Imitation Effect and Endogenous Entrepreneurial Development in Africa

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Abstract

This paper analyzes some conditions of the entrepreneurial development in developing countries, where a necessity-driven entrepreneurship predominates. We develop a model adapted from Bygrave and Minneti (1999) allowing us to show the driving role of psycho sociological factors and of proximity of foreign companies. Indeed, by carrying positive externalities, foreign companies can induce mimetic dynamics on the part of local entrepreneurs who are thus likely to shift from a necessity-driven entrepreneurship to an opportunity-driven entrepreneurship. In order to stimulate such an endogenous entrepreneurship, public authorities in developing countries should aim to improve the institutional conditions through macroeconomic policies for promoting a good business climate and foreign direct investment and through microeconomic policies by financial support and entrepreneurial skills reinforcement.

Keywords: entrepreneurship, knowledge externalities, increasing returns, public policies.

JEL Classification: D62, L26, L38, L53

1. **Introduction**

Entrepreneurship has always existed in Africa. On this continent, the first entrepreneurs were farmers, ranchers, traders, often itinerant, artisans, themselves divided into castes (blacksmiths, weavers, weavers, etc.). Time has passed and entrepreneurship has not really changed. Hirschman's (1958) claim that the main disadvantage of developing countries (DCs) is the deficit of an entrepreneurial spirit still seems relevant today. To fill this gap, the state had imposed itself to boost entrepreneurial initiatives. Fortunately, this role is now vested in the private sector. The revitalization of this private sector in Africa is mainly due to foreign direct investment (FDI) inflows, private equity flows, and Western firms moving to Africa. Thus, the boom of private initiatives relies less on an endogenous entrepreneurial dynamic than on foreign companies. Increasing the contribution of the private sector to growth without developing a national entrepreneurial mentality is a little like putting the cart before the horse.

The current dynamism of the informal sector shows that there is a pool of potential entrepreneurs. But at a time when we are talking about added value, innovation, globalization, a large part of entrepreneurship in Africa is more a matter of entrepreneurship out of necessity or out of spite, which obeys more rules of survival. . Africa is struggling to move to the stage of opportunity or challenge entrepreneurship. It is this form of entrepreneurship that generates growth and economic prosperity over the long term. Here, the entrepreneur is a conqueror, a pioneer and a pioneer of progress, driven by the irrepressible desire to create and innovate (De Bezieux, 2010). Its main motive is not only to raise money but the challenge, the satisfaction of creating and building[2].

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[2] The economist Schumpeter, himself an entrepreneur, says that the entrepreneur "creates without respite because he can do nothing else ... There is first in him the dream and the will to found a private kingdom , most often, though not always, a dynasty ... Then comes the will of the conqueror ... Finally, the joy of creating a new economic form is a third type of mobile ".

Our goal in this article is to show how to leverage the exogenous entrepreneurial dynamics driven by foreign companies to create a truly endogenous entrepreneurial force based on opportunity entrepreneurship. More specifically, we show via a theoretical model of entrepreneurial development how the exogenous entrepreneurial dynamic creates an environment and an entrepreneurial culture that creates a mimicry effect. This mimetic dynamic allows starting a cumulative and exponential process of endogenous and irreversible entrepreneurial development. The remainder of the article is organized as follows: after a literature review (section 2), we develop the model by starting to analyze the conditions of entrepreneurial development in the absence of foreign firms (section 3). The section 4 deals with the impact of the presence of foreign firms on these conditions of entrepreneurial development. Then, we summarize the public policies recommendations (section 5) before concluding the article (section 6).

2. **Literature review**

In his work on forms of entrepreneurship in the world, Torrès (2001) describes entrepreneurship in developed countries as a liberal entrepreneurship (North American continent and Anglo-Saxon countries of Northern Europe) either as corporatist entrepreneurship (Southern Europe) or as networked entrepreneurship (Japan and other advanced Asian countries). In contrast, entrepreneurship in Africa is described as informal entrepreneurship based on self-reliance, tolerance for ambiguity and adaptability (Torres, supra). According to Porter et al. (2002), this form of entrepreneurship specific to developing countries is essentially a necessity entrepreneurship. This level of entrepreneurship corresponds to the first stage of the three levels of entrepreneurial development that these authors highlight: the factor-driven stage, where the activity of new businesses is motivated by an economy of necessity. This stage of entrepreneurship is not a factor of long-term growth. Entrepreneurship in PD is the ultimate stage of entrepreneurial development, that of "innovation-driven". It is characterized by a full spirit of initiative and innovation conducive to the advent of a knowledge economy. The intermediate stage of entrepreneurship, that of the "efficiency-driven" more closely corresponds to an entrepreneurship of managers of large firms. This form of entrepreneurship is more present in emerging countries. The intermediate and ultimate stages of entrepreneurship correspond more to entrepreneurship of opportunity. Entrepreneurship, in these phases, is a factor of long-term growth.

