Governance and private investment in Sub-Saharan Africa

By

Idrissa M. OUEDRAOGO
Idriss_mo@yahoo.fr

Pascal T. KOUAMAN

Abstract

Africa is one of the world regions whose development potentials are particularly important. But despite this situation, Africa is one of the continents where poverty exists on a large scale. More than 44 % of the African population lives below the poverty line. Yet, various forms of development strategies have been designed and implemented in the African countries. In 1992, in its publication *Governance and Development*, the World Bank refers to the quality of government as the cause of the failure of several of these strategies. Attention is henceforth focused on how governments organize the management of state and govern economic activities.

The place and the role of institutions in development have been widely discussed in economic literature. It is commonly accepted that the existence of strong and clear rules is a fundamental basis for economic activity. In particular, there is an increasingly agreement on the idea that, in order to stimulate private investment, it is necessary to stabilize the business environment. This study uses the World Bank Doing Business indicators to evaluate the influence of business environment in explaining private investment from a panel of thirty-eight African Sub-Saharan countries over the period 2006-2011. We performed a dynamic panel model using the Generalized Method of Moments estimation. The following evidence globally emerges: burdensome regulations affect private investment while business environment improvement makes investment grow.

Keywords: Governance, Business environment, investment.

1. Introduction

It is widely accepted that investment is one the most important determinants of growth. From the point of view of economic analysis it is stated that productive investment impacts both the supply and the demand and contributes to growth and job creation. From the supply side, investment improves the productive capacity through the acquisition of new equipments that incorporate technical progress and consequently contribute to the increase in labor productivity. These productivity gains could then spread to other economic sectors. From the demand side, investment helps to increase demand for goods and services due to the fact that the observed productivity gains may lead to prices reduction and wages increase. These two phenomena lead to an increase of households' purchasing power and then an increase of demand. This was the case in Africa in the few past years where growth was mainly driven by domestic demand (AfDB, OECD, UNDP, 2014)[1]. Indeed, Africa experienced in recent years, at the same time an increase in domestic consumption due to high levels of wages and remittances and high levels of private investment and infrastructure investment. These factors led to an increase in domestic demand.

Basically investment, that is to say the change in the capital stock between two given dates, depends on two factors: the cost of capital and market opportunities. The cost of capital as measured by the interest rate is used to analyze the profitability of investment projects. As for market opportunities, they respond to the concern that investment decisions are guided by the possibility of achieving maximum returns from the sales of the company. From a macroeconomic perspective, gross fixed capital formation (GFCF) is then determined by the change in aggregate demand and thus by economic growth. Beyond these factors, there are a multitude of variables that are likely to determine investment decisions. Two types of factors can be put forward in this regard: the macroeconomic factors and factors related to the economic environment. Among the macroeconomic factors one can mention the volume of long-term credit to the economy which is partly determined by the availability of savings, the volume of public investment and the level of government debt. For factors related to the economic environment one could retain the Doing Business indicators and governance indicators (political stability, legal system and corruption in particular).

Africa is one of the world regions whose development potentials are particularly important. But despite this situation, Africa is one of the continents where poverty exists on a large scale. More than 44 % of the African population lives below the poverty line. Yet, various forms of development strategies have been designed and implemented in the African countries. In 1992, in its publication *Governance and Development*, the World Bank refers to the quality of government as the cause of the failure of several of these strategies. Attention is henceforth focused on how governments organize the management of state and govern economic activities.

The place and the role of institutions in development have been widely discussed in economic literature. It is commonly accepted that the existence of strong and clear rules is a fundamental basis for economic activity. In particular, there is an increasingly agreement on the idea that, in order to stimulate private investment, it is necessary to stabilize the business environment.

[1] African Economic Outlook, 2014

The aim of this paper is to analyze the relation between governance and investment in Sub Saharan Africa (SSA). In particular, we study how private investment is affected by regulatory and judiciary systems, political stability, macroeconomic conditions and corruption. The rest of the paper is organized as follows. Section 2 provides a brief overview of Sub-Saharan Africa economic situation. Section 3 provides a brief review of related literature. Section 4 is dedicated to the presentation of the methodology used in the study. Section 5 discusses empirical results and section 6 concludes.

2. An overview of SSA macroeconomic and governance context

The African continent has 54 countries with the Sahara desert which separates it in two different geographical and economic entities, North Africa and the Sub-Saharan Africa. Sub-Saharan Africa comprises 49 countries with a combined population of 875 millions in 2011. This Sub-Saharan part of Africa globally shares similar characteristics.

At the economic side, Sub-Saharan Africa is one of the less advanced regions. According to the World Bank, 48.5% of the sub-Saharan population lived on less than $ 1.25 a day in 2010 (World Bank, 2013).[2] Issue of development is still on the agenda for this region. Recent developments of macroeconomic indicators for SSA are favorable. Despite the effects of the 2008 financial crisis and a slight slowdown in 2013, the World Bank plans good prospects for the region. Since the mid-1990's the region have achieved strong and sustained growth. In 2013, average growth rate in SSA was 5% while growth rates of the continent as a whole and the global economy were respectively 4% and 3%.

However, this relatively strong growth hides large disparities among countries. First, growth performance varies widely across countries. From 2006 to 2012 growth was good enough for some countries while other have experienced difficulties. For example, Burkina Faso records continuous growth over the period (an average of 5%) and Ghana experienced accelerated growth. Output growth in this country was continuously increasing. In contrast, Cote d'Ivoire had known negative growth rate from 2000 to 2004 and in 2011. This recession is mainly due to the crisis experienced by the country during the period. In 2012, the end of the political crisis marks the return of growth in this country with a growth rate of 9.5%. The second characteristic of sub-Saharan Africa growth is its high volatility in some countries. In 2001, the growth rate of Equatorial Guinea amounted to 63.4%. In 2008 and 2010, the growth rate of this same country was respectively -3% and -1.7%. The 2001 high growth rate in Equatorial Guinea is mainly due to the discovery and exploitation of new natural resources. But such volatility is a sign of the shakiness of the engines of growth. This feature is common to most of oil-exporting countries.

