Differential Impacts of Institutional Matrix Dimensions on Structural Transformation in Sub-Saharan African Countries

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Abstract

To capture the real impact of institutions on structural transformation, it is good to distinguish between "formal" and "effective" dimensions of institutions. The first corresponds to the quality of the political process and the second to the quality of the institutional environment. To identify the countries undergoing structural transformation, we performed a graphical analysis while to assess the respective impact of the two dimensions on the structural change, we applied cross-sectional analysis in 2005, the first year and in 2016, the final year. The investigation covers a sample of 45 countries. The graphical analysis showed that structural transformation in sub-Saharan Africa has so far only affected a minority of countries. The cross-sectional analysis has shown that the "formal" dimensions, like "credits to the economy", slow down the process, while the "effective" dimensions accelerate it, acting in the same direction as the "relative productivity of labor", "GDP per capita" and "trade openness".

Keywords: structural transformation, political process quality, institutional environment quality, "formal" dimensions, "effective" dimensions

I. Introduction

For a long time, the actuality in sub-Saharan Africa remains dominated by debates on the structural transformation. Even if one does not know yet all contours of this concept, according to several authors and experts under-development, it is a way of obliged passage to leave the vicious circle of underdevelopment. The process is certainly bills outstanding in sub-Saharan Africa, but it is still marginal (UNCTAD, 2014; Elhiraika and Sloan, 2014). The question we are now asking is how to make it emerge where it does not exist and accelerate it where it is still timid?

Joining again an old controversy, certain authors suggested exploring the role of the institutions (the IMF, 2003). They have come to this idea, either because they are guided by their intuition or because certain events have contributed to this. The emblematic cases are the economic success of China, a country deemed undemocratic; the eclipse of the spring Arab; and the success of the populist and even xenophobic parties that in some countries of Europe and America spoil the elections. Disputing the idea that the democracy contributes to development (Acemoglu and *al.,* 2019), these events lead even to the contrary idea: the democracy is not relevant and in certain case, it is even an obstacle of the development. Although banal and simplistic, this opinion however is largely accepted. International famous press organization such as *the New York Times* has not hesitated to recognize to undemocratic regimes benefits, going so far as their associating great intentions. Affirming, "*more political rights do not have an effect on the growth* ", Robert Barro (1997) gave to this opinion a theoretical relief. With its continuation, Gerring et *al.* (2005) supported that "*the Net effect of the democracy on the transnational performances of growth during five last decades is negative or null* ". With these facts, thus ends a long tradition where the institutions were considered as engines of development. Although weakened, the idea is not abandoned, recent contributions have even come to strengthen it. Two antagonistic visions of institutions then prevail, an epistemological dilemma that Slesman and *al.* (2015) explained by the multidimensional nature of institutions.

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Designating both norms and practices, what would they mean if these concepts do not match, which is often the case ? Tackling the question, very few authors took the right measurement of this multi-dimensionality. While going up in time, only the model of Lewis (1954), distinguishing the formal and informal institutions (a sector is an institution) seems to fall under this logic. We can also mention the study of Roland (2004) who approached the institutions under the angle of their ability to change, thus classifying them in "fast-moving" and "slow-moving" institutions. The appeal of the question increasing, recent analyzes have sought to measure the specific effects of different dimensions of the institutional matrix on economic growth. One can cite the democracy by Narayan and *al.* (2011a), the market support institutions by Bhattacharyya (2009) and Rodrik (2005) and institutional risks by Nawaz (2015). Only some authors such as Acemoglu and *al.* (2005), Aidt and *al.* (2008), Flachaire and *al.* (2014), Siddiqui and Ahmed (2013) were interested in the relative importance of the political and economic institutions. However, it is by analyzing the real conditions under which the institutions apply and functions that one will identify the best incentives to support industrialization and the structural transformation. It is by making the difference between the efficient institutions and the failing institutions, between those, which lead to the growth and those, which lead to the stagnation, between those that create a virtuous circle and those, which induce a vicious circle that one will manage to influence the structural transformation. According to this logic, we subdivide the "quality of the institutions" in two dimensions: the "political process quality" and the "institutional environment quality".

