The Determinants of Innovation into Senegalese Small and Medium Enterprises

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Abstract

This paper's purpose is to understand the factors that determine innovation within Senegalese small and medium enterprises (SMEs) for that we build logistic regression from the survey data on social norms on management capacity, information and communication technology (ITCs) and companies' performance in Sub-Saharan francophone Africa: The case of Cameroon, Ivory Coast and Senegal. The result of this work reveals that among the factors that able to break the project and activities of innovation, we can find four principal obstacles to innovation in small and medium Enterprise. It is primary lack of internal funds which usually most discourage entrepreneurs to involve into innovation activities. The other obstacles are the innovation cost considered very expensive, the lack of external financial means for the company and difficulties in finding partners for cooperation

Keywords: SME, Innovation, Senegal, Research-development, Cooperation at innovation, Model logit

1. Introduction

The small and medium Enterprises play an important economic and social role by them importance in economy fabric and by creating employment: a well appreciates role in a period of crisis and deepening joblessness (ARLEM 2012). Since many years many works underline the importance of small medium enterprises (SMEs) in the economy fabric of both developed and developing country. Considered as an essential composite of market economy, the SMEs have played an important role as much in innovation, employment creation, and economic growth of Country's industrial fabric thru XXth century (ZAMO 2013)

Furthermore Small Medium Enterprise's growth shows the deep changing of economy paradigm: this can be explained by them flexibility opposed to the rigidity of the for diste model of mass production run in majority by big companies (PIORE M. et SABEL C., 1989). However many works enlighten the difficulties faced by SMEs in their lack of resources, limited funding access and their dependency on larger group which weaken them, and translated by a high bankruptcy rate. Despite these difficulties, the SMEs proved also them efficiency regarding innovation so as a deserving growing role in current economy (LESCURE M., 2001). The Small Medium Enterprises that represent the majority of Senegalese companies represent a lever of fighting against poverty, a true factor of economic growth and a step stone to economic emergence. However if the SMEs represent more than 90% of Senegalese companies, they only contribute to 26,7% of the turnover 22,4% of the national added value and 42% in employment(ENPME, 2014).

So in spite of its agreed importance as a spring of growth and competitiveness both in countries than in firms, their economic contribution stay low due to internal constraint and that of business environment. Works assert on that subject that the difficulties on funding access are the first obstacle to SME development in Sub-Saharan Africa, far from the problem of corruption, the lack of infrastructure or excessive taxation (ARYEETEY, 1998; IMF, 2004; World Bank, 2006).In fact, for a smooth running the SMEs have needed financial resources for their operating cycle and their investment. Yet it seems that 80 to 90% among them have difficulties accessing on financing market in south Saharan Africa. (LEFILLEUR, 2009) To such difficulties, we can add that of innovation which analysis through companies in general particularly the SMEs stay limited in Sub-Saharan Africa. Yet these Countries Industrial Fabric constituted in majority by SMEs should take advantages to the SMEs flexibility to develop innovation and contribute to their growth.

The complexity of the concept of innovation appears the moment or we look for a definition to it. In fact, Innovation is a polysemous word by its both noun and procedural character. The two notions can be found in literature. So innovation is an action that end up to a result we can call innovation. According to Manuel Oslo (2005) innovation is operating a product (properties and services) or of a new process or significantly improved, a new way of trading or new organizational method in management in working organization process or foreign relationships. It distinguishes itself from discovery and invention. The first concept is the fact of seeing in a present time a place, a thing or a phenomenon that already existed. The second is the creation of something new. That definition which is the one most share in empirical workings about innovation shown that we can distinguished four (4) types of innovation. However, in relation to the changing that can bring to product or to organization, we can find out another type of innovation. The interest that researches have put in innovation gives it many types in literature. Among them, we can take that of Oslo's Manuel and the typology related to the degrees of changing that it produce. The Manuel definition leads us to find out 4 types of innovation: the product innovation, process innovation, organizational innovation and marketing innovation.

