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Analysis of the Processing Performance of Agricultural Products by Agri-Food Industries in Côte d'Ivoire

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ABSTRACT

This study aimed to assess the degree of processing agricultural products. The Leontief model methodology was used with the Ivorian economy's 2013 Supply-Use Table data. This study shows that: 77.66% of food production is consumed by households without any processing and about 60.22% of industrial crops are exported as raw product. Secondly, agriculture and Agri-Food Industries (AFIs) provide a very small amount of their products as raw materials to other branches of the Ivorian economy. This means, that agricultural product valorization demand is low, so is the level of processing of agricultural products by the Ivorian AFIs. It is therefore appropriate and necessary to adjust the AFIs to the potential of agricultural production with a view to a coherent agricultural policy. So, we propose that the Government should develop policies consistent with each other, and work towards a healthy business climate. The Government should boost and promote agribusiness. We recommend the encouragement and attraction of donors to develop the Agri-Food Industry. We also recommend the development of research on imported agricultural subsistence products, whether or not locally produced like rice, onion, belt, milk. The country has many opportunities to improve the rate of processing of agricultural products.

Keywords: Agri-food Industry, Industry Dependence, Branch Integration Level, Value-Added Branch, Intermediate-Consumption Branch, End-Use Branches and Ripple effect.

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INTRODUCTION

Côte d'Ivoire a forest country in West Africa has built its economic development on agriculture. This remains the engine of its economic growth and provides income for 2/3 of the active population, 70% of exports and 25 to 35% of Gross domestic product (GDP).

According to the FAO and UNIDO (2010); FAO, (2012) when the Agri-Food Industries (AFIs) use agricultural products as intermediate inputs (Raw materials), their dynamics suggests that they address the high demand for goods from agriculture. This has the effect of increasing farmers' income, reducing rural poverty and promoting standardization and intensified agricultural production to meet both quantity and quality demands. Also, the development of the Agri-food industry, among other things, makes possible the surplus labor attraction from the agricultural sector, in addition to giving additional value to agricultural products. Through the development of food industries and agribusiness, access to markets, financing and technical assistance can be facilitated for smallholder farmers, thereby effectively involving them in modern value chains. AFIs also help achieve food security.

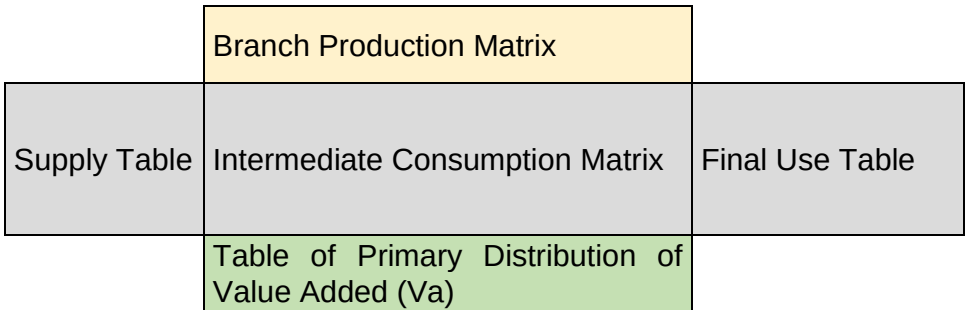

Figure 1. Simplified representation of an SUT.

In view of the above advantages, it can be argued that AFIs can play a leading role in agricultural development and poverty reduction in Africa especially in Côte d'Ivoire. This is why it becomes important to ask: what were the failures behind the AFI sector not leading the Ivorian agricultural sector towards harmonious or sustainable development? Are the branches of the Ivorian economy added value-oriented or intermediate consumption oriented? In response to these concerns, we found it appropriate to analyze the degree of processing agricultural products, in order to understand the structure of relationships among the branches of the economy, with a view to identifying the failures of agricultural sustainable development. The purpose of this study was to illustrate inconsistencies in agricultural and industrial policies and the objectives are: first, to appreciate the degree of interrelationship between agricultural and the Agri-Food Industry sectors. In other words, identifying the value-added branches (branches whose products are weakly processed) and intermediate consumption branches (branches subject to raw materials, therefore with a high degree of processing); hence a performance analysis of the Agri-Food Industry sector. Finally, to identify the failures behind the AFI sector not leading the Ivorian agricultural sector towards sustainable development.

HYPOTHESIS AND METHODOLOGY

Hypothesis

As part of this study, the hypotheses supporting the problem are two, and, are as follows:
H_1: "AFIs, given their significance in the Ivorian economy, foster strong local demand for agricultural products as raw material**".**
H2: "Ivorian AFIs, given the reasons for their development, are well integrated into the agricultural sector".

Methodology

Method

To meet its objectives, this study was conducted following the below process:
Stratification of the branches of the economy. It will consist of assessing whether the branches are "Intermediate Consumption" or "Value Added". In other words, it will be for us to see if a branch serves as raw material for another, or if the products it produces are little or not processed and used directly for final consumption (low local value addition to agricultural products).

Model of Estimating Processing Performance

The Input-Output Table (IOT) or Supply-Use Table (SUT) (Figure 1) invented by Wassily Wassilyovich Leontief (1936) is the ideal tool for analyzing trade flows between Agri-Food Industries and Agriculture. To meet the objectives of the study, two types of models or indicators will be estimated: Vertical coefficients (calculated from the Supply matrix) and Horizontal coefficients (calculated from the Use matrix).