The first informs about the distribution and the political balance of power. It concerns the property of the standards, the rules and the values and expresses, not the effectiveness of the capacities but of the "ideals". It is the design of certain international organizations, which approach the institutions, as they must be. It is measured by the indices of democracy, autocracy and democracy-autocracy. Calculated by *The Economist Intelligence Links*, the index provides an outline of the state of the democracy for 165 States in the world. It is articulated around five categories, namely the electoral process and pluralism, civil freedoms, the operation of the government, the political participation, and the political culture. These categories are made up of 60 indicators for which each country is noted and classified in four types of modes: complete democracy, defective democracy, hybrid mode and authoritative mode. As for the index of democracy versus autocracy, he was invented by Monty G Marshall and *al.* (2002) and was popularized by several authors like Mulligan and *al.* (2004), Acemoglu and *al. (*2005), Glaeser and *al.* (2007), etc. The notation varies from -10 (autocracy) to +10 (democracy). The defect of these variables is the gap between the ideal, which they express, and their application on the ground. The "democracy" illustrates this established fact perfectly. The variation is often large between the "ideal" democratic and "lived" democratic. The fact that a mode is democratic (ideal) does not want to say that it is transparent and respectful rules of good governance (lived) contrary, the fact that a mode is autocratic does not want to say only it does not take care of the respect of the contracts or that it does not apply financial and budgetary orthodoxy (lived). By using it to measure the institutions quality, one does not know which of these aspects it reflects; the ideal or lived. These variables belong according to our terminology to "formal" dimensions.

The second, "institutional environmental quality", described on the contrary of management practices of the public affairs such as corruption, the rights political, etc, the existence or not of the laws relating to the private property and the degree of observance of those by the citizens, and constraints imposed to the political leaders by the balance of power and inspecting devices. Describing reality, it reflects the applicability and the functionality of the rules and the standards and the concrete value that the individuals grant to those; they can thus be cancelled or confirmed by the observation. It is measured by the following indicating variables: "rights of ownership and the governance founded on the rules", "the quality of the budgetary and financial control ", "the effectiveness of the mobilization of the receipts", "the quality of the public administration", "the transparency, the accountability, the absence of corruption in the public sector". The variables having these properties had been arranged in the "effective" category dimension. According to our assumption, it is a dimension not "formal" but "effective" are significant for the structural transformation.

The study carried out by combining the statistical analysis with the cross-sectional analysis. In addition to simplicity, these methods make it possible to minimize the risks of error when they are the chronicles referring to qualitative variables, as it is the case here. As it Acemoglu and *al.* (2019) underlined, the change of scores measuring the quality of the institutions always does not correspond to truths institutional changes; contrary, minor but significant changes for the future can occur whereas the index did not change. Limited to 2005 and 2016, the analysis out of cross section makes it possible to know which political process or institutional environment explains the level of structural transformation of the countries of sub-Saharan Africa at the two dates.

The remainder of paper is structured as follows: section II is devoted to the presentation of the theoretical and empirical framework, section III for the statistical and econometric analysis and section IV for the results, interpretations, discussions and implications.

II. Framework of theoretical and empirical analysis

We present the executives theoretical and empirical.

2.1. Theoretical framework

The structural transformation makes it possible to break the vicious circle of poverty and unemployment, phenomena having experienced a strong expansion in sub-Saharan Africa as from the 1980s. To engage, the process requires a virtuous articulation between investments, research, innovations and technologies. Using the technical of calibration on a sample of 45 countries over the period 1970-2005, Swiecki (2017) confirmed the role of technology. Several authors underlined the role of the investments and the innovations (Smith, 1776; Schumpeter, 1911). More recent empirical analyses highlighted the role of trade openness (Matsuyama, 1992), relative labor productivity (Ngai and Pissarides, 2007), differences in income elasticities (Kongsamut and *al.,* 2001; Murphy and *al.,* 1989), domestic market size (Leukhina and Turnovsky, 2014) and international market access and proximity with the industrialized countries (Breinlich and Cuñat, 2013). No role, however, is assigned to institutions that nevertheless structure human relations (North, 1994), reduce the uncertainty of their reciprocal interactions, determine the use of productive resources and explain the differences in the level of growth and development between country. If their role is ignored that must be related to the controversial nature of the concept. Whereas for the neo-classic ones they are a fixed framework and thus excluded from the field of the economic analysis, for the Marxists and the Historicists, they are on the contrary an integral part of the development process. The neo-classic theses making authority, the institutional analyses suffered a long time from a deficit of interest. This one was surmounted only in the turning of the 1990s, thanks to North's work (1990, 1991) and Fogel and *al.* (1974). Refusing to regard them as crystallized "routines" and "habits", in their eyes they are rules, norms and values in perpetual change driven by individual behavior.

