship in developing countries, but little is known about the role of institutions and financial development. The aim of this article is to analyze the effects of financial development and institutions on formal entrepreneurship in developing countries. To achieve this, the system GMM method was applied to a sample of 94 developing countries between 2006 and 2018. It yielded the following results: (i) financial development has a positive effect on formal entrepreneurship ; (ii) institutions have mixed effects on formal entrepreneurship; (iii) institutions encourage financial development to foster formal entrepreneurship; (iv) other macroeconomic variables have mixed effects. We The study recommend that the leaders of these countries develop their financial systems, fight corruption more effectively, reduce regulatory constraints on business creation and encourage the achievement of economic policy objectives in order to expand the size of the formal sector.

Keywords :Formal entrepreneurship, institutions, financial development, formal sector. Informal sector

I. Introduction

The focus on the expansion of the formal sector in developing countries (DCs) has attracted particular attention from academics and politicians alike. In this context, significant growth in the formal sector has been slow, while the contribution and expansion of the informal sector has been more pronounced. In fact, the informal sector contributes over 70% to the GDP of developing countries, while the formal sector struggles to exceed 30% (Schneider and Ernst, 2013). Becker (2004) argues that the informal sector replaced the formal sector because the latter was unable to recruit all the available labor. If we consider the employment structure of the informal sector, self-employment takes precedence over salaried work. Relevant statistics show that 70% of workers in sub-Saharan Africa are self-employed, 60% in North Africa, 60% in Latin America and 58% in Asia. Between 2006 and 2018, the average rate of new formal businesses was 23.53%, while the average rate of informal businesses was 76.47% (WDI, 2022). Unfortunately, the large self-employed workforce remains limited to underemployment and insufficient to help achieve economic growth targets, hence the concern about the expansion of the formal sector.

This study follows the same logic and aims to analyze the necessary instruments that contribute to the expansion of formal entrepreneurship in developing countries. To date, the literature on this subject suggests that formal entrepreneurship is crucial in enabling developing countries to escape poverty (Nguimkeu, 2014). In fact, formal businesses contribute to the composition of national income, as the taxes paid by formal businesses are one of the sources of funding for the state. The formal sector comprises legally operating businesses (Hart, 1973). These companies are well known to public administrations and produce goods and services subject to compliance protocols. The products of this department

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effectively increase consumer satisfaction and cause no harm to consumers, as they are manufactured under good conditions. In terms of job opportunities, the formal sector offers the most well-paid jobs, since most companies are not single-person enterprises. This limits unemployment rates, which are considered very high in these countries. In fact, 8.1% and 8.2% respectively of the population of Latin America and the Caribbean are unemployed (ILOSTAT, 2019).

Formal enterprises are considered the main source of growth. According to the principles of national accounting, the output of these enterprises constitutes the total national product. It is through the activities of enterprises that the economy functions. Because the enterprise itself is a unit of production, a unit of redistribution and a social unit, the (formal) enterprise is the center of economic activity. Consequently, the establishment of formal entrepreneurship in society can not only increase a country's innovative potential (Schumpeter, 1934), but also improve the skills of its employees, thus offering opportunities to increase national production (Say, 1807). In addition, entrepreneurship also has a social value, helping to increase tax revenues, improve national competitiveness and create quality employment opportunities (Storey et al., 1987). Formal entrepreneurship is thus defined as "the activities of individuals or groups aimed at carrying out economic activities in the formal sector in a legitimate business form" (Klapper et al., 2007). Developing countries strongly consider this sector, but to the detriment of the informal sector.

The informal sector, on the other hand, encompasses activities that may be legal, but are not recognized by the public administration (Hart, 1973). It is a legacy industry in which individuals act outside the law and do not adhere to required compliance protocols; and coexists with formal entrepreneurship. Formally, informal entrepreneurship involves businesses that are not registered by the state or are hidden from the state for tax and/or social purposes (Williams and Nadin, 2010). The problem with these businesses is that they cannot innovate, export or import, win public contracts; they are small, have an unskilled and underemployed workforce, lack capital, etc. (Hart, 1973). This situation proves that an economy cannot rely on the informal sector for its development. That's why we approach entrepreneurship in its formal program, which abounds in all the qualities necessary for economic development.

In the existing literature, some authors (Schumpeter, 1934; Kirzner, 1973; Baumol and Strom, 2007) define entrepreneurship as the main source of economic growth. Moreover, entrepreneurship has always been considered a decisive and highly critical factor in the economic development of any country (Schumpeter, 1934; 1942; Carree and Thurik, 2005; Holcombe, 2007; Stel et al., 2005). In addition to creating new jobs and stimulating economic growth, entrepreneurship also helps to increase the competitiveness of developed and developing economies, enabling them to better adapt to economic and structural change (Audretsch, 2002). However, this growth-generating entrepreneurship is still fragile in developing countries, because certain conditions favorable to the sector are not met in this context. In the Schumpeterian tradition (1934), the development of entrepreneurship is linked to finance and the institutional environment. In fact, the level of an economy's financial system determines the level of production in the real economy (Schumpeter, 1912; Show, 1973; McKinnon, 1973; Levine, 1997). Here, financial development occurs when the financial structures (financial institutions and financial markets) in a given economy manage to minimize the frictions that usually exist in the financial and banking markets (Levine, 1997). A developed and mature financial system is therefore characterized by access to financial services for all economic agents, and by the existence of intermediation institutions

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and diversified instruments to meet the diversity of demand and recycle available savings into financing the economy (Levine, 1997). However, the level of financial development is still very low in developing countries.