The product innovation is the insertion of a property or service new. This definition includes perceptible improvements of technical specification, of components and of materials, of integrated software, of conviviality or other functional characteristic. The process innovation is to operate a new method of production or of distribution or improved perceptibly. This notion implies significant changing in techniques, material, and/or the software. In general this type of innovation is used for reducing the period and cost of production. The marketing innovation or commercialization is to implement a new organizational method in practices, working organization or the firm foreign relationship. The insertion of «working on the assembly line» as a model of organization to production unit is an example of this type of innovation. Within the framework of this article, we will limit ourselves to product, process, and organizational innovation. They are also called technological innovation.
Compared to the typology of innovation done by Oslo Manuel, we have that one related to the degrees of changing that it produces.

According to the theory particularly for the professor Dominique Millet (1999), we can distinguish four (4) types of innovation: incremental innovation, architectural innovation, innovation of rupture and synthetic innovation.
Incremental innovation also called product improvement, come generally from the improvement of the product efficient (property or service). Usually it comes from the result of the steps of continuous improving. This consist to improve the existing and to get more than a "modest" nature in innovations world. Incremental innovation doesn't need deep changing through the company than won't create brutal changing to users (to the market) strategically we note that a company develops incremental innovation only for keeping a technological lead over its competitors. The architectural innovation is to alter the order, the assembling rule of the "technical sub system". Therefore, that alters the ties, the interface between the technical parts. Indeed, in conception science, it is said that a product is considered as a whole of functional parts. These functional parts are made up by technical unit called "sub-systems". All this sub-systems are linked the one to the others.

The synthesis innovation is the collection of many products (different in use) to make it in one. For example, when you assembly a telephone and a fax you will have a telephone/fax. A synthesis innovation can also take place by mixing the products and the services. For example a company which sells conditioning air and which is associated to an installing and maintenance service. Therefore, the customer doesn't by a simple service but what we call a solution. As for the innovation of rupture, it is far the most risky among the innovations because it proposes generally a full modification of use, of reference, of habits that the customer (the market or the users) had since now. We have to make anticipation, pedagogy, and of communication to try to manage this changing. Besides, it's essentially because the product is much in rupture with our habits that it can be not accepted by the market and sink back into estate of invention. To the same way the organizational changing can be contested by employees and deteriorate the social atmosphere into the organization.

Moreover, the appearance of the economy innovation as a part of economic science is something recent and authors as Joseph Schumpeter and Robert Solow can be considered as the precursors. According to them, the technical progress is at the center of economy because beyond a major innovation, that often is an innovation of rupture due to a technical progress; indeed scientific other innovations are carried by this discovery. We noticed so industrial cycle where beyond a major innovation, the economy get in a growing phase (creating job), followed by a depression phase where innovations chase "outdated" companies and provoke job destruction (SCHUMPTER, 1939).

But the technical progress impact's overtake this frame and have repercussion on well being since as only a small part of the growth peer person can be explained by the rise of capital/working connection, the remaining are the most due to technical progress (Solow, 1957). This first developing has focused on a macro economical approach of innovation. The study of firm's behavior and market working will be more intense with the rise of micro economical innovation.

If many works throughout the world maintain that innovation is a SMEs important source of growth, there are not enough publication about innovation practices through the SMEs and their determinants in Sub-Saharan Africa.
According to Baldwin and al, (2000) this lack of working is explained by a certain focus by study on factors that contribute to make them alive like financing and not on factors that contribute to their growth as innovation.
In Africa, the inventory workings that are made into SMEs are on gender (M'HAMID and al,2011; Adams and Ferreira, 2004); on business environment (FERFERA, 2006); companies culture (Kessy,1998; HERMANDEZ, 1997);companies characteristic; Human capital(Rooks and al,2009); the companies efficiency , the social capital(YOGO and Ondoua,2012) and survival(YOGO and MALLEY, 2012). If it is for the capacity of innovation, working that we get known of are mostly done in Maghreb and in Anglophone Africa. It's the case in SOUMIA and KHALID analysis in Algeria, of TLILI (2012) and of MODHIEDDINE (2012) in Tunisia, of EDBETOKUN and al (2010) in Nigeria, of AFFUl (2010) in Ghana, and of WALLOBWA and al (2013) in Kenya among other things. Francophone Africa is characterized by a deficit of workings except that of ZAMO and al (2013) but stay limited not only by its sample's size but more in theory it doesn't take in count the dimension of open innovation. The survey only tested the role of the companies' size, the use of ITCs and the lack of resources on capacity of innovation.