During the 2000 decade investment rate had an upward trend in Sub-Saharan Africa. It has gone from 17% in 1999 to 23% in 2009. Since then, investment to GDP ratio remained steady with an average rate of 22% on the period from 2010 to 2013 (IMF, 2013). The investment to GDP ratio increased from 17% in 1999 to 22,8% in 2013 (IMF, World development outlook, April 2013) . The global financial crisis had affected investment in the region. In 2010 and 2011 the region had experienced a decline of investment rate that could be attributed to the crisis. Private investment evolution did not display a clear trend. Private investment rate increased from 21.93% in 2006 to 23% in 2007. From 2008 to

[2] World development indicators 2013

2010 it declined steadily to 21.39% in 2010 and rose slightly to 22.55% in 2011. Regarding public investment, the region had experienced an increase in the investment to GDP ratio from 7.14% in 2006 to 9.5% in 2010 (World Bank, 2012). This rate dropped to 5.56% in 2011. FDI as a percentage of GDP is low for the region. But one should mention that despite the low levels of FDI to GDP ratio, FDI flows increased considerably during the period. It was multiplied by four from 2006 to 2011 (IMF, 2013).

The success of any development strategy in Sub-Saharan Africa requires stability, a sound legal and regulatory framework and good governance. The key risk factor that could hinder the good performance of the region is its stability (IMF, Regional Economic Outlook, 2013). Several countries in SSA still face many conflicts and crises. One of four African countries suffers from the effects of armed conflict, while 20% of Africans live in areas severely disrupted by conflicts (World Bank, 2011). The risk of conflict is quite high and the area is also prone to humanitarian crises and terrorist and criminal networks. This means that economic activities in the region are largely influenced by these conflicts.

Regarding governance, the region has also mixed results. Poor governance and dysfunctional political institutions had led to the failure of several projects and development programs. SSA is the region with the lowest performance with respect to the Doing Business indicators. The countries of the region combine shaky jurisdictions and complex procedures and high costs. Because of these, the SSA is farthest from the distance to the frontier[3]. However, the region has narrowed the gap since the first publication of the DB report and is closest to the frontier. The region had recorded best performances in terms of improving the business environment.

In addition to individual commitment of States in regulatory reforms, some countries have decided to get together to pursue this goal. These include the Organization for the Harmonization of Business Law in Africa (OHADA) whose focus is legal framework for the private sector. OHADA comprises 17 countries and aims at setting judicial integration of member countries to facilitate trade and investment, ensure legal and judicial security of business activities and facilitate the resolution of conflicts. Participating in such a group has the advantage of helping to harmonize national practices and to compel states to implement common decisions. This suggests that members of an organization have the closest legal frameworks could present a model of incentives for more dynamic and efficient investment; it would be interesting to explore such a possibility. This suggests that member countries of such an organization have common legal frameworks and could present a model of incentives for more dynamic and efficient investment.

3. A brief review of related literature

Many authors highlighted the importance of institutions based on comparisons of historically differentiated experiences in some regions. More importantly the difference in regimes is considered as the main reason behind the development of some regions and not others. By comparing the legal regimes in force in the seventeenth century across different parts of the world, North D. and Thomas (1973) explained why the economic take-off occurred in North-West Europe and not in China -the most advanced nation of that period. Both authors agree that the explanation clearly lies in the nature of legal regimes that were

[3] The 2012 Doing Business report introduced a new indicator, the distance to frontier to measure in absolute terms business regulatory efficiency. It asses how much the regulatory environment improves over time (World Bank, Doing Business 2014).

governing these regions. In contrast to China, countries such as England and the Netherlands had well-defined property rights pushing individuals to entrepreneurism and innovation for better profits.

In the twentieth century, the world division into two blocs namely the socialist bloc with planned economy and the liberal block with market economy brought a new focus on the issues of property rights. According to Hayek the lack of property rights disables prospects for benefits of officials and thus prevents the emergence of markets. The dislocation of the socialist bloc in the 1990's comforted this idea. More specifically, a similar comparison is made by Acemoglu et al (2004) between both republics of Korea after the division of the country as a result of World War II. The Republic of Korea supported by the liberal western block and the People's Democratic Republic to the supported by the communist Soviet Union. The latter established socialist leanings institutions by removing property rights and centralizing economic decisions whereas the Republic in the South developed a market economy with a constitution and institutions providing incentives to the private sector. Both areas share similar characteristics in terms of cultures, ethnicities and languages; physical geography and climate were slightly different while initial conditions in capital stock in infrastructure were in favour of the Republic of Korea. Half a century after the separation, the national income of the South part was 15 times higher than income in the North. According to these authors the profound differences in economic institutions explain these differentiated experiences in terms of economic performance.

In the same vein, De Soto (1989) seeking to identify the reasons for the low growth in Peru concluded that cumbersome administrative procedures, corruption and the prevalence of the informal sector are obstacles to economic dynamism. In such a situation, property rights are uncertain and risky compensation innovative initiatives, according to North. In 2000, De Soto added to his diagnosis that the lack of clearly defined rights complicates the corporate funding for enterprises.

Recently, several empirical studies were carried out as from the 1990s attempting to econometrically establish the essential character of the quality of institutions, political stability and market conditions in the economic growth. We consider the studies of Gwartney J. et al. (1996) and the studies of LLSV[4]. Gwartney J. et al. (1996) use data of 96 countries over the period 1975-1995 to study the relationship between freedom and economic growth. They used 17 variables grouped into four blocks: currency and inflation; expropriation and discriminatory taxation; restrictions on international trade; and the size and function of the government. The results indicate that countries with higher freedom indices systematically have higher growth rates whilst the size of the government inhibits the growth. In subsequent publications from this study, it comes out that countries with improved freedom index have experienced stronger growth. In 2008, Gwartney et al. established a correlation between the value of the index of freedom and EDI.

The findings from the LLSV studies were published in 1998 and 1999 respectively on corporate funding and the quality of governance. The basic idea of the first study was that companies cannot get funding or refunding from their creditors and shareholders unless they have confidence that their rights will be safeguarded by legal systems. They collect data on joint stock companies and sureties of 49 countries. They then grouped these

[4] LLSV refers to the initials of the authors and their work: La Porta, Lopez-de-Silanes, schleifer et Vishny.

countries into four groups of legal families: the Anglo-Saxon *common law*, civil law systems of French and German inspiration and the Scandinavian inspirations system.