Indeed, the evolution of the global index of financial development remains considerably low compared to developed countries. On average, it rose from 13% in 1985 to 24% in 2018, in contrast to developed countries, where it rose from 31% in 1985 to 55% in 2018 (IMF, 2022). The same observation is made when we look specifically at the development of financial institutions and financial markets. In contrast to developed countries, which have gone from 41% and 19.6% respectively in 1985 to 63% and 44.6% in 2018 (IMF, 2022), the development of financial institutions and markets in developing countries has gone from 20% and 6% respectively in 1985 to 36% and 10% in 2018. What's more, these entrepreneurs are denied credit even though they have (in some cases) very high-quality projects (Nguimkeu, 2014). Developing countries therefore need to develop their financial systems, because the literature shows that financial development is a source of development and encouragement for productive entrepreneurship and consequently for economic growth (Schumpeter, 1912; McKinnon, 1973; Show, 1973; Stiglitz, 1989; Aghion and Howitt, 1998). Developed financial systems mobilize the necessary financial resources and allocate them as efficiently as possible. In this sense, they promote capital accumulation, innovation, employment and high productivity (Levine, 2005). In short, a poor-quality financial system makes it impossible to control financial risks and leads to inefficient financial intermediation, thereby slowing down economic activity (Lo and Ramde, 2019). The poor development of the financial system (Thai and Turkina, 2014) seems to justify the low level of formal entrepreneurship in developing countries.

When we think about improving the financial system, we also think about the quality of the institutions that govern the economic environment. Productive entrepreneurship requires an efficient financial system, which in turn requires a solid institutional structure. For an entrepreneur, finance and institutions are indispensable (Schumpeter, 1934). In this case, institutions are the second factor requiring improvement if formal entrepreneurship is to grow (Nguimkeu, 2014). North (1990) defines institutions as the set of formal or informal rules and norms designed to govern interactions between agents. Institutions are conceived as the basis of all economic development. And if there are disparities in levels of development around the world, it's because of the disparity in levels of institutions between countries. The most developed countries are those with high-quality institutional endowments, while the poorest countries are those with weak institutions. For Acemoglu et al (2004), a nation with economic institutions that facilitate and encourage factor accumulation, innovation and the efficient allocation of resources is more likely to prosper. The quality of institutions is therefore linked to the level of entrepreneurial development (Williamson, 1963). Many authors have shown that it is the quality of institutions that defines the level of entrepreneurship in an economy (North, 1990; Sobel, 2008; McMullen et al., 2008; Omri, 2020; Dutta and Meierrieks, 2021). However, the quality of institutions remains low in developing countries.

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Therefore, adjust the title to reflect just that.

Indeed, between 1996 and 2019, the average index of corruption control is -0.55 in developing countries versus 0.98 for developed countries; political stability averages -0.44 versus 0.77 for developed countries; regulatory quality is -0.56 versus 0.95; and the rule of law averages -0.57 versus 0.98. These statistics demonstrate the need to improve the quality of institutions in developing countries. Since institutions are the basis of all development (North, 1990), improving them would be a means of developing the financial system, and consequently entrepreneurship. A good institutional environment is favorable to the financial

system and to entrepreneurship (Schumpeter, 1934). Good institutional quality not only promotes financial development and entrepreneurship independently, but also acts as an effective intermediary, ensuring good coordination between the financial sector and entrepreneurship (Stiglizt, 1998; Omri, 2020). That's why this article attempts to show that improving the quality of institutions is better for entrepreneurship of this kind in developing countries than mere financial development. It analyzes the effects of financial development on gender entrepreneurship, on the one hand, and those of institutions on the relationship between entrepreneurship and financial development, on the other, in the context of developing countries. Indeed, some authors have shown that improving the quality of institutions encourages financial development (Girma and Shortland, 2008; Huang, 2010; Law and Azman-Saini, 2012). In short, a financial sector associated with quality institutions is more conducive to entrepreneurship (Schumpeter, 1942; Omri, 2020). This leads this work to think of an expansion of formal entrepreneurship through an improvement in the quality of institutions.

The inherent limitation of all this literature is that it does not address the issue of formal entrepreneurship by simultaneously testing institutions and financial development. While some studies have attempted this, they have ignored either the particularity of formal entrepreneurship (Dutta and Meierrieks, 2021) or the context of developing countries (Omri, 2020). This study completes this initial gap. Another advantage of this work is that it analyzes the direct and indirect effects of institutions on formal entrepreneurship. It assumes that institutions not only act in favor of financial development and entrepreneurship independently, but also act as an effective intermediary ensuring good coordination between the financial sector and entrepreneurship. We construct a theoretical contribution and provide new empirical verification that shows that the problem of formal entrepreneurship in developing countries must begin with the question of institutions, and that the process of finance towards entrepreneurship will be a simple outcome.

The aim of this work is to analyze the effects of developments in financeial development and institutions on formal entrepreneurship in developing countries. More specifically, we will test their direct effects as well as the indirect effect of institutions. Thus, if formal entrepreneurship is to be promoted in developing countries, it is important to go through financial development and institutions. But, above all, the process must start by improving the institutions that will trigger the development of the financial system and, consequently, the development of formal entrepreneurship. The underlying assumption is that improving the quality of institutions leads to financial development, which in turn encourages formal entrepreneurship in developing countries.