The work of Coase (1937, Nobel Prize in 1991) on transaction costs, Williamson (2000 and 2002, Nobel Prize in 2009 with Ostrom) on social constraints, Hernando de Soto (2005) on the system of property, Roland (2004) on the ability of institutions to change, and North (1993) on the economic role of institutions have largely contributed to spreading this heterodox conception of the economy. The perception of the institutions has again crossed a new level: they are catalysts for growth [North (1971 and 1994), Acemoglu and *al.* (2001 and 2002); Spolaore and Wacziarg (2013)]. Sharing this idea, Woolcock (1998), North (1990), Rodrik and *al.* (2004), and Acemoglu and *al.* (2004) established a close connection between the quality of institutions and the economic performance. The economic development goes together with that of the markets. Not being spontaneous, the markets need prerequisites to develop. Particularly, they require institutions whose role is to disseminate information on agents, prices, currencies, contracts, private property, social and political constraints. When these institutions exist and function in an efficient way, the markets develop, the physical and human capital accumulates, technologies improve, and the transaction costs and the investment risks decrease, which reinforces the synergy between all sectors (Aron, 2000). It results in a virtuous circle, where exchanges and specialization profits flows lead to a reversal of unemployment and poverty curves. But when they fail, transaction costs rise, investment declines, innovations and technologies transfer slow down, economic activities become interpersonal exchanges confining resources in low productivity sectors, which amplifies poverty and unemployment (Aron, 2000).

2.2. Empirical framework

To identify which dimensions "formal" and "effective" influence the structural transformation, we proceed to statistical and cross-sectional analysis. The structural transformation is measured by the following variables: industrial production or manufacturing production brought back to the GDP; industrial employment or the manufacturing employment brought back to total employment. Industry being a broad concept including the extractive activities, the most relevant indicator for capturing the structural transformation is that relating to the manufacturing activities. Otherwise, we will use the others. The quality of institutions is measured by two kinds of indicators: "formal" dimensions indicators (quality of political process) and "effective" dimensions indicators (quality of institutional environment). The table below indicates the variables and associated indicators.

Table 1: Variables and indicators of the quality of the institutions

Institutions Quality	Variables	Indicators
Effective dimensions (quality of institutional environment)	Rights of ownership and governance founded on the rules	CPIA rating
	Quality of the budgetary control and financial	CPIA rating
	Effectiveness of the mobilization of the receipts	CPIA rating
	Quality of the public administration	CPIA rating
	Transparency, accounting, absence of corruption in the public sector	CPIA rating
Formal dimensions (quality of political process)	Democracy	Demo
	Autocracy	Auto
	Democracy versus Autocracy	Polity2

Source: Author of this study

CIAP rating (1 = low to 6 = high). The autocracy versus democracy (polity2) is an index ranging between -10 (perfect autocracy) and 10 (perfect democracy).

The out of cross-sectional analysis consist in estimating two equations, one for the year 2005 and the other for the year 2016. One will thus have two pictures of the level of structural transformation of the economies studied, which, by comparing them will make it possible to conclude if between 2005 and 2016, the process progressed or not. According to Matsuyama (1992), the equation is specified as follows:

$$y_i = \beta_0 + \beta_1 I_i + \beta_2 X_{1i} + \beta_3 X_{2i} + \varepsilon_i$$

y_i :

Share of the manufacturer/manufacturing production in the GDP or manufacturer/manufacturing employment in total employment;

I_i :

Indicators of the quality of the institutions;

X_{1i} :

Productivity relating of the work of industry to agriculture;

X_{2i} :

Control variables vector, namely the GDP per capita, the proxies of the trade openness, the financial development and the domestic market size.

III. Statistical and econometric analysis

This section is devoted to the statistical and cross-sectional analysis.

3.1. Statistical analysis

The sub-Saharan Africa economies are among the weakest of the world. Because of an unfavorable international environment and not very respectful policies of the good governance, they remained a long time stagnant. Since more than approximately one decade, the situation is changing, but overall, it remains critical. The best performances are carried out by the countries rich in raw materials, such as Nigeria and Equatorial Guinea, the prices of the crude having increased substantially in 2000-2014, and by countries relatively well-governed, such as Rwanda and Ethiopia. Industrial and manufacturing activities contributed very little to it, which is the sign of a weak structural transformation. The countries making exception are Nigeria, South Africa and on a smaller scale, Kenya, the RDC, Ethiopia and Ivory Coast, the performance of some countries has deteriorated as a result of political instability.

The statistics show that the industrial activities and manufacturing are still marginal in sub-Saharan Africa, the majority of the countries being still with agricultural predominance. The statistics relating to the indicators of the structural transformation come from ILOSTAT database (2017), and from "World Development Indicators" (2000/2005 and 2016/2017). Those relating to the institutions come from "World Development Indicators" (2017) and from Polity IV dataset version 2017 of Center for Systemic Peace (CSP).