Thus, moving from necessity-driven entrepreneurship to opportunity-driven entrepreneurship is an issue of growth and development. This requires putting in place a variety of institutional conditions that affect the psychological dispositions of entrepreneurs through entrepreneurial aspirations and entrepreneurial attitudes (Hessels, Van Gelderen and Thurik, 2008, Acs and Szerb, 2008). Indeed, the propensity of a population to undertake, to create new businesses plays largely within the consciousnesses and the cognitions of individuals (Krueger and Carsrud, 1993; Kouakou, 2018). The Shapero-Belley model focuses on the psychological and economic determinants of entrepreneurship. It defines the driving variables of the entrepreneurial process: propensity for action (of a psychological nature) refers to the desire to act and motivations to undertake individuals. The factors of credibility (of a sociological nature) bring together all that can reassure the creative potential of the valorizing and conforming to the social norms of its intention to create. Feasibility factors (of an economic nature) relate to the presence of business opportunities, access to financial resources, etc. The situation variables play the role of triggering (discontinuity of the model) but provided that the other factors are active.

But the shift from necessity-driven entrepreneurship to opportunity-driven entrepreneurship also requires the establishment of institutional conditions that affect the environmental context of entrepreneurs. Indeed, the propensity of a population to undertake, to create new businesses is not only played within the consciences and cognitions of individuals. It is also driven by the surrounding context and entrepreneurial attitudes that affect the way in which society legitimizes entrepreneurship. Thus, in the Shapero-Belley model, psychological and economic factors interact with the sociological determinants of entrepreneurship. The entrepreneur is first and foremost a product of his community. The social environment plays an important role in the decision to undertake. This can be explained by the incubator effect and the innovative effect of the environment. An innovative environment comprises a certain number of components (geographic space, technical culture, actors governed by common organizational and learning logic). The exchange and sharing of information allows the newcomer to transform, sometimes in record time, an innovative idea into a real business opportunity. The surrounding context can be described in the form of three concentric circles that surround the creative potential: the family context, the specific support mechanisms for creators, sociocultural norms accepted in society (Saporta and Verstraete, 2006). Socio-cultural norms have a ripple effect on entrepreneurial activity.

The transition from one stage of entrepreneurial development to another requires an improvement of the entrepreneurial culture through the socio-cultural norms of the nation. When a nation's environmental attitudes towards entrepreneurship are positive, they will generate cultural supports, aids, financial resources and networks beneficial to established and potential entrepreneurs. It is difficult to envisage high rates of entrepreneurial activity without a gradual transformation of the values of society. Such dominant values in society condition a nation's strong entrepreneurial culture, that is, its belief in a number of truths that drive the survival-minded community to prioritize local entrepreneurship and give the means to actualize this potential (Fortin, 2002). Among these truths, one of them, which summarizes a lot, is that "the entrepreneur is the fruit of his environment. An environment that does not like entrepreneurs and does not want them, has a good chance of being answered." The entrepreneurial culture of a community is its ability to produce abundant and regular entrepreneurs. The impact of the entrepreneurial culture of the environment can be perceived in various ways, notably through the rate of entrepreneurial activity (entrepreneurship rate). The surrounding context (family context, specific support mechanisms for creators, socio-cultural norms) strongly influences the decision of individuals to become entrepreneurs or not.

Improving institutional conditions through public policies to promote entrepreneurship can help make the environment conducive to entrepreneurial development. Entrepreneurs are more quickly sensitive to political reforms than to microeconomic factors that require reaction time (Bissiriou, 2011). For DPs, public policies can positively influence entrepreneurship in its micro and macro dimensions by stimulating entrepreneurial education, investment and international trade to facilitate the diffusion of innovation through export and by providing substantial support to some sectoral champions. Developing countries can move from necessity entrepreneurship to opportunity entrepreneurship with a greater focus on creating stable institutional and macroeconomic environments and increasing entrepreneurial capacity, particularly in the absorption of technology transfer and knowledge transfer (Bissiriou, op.cit.).