The choice of this work makes perfect sense in developing countries, as almost all of them have problems of poor institutional quality, weak financial development and a weak formal sector. The benefit of this work lies in its contribution to the expansion of formal entrepreneurship theory in developing countries. In particular, it analyzes the interaction effect of institutional improvement and s and financial development on formal entrepreneurship and provides a limit gapto the work that has claimed that financial development and improvements in the quality of institutions discourage formal entrepreneurship in DCs independently of each other (Thai and Turkina, 2014). This work proves that none of these factors can act alone, and that the optimal pattern is one of institutions passing through financial development to achieve entrepreneurship. It is more important because of the way it analyzes the interaction of the calculation of net effects, which is totally absent from previous work. It is therefore the subject of the first work to

analyze this theme in this context to our knowledge.The rest of this work covers the literature in II, the methodology in III, the presentation and discussion of the results in IV and the conclusion in V.

II. Literature review

II.1 Theoretical framework (Electric Theory of Entrepreneurship)

The challenge of growth in developing countries has prompted many leaders to turn to entrepreneurship after the failure of the export and import substitution policies initiated just after independence (Acs and Virgill, 2010). The interest in entrepreneurship, based on the work of Hart (1973), led Verheul et al (2002) to develop the Electric Theory of Entrepreneurship. In this theory, the authors attempt to understand and analyze what motivates entrepreneurial activity in a given country at both macro and micro levels. Four main categories of factors explain the level of entrepreneurship in a given country: demand (economic opportunities), supply (of resources and capabilities), quality of governance and cultural factors. According to this theory, financial development is used as an economic opportunity (Verheul et al., 2002), since it is exogenous to the company.

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Entrepreneurship cannot evolve without external financing, which is why finance remains at the heart of entrepreneurship (Schumpeter, 1912). Schumpeter (1912), in his "theory of economic evolution", defines the entrepreneur and the banker as those responsible for the development process. The entrepreneur brings new projects to life, and the banker provides the resources needed to carry them out. Through its financial intermediation function, financial development enables the mobilization of savings; the optimal allocation of financial resources; the exercise of control over financed enterprises; the facilitation of risk management; and the facilitation of the exchange of goods and services (Levine, 1997). However, the reality in developing countries is quite different, with many entrepreneurs unable to realize their projects because of the difficulty of accessing bank financing (Nguimkeu, 2014). Financial constraints impose a sizeable burden on formal entrepreneurship, as the number of guarantees and other conditions to be met in order to benefit from bank credit discourage entrepreneurs with good projects (Evans and Jovanovic, 1989). Those entrepreneurs who, despite everything, are determined to carry out their project, are sometimes forced to convert to informal entrepreneurship, where there are no restrictions.

The lack of bank financing in developing countries remains a real concern. Do you think it would be advantageous to facilitate access to bank financing by reducing the constraints that discourage entrepreneurs? This is of particular interest in this context, because people are short of equity capital, and the only means of enabling them to carry out their projects is bank credit. Financial development in these countries remains the only solution when state subsidies and personal funds are insignificant in supporting economic activity. Thus, the lack of financing is one if not the main barrier to the emancipation of formal entrepreneurship in developing countries (De Soto, 1989; Nguimkeu, 2014).

Moreover, institutions are recognized as playing a very important role in economic activity (North, 1990), and particularly in entrepreneurial activity (Baumol, 1993). Our initial focus is on formal institutions, which are written rules accessible to all and which govern human action with the capacity to liberate or restrict economic activity. Informal institutions are limited in scope because they apply only to individuals who share the same culture, whereas formal institutions apply to all those who carry out activities in a given environment. When institutions are weak, they constitute an additional barrier to entrepreneurs. In a context of

high corruption, for example, rulers have a love of private gain, as they serve their own interests to the detriment of the collective interest. Corruption becomes like an additional cost that formal entrepreneurs pay, which may push them into the informal economy as they seek to escape extortion (De Soto, 1989). Otherwise, formal institutions are a barrier to formal entrepreneurship when they protect or maximize elite rents (Acemoglu and Robinson, 2012). The high level of taxes and burdensome registration procedures imposed on entry also act as a brake on formal entrepreneurship (Williams, 2016). In addition, formal institutions block entrepreneurs who want to leave the informal sector. Indeed, these entrepreneurs voluntarily practice informality to avoid red tape, waste time and bypass the rigid requirements of the administration.

It is necessary for the state to intervene in economic activity, but with restrictions to enable entrepreneurs to remain in the formal sector. However, the effectiveness of this intervention lies in transparency (Williams and Martinez-Perez, 2017). Indeed, entrepreneurs need to be informed about the management of their contribution in order to maintain the social contract between the state and citizens. Otherwise, informal entrepreneurship is a demonstration of a clear desire to operate illegally by entrepreneurs who believe they are doing the best redistribution in place of the government. In this way, we corroborate Kaufman et al (2006) and Thai and Turkina (20014), for whom good economic and political institutions encourage entrepreneurship at national level. Given their ability to propel development, institutions have the capacity to encourage formal entrepreneurship in developing countries.

Schumpeter (1942) was the first to point out the importance of institutions in the link between finance and entrepreneurship. For finance to have an effective impact on entrepreneurship, a favorable economic environment is required. Followers of the New Institutional Economics (NIE) put institutions at the heart of economic life, and therefore as a determinant of financial development. Based on the link between institutions and finance, La porta et al (1997) show that savers invest more in companies where institutions are well developed. Indeed, in countries with legal systems that facilitate contracts between private agents, and protect property rights and investors' rights, savers' resources contribute to the expansion of financial markets. Conversely, when property and investor rights are poorly protected by a financial system, financial development tends to slow down.