In graph 1 below, we represent three indicators. First relates to employment in agriculture, the second with employment in industry and the third with the quality of the institutions (indicator of effective size). It is not the shares of sectorial employment that are presented, but their variations between 2000 and 2016. These data are missing for the quality of institutions, we had to calculate the variation between 2005 and 2015. Each country is represented by three markers, in blue representing agriculture, orange the industry and green the institutions. The black line in full feature indicates the level of null variation, below a negative variation and above a positive variation.
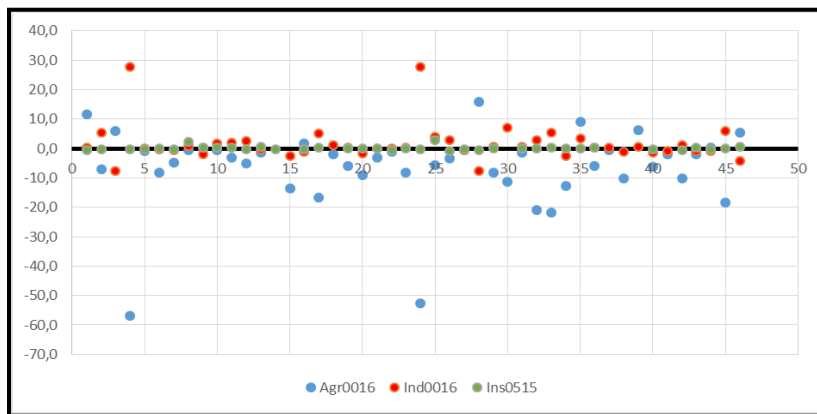

Graph1: Variations of employment agricultural and industrial and the institutions

The countries whose blue markers are below the balance axis and the orange markers above highlight a process of structural transformation. Those for which, the blue and orange markers move in opposite direction or are located on the balance axis are registered in margin of the previously mentioned process. The graphic analysis makes it possible to note that the majority of the blue markers are below the axis and those out of orange above. By excluding the countries whose two variables dropped simultaneously, it releases a minority from country whose evolution between 2000 and 2016 highlights the structural transformation. As graph 2 indicates it below, the phenomenon relates to only 20% of the countries.
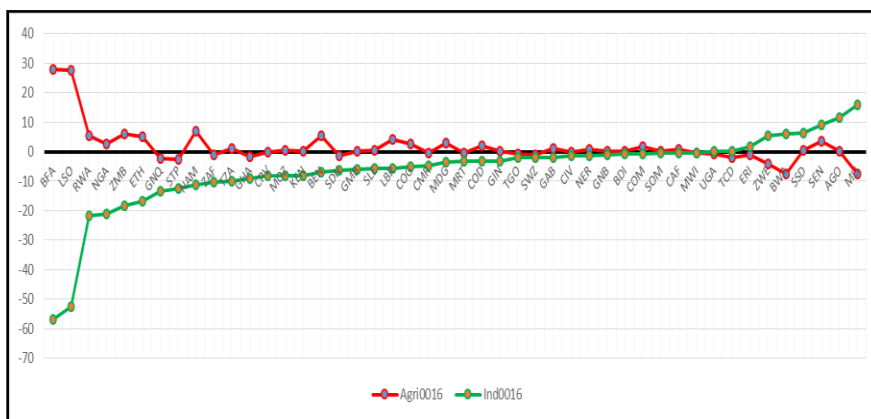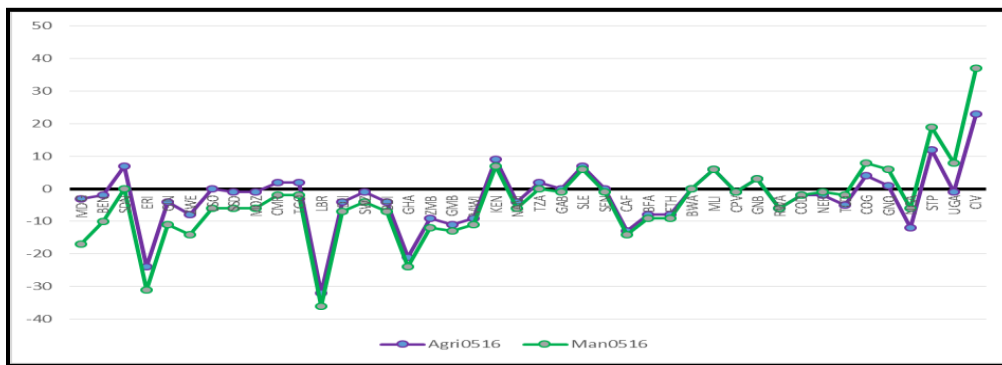

Graph 2: Variation of the uses agricultural and industrial expressed as a percentage of total employment