In addition to the deficit of survey on companies in Sub-Saharan francophone Africa, we notice that the most important working which analyze capacity of innovation through companies focus on industrial companies (Mongo, 2012). This article suggests analyzing innovation determinants into Senegalese SMEs in order to surround the process and to contribute to a better definition of innovation policy. In a specific way, it is to:

- ✓ To examine the SMEs degrees of innovation
- ✓ To analyze the SMEs source of innovation
- ✓ To identify the SMEs obstacle to innovation
- ✓ To determine the cooperating factors for SMEs innovation

For that, we develop a methodology in two stages from Logit model with the survey data collected in the case of the project *companies' performance in Sub-Saharan francophone Africa* by Laboratory of Economic and Monetary Research (LAREM) of Cheikh Anta DIOP University Dakar. Therefore, in a first stage, we analyze the role of the intern and extern characteristic on the adoption of innovation through SMEs. In the second stage, we got to analyze if the factors relative to the cost, to knowledge or to market constituted obstacle to innovation.
The following of this article is composed by three others sections. The second section proposes a brief theoretical and empirical literature review on innovation into SMEs. The third section analyzes statistic and econometric result of the model. The fourth and last section of this article concludes and suggests recommendations.

2. Literature review

2.1 Theoretical Review

From Schumpeter J. (1942) writings to the recent development of the knowledge economy, passing by workings that have underlined collective character of process innovation and spread the concept of network innovation, many are the notions and modality that have been created to better grasp innovation realities. Innovation mixed varied organizational form of diversified actors, supported by public policy. Among actors, offer a particular interest to the firm that constituted an essential place where the changing ends up to the creation of new product, of new process, of new market (COHENDET., P 2003).

The firm assumes two principal roles in the process of innovation: the resource creation allowance. If the various firm's economical theory tend to agree on the second role, they diverge on the interpretation of the role creating resources (COHENDET P. and GAFFARD J., 1990; COHENDET P.; 2003). According to the traditional approach (neo-classical approach: the agency theory, the cost and transaction theory), the technology creating is done outward economic sphere and the innovation operating into companies are the process by what these technologies are adopted and spread afterwards.

On the contrary, evolutionist thinkers consider that technology creating is inseparable from economic innovation process. The resource formation is in full fully done in economic sphere, and the company plays a principal role in technological change analysis. Technology is the innovation result that comes from the training process adopted into companies. The research and the choice of technology are determined by companies' routine. (What the firms have learned), so following a specific technology trajectory (a path). Contrary to the neoclassical theory which objects is to study the companies' reality, for the firm theory the company is the central object of analysis (Penrose E.; 1959; Richardson G.; 1972; Nelson R. and Winter S., 1982; DOSI G., 1988). Since as our purpose is to understand the innovation process reality noticed in companies (emphasizing on small medium sized), the companies cognitive approach seem the most relevant to us, notably the evolutionist theory meeting with notions of competence theory.

2.2. Empirical review

These last years, the economic literature on the innovation system performance (Manuel d'Oslo, 1992; 2005; Manuel FRASCATI, 1994; 2002) is enriched by recent studies that characterized the capacity of innovation of SI actors (ZABALA J. et al., 2007; OCDE, 2009; Nordic Innovation Monitor, 2009). Nevertheless, it remains a lot to do to understand the innovation process complexity in different level: micro, local, regional, sectorial, national, and supranational. (Katz J., 2005). Particularly concerning SMEs innovation, studies give evidence to the less convincing nature of the result (Tether B., 1998; Massa S. et Tessa S., 2008).