Since bankers fear non-repayment of their funds by customers, the need for a judicial system is essential, as it will enable creditors to benefit from the repayment of their loans in full in the event of bankruptcy (Levine, 1999). On the other hand, the political factor influences banking development. Political reforms aimed at increasing the legal protection of creditors can lead to a reduction in efforts to select borrowers. A reform aimed at increasing the efficiency of the legal system encourages banks to reduce the frequency with which they check the results of borrowing companies (Pagano and Volpin, 2001).

Other factors are also conducive to formal entrepreneurship, notably the size of the working-age population and human capital (Lucas, 1962), since these are characteristics specific to or endogenous to entrepreneurs. Thus, legal reforms must be accompanied by political reforms to enable the development of financial markets and entrepreneurship.

The use of these theories allows us to extend the understanding of formal entrepreneurship since they give us the possibility to extend the work on formal entrepreneurship through an empirical experiment. Following the work of Omri (2020) and Thai and Turkina (2014), this study provides a new theoretical construct on formal entrepreneurship. We show how the right institutions foster financial development, which in turn encourages formal entrepreneurship.

II.2 Review of empirical literature

Institutions and formal entrepreneurship

In the literature on the link between institutions and formal entrepreneurship, several studies (Kaufmann et al., 2006) have shown that sound laws, transparent registration procedures and good economic and political institutions are positively linked to national rates of formal entrepreneurship. Their arguments are supported by the European Commission (2003), which states that improved economic regulation encourages entrepreneurs to move from informal to formal entrepreneurship.

In addition, a study by Klapper et al (2011) confirms that better regulation of the business environment encourages entrepreneurs to operate in the formal sector. Using a structural equation modeling approach, Thai and Turkina (2014) find that good governance increases formal entrepreneurship and decreases informal entrepreneurship in the case of developing countries. Dau and Cuervo-Cazurra (2014) found that pro-market institutions encourage formal entrepreneurship and reduce informal entrepreneurship. But, that their ability to reduce informal entrepreneurship is greater than their ability to propel formal entrepreneurship. For 18 Asia-Pacific countries, Autio and Fu (2015) study the effects of economic and political institutions on formal and informal entrepreneurship. Their findings reveal that many of these institutions exert substantial effects on both forms of entrepreneurship. They also add that a one percent increase in the quality of these institutions could double the rates of formal entrepreneurs and halve the rates of informal entrepreneurs.

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Chowdhury et al (2019) found in a sample of 70 countries that the quality of entrepreneurship is a function of the quality of institutions. This is why developed countries have better quality entrepreneurship than developing countries. More recently, for 119 countries over the period 2001-2012, Chambers and Munemo (2019) analyze the impact of start-up regulations and the institutional quality of entrepreneurial activity. Their findings reveal that new business creation is significantly lower in countries that lack quality government institutions. Continuing in the same vein, Omri (2020) shows in his analyses of emerging countries that good-quality institutions are a favorable factor for formal entrepreneurship, but discourage so-called informal entrepreneurship. He goes on to suggest that an improvement in the quality of institutions encourages entrepreneurs to migrate from the informal to the formal sector.

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On the other hand, Schneider and Enste (2000), Klapper et al. (2007) indicate that due to cumbersome regulations, lack of supervision and other weaknesses in the business environment, many entrepreneurs have found it optimal to avoid regulation and engage in informal entrepreneurship. On the other hand, weak legal structures, the bureaucratic impediments of an over-regulated market and the lack of clarity in the rules governing the creation of a formal enterprise encourage people to engage in the informal economy (De Soto, 1989). This literature shows that the size of formal entrepreneurship is a function of the quality of institutions.

Financial development and formal entrepreneurship

Financial development, through the diversification of financial instruments and improved access to financial services, can reduce the cost of external financing for companies, thus fostering a growing entrepreneurial dynamic (Mowery and Rosenberg, 1989). Thus, financial development is a prerequisite for entrepreneurial dynamism. However, the problem of financial constraints on entrepreneurship remains at the heart of the debate, for academics and

economists alike. In developing and emerging countries, lack of access to finance is all too often an obstacle to the creation, growth and sustainability of these businesses. In this respect, the World Bank (2013) reports that, of the more than 400 million micro, small and medium-sized enterprises in developing economies, more than half have insufficient access to finance.

Yet it has been found that ease of access to finance has a positive effect on the quality and level of entrepreneurial activity. Numerous previous studies show that the lack of access to finance encountered by entrepreneurs is often cited as the greatest obstacle to the creation and development of new businesses (Goedhuys and Sleuwaegen, 2009; Omri et al., 2015). In this instance, Klapper et al. (2007) assert that financial development significantly stimulates new registered businesses and significantly reduces informal entrepreneurship due to the lack of bank financing.

Aghion et al (2007) study the effect of lending constraints on the entry and post-entry growth of new businesses. In their model, they predict and highlight the importance of financial development for entrepreneurship. Specifically, an increase in financial development promotes the entry of small businesses, discourages the entry of large businesses that have no better long-term prospects, and promotes the growth of all businesses that survive post-entry. Furthermore, Klapper and Love (2011) argue that financial development stimulates new registered businesses, suggesting that better access to finance leads to a more robust private sector.