Instead of employment, one uses the production below. As in the preceding case, one compares the evolution of agriculture with that of industry between 2005 and 2016. By using as sort key the variations of agriculture classified by order ascending, one isolates the countries where the structural transformation takes place truly. Graph 3 below shows that it is approximately 20% of the classified countries which change over this period.
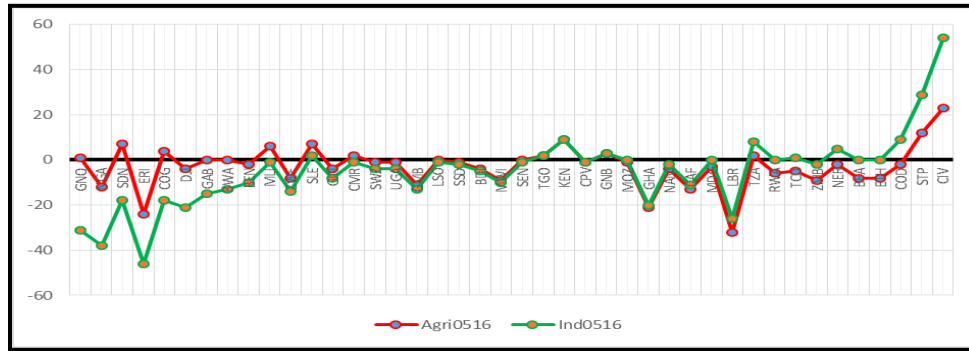
Graph 3: Variation of the productions agricultural and industrial expressed as a percentage of the GDP

By replacing industry by manufacture, one obtains almost the same result with a light reduction of the number of countries in structural transformation. This reduction is due to the fact that manufacturing industry is less developed in sub-Saharan Africa than industry in the broad sense, including the extractive activities of which mines.

Graph 4: Variation of the productions agricultural and manufacturing expressed as a percentage of the GDP

On the whole, between 2000 and 2016, one notes that only a minority of country in sub-Saharan Africa show premises of structural transformation. It is in any case what is released from graphs 1 to 4 above. Our basic problem being to determine which dimensions "formal" and "effective" influence really the structural transformation, we renew our approach. Thus, the representation of the groups of dots gives graph 5 below. The indicator of "effective" dimensions presented is measured by the average of the 5 indicators defined on page 6 (table 1).
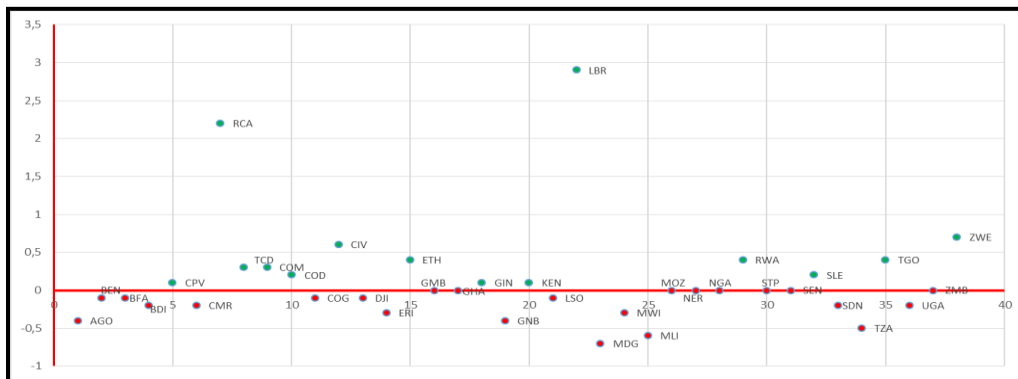

Graph 5: Institutions of the countries of sub-Saharan Africa: variation between 2005 and 2015

The dots are colored in red for the countries whose institutions between the two dates stagnated or worsened; and in green for those of which the institutions on the contrary improved.

This last category includes 17 countries. They are most powerful from the economic point of view of the continent : Rwanda, Ethiopia, Ivory coast, Cape Verde. To these, other countries are added, certainly less powerful, but recently emerged from institutional stalemate, such as Sierra Leone, the RDC, Kenya, Chad, etc. Instability being overcome, the phase of rebuilding was translated, at the initial year, by a strong improvement of the institutions. It is the case of Central Africa Republic, Liberia and Guinea, although the latter did not experience a war.

They made spectacular jumps, whereas until 2005, they were institutionally speaking "non-existent". Eight countries stagnated; they are Gambia, Ghana, Mozambique, Niger, Nigeria, Sao Tomé and Principle, Senegal and Zambia. The remainder of the countries saw their institutions unfortunately degrading themselves.