Into process innovation and system innovation analysis, we can identify three dimensions: the determinant factors of innovation, the inputs and the outputs and the innovation impact (OCDE, 2009). Our study joins the first dimension of research and is on the innovation determinants factors through SMEs. Our analysis joins this wide literature trying to bring lightning on the internal factors distinct to the firm and external factors, distinct to the environment, acting on the capacity of innovation and cooperating for SMEs innovation. Concerning the question of company's size, if Galbraith (1952), SOETE (1979), PAVITT et al (1987), have after Schumpeter (1942)shown that big size is synonym of innovation because of the means it got, for SYMEONIDIS(1996), the hypothesis of a positive link between size and innovation have not still confirmed by precedent study. Therefore, KAMIEN and Schwartz (1982), DASGUPTA and STIGLITZ (1980), have shown that the small company seem more innovate because of the existence of bureaucracy growing cost into big companies. Moreover, ASTEBRO(2006) uphold that , smaller size can favor a bigger capacity of innovation on account of the fact that this one allow to reduce the old technologies' replacement cost and promote radical innovation. SMEs are more open to innovation that to call some monopoly into question.

However, considering the failure risk to innovation, the SMEs must take in account their environment that to compensate their lack of resources. So, they must have taken open strategies (open innovation) implicated a large number of actors and external source of knowledge (CHESBROUGH, 2003). Concerning the factors that act positively on SMEs innovation, some authors demonstrate the SMEs themselves are an important innovation source, of new technologies and job's creation (Tether B., 2000), notably by their operational expertise capacity and their consumers acquaintance (Dahl D. and Moreau P.; 2002). They have also a capacity to integrate into networking or clusters (NOOTEBOOM B.; 1994; ROTHWELL R. et DOBGSON M., 1994) and to create clever alliances (VAN DIJK B. et al., 1997). Powel W. and GRODAl S. (2005) underline that the networks contribute meaningfully internal capacity of the firm's innovation because it reveals them new external source of idea and facilitate the fastest way to resources, improving so the knowledge transfer.

Moreover cooperation make easier working division dedicated to innovation what make companies to reach the objective that it will never reach alone (TEECE D.; 1998). The importance admitted to external knowledge source is an essential characteristic of an innovation system "open" (CHESBROUGH H., 2003). This opening take the shape of exacerbate asking of external knowledge and other external input of innovation process (FAGERBERG J., 2005). Its effect is positive on companies performance, increasing their chances to succeed as regard to innovation (LOVE J. and ROPER S., 2004) and higher the level of novelty of innovation (LANDRY R. and AMARA N., 2002). This can justify the interest to identify and analyze this external source of knowledge that comes from cooperation for innovation with various partners. Among factors that act negatively on SMEs capacity of innovation, those companies smaller sizes represent an important drawback. HAUSMAN A. (2005) underlines that the SMEs dispose of limited resources: a less qualify or less train staff (ROMANO C., 1990), inadequate knowledge to launch into internal research and development activities, a lack of information on technologies, and on market etc.

Those factors have a double impact on innovation: in one part, they slow down the companies' capacity of innovation, and in other part, they encourage to get involve in cooperating agreement 199. Moreover, the cooperation between SMEs and other partners is essential to innovation process. According to Anderson and LUNDVALL (1998), the level of interaction with suppliers of inputs and equipment is decisive in adopting innovation. And for ROSENBERG (1982) the interactions with consumers is an important training source for SME since as that make it to increase its propensity to innovate especially in the case of product innovation. In this, case precisely, VON HIPPEL (1998) shows from a sample of consumers (lead-users) that their contribution to the definition of new product constituted a source of new ideas in improving the existed product.

In operating of innovation, SMEs can also lean on social capital. In fact define as the entire resources that follow from network participation (BOURDIEU, 1980), the social capital is both a stock and a base of accumulating process that permit to the company to take advantage of the network it belongs. On that way, Le Bas and al, (1998) maintain that) "*the technological relationship in the occasion of the firm's interactions with its environment constitute a decisive element not only for operating a process innovation but also for its success"*

Contrary to physical or financial capital which is not a source of comparative advantage, social capital let companies to take advantage of tacit knowledge to transform them into new products (AMARA and al, 2003), besides, social capital contribute to reduce research and information analysis cost. According to JULIEN (2005), the interaction makes easier the idea exchange, what contribute to innovation into SMEs. Besides when the information is very rich and tacit, interactions and exchanges constitute excellent information transfer carrier towards many actors, what facilitate sharing, and spreading knowledge.