King and Levine (1993) show that financial development positively affects entrepreneurship, its productivity and the success of innovation for sustainable economic growth. Using data from 21 countries, Klapper et al (2006) estimate a Tobit model to study the effect of financial development and other regulations on entrepreneurship. They conclude that the rate of new business entry is particularly high in sectors that are most dependent on external financing for their growth in the economy, with high levels of financial development. Aghion et al (2007) confirm the findings of Klapper et al (2006) in their exploration of the effect of the lending constraint on new business entry and post-entry growth, using data from 16 OECD economies. Their findings are also in line with those of Beck et al. (2001), Omri and Ayadi-Frikha (2014), who emphasize the importance of the financial sector for firm entry and growth in sectors most dependent on ex terne financing.

In the case of sub-Saharan Africa, Goedhuys and Sleuwaegen (2009) also show that the development of entrepreneurship is limited by financial development, insecurity and poor infrastructure. Using data from 41 developed and developing countries, Llussá (2009) investigates the effect of financial development on entrepreneurship, and finds a positive association between the two variables. The same result was found by Kar and Özsahin (2016) for 17 emerging economies, by Wujung and Fonchamnyo (2016) for Cameroon, by Fan and Zhang (2017) for 31 provinces in China.

In a study of 20 African countries between 2006 and 20017, Ajide and Ojeyinka (2022) analyzed the effect of financial development on entrepreneurship using the GMM system method. Their results showed that financial development does not encourage entrepreneurship, and that there is a threshold above which financial development has a positive effect on entrepreneurship. Amin et al (2023) found in 48 Asian countries that financial development encourages entrepreneurship.

The role of institutional quality in the relationship between financial development and formal entrepreneurship

Omri (2020) carries out work in emerging countries in which he assesses the effects of financial development and institutional quality on formal versus informal entrepreneurship. In an interaction between financial development and institutional quality, he finds that improving institutional quality encourages financial development, which in turn promotes formal entrepreneurship and discourages informal entrepreneurship. Thus, institutions are a favorable intermediary in the relationship between financial development and formal entrepreneurship.

Hameli et al (2021) carried out work in the Arab Emirates between 2006 and 2017 in which they analyzed the effect of financial development and other macroeconomic magnitudes on entrepreneurship. They find from GMMs and instrumental variables that financial development has a positive effect on entrepreneurship. They also confirm that institutions have a mediating effect that amplifies the effect of financial development on entrepreneurship.

In their study of 136 countries, Dutta and Meierrieks (2021) found from an instrumental variable model that financial development encourages entrepreneurship where political and economic institutions are of good quality. Institutions mediate the impact of financial development on entrepreneurship. Ajide and Ojeyinka (2022) found in their work that financial development has a negative effect on entrepreneurship in Africa. They also find that the tendency of financial development to promote entrepreneurship is conditioned by regulations and high-quality institutions.

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III. Methodology

In economics, the interest in entrepreneurship as part of the growth process can be traced back to the work of Castillon (1755), for whom entrepreneurship is a source of wealth. This interest has grown steadily in economic analysis, and continues to chronicle our times, where numerous parameters have come into play to facilitate the productivity of entrepreneurship. According to the segmentation of entrepreneurship, the informal sector is a disadvantage in the growth process, since it abounds in resources that remain unknown to the administration and do not contribute to the constitution of national wealth. That's why it's imperative to encourage more formal entrepreneurship, especially in the context of developing countries seeking to lift themselves out of poverty. To achieve this, certain requirements need to be met, notably improving the quality of institutions and developing the financial sector (Nguimkeu, 2014).

III.1 Data sources

The objective of this study is to analyze the effect of financial and institutional development on formal entrepreneurship in 94 developing countries between 2006 and 2018. Our sample size and study period are due to data availability. The 2018 limit is considered so as not to influence the results. This is because the shock created by the Covid-19 pandemic has had a very heavy impact on economies. Four data sources are used. These are the Global Entrepreneurship Monitor (GEM), the International Monetary Fund (IMF), the Worldwide Governance Indicator (WGI) and the World Development Indicator (WDI). Details of the variables are given in Appendix Table 1.

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III.2 Model specification

We make use of the GMM method in a system for 94 developing economies over a period from 2006 to 2018. Consequently, the following specification is used to explore the influence of different institutional factors and their interaction with financial development on formal entrepreneurship. Thus, our proposed model is specified as follows:

$forme\_entre_{it} = \alpha_0 + \alpha_1 INSTI_{it} + \alpha_2 FD_{it} + \alpha_3 DF_{it} * INSTI_{it} + \sum_{j=1}^{K} \theta_j M'_{jit} + v_t + \varepsilon_{it}$ (1)

Where:

$form\_entre$ is formal entrepreneurship;

i ($i = 1, \ldots, 94$) denotes any country,

t ($t = 1, \ldots, 13$) denotes any period and

α_0 the constant term that varies from one country to another independently of time.

In line with previous literature (Omri, 2020), we define formal entrepreneurship as the number of newly registered businesses as a percentage of the working-age population. Following the work of Ben Youssef et *al*. (2018), we measure formal entrepreneurship by the number of newly created businesses as a percentage of the working-age population.

INSTI is a matrix that groups the six indicators of Kaufmann et *al* (2010) into three categories: economic institutions (government efficiency and regulatory quality); political institutions (political stability and voice and accountability) and legal institutions (control of corruption and rule of law). In the application, we test each indicator for a single regression. This means we will run six regressions based on the six indicators. *DF* represents the International Monetary Fund (IMF) financial development index proposed by Cihak et *al*. (2013). $FD * INSTI$is the interaction between financial development and institutional quality; M' is the vector of control variables included in the model; j is the number of control variables introduced; v_t is the country-specific effect; ε_{it} is the error term. α_1 , α_2 and α_3 are coefficients whose significance is of great interest. It is therefore desirable for all three coefficients to be positive.