Graph 5 does not emphasize the contribution of the institutions to these premises of structural transformation. This is why graph 6 below was considered. Thus, on the same graph all the indicators are represented. The green and red markers are put for the variation of dimensions "formal "and "effective", the orange and blue markers for industrial and agricultural employment. The blue markers indicate that agricultural employment dropped between 2000 and 2016 in 36 countries out of 45 and increased only in 9. On the contrary, the orange markers show that industrial employment knew a rise between 2000 and 2016 in 27 countries out of 45. These movements in opposite direction are the sign of a beginning of structural transformation. It would certainly not be in the 27 countries, because the cases, where the two variables decreased simultaneously, should been excluded. Concentrated around the horizontal axis, the green and red markers indicate that in 2005 and 2015, the institutions (formal and effective) practically did not vary. On 38 countries, 22 are located on or below the balance axis; only 16 counter above, which carries to the maximum to 16 the number of countries where it is estimated that there was a beginning of structural transformation.
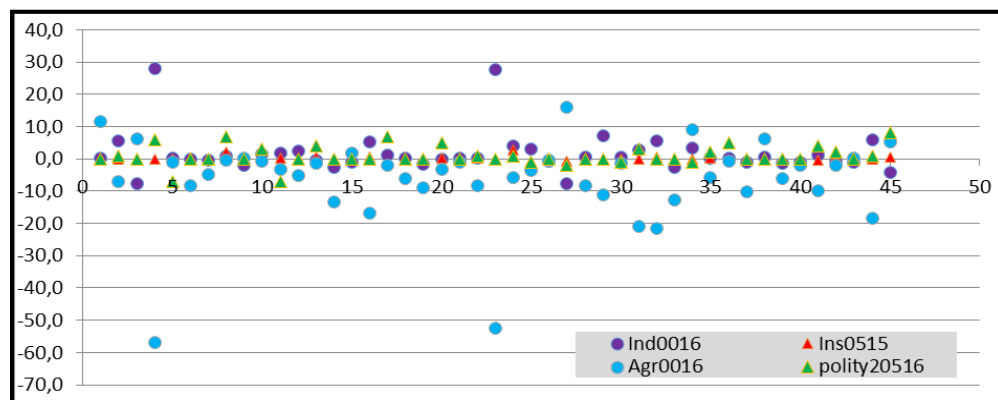
Graph 6: Variations of the shares of agricultural and industrial employment and the institutions

3.2. Cross-sectional analysis

The structural transformation is measured by 2 indicators: the share of the industrial production in the GDP (MOD.1 and 2 for 2005 and MOD.4 and 5 for 2016); and the share of industrial employment in total employment (MOD.3 for 2005 and MOD.6 for 2016). Models 2, 4 and 5 are alternatives of model 1 and model 6, an alternative of model 3.

The graphic analysis establishes that it is in a minority of country that one observes a beginning of structural transformation into sub-Saharan Africa. It remains however quiet as for the implication of the institutions. Planned to meet this need, the analysis out of cross-section method identified the types of institutions, which have indeed an influence proven on the process, in fact in 2005 and in 2016.

Let us consider initially effective dimensions or the impact of the variables of the institutional environment. Three indicators were used for this purpose: (i) Quality of the public administration (QAP); (ii) Transparency, accountability and absence of corruption in the public sector (TACP) and (iii) Quality of the budgetary and financial control (QBFM). The analysis showed that in 2005, whereas the QAP posts a coefficient of positive and significant sign to the threshold of 5%, the TACP raises a significant and negative coefficient to the threshold of 5%. In 2016, whereas the TACP and the QBFM have negative and no significant coefficients, the QAP posts a positive and significant coefficient to the threshold of 5%. By comparing these results, one notes that through QAP, dimensions effective influence the structural transformation. If in 2005, its impact is neutralized by the TACP, which has a comparable coefficient but negative, it is on the other hand the only variable in 2016, taking into account its positive and significant coefficient, to influence the process.

Being of formal dimensions or the quality of the political process, only one variable was used as measurement for this purpose, it is polity2 score. In 2005, its coefficient is negative and significant to the threshold of 5% whereas in 2016, it is negative and no significant.

By what precedes, it will be retained that, the quality of political process, which through polity2 score, captures the effects of formal dimensions, in 2005 had a negative influence on the structural transformation. Its coefficient being no significant, its effect is unspecified in 2016. On the other hand, capturing the effects of effective dimensions, the quality of institutional environment highlights two opposite results: measured by the QAP, its impact is positive and significant in 2005 like in 2016; measured on the contrary by the TACP, its impact in 2005 is negative and unspecified in 2016. Whereas in 2005, the QAP and the TACP neutralize (their coefficients being equivalent but opposite), in 2016, the QAP is the only institutional variable which acts on the system.

In addition to the institutions, the process of structural transformation is influenced by the productivity, the GDP per capita, the domestic market size, the trade openness and the credit to the economy. Besides the latter, all have a positive and significant impact on the system in 2005 as in 2016.