A primary result shows that investor protection significantly varies between legal families; it is stronger in the Anglo-Saxon system and lower in the French-inspired system. The end result meanwhile states that countries protecting investors have a weaker growth and low availability of capital. This result is economically plausible because these are investors responsible for the accumulation of capital, which is essential to the creation of income. In 1999, the ambition of the authors was quite different but still focusing on institutions. They attempted to verify previous thesis instead of the quality of governance namely through public sector institutions (bureaucracy, size of the government, corruption, definition and enforcement of property rights ...) influencing economic growth. After collecting a large amount of data on the economic, cultural and religious policy variables, they proceeded with a series of regressions. The authors came to the conclusion that: the quality of governance is better in rich countries compared to poor countries, the same improvement was observed in Anglo-Saxon legal system countries compared to legal civil law tradition countries, and in countries dominated by Protestantism compared to countries dominated by Catholicism and Islam. In general, they established that the cultural and religious institutions and context as a whole affect the economic performance and the economic development, by extension. The LLSV study findings were so successful that the authors used them to write a thesis entitled *Legal Oginis* suggesting that legal systems condition the institutions established and economic outcomes, by extension. Such an argument would necessarily face critics.

Dam (2006) made a critical review of the vision of the previous results. While accepting the idea that legal institutions have a critical role in development, the report first points out the fact that the indices of freedom, functioning and independence of the courts are difficult to interpret because of their composite construction. It then appears that there are not differences between legal families for the homelands of these legal traditions. La Porta al. (2008) explained that such mother countries like France and Belgium implemented compensation mechanisms that corrected the weaknesses of their legal system. Spaman also criticizes the LLSV studies 1998 for using many subjective opinions in the development of some indices. An important point of controversy is highlighted by Rajan and Zingales (2003) on the development of financial markets. In fact, in 1919, the development of financial markets was more advanced in France than in the United States of America. In 1980, there was a reversal of this relation, while from 1999 the financial development converged in these two countries. That situation qualified as great reversal challenges the causal role of legal families. Milhaupt and Pistor (2008) examined a series of crises and connected them with legal families. They concluded that the predictive power of the theory of legal origins is difficult to establish. What matters to them is much more the adaptability of systems than the systems themselves. It is clear that the above criticism does not deny the role of public and legal institutions. There was therefore a global consensus resulting from the empirical studies and historical analyses. In the early 2000 century more focused studies were conducted on how far the institutions influence the economic performance.

As early as in the 2000s, research started linking economic performance to business environment indicators. This was made possible thanks to the DB WB project that expanded and systematized the work of La Porta et al. (1999) and Djankov et al (2002) through the publication of quantitative indicators on the environment companies.

In the article *The Regulation of Entry*, Siméon Djankov, Raphael La Porta, Florencio Lopez-De-Silanès and Andrei Scheleifer based on data collected in 85 countries including seventeen (17) SSA countries, developed indicators related to the cost and the number of procedures one should go to start a typical business. The aim was to test the theories of regulation, that to see whether the regulations promote growth and well-being of consumers. Their results showed that countries with a complex regulation do not generally have a better quality of products; countries with high costs and complex procedures have a large informal economy and greater corruption. Conversely, they found that entry regulations are more transparent in democratic countries and those with a limited size of the government. The methodology they used to develop the indicators is largely close to that used by the World Bank to develop the *Doing Business* indicators.

Djankov et al. (2006) considering these indicators for 135 countries showed the influence of the business environment reforms on the economic growth. By using the ranking of each country for the indicators, they developed a composite normalized index between 0 and 1. They then regressed this index on per capita GDP growth rate by controlling the quality of governance and macroeconomic variables. The results showed that the DB indicators have a positive effect on the growth rate. In particular, countries whose indicators are gone from last to first quartile experienced a rate of 2.3% increase in their growth rate.

Eifert B.P. (2009) also used the DB database from 2003 to 2007 to check the influence of DB reforms on investment and on the GDP. Analysis of the timing of the quantity of reform indicates a number of models. Reforms are globally distributed and their impact is more pronounced in countries with heavy regulations. Macroeconomic characteristics do not significantly influence the occurrence of reforms. From the overall goal of his study it clearly comes out that some reforms have a positive impact on the rate of investment and growth particularly in relatively poor and relatively well-governed countries; the median reform corresponding to a reduction of the deadlines for business registration by ten days would result in an increase in the investment rate of 0.27 and 0.15%, respectively.

Kappler L. and I. Love (2001) successfully concluded that reforms promote the creation of new businesses and the aggregate investment on the World Bank database of 92 countries. After estimating the simple model, they sought to identify to what threshold countries must reduce an indicator of regulations of entrepreneurship so as to have the greatest change in the rate of business creation. They lead to relatively poor countries and relatively well-governed having a faster growth of 0.4% and 0.2% respectively after the implementation of one or several reforms.

Unlike the studies presented above using country aggregated data, there are microeconomic studies that attempt to assess the impact of regulatory regimes on business performance. We retain two studies conducted in this line. The first one conducted by Hallward-Driemeier et al. (2006) focused on Chinese companies. The authors used data from the the WB[5] for 1500 Chinese firms across five cities to measure more accurately the critical elements of the business environment. In fact, they believe that the overall environmental indicators such as DB indicators assigning a single score to each country have limitations insofar as the regulation is not uniform inside large countries such as China because of the high political and economic decentralization. They perform a series

[5] Les données sont issues des enquêtes de la BM sur l'environnement des entreprises : The World Business Environment Survey

of regressions of various corporate business performance indicators on the business climate for each region of the country. Selected performance indicators include: the growth in sales, employment, the rate of investment and total factor productivity. Their indicators include regional averages of non-permanent employment rate, access to credit, the proportion of R&D workers using computers, losses due to power electric load-shedding, transport or waste of the time dedicated to administrative procedures and corruption scores. They think that these indicators and property are important for growth, productivity and business investment. The effect is particularly more remarkable for national and foreign capital property, the simplicity of regulations, corruption, technological development and the flexibility of the labour market. Oppositely the effect is less remarkable for improving access to credit and infrastructure quality.

The second study also covered business and focused on Morocco. Augier and P. (2010) al. attempted to explain the role of the business environment in the performance of these companies. They used data from the annual inventories of Moroccan companies (1997 - 2004) and from the WB. The business environment was captured based on access to credit, asymmetries in the application fees and the dealing with permits, the constraints related to administration and starting a business and the quality of infrastructure. Business performance was captured using the total factor productivity estimated by semi-parametric methods. The results showed a strong correlation between total factor productivity and access to credit; tax heterogeneity and the bureaucracy and the asymmetry in the application of regulations are associated with low productivity.