To avoid the pitfall of models with interactive regressions, each interaction parameter should be analyzed as conditional marginal effects to give more economic and political meaning to the estimates (Brambor et al., 2006).

Methodological approach

The system GMM (S-GMM) method is chosen in this section for the following reasons. Firstly, the number of countries (N = 94) is greater than the number of years (T = 13), thus controlling for dynamic panel bias (Roodman, 2009). The condition N > T for the application of GMMs is therefore satisfied. Secondly, the ability of S-GMM to reduce fine-sample bias allows for more efficient results than the difference GMM method (D- GMM) according to Baltagie (2008). Thirdly, it takes into account cross-country variations in the regressions. Fourthly, this method is also effective because it resolves endogeneity and double causality problems in regression. To solve the endogeneity problem, we define a variant of equation (1). This allows us to define the following models (2) and (3):

$form\_entre_{it} = \alpha_0 + \alpha_1 form\_entre_{it-1} + \alpha_2 INSTI_{it} + \alpha_3 FD_{it} + \alpha_4 FD_{it} * INSTI_{it} + \sum_{j=1}^{K} \theta_j M'_{jit} + v_t + \varepsilon_{it}$ (2)

$form\_entre_{it} - form\_entre_{it-1} = \alpha_1 form\_entre_{it-1} - form\_entre_{it-2}) + \alpha_2 (INSTI_{it} - INSTI_{it-1}) + \alpha_3 (FD_{it} - FD_{it-1}) + \alpha_4 (FD_{it} * INSTI_{it} - FD_{it-1} * INSTI_{it-1}) + \sum_{j=1}^{K} \theta_j (M'_{jit} - M'_{jit-1}) + (v_t - v_{t-1}) + (\varepsilon_{it} - \varepsilon_{it-1})$ (3)

Where $form\_entre_{it-1}$ is the lagged value of formal entrepreneurship. Including this value in the regression may violate the orthogonality assumption. Arellano and Bond (1991) recommend D-GMMs, which use first-difference variables to eliminate country-specific

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effects. Since the correlation between lagged dependent variables and the error term persists, they propose the use of both dependent and independent variables as instruments. The inability of these instruments to provide sufficient information on future changes led Blundell and Bond (1998) to propose the System GMM (S-GMM) estimator, which takes into account sets of equations with level and lagged variables. The S-GMM estimator is thus better suited than the D-GMM estimator, which may suffer from certain sample mismatches since it offers weak instruments.

Strictly exogenous instruments exclusively influence formal entrepreneurship through the endogenous variables tested. The Hansen difference test (DHT) is used to test the exogeneity of the instruments. Validation of the instrument restriction test requires rejection of the alternative hypothesis. Confirmation that strictly exogenous variables affect formal entrepreneurship through the channels considered consists in rejecting the alternative hypothesis of Sargan Over Indentifying Restriction (OIR) (Beck et al., 2003).

In integrating the S-GMM method in this way, the two-stage method is preferred because it is suitable for solving the heteroscedasticity problem, unlike the single-stage method, which is suitable for homoscedasticity. As the aim of this work is to analyze the effects of institutions and financial development on formal entrepreneurship, it offers the advantage of using the most comprehensive index of financial development and the most widely exploited index of governance. Using only part of one of these indices may lead to biased results.

IV. Results presentation

IV.1 Statistical results

Table 1 below shows the results of the descriptive statistics.

Table ~~1:~~1 : Descriptive Sstatistics

Variable	Obs	Mean	Std.Dev.	Min	Max
form_entre	1024	23778.02	57500.33	10	456000
FD	1222	0.256	0.16	0	0.793
CC	1218	-0.265	0.755	-1.728	2.465
EG	1217	-0.219	0.737	-2.484	2.437
PS'	1217	-0.255	0.872	-2.81	1.615
QR	1217	-0.158	0.727	-2.268	2.261
RL	1217	-0.267	0.719	-1.958	2.1
VR	1216	-0.196	0.782	-2.233	1.687
DGPC	1216	2.562	4.22	-47.591	32.997
Educ_sec	914	78.218	26.579	9.689	154.82
Educ_ter	883	32.878	24.216	.593	113.217
FDI	1212	6.005	15.964	-37.173	280.132

Source : Authors

Comment [DAH9]: Put the names of these variables in full for Readers to be able to comprehend them.

The information thus provided shows that institutional arrangements in DCs are of poor quality on average, ranging from -0.27 to -0.16. Between 2006 and 2018, 23,778 new businesses were registered in developing countries, representing a formality rate of 23.53%. Financial development also remains low, with an average of 0.26. Given the observed standard deviations, one might expect the appearance of reasonable estimated links. Table 2 presents the results of the correlation matrix .

Comment [DAH10]: What are the implications of this statistics ?