Table 2: Results of the cross-sectional analysis

VARIABLES EXPLICATIVES	CODE	VARIABLES EXPLIQUEES					
		Industrial production per GDP 2005 (MOD.1)	Industrial production per GDP 2005 (MOD.2)	Industrial employment in total employment 2005 (MOD.3)	Industrial production per GDP 2016 (MOD.4)	Industrial production per GDP 2016 (MOD.5)	Industrial employment in total employment 2016 (MOD.6)
Log of the labor productivity from industry to agriculture	LXRTIA	9.33 (2.59)***	11.87 (2.78)***	-3.45 (1.75)*	8.94 (2.71)***	11.83 (3.24)***	-3.32 (2.53)
Log of the GDP per capita	LPIBH	26.25 (4.54)***	24.24 (4.30)***	13.12 (4.10)***	10.62 (3.94)**	12.58 (6.52)*	16.96 (5.13)***
Log of the domestic market size	LPOP	10.88 (2.81)***	14.71 (2.98)***	1.34 (1.64)			
Log of credit to the economy	LCE	-13.56 (3.83)***	-10.69 (3.94)**				
Log of trade openness	LOC	20.91 (8.49)**	30.84 (8.37)***	6.72 (7.03)	25.99 (8.02)***	31.39 (8.77)***	20.10 (6.93)***
Quality of the public administration	**QPA**		11.02 (4.54)**			13.52 (6.36)**	
Transparency, accountability and absence of corruption in the public sector	**TACP**		-11.64 (4.12)**	-4.06 (1.91)**		-5.129 (4.06)	-1.10 (2.23)
Quality of the budgetary and financial control	**QBFM**					-5.39 (4.53)	
Democratic versus autocratic regime	**POLITY2**	-0.57 (0.27)**		0.08 (0.23)	-0.36 (0.31)		
Constant		-151.11 (34.45)***	-195.39 (34.95)***	-32.07 (20.26)	-61.12 (16.80)***	-87.10 (28.89)***	-67.52 (20.80)***
Number of observations		29	24	26	32	28	28
R² adjusted		79.89%	83.95%	79.89%	58.50%	45.73%	35.67%
F-statistic		16.89***	18.19***	4.99***	11.92***	4.79***	4.74***

(*), (* *) and (***): significant coefficient respectively with the threshold of 10%, 5% and 1%. The figures between brackets are standard deviations

IV. Interpretations, discussions and implications of the results

The economic validation of these results will be based on the interpretation of the signs of elasticities of the explanatory variables in the light of the economic theory.

4.1. Interpretations and discussions of the results

In a direction, the results obtained cancel certain beliefs and generally accepted ideas, in particular that which assigns at the institutions the role of engine. Being negative, the coefficient of the quality of the political process does not cancel only this idea, it defends the contrary idea, that they are its most savage obstacles. Although valid for the only year 2005, an improvement of a percent of the indicator of the quality of the political process involves according to this result a deterioration of the process of transformation structural of 0.5%. There is thus no significant difference between the democratic mode and the autocratic mode. Like the democracy rhyme not with the culture of result, with the values of work and freedom, it is reduced to the elections. However, the way in which those are organized in sub-Saharan Africa shows well that at the bottom, the difference between the two modes is only one question of label. This result confirms that of Tarno, (2019) which, by estimating a function of industrialization, showed that the coefficients of the modes "democratic", "autocratic" and "democratic-autocratic" are negative.

In another direction, our results largely confirm the idea that the institutions are engines. By measuring the institutions by indicators of "effective" size, one obtains plus coefficients and significant, results in phase with the analysis of Edison, (2003). It was known already that in companies where the administrative culture is not anchored in manners, the development will depend still a long time on the role which the public administration will play, and through it, the intelligentsia which animates and manages the businesses of the State. For the year 2005 however (MOD.2), one notes that it is a knife with double edge. The coefficient of the indicator "quality of the public administration" is positive and significant, which wants to say that competences available to the intellectual elite improve quality of the interventions of the State and consequently contribute to the development. The negative and significant sign of the coefficient of the indicator "transparency, accountability and absence of corruption in the public sector" shows that this significant role of the elite has consequences. Indeed, as its role increases, its influence increases, which it gradually transforms into an exclusive capacity of decision. Digging the bed with the bureaucracy, with opacity in the management of the public affairs, with the refusal to return account and corruption, this behavior ends up leading all the efforts of development. Whereas in 2005 the effects of these two variables were neutralized, in 2016 the situation turns to the advantage of the first.