To capture the impact of regulatory reform on investment, the starting point is the dynamic model of corporate behaviour. This model is widely described by Eifert (2009). The weight of the various economic sector regulations and the various stages of the business life had varied influence on their decision-making including the decision on whether to invest or not. The effects of regulations on businesses are examined through the changes they bring on fixed costs and variable costs and the recent adjustment costs of the latter.

Regulations resulting in a change in fixed costs businesses almost exclusively affect the entry of new firms. When regulations create barriers to entry, they force potential entrants expecting low productivity to cancel or at least delay their entry. Most of them remain in the informal sector where regulatory requirements are lower, proportionally to development opportunities such as access to bank credit. On the other hand, this type of regulations acts as a filter that excludes low productivity enterprises. They also influence the degree of competition in the economy, increasing the marginal product of factors for existing businesses. In this way, this type of regulations has an ambiguous overall effect.

Regulations affecting variable costs increase of enterprises namely production costs of each unit of product. They thus create a loss for the companies on each product unit sold. Very logically, they therefore affect the performance of the business they govern. As for the adjustment costs, they represent the different costs that companies incur as a result of fluctuations in the production but which are not followed by changes in the factors used because of the rigidities of the regulation. Such costs create friction depending on the size of the company.

Ultimately, a decrease in fixed costs incurred by a regulatory reform could more likely result in facilitating the entry of low productivity anticipating a low level of profit. This could simplify access of the poor to the formal economy and to better opportunities. However, the

regulations that significantly affecting the aggregate economic performance are those affecting the variable costs and the adjustment costs. However, we paid attention to regulations affecting business entry. In fact, a reform facilitates the entry of smaller firms but it facilitates greater productivity companies. Regulation has complex effects on businesses and the different categories of regulation could be integrated into a dynamic model of firm behaviour. Considering the enormous complexity of this model, it is possible to specify a more simple and operational model that captures the impact of the overall regulation on macroeconomic variables (Eifert, 2009).

4. Methodology

4.1. Variables specification and data sources

In recent studies Doing Business indicators were used to capture the business environment and its impact on economic performances (Djankov and al, 2006; Klapper and Love, 2010; B. Eifert, 2009). Other indicators are available for this type of evaluation. But a quick analysis suggests that the DB indicators are strongly correlated with most other baseline indicators[6]. Therefore, this study will use the DB indicators as indicators of the business environment. Beside the usual DB indicators the new indicator, the distance to the frontier will be used.

Three of the ten categories of indicators will not be considered in this study. The first one is getting electricity. Data for this area is only available over half of the study period (from 2009). The two other indicators are protecting investors and getting credit. Data for these categories of indicators do not vary over the period for the countries covered.

For selected categories, preference is given to the time taken, expressed in days, to implement procedure rather than to the number of procedures. Both indicators contain the same information but the timeline is a more informative than the number of procedures.

Cost indicators evaluated as a percentage of GDP do not enable to measure the implemented reforms since their variations are largely influenced by GDP variations. Yet, GDP is widely volatile for many sub-Saharan African countries. These indicators will not be taken into account. Such indicators include the cost for starting a business; the cost for dealing with construction permits, the minimum capital for starting a business as a percentage of GDP. Not all areas assessed are subject to common practices across all the countries of the region. For example, countries such as South Africa, Cape Verde, Equatorial Guinea, and Mauritania (….) do not have practice for three of the four indicators for resolving insolvency regulation. These three indicators are also discarded from the analysis.

4.1.1. Progress of DB indicators over the period

Data from thirty eight countries are used for the study over the period 2006-2011. During this period some indicators have been improved to facilitate the business culture. To assess the evolution of these indicators over the period for the sampled countries, we observed the progress of three specific values namely, the mean, minimum and maximum of each indicator. Table 1 displays these figures. Most number of days required to complete procedures are on average below 100 days, except for dealing with construction permits (over 200 days) and especially for the implementation of contracts which varies very slightly and

[6] The indicators of the markets regulation and the OECD products and the World competitiveness index of the World Economic Forum are strongly correlated to DB index.

remains higher than 600 days over the entire period. The average number of days generally tends to slightly decrease. Average costs also showed a downward trend, except for costs relating to trading across-borders (exports and imports) that have an upward trend; there was a steeper decline in the average cost of dealing with construction permits. The slight change in the average level of indicators does not mean that these indicators have not improved. In fact, countries performed different levels of reforms in the areas measured. Some countries experienced very low progress while others experienced significant improvements. In this way, improvements in indicators were not sufficient to significantly change the average levels. For example, for the number of days related to starting a business, Equatorial Guinea increased only from 137 days to 135 days, while Burkina Faso and Rwanda increased from 40 and 200 days to 14 and 8 days respectively.

Extreme values of the indicators did not significantly vary as well. The minimum level decreased for nine indicators but stayed unchanged for four indicators in 2006 and 2011; the minimum level increased for three indicators. Regarding the upper ends, the maximum levels increased for seven indicators, decreased for eight indicators; remained at the initial level for only one. Once again, the strong distribution of reforms comes out of this. Reforms in different fields are distributed across countries and over the period; and the scope of the reforms is also distributed in space and time.

4.1.2. Correlations between indicators

We started by investigating the existence of a correlation between indicators applied to a same area (Table 2). A positive correlation could be observed between the indicators for starting a business, dealing with construction permits, registering property, trading across borders and paying taxes. The correlation is remarkably high for the time and costs for export and import (over 50%) as well as for starting a business.

Data displayed show existence of strong correlation between indicators of cross-border trade. The correlation between the time for export and import is 90% and the one between the costs of the same indicators is over 91%[7]. We retain for the estimations indicators related to export. Following the same logic, for areas showing indicators with a relatively high correlation, we use a single indicator and show preference to time indicators rather than the costs as they are expressed in relative values, so that the variations observed can be due to comparable variables. Conversely, variations deadlines better capture the effects of reforms. Candidate Business environment indicators are the following:

- The deadline for starting a business;
- The deadline for dealing with construction permits;
- The deadline and cost for registering property;
- The deadline and cost for enforcing contracts;
- The deadline and costs of exportation;
- The number of payments and total amount paid for taxes;
- The rate of insolvency collection.