Table 2: correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12
1. form_entre	1											
2. FD	0.53** *	1										

3. CC	-0.01	0.16***	1									
4. EG	0.28***	0.72***	0.03	1								
5. PS	-0.16***	0.24***	0.62***	0.38***	1							
6. QR	0.20***	0.40***	0.63***	0.71***	-0.11***	1						
7. RL	0.12***	0.61***	0.55***	0.77***	0.70***	-0.23***	1					
8. VR	0.01	0.09***	0.93***	0.09***	0.56***	0.66***	0.44***	1				
9. DGPC	0.07***	-0.06**	-0.02	-0.03	-0.03	-0.03	-0.067**	-0.03	1			
10. Pop15_64	0.37***	0.62***	0.10***	0.57***	0.28***	0.32***	0.44***	0.01	0.05*	1		
11. Educ_sec	0.31***	0.55***	0.10***	0.56***	0.35***	0.33***	0.45***	0.07**	0.03	0.80***	1	
12. Educ_ter	0.45***	0.59***	0.08***	0.54***	0.26***	0.33***	0.39***	0.06**	0.02	0.79***	0.79***	1
13. FDI	-0.02	0.13***	0.06***	0.16***	0.12***	0.10***	0.17***	0.06**	-0.02	0.09***	0.07**	0.08***

Source : Authors

The correlation coefficients indicate, however, that financial development is positively correlated with formal entrepreneurship, institutional indicators, and all other variables except GDP per capita growth. We also observe that formal entrepreneurship is negatively associated with political stability, control of corruption and foreign direct investment, while it is positively associated with the other indicators. Institutional factors are nevertheless correlated with each other, but only to a limited extent. Nevertheless, these presumed results require a more concrete and precise analysis. To confirm the correlation results obtained, we carry out econometric tests using the GMM method in a two-stage system.

Comment [DAH11]: What are the implications of these correlations ? Show other infrences from your results

IV.2 Econometric results

Table 3 below presents the results of the S-GMM method relating to the empirical association between formal entrepreneurship, the financial aspect and the institutional aspect.

Table ~~3~~3 : Econometric R~~r~~esults

	(1) form_entre	(2) form_entre	(3) form_entre	(4) form_entre	(5) form_entre	(6) form_entre
L.form_entre	0.673***	0.853***	0.700***	0.673***	0.685***	0.694***
	(17.12)	(31.23)	(17.01)	(15.62)	(16.40)	(16.03)
CC	0.0237***					
	(5.32)					
VR		0.0156**				
		(2.39)				
EG			-0.261***			
			(-5.06)			
RL				-0.180		
				(-0.84)		
PS					0.00448	
					(0.07)	
QR						-0.0534***
						(-4.21)

DF*CC	0.155					
	(0.52)					
DF*VR		-0.376***				
		(-2.64)				
DF*EG			0.835***			
			(3.31)			
DF*RL				0.591		
				(1.21)		
DF*PS					0.110	
					(0.36)	
DF*QR						0.846*
						(1.93)
FD	0.828*	0.689***	0.623	0.825**	0.997***	0.452
	(2.50)	(3.55)	(1.53)	(2.04)	(3.98)	(0.96)
DGPC	0.0172***	0.0196***	0.0162***	0.0188***	0.0203***	0.0126**
	(3.60)	(4.99)	(3.26)	(3.63)	(4.36)	(2.42)
Pop15_64	-0.481	-0.448**	-0.425	-0.674**	-0.489*	-0.273
	(-1.75)	(-2.18)	(-1.48)	(-2.35)	(-1.85)	(-0.90)
Educ-sec	0.397**	0.0801	0.537***	0.583***	0.318**	0.434***
	(2.93)	(0.70)	(4.24)	(4.43)	(2.48)	(3.53)
Educ_ter	0.102	0.0758	0.0608	0.0967	0.118**	0.0163
	(1.73)	(1.51)	(1.02)	(1.52)	(2.03)	(0.25)
FDI	-0.00270*	-0.00194	-0.00351***	-0.00231**	-0.00185**	-0.00458***
	(-2.09)	(-0.90)	(-3.27)	(-2.26)	(-2.01)	(-3.30)
_cons	0.774	0.703*	0.0177	0.0238	0.892*	0.686
	(1.58)	(1.87)	(0.04)	(0.04)	(1.94)	(1.44)
N	1128	1128	1128	1128	1128	1128
Net effect	0.87	0.59	0.84	0.98	0.37	0.96
AR(1)	0.000	0.000	0.000	0.000	0.000	0.000
AR(2)	0.231	0.183	0.217	0.297	0.251	0.200
Hansen OIR test	0.370	0.322	0.473	0.287	0.234	0.480
N_g	94	94	94	94	94	94
Fisher	1081.08***	3502.24***	734.28***	864.38***	1102.03***	641.74***

Source: Authors
t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
Nb: numbers (1) to (6) are estimated models with different institutional indicators

To validate each result, we use four types of criteria. Firstly, we use the no autocorrelation test (AR(2)) and the first-order autocorrelation test. Secondly, we take into account the non-correlation of the instruments with the error terms. Indeed, the Sagan and Hansen OIR test must be insignificant for all models. Next, the overall validity of the model is tested using Fisher's test. Finally, the instrument exogeneity test (DHT) is used to confirm the OIR test.

In line with the above, the table above presents the results of six (6) models corresponding to the institutional indicators. The numbering defined for this purpose is such that model (1) tests control of corruption (CC), model (2) tests voice and accountability (VR), model three (3) tests government effectiveness (EG), model four (4) tests the rule of law (RL), model five (5) tests political stability (PS) and model six (6) the quality of regulation (QR).

This gives us four main results for the set of estimates. Firstly, of the six institutional indicators used, the unconditional effects show that four indicators (CC, VR, EG and QR) have a significant effect on formal entrepreneurship in developing countries. Indeed, the level of corruption control has a positive (0.0237) and significant (at 1 percent) effect on formal entrepreneurship in developing countries. This result indicates that a 1 percent increase in corruption control leads, all other things being equal, to a 2.4 percent increase in formal entrepreneurship. We can also observe that voice and responsibility (model 2) has a positive

(0.0156) and significant (at 5 percent) effect on formal entrepreneurship. This reflects the fact that the more freedom of expression and action citizens enjoy, the more likely they are to create businesses in the formal sector. In fact, a 1 percent increase in the voice and freedom index encourages around two percent of citizens to set up a business in the formal sector. This result is supported by Kaufmann et al (2006), who have shown that a reduction in corruption leads to the development of entrepreneurship.