Thus, it becomes possible for developing countries, through these transfers of technology and know-how, to take advantage of the exogenous entrepreneurial dynamic impelled by foreign companies to create a genuine endogenous entrepreneurial force based on opportunity entrepreneurship. The entrepreneurial characteristics of foreign companies can produce entrepreneurial opportunities for local entrepreneurs, hence the emergence of knowledge externalities. The presence of foreign companies, with its share of FDI and private equity, induces greater entrepreneurial activity in the economy, which creates new business opportunities, resulting in increasing returns (Holcombe, 1998). The presence of growing knowledge externalities and returns, the incubator and innovative role of the social environment lead to the creation of an environment and an entrepreneurial culture conducive to a mimetic dynamic that can trigger a cumulative and exponential process of endogenous and irreversible entrepreneurial development.

The effect of the socio-cultural environment on behavior via imitation phenomena was highlighted by Granovetter (1978) in his sociological theory of riots. According to this theory, if the number of observed behaviors exceeds a certain threshold, the mere fact of observing a behavior similar to that which one proposes, exerts a positive influence in favor of this behavior and can lead to accession, despite initial reservations. We adopt riot theory in our economic analysis to model the economic impact of exogenous entrepreneurial dynamics on endogenous entrepreneurial dynamics. This is in the mind of Bygrave and Minneti (1999) who use this same theory to explain the differences in entrepreneurial activities between nations. Creating a business inspires another if it is nearby. If, initially, the entrepreneurship rate is low, the imitation effect remains low, the cumulative process can not start and few new entrepreneurs appear each year in the territory concerned. There is a threshold of entrepreneurship rate from which candidates, reluctant until then, switch to the decision to undertake. Minniti and Bygrave (1999) use this principle to explain both the socio-economic factors of entrepreneurship and the differences in entrepreneurial activities between nations. If, initially, the entrepreneurship rate is low, the imitation effect remains low, the cumulative process can not start and few new entrepreneurs appear each year in the territory concerned. There is a threshold of entrepreneurship rate from which candidates, reluctant until then, switch to the decision to undertake. Since the process is cumulative and exponential, it is difficult to estimate the future evolution of the number of entrepreneurs. We adapt this model of Minniti and Bygrave (1999) to analyze the conditions of entrepreneurial development in an economy dominated by necessity-driven entrepreneurship.

The originality of our model is twofold: on the one hand, it considers, unlike that of Minniti and Bygrave (op.cit.) two types of entrepreneurship: necessity-driven entrepreneurship and opportunity-driven entrepreneurship; on the other hand, it analyzes not only the conditions of the transition from necessity-driven entrepreneurship to opportunity-driven entrepreneurship but also the importance of public policies in such an evolution.

3. A theoretical model

3.1. The assumptions

We consider an economy with two types of entrepreneurship: opportunity-driven entrepreneurship and necessity-driven entrepreneurship, but where the second predominates largely. The rate of exogenous entrepreneurship is the density of newly established foreign firms in the individual's viewing range. The rate of necessity-driven entrepreneurship is noted e_n and the rate of opportunity-driven entrepreneurship is noted e_g. It is assumed that in developing countries, the opportunity-driven entrepreneurship rate is very low, whereas the necessity-driven entrepreneurship rate is really high. Formally, we have:

$$e_n \gg e_g \quad (1)$$

The risk premium of a potential business creator j depends positively on his risk aversion a_j and negatively on the number of companies recently created around him. Because this observation reassures him as to the feasibility of the project, the risk premium of the individual j when he undertakes by necessity is:

$$p_j^n = \frac{a_j}{1 + e_n} \quad (2)$$

Because the entrepreneurship rate e_n is high, necessity-driven entrepreneurship is perceived by the individual as a low-risk activity. The risk premium is therefore low here. On the other hand, since the opportunity-driven entrepreneurship rate e_g is low, the risk premium for this type of entrepreneurship is very high, according to the relationship:

$$p_j^g = \frac{a_j}{1 + e_g} \quad (3)$$

Before going any further, these relations established between risk premium and entrepreneurship rate deserve further clarification. In the model we develop, psychological and economic factors interact with the sociological determinants of entrepreneurship, like the Shapero (1975) and Belley (1989) models. More specifically, it puts forward psychosociological factors of entrepreneurship, depending to a large extent on the attitude to the entrepreneurial risk (psychological aspect) of the presence in the vicinity of firms and the ambient entrepreneurial behaviors (sociological). The entrepreneur is first and foremost a product of his community. The inverse relationship between risk premium and entrepreneurship rate is a simple way to formalize the idea of knowledge externalities and increasing returns to create an institutional environment that facilitates the absorption by local entrepreneurs of knowledge transfers and technologies Opportunity-driven entrepreneurship is considered by the individual as a very risky business, unlike necessity-driven entrepreneurship. Thus, if one took into account only the criterion of risk, the individual j would tend to systematically switch to the side of necessity-driven entrepreneurship. On the other hand, the relative utility of the individual j corresponding to the decision to become an necessity-driven entrepreneur (resp. opportunity-driven entrepreneur), r_j^n (resp. r_j^g), is defined as being the difference between the utility derived from that type of entrepreneurship r_e^n (resp. r_e^g) (expected income from entrepreneurial activity) and the usefulness of choosing instead a salaried job, r_h income from salaried activity):

$$r_j^n = r_e^n - r_h > p_j^n \quad (4)$$
$$r_j^g = r_e^g - r_h > p_j^g \quad (5)$$

Assuming that opportunity-driven entrepreneurship provides more income than necessity-driven entrepreneurship, that is, $r_e^g \geq r_e^n$, it comes that $r_j^g \geq r_j^n$. Thus, taking into account only the criterion of relative utility, the individual j would tend to switch systematically to the side of opportunity-driven entrepreneurship.

In reality, the choice of the type of entrepreneurship by the individual j proceeds from a risk-income arbitrage. To determine the equations that translate this risk-income arbitrage, we rewrite the relative utilities so that they integrate the risk premiums. Simply insert (2) in (4) and (3) in (5), we then obtain:

$$r_j^n = -a_j + (1 + e_n)(r_e^n - r_h) \quad (6)$$
$$r_j^g = -a_j + (1 + e_g)(r_e^g - r_h) \quad (7)$$

3.2. A benchmark: the situation without foreign companies

A benchmark is the case where there are no foreign companies in the economic landscape. Numerous calculations make it possible to determine the final equations of the model:

$$r_j^n = a_0^n + a_1^n e_n + a_2^n e_n^{\,2} \qquad (8)$$
$$r_j^g = a_0^g + a_1^g e_g + a_2^g e_g^{\,2} \qquad (9)$$

The functional form of the relative utilities r_j^i shows that this function varies exponentially as a function of the entrepreneurship rate e_i with $i = n, g$. The set of coefficients (a_1^i, a_2^i) corresponds to the particular profile of each agent, for each type of entrepreneurship. To differentiate opportunity-driven entrepreneurship from necessity-driven entrepreneurship, it is assumed that $a_1^g \neq a_1^n$ and $a_2^g \neq a_2^n$. It is further assumed that opportunity-driven entrepreneurship is the fact of foreign companies and that their absence leads to an opportunity-driven entrepreneurship equal to zero $(e_g = 0)$. On the other hand, the rate of necessity-driven entrepreneurship, supposedly linked to the presence of local companies, is strictly positive $(e_n > 0)$. The coefficient a_0^i shows the starting position of the agents. This starting position corresponds to their individual characteristics (level of their entrepreneurial talent, degree of intrinsic profitability of the project undertaken).

In the absence of foreign firms $(e_g = 0)$, the risk premium of the individual j who intends to engage in opportunity-driven entrepreneurship is at its maximum level: $p_j^g = a_j$, and its relative utility is $r_j^g = a_0^g$. If the individual j had opted for necessity-driven entrepreneurship, his risk premium would have been $p_j^n = \frac{a_j}{1+e_n}$ and its relative utility $r_j^n = a_0^n + a_1^n e_n + a_2^n e_n^{\,2}$. His choice between these two types of entrepreneurship is based on a comparison between r_j^g and r_j^n. Taking into account equations (4) and (5), we have: $r_j^g > a_j$ and $r_j^n > \frac{a_j}{1+e_n}$. In order for the individual to switch to opportunity-driven entrepreneurship, it is necessary that $r_j^g = a_0^g > a_j > r_j^n > 0$. The inequality $a_0^g > a_j$ suggests that the individual characteristics of the agent, ie his entrepreneurial skills and the intrinsic profitability of the project, must be high enough to make him switch to opportunity-driven entrepreneurship.