[7] [2]A similar result has been found by Eifert B., (2009) on the relative indicators to the imports and exports for 135 countries

Table 1: Progress of Doing Business indicators in Sub-Saharan Africa

		2006	2007	2008	2009	2010	2011
Time for starting a business	min	13	13	7	6	3	3
	Mean	57	55	50	44	42	42
	Max	153	135	135	161	161	161
Cost for starting a business	min	8.6	6.9	5.3	1.7	1.4	1.5
	Mean	244.4	196.1	191.8	135.3	119.6	93
	Max	209.5	1314.6	1180.7	935.4	847.6	228.4
Time dealing with construction permits	Min	79	79	79	79	53	75
	Mean	213	219	20	224	205	199
	Max	533	533	533	614	614	614
Cost for dealing with construction permits	min	14.7	13.4	16.4	13.1	9.4	10.9
	Mean	1779.57	1612.9	1619.6	1218	1318.3	1030
	Max	13205.2	10829.4	12219.7	8794.5	13138	6822.8
Time for registering property	min	9	9	9	9	9	9
	Mean	103	92	88	80	70.4	65
	Max	397	371	371	334	295	295
Cost for registering property	min	1.6	1.7	1.3	0.6	0.5	0.4
	Mean	11.9	11.95	11.43	10.52	9.97	9
	Max	25	27.1	27.9	25	20.6	20.6
Number of taxes payments	Min	8	8	8	8	8	8
	Mean	41	40	40	40	39.7	40
	Max	66	66	66	66	66	64
Total of tax payments	min	15.4	15.4	15	15	15	14.3
	Mean	76.5	78.47	77.5	77.3	73.6	73.5
	Max	286.5	292.1	292.1	292.1	292.1	339.1
Time for Importation	min	13	13	13	13	11	10
	Mean	48	47	44	42	40	39
	Max	78	102	102	102	100	101
Cost for Importation	Min	683	683	673	677	689	689
	Mean	2111	2086.5	2112.2	2404.6	2475.3	2650.9
	Max	5715	5715	5715	6215	6345	8525
Time for Exportation	min	13	13	14	14	11	10
	Mean	39	37	36	35	34	32
	Max	78	78	78	78	75	75
Costs for exportation	min	463	624	697	725	737	737
	Mean	1675.3	1679.4	1698.4	1926.7	1988.5	2032.6
	Max	4867	4867	4867	5367	5497	5902
Time for enforcing contracts	min	276	276	276	276	260	230
	Mean	653	656	655	667	651	647
	Max	1070	1280	1280	1280	1280	1296
Cost for enforcing contracts	Min	14.3	14.3	14.3	14.3	14.3	14.3
	Mean	53.1	52.6	52.6	51.9	51.9	52.7

	Max	151.8	151.8	151.8	151.8	151.8	151.8
	min	0	0	0	0	0	0
Average for resolving insolvency	Mean	17.7	20.1	18.1	18	18.2	19.1
	Max	51.8	57.5	57.1	57.5	57.5	60.8

Source: Author from the World Bank Doing Business data

Table 2: Correlation between indicators of the same area

Indicators		Correlation[8]
Starting a business	Deadline	0.32
	Cost	
Dealing with construction permits	Deadline	0.15
	Cost	
Registering property	Deadline	0.10
	Cost	
Payment of taxes	Number of payments	0.045
	global average	
Enforcing contracts	Deadline	0.074
	Cost	
Trading across-border	Deadline for exportation	0.70
	Cost for exportation	
	Deadline for importation	0.73
	Cost of importation	
Regulation of insolvency recovery rate	Recovery average	

Source: Author from the World Bank Doing Business data

4.1.3. Macroeconomic variables

We consider macroeconomic variables from the database of the World Bank for SSA. These macroeconomic variables include the variable of interest pertaining to private investment and variables that explain the level of investment. They also serve as a control variables. The GDP growth rate enables to control the influence of economic cycles. Variables capturing the quality of the policy environment and governance are also used as controls as agents may change their investment decisions based on the levels of these indices: Political Rights and civil Liberties indices of Freedom House and the perception of corruption by Transparency International.

Private investment is the variable being observed. It is represented by private sector gross fixed capital formation. We have already mentioned the upward trend between 2006 and 2011 of this variable in the previous section. The theories presented on the relationship between investment and business environment is reminiscent of a correlation. Yet, there is no prior

[8] Interrelationship between the indicators of the same category

indication of such relationship. That is why in the development of private investment we must get to discard the effects of other variables to only keep those of the business environment.

Macroeconomic variables used as control variables are the following:

- The GDP growth rate: The product level is a key determinant in deciding to invest in the economic literature: either whether ex-ante in the Keynesian base model and ex-post in the classic model. In general, it is clear that we decide to invest in order to achieve production.
- The balance of the current account
- Domestic credit to the private sector as a percentage of GDP
- Inflation
- Government expenditures as a percentage of GDP
- The quality of governance and institutions

Evaluation is done here based on two indices published by Freedom House and Transparency International for the countries covered. Every year Transparency International publishes an indicator called Corruption Perceptions Index (CPI) based on expert opinion surveys. Countries are ranked from 0 (high corruption) to 10 (low level of perceived corruption). The series of this index was created from CPI reports from 2006 to 2011. In general, they indicate a strong correlation between corruption and poverty. In 2006, only two SSA countries (Botswana and Mauritius) had an index over 5. In 2011, only Cape Verde and Rwanda were added to the top half of the index. This reflects a positive trend for the indicator though at a very moderate pace in the area. Since 1950, Freedom House has been publishing annually indicators on the state of civil liberties and political rights. Both indices are available on the website of the institution; vary between 1 and 7. One stands for best performances of rights and liberties and, 7 stands for the poorest performance. The political rights index considers three areas: electoral process, political pluralism and participation and functioning of government. The index of civil liberties includes the following areas: freedom of expression and belief, freedom of association and organization, law enforcement and personal autonomy and individual liberties. We found a strong correlation between these two indices (around 90%), which led us to consider that the index of civil liberties in the estimate.

4.2.The model

There are various models used to investigate the relation between regulation and economic performance at the level of firms or countries depending on the nature of the data used. Djankov et al. (2006) studied correlations between regulation indicators and economic performance of firms using cross-sectional data. The model used is as follows:

$y_i = x'_i\beta + \varepsilon_i$ where y_i measures economic performance and x_i measures regulatory indicators and control variables.