This SME faculty to use its environment resources and its relational network is essential because studies on Sub-Saharan Africa social capital have revealed its importance in SMEs strategies. In fact, YOGO and ONDOUA (2012) have shown that in the case of Cameroon social capital contribute to SMEs performance. Besides although the question of innovation and its role into economic growth is largely studied in the context of developed countries, a few works have devoted to study specificity and innovation determinant into developing countries. This works underline the traditional determinant of innovation, identified in abundant empiric literature on developed countries, are not always significant in developing countries that suppose a deeper investigation in taking in account this countries specificity in the domain of accumulating human capital, of R & D activities, of scientific cooperation and capacity of technological absorption.

Among traditional determinants highlighted in abundant empiric and theoretical literature, the company's size and R & D intensity, seem to be significant indicators in some developing countries. .–AYYAGARI and al. (2007), PAMUKCU (2003), Almeida and FERNANDES (2008) and YURIY and al. (2010), El ELJ (2012), RAHMOUNI and al. (2010).Indeed big companies benefit from scale economy occupying a more favorable position on market have easier access on financial resources to lead expensive R&D activities. They have also more experience and notoriety, that let them to cooperate as well with research centre as with organization and foreign companies. Besides, big companies have more means to buy or exploit innovation certificate against royalties' payment. Licenses constitute important source for acquiring new technologies, particularly in developing countries (ALMEIDA and FERNANDES, 2008) even if the restriction imposed to contract's acquisition license hinder in some case the transfer of technologies – PAMUKCU (2003) et KOOUBA et al. (2010).Besides empirical study shows the crucial importance of managerial quality and human resources qualification in reinforcing companies' knowledge capital, technical and technological appropriation and innovation source.

In that way works of PAMUCKU (2003), AYYAGARI and al. (2007) and ALMEIDA and FERNANDES (2008) in some developing countries they have shown human resources quality measured by manager's experience and employees level of education reinforcing the companies innovation potential. "However this effect is not always obvious since as having qualification is not still synonym of effectiveness into exploitation skills. In some case human capital, under exploited in activities that generate added value and knowledge, can't contribute in an efficient manner to innovation". Concerning technologies externality susceptible to be generated by economic opening, for property and service exchange in one part, and promoting direct foreign investment in other part, the empirical working results diverge and can't allow to conclude to meaningfully effect that impulse opening on reception country's capacity of innovation. In fact as some empirical works highlight direct foreign investment' meaningful effect on local companies' innovation in some developing countries – ALMEIDA et FERNANDE (2008), YURIY et al. (2010) –, other works find an insignificant statistic effect of foreign capital participation on capacity of innovation – El ELJ (2012), PAMUKCU (2003), KARRAY et al. (2009).

This result can be explained in one part by off-shore's companies positioning and of foreign capital into subcontractor's activities of low added value and, other part by its weak company's integration into local economic fabric as well upstream and as downstream. Foreign partnership seems to be more turned towards productivity profit realization based on low cost, notably salary cost than towards promoting innovation. In that context, technologies' externalities are almost nonexistent and the effect direct foreign investment expected on local companies' innovation potential stay low.

Concerning exporting effect, AYYAGARI and al (2007) and YURIY and al. (2010) empirical workings for some developing countries, suggest that exporting companies more innovate than companies oriented to local market. The exporting companies most exposed to the pressure of foreign competition on national and international market, are encourage to improve their structural competitiveness. However other works show that the effect is not always significant, in a sense that it depended on countries sector specialization and its comparative advantages nature.