Proposition 1: In the absence of foreign companies, agents switch to opportunity-driven entrepreneurship when their individual characteristics (entrepreneurial talent, intrinsic profitability of the project) are at a fairly high level. In the event of a lack of these individual characteristics, the State can promote entrepreneurial development through microeconomic measures: policies to reinforce entrepreneurial capacities (case of insufficient entrepreneurial skills); subsidy and/or tax exemption policies, etc. (case of low intrinsic profitability of the projects).

Corollary 1: In the absence of foreign firms, assuming that the individual characteristics of the agent are at a negative level $\underline{a}_0^g < 0$, the agent never undertakes by opportunity. In this case, the state can implement an entrepreneurial development policy consisting of microeconomic measures to promote opportunity-driven entrepreneurship. The cost for the state of these measures, C_{SEE}, is equal to the relative utility supplement which reduces r_j^g to a level at least equal to r_j^n : $C_{SEE} = C_{SEE}^{MICRO} = r_j^n - r_j^g = r_j^n - \underline{a}_0^g$ (10).

4. The situation with foreign companies

We now consider the presence of foreign companies on the national territory, so that the rate of opportunity entrepreneurship is strictly positive $(e_g > 0)$. Assuming always that the agent starts from a low level of individual characteristics with $\underline{a}_0^g < 0$ and taking into account the quadratic form of the relative utility $r_j^g = a_0^g + a_1^g e_g + a_2^g e_g^{\,2}$, it follows that the agent opts for opportunity-driven entrepreneurship $(r_j^g > 0)$ when the rate e_g becomes greater than a threshold $\hat{e}_g$. This threshold is the level of e_g such that $r_j^g = a_0^g + a_1^g e_g + a_2^g e_g^{\,2} = 0$; a simple calculation gives:

$$\hat{e}_g = \frac{-a_1^g + \sqrt{\left(a_1^g\right)^2 + 4a_2^g \, \underline{a}_0^g}}{2a_2^g} \quad (11)$$

Since the agent cannot influence the rate of entrepreneurship, the state can encourage it to switch to opportunity-driven entrepreneurship by implementing policies to increase the opportunity-driven entrepreneurship rate at the level of entrepreneurship beyond the identified threshold. These are essentially macroeconomic policies aimed at attracting foreign companies and making them visible: promoting foreign direct investment, improving the business climate, enhancing learning effects by increasing synergies between foreign and local firms. In this case, the cost for the State of the entrepreneurial development is the sum of the cost of the macroeconomic measures of attraction of foreign companies $\left(C_{AEE}^{MACRO}\right)$ and the cost of the microeconomic measures $\left(C_{AEE}^{MICRO}\right)$: $C_{AEE} = C_{AEE}^{MACRO} + C_{AEE}^{MICRO}$. In the presence of foreign firms, the risk of opportunity-driven entrepreneurship declines and assuming that the profitability of the project remains the same, the relative utility of the agent increases. As a result, the cost of microeconomic measures drops: $C_{AEE}^{MICRO} < C_{SEE}^{MICRO}$ so that the savings of public funds is $C_{SEE}^{MICRO} - C_{AEE}^{MICRO}$.

Proposition 2: The presence of foreign companies reduces the public cost of entrepreneurial development when the cost of macroeconomic measures is low enough $\left(C_{AEE}^{MACRO} < C_{SEE}^{MICRO} - C_{AEE}^{MICRO}\right)$ compared to savings of public funds made by the State. In this context, the presence of foreign companies in the economic landscape is doubly beneficial, as it allows the state to stimulate endogenous entrepreneurial development while achieving budgetary savings compared to the situation without foreign companies.

We further refine this analysis and show that a more detailed exploration of the individual characteristics of agents can highlight the following intuitive idea: for some values taken by these characteristics, the economy in question can stagnate in necessity-driven entrepreneurship, unable to initiate any entrepreneurial development. More precisely, we distinguish three cases: the case where the individual characteristics of the agents are too weak $\left(\underline{a}_0^i \ll 0\right)$; where these individual characteristics are just weak $a0 g<0$ with identical marginal utilities for both types of entrepreneurship; where these individual characteristics are just weak $\left(\underline{a}_0^g < 0\right)$ with different marginal utilities for both types of entrepreneurship.