On the other hand, government efficiency and regulatory quality show a negative and significant association of (-261) and (-0.0534) at 1 percent respectively towards formal entrepreneurship in DCs. Indeed, this result shows that for a government inefficiency of 1 percent, 26.1 percent of entrepreneurs are discouraged from setting up their businesses in the formal sector in developing countries because of heavy regulations. Similarly, for 1 percent poor regulation, 5.34 percent of entrepreneurs do not enter the formal sector . Of the six institutional indicators used, two (models 1 and 2) are positively associated, two (models 3 and 6) are negatively associated and the other two have no effect.

Secondly, the unconditional effects show that financial development has a positive (all models) and significant (except models 3 and 6) effect; ~~i.e.~~i.e., when government efficiency and regulatory quality are applied, financial development no longer has an effect on formal entrepreneurship in developing countries.

Thirdly, we look at the conditional effects between financial development and each of the institutional indicators. Here, to find out whether institutions actually influence the effect of financial development on formal entrepreneurship, our interaction coefficients are analyzed as marginal effects. In fact, we calculated net effects to assess the specific impact of each interaction variable. For each estimated model, a positive net effect means that the hypothesis tested is valid, and a negative net effect means that the hypothesis tested is rejected. The results show that the net effects on formal entrepreneurship are all positive. This means that the right institution improves financial development, which in turn stimulates formal entrepreneurship in developing countries. This result is in line with those of Baltagi et al (2009), Khan et al (2019) and Omri (2020), who found that the right institutions are needed to accelerate financial development. And in turn, financial development encourages entry into the formal sector. Facilitating loans for entrepreneurs as well as improving financial infrastructure are necessary to foster formal entrepreneurship (Thai and Turkina, 2014; Wujung and Fonchamnyo, 2016; Omri, 2020) in DCs.

Fourthly, all other control variables, such as GDP per capita (GDPH), secondary education (Educ_sec) and tertiary education (Educ_ter) have positive and significant effects on formal entrepreneurship in DCs. On the other hand, foreign direct investment (FDI) and working-age population have negative effects on formal entrepreneurship in developing countries.

V. Conclusion

The objective of this article was to assess the effects of both financial ~~development~~ and institutional developments~~s~~ on formal entrepreneurship in 94 developing countries between 2006 and 2018. Four main results are obtained using the GMM method in a two-stage system:

(i) ~~(i)~~ institutions have a mixed direct effect on formal entrepreneurship;
(ii) (ii) financial development has a positive effect on formal entrepreneurship;
(iii) (iii) institutions improve financial development, which in turn encourages formal entrepreneurship in some respects;
(iv) (iv) other macroeconomic magnitudes have mixed effects.

We recommend that developing countries improve the quality of their institutions and develop their financial structure, in order to increase the size of formal entrepreneurship on the one hand, and to fight corruption, reduce regulatory obstacles and achieve economic policy

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objectives on the other. For the improvement of these institutions alone will lead to the development of the financial system and formal entrepreneurship.

Given the cultural and institutional divergences between countries, this work will be even more interesting if it focuses on each continent and each country for greater precision. It will also be important for future studies to focus on each dimension of financial development, to find out which is more favorable. These studies must also look at the more precise mechanisms by which the financial system will offer more facilities to entrepreneurs.

Appendix

Table 1: Variable definition and source

Variables	Acronyms	Definitions	Sources
Formal entrepreneurship	Form_entre	Number of newly registered businesses as a percentage of the working-age population.	WDI
Controlling corruption	CC	Captures perceptions of the extent to which public power is exercised for private gain, including small and large forms of corruption, as well as the capture of the state by elites and private interests.	WGI
Voice and responsibility	VR	Captures the extent to which the citizens of a country participate in the choice of their government and enjoy freedom of expression, freedom of association and freedom of the media.	WGI
Effective governance	EG	Measures the quality of public services, the quality and degree of independence of the civil service from political pressures, the quality of policy formulation and implementation, and the credibility of government commitments to these policies.	WGI
Rule of law	RL	Rule of law: captures perceptions of the extent to which agents trust and abide by the rules of society, and in particular the quality of contract enforcement, property rights, police, courts, and the likelihood of crime and violence.	WGI
Control quality	QR	Measured as the government's ability to formulate and implement sound policies and regulations that enable and promote private sector development.	WGI
Political stability	PS	Political stability / no violence: measured as the perceived likelihood that the government will be destabilized or overthrown by unconstitutional and violent means, including domestic violence and terrorism.	WGI
Financial Development	FD	This is a relative ranking of countries according to the depth, access and efficiency of their financial institutions and financial markets. It is an aggregate of the Financial Institutions Index and the Financial Markets Index.	WDI
GDPH (growth)	DGPC	Growth in GDP per capita (annual percentage), which measures the level of economic development	WDI
Population of working age	Pop15_64	Population aged 15 to 64 in (in millions)	
Secondary education	Educ-sec	Secondary school enrolment rate	WDI
Tertiary education	Educ-ter	Tertiary education enrolment rate	WDI
Foreign direct investment	FDI	Foreign direct investment flows (as a percentage of GDP)	WDI

Source : Authors

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