In the case of Turkish companies, PAMUKCU (2003) have shown exporting effect on innovation is statistically insignificant. The same result has been underlining in case of Tunisian companies – El ELJ (2012), RAHMOUNI et al. (2010). So it seems that exporters intervening essentially on medium and low technological intensity sectors and intervene as European companies 'subcontractor specialize on low added values activities are under the constraint of minimization cost and continue improving of productivity profit and not that of innovation and of continue improving product and process.

3. The model's statistic and econometric results analysis

The fact of innovating required that the SME invest in innovation activities. The decision of innovating is based on the difference between expected benefice of innovation activities and its cost. This none noticed difference send us back to a latent variable***Ii∗= γZi+ εi**; with Z=the explicative variable vector, y the parameter vector to estimate and ε the error term of law N (0, 1). Si I*>0, so the SME have innovated. More precisely, I is worth 1 if the SME introduce on the market product, process, organizational and/or commercial innovation. That is: {***I*=1*si*Ii∗>0 *I*=0*si*Ii∗<0the probability that the SME i have innovated is: **P (Ii = 1) = P (Ii**∗>0)= **P (εi**>− **γZi) = (γZi),** with φ is the repartition function of the normal law. This probability can be estimated by a Logit model that let us to evaluate the different determinant weight contain in Z. This theoretical model is then is each time used according to innovation forms. Therefore operating an innovation form is presented as:

Innovi = β0 + β1R&Di+ β2TAILLi+ β3FINANCEi + β4LOCALi+ β5TICi+ β6SECT_TERi+ β7COOPi+ εi

Innovation that doesn't directly notice, the innovi variable is a dichotomist variable that takes the value 1 if the SME has introduced an innovation on the market and 0 if not. The innovation is explained by two groups of variable (internal and external) to the SME.

3.1 The sample data and characteristic

This study is made from the primary data coming from social norms project, managerial capacity, information communication and technologies (ICT) and Sub-Saharan francophone Africa companies' performance: case of Cameroon, Ivory Cost and of Senegal. The survey's purpose is to understand what determine south Saharan Africa companies' performance proceeding to a comparative study of determinant performance through companies of leader countries of the area. The survey made in 2014 take covered the period from 2011 to 2013 and is about companies of public and private sector.

In general, manner, collected data are about company's characteristic, innovation, environmental policy, financial aspect, production, business environment, the TICs, workforce, manager skills, as well as formal than informal. For the survey's innovation section, it describes innovation process aspect as innovation forms (, product, process, organization, and marketing innovation), the R&D, norms and certification, information source, cooperation forms and innovation break.

3.2 Statistic descriptive

Picture 1: SME repartition by activity sector

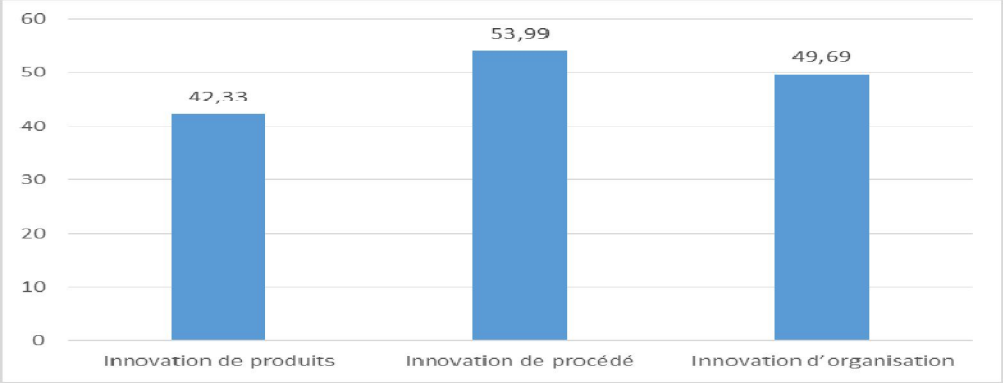
	Effectif	Proportion
Primary Sector	7	4.29
Secondary Sector	38	23.31
Tertiary Sector	118	72.39

The picture 1 shows the repartition of almost SME according to activity sector. It highlights the large SME concentration in the tertiary sector representing 72, 39% of the sample.