4.1. **Case where the individual characteristics of the agents are too weak**

When the individual characteristics of the agents are too low, especially when $\underline{a}_0^g \ll 0$, the relative utility of the agent when he or she makes an opportunity-driven entrepreneurship remains almost negative except for very high values of the entrepreneurship rate. The state that must therefore promote entrepreneurial development must undertake both microeconomic and macroeconomic measures: $C_{AEE} = C_{AEE}^{MACRO} + C_{AEE}^{MICRO}$. However, the requirement to attract a very large number of foreign companies entails very high costs of macroeconomic measures: $C_{AEE}^{MACRO} \gg 0$. Thus, promoting the presence of foreign companies to drive an endogenous entrepreneurial dynamic is too costly for the State. In this case, entrepreneurial development is almost impossible to achieve: such an economy will remain overwhelmingly at the stage of necessity-driven entrepreneurship.

Proposition 3: An economy in which agents have either too little talent to undertake on an opportunistic basis or face less profitable entrepreneurial projects will remain at the stage of necessity-driven entrepreneurship. Any public policy of entrepreneurial development is too expensive for the public authorities.

The following two cases concern situations in which the individual characteristics of the agents are not too weak but just weak $\left(a_0^g < 0\right)$. In the second case, the marginal utilities are identical for both types of entrepreneurship. In the third case, the marginal utilities are different.

4.2. Case where the individual characteristics are just weak with identical marginal utilities for both types of entrepreneurship

Let $\hat{e}_g$ and $\hat{e}_n$ be the thresholds respectively for opportunity-driven entrepreneurship and necessity-driven entrepreneurship, below which the individual j does not undertake:

$$\hat{e}_i = \frac{-a_1^i + \sqrt{\left(a_1^i\right)^2 + 4a_2^i \underline{a}_0^i}}{2a_2^i} \quad \text{where i = g, n} \quad (12)$$

Given the hypothesis that opportunity-driven entrepreneurship requires higher starting-point individual characteristics than necessity-driven entrepreneurship ($\underline{a}_0^g > \underline{a}_0^n$), it is easy to show that the equality of marginal utilities induces that $\hat{e}_n > \hat{e}_g$. This means that fewer foreign firms need to be around the agent to encourage them to undertake by opportunity. Thus, for the same level of entrepreneurship rate (corresponding to the same level of entrepreneurial risk), opportunity-driven entrepreneurship generates more relative utility. The agent will always switch to opportunity-driven entrepreneurship to the detriment of necessity-driven entrepreneurship.

These results can be found by showing that when the relative increase in utility due to the one-point increase in the rate of entrepreneurship is the same, whether it is opportunity-driven entrepreneurship or necessity-driven entrepreneurship, then the relative utility per unit of companies observed in the entourage is greater in the case of opportunity-driven entrepreneurship than in the case of necessity-driven entrepreneurship, or formally (proof in appendix 1):

$$\frac{dr_j^g}{de_g} = \frac{dr_j^n}{de_n} \Rightarrow \frac{r_j^g}{e_g} > \frac{r_j^n}{e_n} \quad (13)$$

Proposition 4: An economy in which agents have identical marginal utilities that entrepreneurship is opportunity-driven or necessity-driven, will switch to opportunity-driven entrepreneurship. The state can promote entrepreneurial development by increasing the opportunity-driven entrepreneurship rate beyond the threshold $\hat{e}_g$ through macroeconomic measures of attracting foreign firms. In this case, the public cost of entrepreneurial development policies is $C_{AEE} = C_{AEE}^{MACRO} + C_{AEE}^{MICRO}$. When the cost of macroeconomic measures is low enough: $C_{AEE}^{MACRO} < C_{SEE}^{MICRO} - C_{AEE}^{MICRO}$, the presence of foreign firms induces savings of public funds compared to the situation without foreign firms.

4.3. Case where the individual characteristics are just weak with different marginal utilities for both types of entrepreneurship

When the marginal utility of opportunity-driven entrepreneurship is greater than that of necessity-driven entrepreneurship, we obtain as before that $\hat{e}_n > \hat{e}_g$. At this point, we introduce $\bar{e}$, the point where the two entrepreneurship rates e_g and e_n are equal. It is then shown that the agent undertakes by opportunity. On the other hand, when $e_i > \bar{\bar{e}}$, the agent only undertakes by necessity.

Proposition 5: An economy in which agents have a marginal utility of opportunity-driven entrepreneurship greater than that of necessity-driven entrepreneurship will switch to opportunity-driven entrepreneurship when $\hat{e}_g < e_i < \bar{e}$. As before, the presence of foreign companies induces savings of public funds compared to the situation without foreign companies. On the other hand, when $e_i > \bar{e}$, the economy will remain in necessity-driven entrepreneurship. When the marginal utility of opportunity-driven entrepreneurship is less than that of necessity-driven entrepreneurship, we get $\hat{e}_g > \hat{e}_n$, the agent undertakes by necessity and never by opportunity. When $\hat{e}_n = \hat{e}_g = \bar{e}$, the agent does not start at all (when $e_i < \bar{e}$) or undertakes by necessity (when $e_i \geq \bar{e}$).