However, the hypothesis of identification $E[\varepsilon_i|x_i] = 0$ indicating that there are no omitted variables that affect the economic performance and are correlated with indicators and variables of control seem to be strong enough. An improved version of this model is proposed by Rajan and Zingales (1998) using also cross-sectional data but taking the explanatory variables in double differences. This way of doing captures changes in the economic performance affected by changes in the regulatory environment. The first advantage of this model is that it addresses the issue of omitted variables. However, it shares the common limitation characterizing cross-sectional data models: non-inclusion of individual-specific structural differences on the dependent variable.

The basic model used in this study is similar to that of Eifert (2009). Panel data procedure will be performed. The model is as follows:

$$y_{it} = x_{it}^{'}\beta + c_i + \vartheta_t + \varepsilon_{it}$$

under the hypothesis $E[\varepsilon_{it}|x_{it}; c_i, \vartheta_t]$ implying that the errors are not correlated with indicators given the c_i individual effects and ϑ_t temporal effects.

This model is advantageous for many reasons. Above all, it addresses the issue of omitted variables constant over time. In addition, it helps control the country-specific trends. These two points are important for our subject because the regulatory framework is often heavily influenced by national or sub-regional policies such as employment promotion policies often through the provision of loan facility.

The model used for the estimation is as follows:

$$INVEST_{it} = X'_{it}\beta + \alpha_i PIB_{it} + \gamma_i DGVRNMT_{it} + \delta_i CREDIT_{it} + \theta_i PIB_{it-1} + \rho_i INVEST_{it-1} + \sigma_i INFLAT_{it} + \tau_i CL_{it} + \varphi_i IPC_{it} + c_i + \vartheta_t + \varepsilon_{it}$$

Where X_{it} is a vector of business environment indicators for the country i in year t ;

$INVEST_{it}$, stands for private investment as a percentage of GDP for country i in year t ;

GDP_{it} is GDP annual growth rate of country i in year t ;

$DGVRNMT_{it}$, stands for Government expenditures as a percentage of GDP for country i in year t ;

$CREDIT_{it}$ is Domestic credit to the private sector as a percentage of GDP for country i in year t ;

SBC_{it} The balance of the current account as a percentage of GDP for country i in year t ;

GDP_{it-1} (it-1) the rate of GDP growth for country i lagged for one period;

$INVEST_{it-1}$ (it-1) private investment as a percentage of GDP, lagged for country i in year t ;

$INFLAT_{it}$ The inflation rate for country i in year t ;

CL_{it} et CPI_{it} index of civil liberties and the index of perception of corruption for country i in year t ;

c_i Specific timeless effect for country ;

ϑ_t The temporal effect common in all countries;

ε_{it} The error term.

The hypothesis of identification supposes that the errors are not correlated with macroeconomic and control indicators and variables. Adding lagged dependent variable to the regressor responds to the need to consider the dynamics of investment. Like most macroeconomic variables, investment is dependent on cyclical developments; hence the level of investment in a given year may correlate with the previous investment levels. Furthermore,

the presence of this lagged variable makes our model a dynamic panel model. Assessing such a model requires specific procedures.

4.3. The procedure for assessment

Two models are implemented depending on the on the nature of indicators used: the first (Model I) uses the common DB indicators while the second one (Model II) uses the indicators of distance to the frontier. These two models are estimated for the entire sample. In the investment equation, the lagged investment appears as an explanatory variable; so we are in the presence of a dynamic panel. In addition, the time dimension of our panel is relatively reduced compared to the number of individuals. For this, we use the Generalized Method of Moments (GMM) system developed by Blundell and Bond (1998), which is suitable for estimating panel whose temporal dimension is reduced according to Rodman, (2006). The author shows the weakness of the other estimators compares to the benefits of the GMM estimator in situations similar to ours.

The GMM estimator is based on the orthogonality conditions between the lagged variables and the error term. The first GMM estimator is the one with first difference developed by Arellano and Bond (1991). It also takes the first difference of the original model, which eliminates the individual effects. The values of the endogenous variables lagged one period or more are increasingly integrated as tools. The estimation is done in two steps. However, this estimator has a limitation as it does not take the effect of factors invariant over time into account. Thus, small samples lead to biased results. To fill the gap of the dynamic panel estimator by Arellano and Bond, Blundell and Bond (1998) developed the GMM estimator system. It combines the in level and first difference equations, hence the characterization as system. The level equation uses different tools from the difference equation. In our case, we use the one-step GMM estimator system of Blundell and Bond. We introduce the following tools: the lagged two periods to take investment adjustments into account.

5. Empirical results

5.1. Diagnostic tests

Before performing the panel procedure and the GMM procedure, a number of tests are required. It is essential perform a specification test in order to check whether the data available match with the panel model. When considering panel data, the first step is to check the requirement of homogeneous or heterogeneous data generating process (Hurlin, 2006). This consists in checking in the econometric model envisioned whether the coefficients are the same for all countries. The over identification and error auto-correlation test should be also performed to check for the validity of the tools used. These tests were performed. The results are shown in Table 3 and Table 4. Data in table 3 indicate that the values of Fisher statistic do not enable to accept the null hypothesis of no individual effects. The equation with individual effects defined above is therefore assumed. The statistic of autocorrelation error tested by the Arellano and Bond method indicates that only errors are auto-correlated at order 1 but not at order 2 (Table 4). The Hansen-Sargan statistics for the GMM estimated models have critical values higher than 10% (Table 4). We therefore cannot reject the null hypothesis of validity of the tools.

Table 3: Results of the specification test

	SSA	
	Model I	Model II
Fischer	10.19	8.85
P-Value	0.000	0.000

Table 4: Results of autocorrelation and over-identification test

	ASS	
	Modèle I	Modèle II
AR(1)	-1,89 (0,059)	-1,76 (0,079)
AR(2)	-0,344 (0,731)	-0,64 (0,522)
Hansen	32,71 (0,307)	21,81 (0,410)

5.2. Results and interpretation

Ten out of the eleven indicators that were measured are expected to be negatively correlated to investment. Only the recovery rate is supposed to positively influence investment rate in case of insolvency.

The results of the estimations are reported in Tables 5 for Model I and Table 6 for Model II. For Model I, only three indicators have the expected signs: the deadline for starting a business, the deadline for registering property and the cost for enforcing contracts. The deadline for starting a business is not significant while the deadline for registering property and the cost for enforcing contracts are significant at the 5% and 1% significant level respectively. Empirical evidence enables us to assert a positive effect of these two indicators on private investment. More specifically, based on our results, reducing the deadline by 10 days for registering property generates an increase in investment up to 0.16% of GDP. Likewise, a10%, decrease in the cost that enterprises incur to enforce contracts leads to a higher investment rate of 0, 32 points.