Picture 2: SME repartition by innovation type

	Effectif	Proportion
Product innovation		
Innovating SME	69	42.33
Non innovating SME	94	57.67
Process innovation		
Innovating SME	88	53.99
Non innovating SME	75	46.01
Innovation of organisation		
Innovating SME	81	49.69
Non innovating SME	82	50.31

Graphic 1: innovating SME percentage according to three types of innovation



The graphic 1 informs on the SME repartition sampled according to developed innovation form. It shows in a relative way, an equal partition between innovating SME and non innovating SME. However, as soon as SMEs are more present in process innovation, important parts of it proceed also to product and organization innovation. That denotes partially the importance of innovation into SME process and development in Senegal.

Picture 3 summary statistic

SME proportion that introduce innovation		Product Innovation	Process Innovation	Innovation of organisation
Activity sector	Agriculture	1.23	2.45	2.45
	Industry	8.25	10.43	8.59
	BTP	3.68	4.29	5.52
	Commerce	18.40	19.63	17.18
	Services	10.43	17.18	15.95
Research & Développement		9.20	9.82	9.20
Financing		14.72	15.95	15.95
Géographic localisation		30.67	38.04	35.58
Use of TICs		9.20	6.75	6.75
Coopérating innovation		11.66	15.34	15.34
Size	SC	18.40	25.77	23.31
	MS	23.93	28.22	26.38

The picture 3 shows summary statistic of innovating SMEs. It describes explicative variable carried from the model and indicates that SMEs propensity to innovate depend among other establishment milieu and of cooperating to innovation.

Picture 4: factors that break innovation activities

	Effectif	Proportion
Lack of company's internal financial means	89	54.94
Lack of company's external financial means	43	26.54
Very expensive cost of innovation	47	29.01
Difficulties of finding partners of cooperation	43	26.54
Uncertainty demand	28	17.28
Lack of qualified employees	19	11.73
Lack of information on technologies	19	11.73
Lack of information on markets	21	12.96
Market lead by establishment companies	23	14.20
Others	8	4.94

Among factors that able to break innovation project or activities, it enlightens four principal obstacles to innovation into SMEs (picture 4). It is essentially of lack of internal funds that often dissuade entrepreneurs to involve into innovation activities. So Most of SMEs consider internal financial means, in opposite to the external, as the first obstacle to innovation. Internal financing, is so the privilege way that SMEs prefer to innovate. The others obstacles are innovation cost judged expensive and difficulties of finding partners of cooperation.

3.3 econometric results analysis

Picture 5: estimations' results

Variables	Product innovation	Process Innovation	Innovation of organisation
RD	3,167***	1,106	0,677
	(1,180)	(0,899)	(0,766)
TAILL	-0,003	0,017	0,029*
	(0,006)	(0,016)	(0,017)
FINANCE	0,302	-0,387	-0,009
	(0,423)	(0,463)	(0,424)
LOCAL	0,733	0,953*	0,489
	(0,484)	(0,511)	(0,477)
TIC	-0,759*	1,112**	0,382
	(0,454)	(0,538)	(0,476)
SECT_TER	-0,295	-0,484	-0,134
	(0,432)	(0,457)	(0,432)
COOP	1,019**	2,916***	1,951***
	(0,504)	(0,831)	(0,604)
Constante	-0,209	-1,175*	-1,034*
	(0,538)	(0,627)	(0,581)
Observationsnumber	142	144	148
Pseudo R2	0,135	0,207	0,149

Note: *** significance at 1%, ** at 5%, * at 10%. Standard-error ()

Picture 5 shows logistic regression results for innovation three from carried in this paper. Generally, it emerges that cooperation to innovation is a key determinant of innovating decision. Considering that coefficient, signs are the only information we can interpret in that regression, cooperating to innovation positively influence the SME probability to innovate. The last mentioned coefficients are meaningfully for the three forms of innovation. It means that the more the SME cooperate harder chance it got to overturn into innovation activities.