Proposition 6: An economy in which agents have a marginal utility of opportunity-driven entrepreneurship inferior to that of necessity-driven entrepreneurship will remain in necessity-driven entrepreneurship.

5. **Public Policy Recommendations**

The theoretical model that we have developed shows an interaction of psychological and economic factors with the sociological determinants of entrepreneurship, like the Shapero-Belley model. More specifically, it puts forward psychosociological factors of entrepreneurship, depending to a large extent on the attitude to the entrepreneurial risk (psychological aspect) of the presence in the vicinity of firms and the ambient entrepreneurial behaviors (sociological).

The entrepreneur is first and foremost a product of his community. In this context, moving from necessity entrepreneurship to opportunity entrepreneurship requires a variety of institutional conditions that affect the psychological dispositions of entrepreneurs (Krueger 1993, Hessels, Van Gelderen and Thurik, 2008, Acs and Szerb, 2008, Kouakou, 2018) via their environmental context (Shapero-Belley, Minniti and Bygrave, 2009). This model makes it possible to analyze the conditions of entrepreneurial development in an economy dominated by necessity entrepreneurship.

The results of the model show that, in the absence of foreign companies, the State can promote entrepreneurial development through microeconomic measures: policies to strengthen entrepreneurial capacities (case of insufficient entrepreneurial skills); subsidy and/or tax exemption policies, etc. (case of low intrinsic profitability of the projects). The presence of foreign companies allows, beyond a certain threshold identified, creating an environment conducive to the revitalization of an endogenous entrepreneurship. The state can contribute by creating a stable macroeconomic environment that can attract foreign companies beyond the identified threshold, and by creating an institutional environment that facilitates the absorption by local entrepreneurs of know-how and technology transfers. This result is in line with that of Bissiriou (2011) who asserts that developing countries can move from necessity entrepreneurship to opportunity entrepreneurship with a greater focus on creating attractive institutional and macroeconomic environments for foreign direct investment vectors of innovations.

In addition, the model shows that the presence of foreign companies can also induce budgetary savings of the State in its policy of entrepreneurial development. Thus, in developing countries, public policies can positively influence opportunity-driven entrepreneurship in both its macroeconomic and microeconomic dimensions. Macroeconomic policies focus on improving the business climate in order to attract foreign direct investment and increase synergies between foreign and local firms for enhanced learning effects, knowledge and innovative technologies transfers. Microeconomic policies concern direct or indirect financial support, the strengthening of entrepreneurial talents and depend on initial conditions relating to the preferences of agents and the characteristics of business projects.

The stimulation of an endogenous entrepreneurship strongly depends on the dynamics driven by the presence of foreign companies with positive externalities able to induce mimetic dynamics on the part of local entrepreneurs. As a result, macroeconomic policy reforms aimed at creating conditions for an enabling environment conducive to entrepreneurial development are essential and must precede microeconomic reforms. This idea is similar to that of Bissiriou (2011), for which entrepreneurs are more quickly sensitive to political reforms than to microeconomic factors that require reaction time. A more detailed exploration of the individual characteristics of the agents made it possible to highlight that, for certain values taken by these characteristics, the economy in question can stagnate in the necessity-driven entrepreneurship, incapable of starting any entrepreneurial development. This appears in the model when the individual characteristics of agents are too weak or when the marginal utility of opportunity-driven entrepreneurship is less than that of necessity-driven entrepreneurship.

6. Concluding remarks

The entrepreneurial development of a nation depends on the availability of entrepreneurial talents, the investments made, the development of financial markets (banking conditions, stock markets, private equity, etc.), international trade facilitating the spread of innovation through export and many other conditions highlighted in the economic literature. In developing countries, where necessity-driven entrepreneurship predominates, entrepreneurial development refers to a shift from this type of entrepreneurship to opportunity-driven entrepreneurship, a source of growth and economic development. We have highlighted the conditions of such a passage by insisting on the driving role of foreign companies, carrying positive externalities likely to encourage mimetic dynamics on the part of local entrepreneurs. Under these conditions, public policies in developing countries must also aim to improve the institutional conditions of entrepreneurial development. Macroeconomic policies for improving the business climate and promoting foreign direct investment and microeconomic policies for financial support and entrepreneurial skills development are noted. These entrepreneurial development policies thus take into account the psycho sociological factors of entrepreneurship, especially the proximity of foreign companies. But beyond this specific psycho sociological factor, these public policies must aim to create an entrepreneurial culture. It is conducive to entrepreneurial socialization, defined by Pailot (2003) as "a historical process of learning, integration and social positioning by which an individual prepares to fulfill the entrepreneurial roles, that is, roles related to the imagination, the development and the realization of creative visions of values and activities".