These results are particularly interesting regarding the effects of the business environment on investment. However, it should be underlined that we get only two significant indicators and many do not have the expected sign. Eifert B. (2009) also obtained mixed results in the estimate of the investment function: all the coefficients of the indicators had the expected signs but none were significant. One reason for this may be of practical order. Even though the indicators potentially influence investment decisions, it is possible that investors do not attach the same importance to all indicators as well. This is plausible to the extent that the measured data do not affect businesses to the same magnitude. Large investors would give great importance to enforcing contracts as they are frequently involved in larger contracts, while small investors would closely look at the procedures and entry costs. Another

interesting fact regarding the deadline for starting a business is the following one: while this is the area most frequently cited in the reforms, it is not significant in any estimation as in Eifert (2009). Without being able to give an exact explanation of this result, this could be linked to the fact that although investors attach importance to the procedures of entry, they care about challenges encountered in carrying out their activities.

Moreover, it should be reminded that the DB indicators measure the de jure regulations, while there are practices overriding these legal arrangements. The facto regulations including corruption and the payment of bribes, could therefore replace the regulation captured by indicators. We should then moderate the expected influence of these indicators on investment. According to Eifert (2009) there is a clear need to consider whether the reforms captured by indicators have an impact, because of the irregularities and the non-enforcement; This particularly makes sense for developing countries.

Table 6 presents the estimation results of Model II. Six out of the eight indicators of distance to the frontier have the expected sign: dealing with construction permits, registering property, getting credit, paying taxes, resolving insolvency and trading across borders. Dealing with construction permits, registering property and the payment of taxes are as high as 1%. These results show that increase for a relative distance of a country compared to best practices in dealing with construction permits, registering property and the payment of taxes, this generates a decline in the investment. This could be explained by the fact that investors or appreciate based on the location of investment firms: they seek the best return for their money and are encouraged to select countries where regulations are relatively flexible, simpler, and less expensive . The implications of this finding are important. Indeed, countries wishing to attract investment must work to bring best practices in terms of regulations because arbitration can be done on the target invest countries as a result of capital mobility.

Table 5: Results of Model I

Field	Indicators	Estimated coefficient	Capital gain
Starting a business	Deadline	-0.001384	0.853
Dealing with construction permits	Deadline	0.0047463***	0.081
Registering property	Deadline	-0.0155097**	0.038
	Cost	0.083596	0.332
Payment of taxes	Number of payments	0.0781372***	0.051
	Global rate	0.0114703**	0.012
Exportation	Deadline	0.0363033	0.184
	Cost	0.000467	0.338
Enforcing contracts	Deadline	0.0043659*	0.000
	Cost	-0.0323676*	0.004
Resolving insolvency	Recovery rate	-0.0683689**	0.022

Table 6: Estimate results of Model II for SSA

Indicators	Estimated coefficient	Capital gain
Starting a business	0.0936672*	0.000
Dealing with construction permits	-0.0839274*	0.000
Registering property	-0.0568171*	0.000
Getting credit	-0.0123015	0.734
Payment of taxes	-0.0850154*	0.000
Trade across borders	-0.0017965	0.925
Enforcing contracts	0.0454649	0.178
Resolving Insolvency	-0.0284549	0.318

6. Conclusion and policy implication

This study aimed at determining the causal relationship between business environment and economic development in Sub-Saharan Africa. The World Bank doing Business indicators along with other macroeconomic variable were used to perform a panel analysis using a GMM procedure. The results of the estimations show that the time taken for registering property and the cost and time of transfer of ownership have a significant impact on private investment. The results indicate also that region were able to narrow the distance to the frontier with construction permits, registering property, getting credit, paying taxes, resolving insolvency and trading across borders. From a policy point of view, the study highlighted the fact that SSA countries must continue the reform undertaken so as to reduce the burden of regulations on businesses. Along with implementing actions to foster the effect of good business practices, corruption and bureaucracy should be tackled to reduce the gap between rules and practices. Third, the DB indicators to be more useful to investors should pay attention to the countries realities and particularities; these are the real facts that need to be considered because there are the ones that actually affect investors

References

Acemoglu, D., Jonhson, S., Robinson, J., (2004), *Institutions as the Fondamental Cause of Long-Run Growth*,NBER, Workiing Paper 10481

Augier, P., Dovis, M., Gasiorek, M., (2010), *The Business Environment and Morocan Firm Productivity*, 2010

Banque Mondiale, (1989), *L'Afrique subsaharienne; de la crise à une croissance durable; étude prospective à long terme*, Washington DC

Banque Mondiale, (2005), *Le Droit des Affaires et le Développement du Secteur Privé en Algérie*, Rapport N° 32945-DZ, Washington DC

Banque Mondiale, (2013), Doing *Business 2012 : Des réglementations intelligentes pour les petites et moyennes entreprises*. Washington : Groupe de la Banque mondiale.

Banque Mondiale, (2013), *Perspectives Economiques Mondiales 2013*

Banque Mondiale, (2013)*Doing Business 2014 : Comprendre les régulations pour les petites et moyennes entreprises*. Washington : Groupe de la Banque mondiale

Banque Mondiale,(2011)*, Doing Business 2012, Entreprendre dans un monde plus transparent,*Washington DC

Basu, A., Calamitsis, E.A. and Ghura, D., (2000), *Promotion de la croissance en Afrique subsaharienne; les leçons de l'expérience*, Fonds Monétaire Internationale, août 2000

Beke, E.T., N'Guessan, D. M., (2013), *Climat d'Investissement et Performance Productive du Secteur Privé en Afrique de l'Ouest*, CIRES, Rapport de Recherche du FR-CIEA n°55/13

Bianchi, M., Herekson, M., (2005), *Is Neoclassical Economics Less Entrepreneurless?*, SSE/EFI, Working Paper n° 584

Congrès de l'IDEF, E. Mackaay, (2013)*, La valeur des rapports Doing Business aujourd'hui*

Dam, K.W., (2006), China *as a Test Case: Is the Rule Law Essential for Economic Growth?*, University of Chicago John M. Ohlin Law and Economics, Working Paper, n°275