The difficulties that often putted forward are linked to SME problem to accede on necessary means to innovation: financial, technologic, human, and informational. Cooperation can then appear as a privileged vector of access to innovation in so far as it is a way to explore new way to renew internal skills. SME tries to get round of its size handicap by its cooperating relations based on proximity which lower incertitude level and facilitate the action into a limited resources firm. The capacity of innovation become so the SME principal survival weapon, the major asset to deploy during cooperation: « small firms have more to gain from innovation, because it will boost their profits more » (BROUWER M., 1998).

Research and development investment increase the SME propensity to proceed to product innovation. This isn't the case of internet network disposal through the company. The fact of using internet connection decrease the SME capacity in product innovating but not in that of process. In addition, SME establishment in the capital is associated to an innovative performance as regarding in process when employee staff is associated to a best innovative performance as regarding of organization.

Picture 6: estimations results Marginal effect's calculation

	Products innovation		Process innovation		Innovation of organisation	
Variables	Coefficients	Marginal Effects (dy/dx)	Coefficients	Marginal Effects (dy/dx)	Coefficients	Marginal Effects (dy/dx)
RD	3,167***	0,585***	1,106	0,233	0,677	0,158
	(1,180)	(0,095)	(0,899)	(0,153)	(0,766)	(0,165)
TAILL	-0,003	-0,001	0,017	0,004	0,029*	0,007*
	(0,006)	(0,001)	(0,016)	(0,004)	(0,017)	(0,004)
FINANCE	0,302	0,073	-0,387	-0,095	-0,009	-0,002
	(0,423)	(0,103)	(0,463)	(0,114)	(0,424)	(0,105)
LOCAL	0,733	0,180	0,953*	0,213**	0,489	0,118
	(0,484)	(0,118)	(0,511)	(0,103)	(0,477)	(0,111)
TIC	-0,759*	-0,186*	1,112**	0,271**	0,382	0,095
	(0,454)	(0,111)	(0,538)	(0,125)	(0,476)	(0,119)
SECT_TER	-0,295	-0,072	-0,484	-0,115	-0,134	-0,033
	(0,432)	(0,106)	(0,457)	(0,105)	(0,432)	(0,106)
COOP	1,019**	0,249**	2,916***	0,473***	1,951***	0,393***
	(0,504)	(0,119)	(0,831)	(0,072)	(0,604)	(0,087)
Constante	-0,209		-1,175*		-1,034*	
	(0,538)		(0,627)		(0,581)	
Observationsnumber	142		144		148	
Pseudo R2	0,135		0,207		0,149	

Note: *** significance at 1%, ** at 5%, * at 10%. Standard-error ()

4. Conclusion

The Small and Medium Enterprise have an important place in Senegalese economy. They represent more than 90% of economic fabric. However, despite their strong representation into companies' population, they participate lowly to the creation of wealth and employment. In fact they only contribute at 26, 7% of turnover, 22, 4% of national added value and 42% of employment. If their weak competitiveness and performance is often due to the constraint of financial and market access, but it is reinforced by the deficit of innovation through SMEs.

This article object is to analyze innovation determinants into Senegalese SMEs in order to surround the process and to contribute to a better definition of innovation policy. In a specific way, it is to:

- ✓ To examine the SMEs degrees of innovation
- ✓ To analyze the SMEs source of innovation
- ✓ To identify the SMEs obstacle to innovation
- ✓ To determine the cooperating factors for SMEs innovation

For that we have, from collected survey's data within the framework of the project companies' performance in Sub-Saharan francophone Africa, determined the factors that constituted SMEs innovation obstacles and analyzed the internal and external characteristic role on adopting innovation through SMEs.

This work's results reveal that among factors that able to break projects or innovations activities, we have the lack of internal funds, innovation cost, the lack of company's external financial means, and difficulties to find cooperation partners. Besides, the principal innovation determinant into Senegalese SMEs is the cooperation at innovation and the research and development investment. These results allow pointing out a certain number of implications in innovation policy as well in SME level as in authority's. Concerning SMEs, they must reinforce their research and development activities and get organized to take advantage of the cooperation at innovation.
As for Authorities, they should work for the purpose that innovating and financing accompaniment's question of SME's innovation, find a solution.

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