Being the other variables, the analysis confirms in 2005 as in 2016 the positive and preeminent role of the productivity, the GDP per head and the commercial opening. Aligning itself on the result of Ngai and Pissarides (2007), the productivity stimulates the process to a total value of 9 to 12%. Confirming the result of Leukhina and Turnovsky (2014), the GDP per capital is characterized by a remarkable impact, at least twice more significant than the productivity. As for the commercial opening, it contributes between 20 to 30%, being thus aligned on the result of Matsuyama (1992). Whereas in 2016 the contribution of the "domestic market size" is unspecified, in 2005 it is positive and significant, ranging between 11 and 15%. This result can be debatable in a context where, poverty and the weak economic growth in the developing countries are connected to the demographic growth. One would expect following the example Tarno (2019) a relation what falls under the antinatalists policies.

The "credit to the economy" is the only variable of which the effects are unfavorable with the structural transformation. A variation of one percent of this variable involves a contrary variation of direction of the structural transformation from 11 to 14%.

4.2. Implications of the results

The results relating to the quality of the institutions have significant implications. With respect to access of the political process, the fact that its coefficient is negative wants to say that the institutions are neither neutral nor insensitive with the structural transformation. On the contrary, this result shows that the institutions for the moment do not make shows of a great legibility. Admittedly, there is still autocratic countries in sub-Saharan Africa, but the majority are democratic formally. In any event, the problem will not be to make so that all the countries adopt the democracy, but to reconcile, make coherent and agreeing the form of the mode which is democratic with the contents, the practice and lived which is very safe democratic.

Being the institutional environment, the positive sign of its coefficient indicates that the institutions are essential for the structural transformation. Democratic or not, the countries of sub-Saharan Africa know from now on which aspects of the institutional environment they must ensure the maximum of care to arrive at the structural transformation. The first aspect is the public administration. The reason is due to the economic, social and cultural context of the majority of the countries to leaving colonization.

The public administration is the only organized institution, equipped with frameworks qualified and average materials and financial able to implement programs in all the fields to build a country. The private administration, even if today it were metamorphosed, force is to recognize that with leaving colonization it was weak and it could not take its first steps without the assistance of the public administration. The situation changed much it is true, but today still, the public administration remains impossible to circumvent in many countries. Even if the private sector reached an appreciable level of development in several countries, it does not have yet the financial resources which it is necessary to undertake of great structuring work, to form executives in quantity and quality, to protect the environment, to give only these examples. Having the means of persuasion and coercion, it has a great influence on all the other private administrations which they are formal or abstract. The result relating to the productivity suggests that all the conditions of transparency, free competition and competitiveness on the labor market are created to allow the workers having better competences and qualifications can occupy best employment and profit from highest remunerations.

Inciting devices will be necessary to attract investors and to channel them towards the most productive sectors of the economy. Institutional arrangements on employment, the contracts and the regulation will be the principal stakes on this question.

The results relating to the "GDP per capital" and the "trade openness" suggest continuing to privilege the policies favorable to the economic growth and with competition, alone competitiveness guarantees. For that, these countries must have powerful economic apparatuses and adequate strategies to attract the foreign investors and thus to unceasingly increase their export and outputs.

Conclusion and prospects

The object of this paper is to identify which dimensions, "formal" and "effective" of the institutions, impacts the structural transformation of the countries of sub-Saharan Africa. To identify the countries where this process is in hand, we had used the graphical method. With the exit of this analysis, it appeared that only a minority of country is in situation of structural transformation. The following stage being of knowing the level of institutions implication, we had applied the cross-sectional analysis of transverse section (for 2005 and 2016) to a sample of 45 countries. The compared analysis of the two pictures obtained made it possible to note that the institutions in their formal dimensions depreciate the structural transformation whereas in their effective dimensions, they accelerate it. Contrary to the "credit to the economy", the "labor productivity", the "GDP per capita" and the "trade openness" act in the same direction as "effective" dimensions.

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Appendix: Sample of the studied countries

1. Angola	16. Ethiopia	31. Nigeria
2. Benin	17. Gabon	32. Rwanda
3. Botswana	18. La Gambia	33. Sao Tome et Principe
4. Burkina Faso	19. Ghana	34. Senegal
5. Burundi	20. Guinee Conakry	35. Sierra Leone
6. Cap Vert	21. Guinee-Bissau	36. Somalia
7. Cameroun	22. Kenya	37. Republic south Africa
8. Republic of central Africa	23. Lesotho	38. South Soudan
9. Chad	24. Liberia	39. Soudan
10. Comoros	25. Madagascar	40. Swaziland
11. Republic Democratic of Congo.	26. Malawi	41. Tanzania
12. Congo Brazzaville	27. Mali	42. Togo
13. Ivory Coast	28. Mozambique	43. Uganda
14. GuineeEquatorial	29. Namibia	44. Zambia
15. Eritrea	30. Niger	45. Zimbabwe