This obviously involves stimulating entrepreneurial education. The spread of entrepreneurship places the importance of the education system in the forefront. This requires a permanent commitment of the elite, the participation of the media and the school and the example of the entrepreneurs themselves who do not hesitate to show their achievements. This concerns primary, secondary and technical education and higher education, which must include entrepreneurship in its programs. Examples of this kind are the National Observatory of Pedagogical Practices in Entrepreneurship in France. In Canada, we have technological incubators designed to promote the development of laboratories' scientific productions, the "Entrepreneurship Houses" located at the heart of campuses, intended to be an entrepreneurial hub for the dissemination of ideas and the hosting of projects, at the service of all the students of the site. In the United States, this is the case of the College of Creative Studies (CCS) in Detroit, Michigan.

This study can be improved by developing a spatial model that explicitly takes into account the role of the configuration of the economic space in the emergence of increasing returns via externalities of knowledge and technologies. The extent of the imitation effect could depend on the greater or less agglomeration of the activities of foreign companies. Another line of research concerns informational issues. Our model implicitly assumes that microeconomic characteristics of the potential entrepreneur are a common knowledge. It is possible to lift this assumption and to postulate that the State does not know these individual characteristics of the potential entrepreneur. How does such asymmetric information affect public policies of entrepreneurial development? Further study is expected in the future.

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Appendix 1:

We show it by starting from the marginal utilities:

$$\frac{dr_j^g}{de_g} = a_1^g + 2a_2^g e_g \quad \text{and} \quad \frac{dr_j^n}{de_n} = a_1^n + 2a_2^n e_n$$

where $a_1^g \neq a_1^n$ and $a_2^g \neq a_2^n$ and $r_j^g < 0 \ \forall e_g \ ; r_j^n < 0 \ \forall e_n$,

$$\frac{r_j^g}{e_g} = \frac{a_0^g}{e_g} + a_1^g + a_2^g e_g$$

$$\frac{dr_j^g}{de_g} = a_1^g + a_2^g e_g + a_2^g e_g = \frac{r_j^g}{e_g} - \frac{a_0^g}{e_g} + a_2^g e_g$$

Similarly, we obtain:

$$\frac{dr_j^n}{de_n} = \frac{r_j^n}{e_n} - \frac{a_0^n}{e_n} + a_2^n e_n$$

$$\frac{dr_j^g}{de_g} = \frac{dr_j^n}{de_n} \Rightarrow \frac{r_j^g}{e_g} - \frac{a_0^g}{e_g} + a_2^g e_g = \frac{r_j^n}{e_n} - \frac{a_0^n}{e_n} + a_2^n e_n$$

$$\Rightarrow \frac{r_j^g}{e_g} - \frac{r_j^n}{e_n} = \left(\frac{a_0^g}{e_g} - \frac{a_0^n}{e_n}\right) + \left(a_2^n e_n - a_2^g e_g\right)$$

where $a_0^g > a_0^n$ and $e_n \gg e_g$, it comes $\left(\frac{a_0^g}{e_g} - \frac{a_0^n}{e_n}\right) > 0$; moreover, $a_2^n \gtrless a_2^g$ and $e_n \gg e_g \Rightarrow \left(a_2^n e_n - a_2^g e_g\right) > 0$.
We obtain:

$$\frac{r_j^g}{e_g} > \frac{r_j^n}{e_n}$$

Finally, we have the following result:

$$\frac{dr_j^g}{de_g} = \frac{dr_j^n}{de_n} \Rightarrow \frac{r_j^g}{e_g} > \frac{r_j^n}{e_n}$$

This result is interpreted as follows: with the increase in relative utility due to the one-point increase in the rate of entrepreneurship, whether it is opportunity-driven entrepreneurship or necessity-driven entrepreneurship, the average increase in relative utility in the case of opportunity-driven entrepreneurship is greater than the average increase in relative utility in case of necessity-driven entrepreneurship. In this case, the individual never undertakes by necessity.