De Soto, H., (1990), *The Other Path*,New York, NY: Harper and Row, 1990

De Soto, H., (2000), *The Mystery of Capital: WhyCapitalism Triumphs in the West and Fails Everywhere Else*, New York, Basic Books, 2000

De Wachter, D., Harris, R. D., Tzavalis E., *Panel Data Unit Roots Tests: The Role of Serial Correlation and Time Dimension* , Queen Mary University of London, Working Paper n° 550

Djankov,S, and al. 2002,*The Regulation of Entry*, The Quaterly journal of Economics, Vol CXVII, February 2002

Djankov,S., Caralee, M., Ramalho, R.M.,2006, *Regulation and Growth,* The World Bank 2121 Pennsylvania Ave., NW Washington, DC 20433, United States

Dramani, L., Laye O., (2008), Les Déterminants de l'investissement privé au Sénégal: Une Approche VAR Structurel, ANSD

Eifert,B.P., (2009), *Do regulatory Reforms stimulate Investment and Growth? Evidence from the Doing Business Data, 2003-07*, Center for Global Development, January 2009

Freedom House,(2014),Country Status and Ratings 197-2014,

Freedom House, (2014), Freedom in the World 2014 Methodology, 2014

From an Invisible Man Toward a New Research Field, FEP, 2012

Gary, D. L., (1990), *Institutions and Economic Growth: The Contribution of Douglass D. North*, Karl Eller Center and Department of Economics, Iniversity if Arizona, Discussion Paper 92-6

Goaied, D. M., Sassi, S., (2012), *Econométrie des données de panel sous Stata*,IHEC et LEFA

Gwartney, J. D.,Holcombe R. G., Lawson, R. A., (2004), *Economic Freedom, Institutional Quality, and Cross-Country Differences in Income and Growth*, Cato Journal, Vol. 25,n° 3
Hall, R. E., Jones, C. I.,(1998), *Why Do Some Countries Produce So Much More Output per Worker than Others?*, NBER,1998
Hallward-Driemer, M., Wallsten, S., Xu, L.C., (2006), *Ownership, investment climate and firm performance, Evidence from Chinese firms*, Economics of Transition, Vol 14(4) 2006
Herbert, R. F., Link, A. N., *A History of Entrepreneurship*, (2009), reviewed by Nagarajan, K. V., International Journal of Business and Social Science, Vol 2, n° 9
Hernandez-Catà, E., (2000). *Raising Growth and Investment in Subsaharan Africa: What Can Be Done?*, International Monetary Fund
Hugon, P., (1988), *Les Afriques en l'an 2000: perspectives économiques, Afrique contempoarine, n° 146*
Judson, R. A., Owen, A. L., (1996), *Estimating Dynamic Panel models: A Praticl Guide for Macroeconomists*, Federal Reserve Board of Governors, January 1996
Kappler, L., Love, I., (2001), *The Impact of Business environment Reforms on New firms Registrations*, The World Bank, Washington DC, June 2011
Klein, P. G., Cook, M. L., (2005), *T. Schultz and the Human-Capital Approach of Entrepreneurship*, Review of Agricultural Economics, December 2006
La Porta, R., Lopez-de-Silanes,F., Schleifer, A., (2007), *The Economic Consequences of Legal Origins*, NBER, Working Paper 13608
Lacroix, I., St-Arnaud, P., (2012), *La gouvernance: tenter une définition*, Cahiers de Recherche en Politique Appilquée, Vol. IV, N°3
Nickell, S. (1981*), Biases in Dyanmic Models with Fixed Effects*, Econometrica, 49
Ouellet,E., (2005), *Guide économétrie pour STATA*, Université de Montréal
Peltzman, S., (1976), *Toward a More General Theory of Regulation*,Journal of Law and Economics, XIX
Pigou, A.C., 1920. *The Economics of Welfare*, MACMILLAN AND CO., LIMITED,
Robert,J. B., (1991), *Economic Growth in a Cross Section Countries*, The Quaterly Journal of Economics, May 1991
Rocha, V.C., (2012), *The Entrepreneur in Economic Theory:From an Invisible Man toward a New Research Field* ,FEP Working Paper n° 459
Rodman, D., (2006), *How to Do xtabond2: An Introduction to "Difference" and "System" GMM in Stata*, Center for Golal Development, Working Paper 103
Schleifer, A., Vishny, R. W., (1998), *The Grabbing Hand: Goverment Pathologies and their Cures*, Cambridge, M.A, Havard University Press, 1998
Stampini, M.,Leug, R., Diarra, S. M., Pla, L.,(2011), *How large is the Private Sector in Africa? Evidence from National Accounts and Labor Markets*, IZA Discussion Papaer n° 6267
Stern, N., (2001), *A Strategy of Development*, ABCDE Keynote Address, Washington DC
Stigler, G. J., (1971),*Theory of Economic Regulation*,The Bell Journal of Economic and Managment Science, Vol 2, Issue 1
Tournier, C., (2007), *Le Concept de gouvernance en sciences politiques*, Pap. Polit. Bogota (Colombia), Vol 12, n°1
Transparance International France, (2006), *Transparancy International publie son IPC 2006*, Communiqué de Presse.
Transparance International France, (2007), *Transparancy International publie son IPC 2007*, Communiqué de Presse.

Transparance International France, (2008), *Transparancy International publie son IPC 2008*, Communiqué de Presse.
Transparance International France, (2009), *Indice de Perception de la Corruption 2009, Perspectives Régionales: Afrique subsaharienne*.
World Bank 1994. *Governance: The World Bank's Experience*, The World Bank, Washington DC
World Bank,(2003),*Doing Business in 2004: Understanding Regulation, The World Bank,* The International Finance Group and The Oxford University Press, 2003
World Bank, (2004), *Doing Business in 2005: Removing Obstacles to Growth*, The World Bank, The International Finance Group and The Oxford University Press,2004
World Bank, (2008),Doing Business 2007, The World Bank,Washington DC
World Bank, (2009),Doing Business 2008, The World Bank, Washington DC
World Bank, (2010),Doing Business 2009, The World Bank, Washington DC
World Bank, (2011),Doing Business 2010, The World Bank, Washington DC
World Bank, *World Development Report 2002, Building Institutions for Markets*, The World Bank, Washington DC
World Bank. 2013. *World Development Indicators,* The World Bank,Washington DC
World Bank.1992. *Governance and Development*, The World Bank, Washington DC