Stratification of Intermediate or Value-Added Branches

The tools (indicators) or models used to assess the stratification of Intermediate Consumption and Value-Added branches of the economy are as follows. The output of a sector or branch (X) is equal to the sum of the different products offered to the other branches of the economy (X11, X12, X13, etc.) as input or Intermediate consumption (CI), plus the sum of final products (Y), like, products consumed by households (y1), stored (y2), exported (y3) etc. as presented in equation 1;

$$X_1 = [X_{11} + X_{12} + X_{13...}] + [y_{11} + y_{21} + y_{31...}] \quad (1)$$

Where $[X_{11} + X_{12} + X_{13} ...]$ is the intermediate consumption (IC), or intermediate employment (IE), X_{11} represents the fraction of the output of branch 1 used as input by branch 1; X_{12} represents the fraction of branch 1 production used as input by branch 2; X_{13} represents the fraction of branch 1 production used as input by branch 3; branch 1, the agriculture branch, 2 is the industrial sector, 3 the services sector.

[$y_{11} + y_{21} + y_{31}$ ...] is demand or final products (Y), or also final use (FU), where, y_{11} represents the fraction of the production of the 1 consumed by households, y_{12} represents the fraction of the production of the 1 stored, and, y_{13} represents the fraction of the production of the 1 exported. The sum of the different types of employment (IE and FU) is called total use (TU). The value added of a sector or branch (VA) is equal to the output of the branch, minus intermediate consumption (IC) represented with the formula below:

$$VA_1 = X_1 - IC_1 \quad (2)$$

When a product is not processed, it is considered value-added, because it can be valorized and a product that is used as input, is intermediate consumption. Therefore a branch whose products are used as input into the production process of another branch will be considered as intermediate consumption branch; on the other hand, if the products of the branch are not used as input into the production process of another branch of the economy, then it will be called value-added branch; this is because the inputs necessary for its production will be low and VA high according to Equation (2) above. The indicator that allows this typology of branches is called "Structural Coefficient (SC"). This indicator ranked among the "vertical coefficients", according to the Leontief model, will be used to identify whether the branches of the economy are intermediate consumption (raw material from another branch, therefore processed) or value-added (low degree of processing). The formula for calculating the structural coefficient (SC) is as follows:

$$SC = \frac{IC}{VA} \quad (3)$$

Where SC: Structural Coefficient, IC: Intermediate Consumption, VA: Value Added.
If SC is less than a unit, then the branch is considered as a value-added branch, therefore weakly processed. In the opposite case where SC is greater than a unit, the branch is seen as an intermediate consumption branch, therefore processed.

Destination of Final Products of The Economy Branches

The analysis of use structure (US) helps to determine the use made of branch production (domestic market and/or export). The calculation is made by dividing the intermediate uses (IU) and the components of final uses (FU) including export, by the total uses (TU). This indicator is part of "horizontal coefficients". The indicator (US) is complementary to the structural coefficient SC which makes it possible to properly assess the rate of processing of a branch's final production.

Let $US_1 = \frac{IU}{TU}$ (4)

SC denotes the share of the final production of the branch entering the production process of another branch; The higher this coefficient is, the more it indicates the products of the branch that are used as input into the production process of the other branches of the economy; in other words, the products of the branch are therefore more processed.

$$US_2 = \frac{FU}{TU} \quad (5)$$

Reflecting the share of final production meant for final consumption (household consumption, exports, inventory changes and gross fixed capital formation). The higher this coefficient is, the more this means that the products in the industry are more likely to satisfy the demand (household, stock, export) without being used as input in the production process of the other branches of the industry economy; in other words the products of the said branches are less processed. One can also assess export (X) in the branch production using equation 6:

$$US_3 = \frac{X}{TU} \quad (6)$$

Reflecting the share of export in the total uses. The higher this coefficient is, the more this means that the branch exports more of its products, than consumed on the national market.

RESULTS AND DISCUSSION

Structural Coefficients

To assess the nature of the individual branches making up the AFI aggregated branch, the second type of vertical coefficients, or structural coefficients (SCs) was used. Estimation was done using equation 3 and the results are shown in Table 1. Table 1 shows that: 12 branches out of 21 are value-added. Subsistence Agriculture (SA) and Industrial and Export-Oriented Agriculture (IEOA) have an SC value of 0.26 and 0.61, respectively. Being less than 1, these shows that both branches are value-added. In other words, products from both branches are weakly processed. The trends of our results are confirmed by Rastoin and Ghersi's, (2010). The study shows that agriculture, historically is a high value-added sector, seeing its structural coefficient rise and become closer to all other sectors as it becomes modernizes. This is justified by the different industrial strategies implemented. However, cash crops have a processing rate about three times better than that of food crops. In Côte d'Ivoire, there have always been two types of agriculture: (1) Subsistence farming, geared towards meeting domestic food needs, including starchy foods, cereals, market garden crops and fruits and vegetables, and; (2) Export-oriented cash crops yielding foreign

Table 1. Structural coefficients.

Branches/SC-Nature	Structural Coefficient (SC)	Nature of Branch
SA	0.260	VA
IEOA	0.608	VA
BH	0.502	VA
FFF	8.923	IC
AFP	1.389	IC
GPMSP	2.041	IC
CCP	0.257	VA
OI	1.689	IC
BPP	0.061	VA
DIFVI	0.460	VA
BI	0.450	VA
TI	0.125	VA
WI	1.730	IC
CI	2.243	IC
CPW	0.274	VA
EA	3.126	IC
MI	1.254	IC
OEMRI	1.733	IC
PuS	0.001	VA
PrS	0.983	VA
AB	0.668	VA

Source: Calculations based on 2013 SUT at current prices. (The Minister of Agriculture, 2013) / NB: Value Added (VA) and Intermediate Consumption (IC).
Key: Subsistence Agriculture (SA), Industrial or Export-Oriented Agriculture (IEOA), Breeding and Hunting (BH), Fishing and Fish Farming (FFF), Animal and Fish Production (AFP), Grain Processing and Manufacture of Starch Products (GPMSP), Cocoa and Coffee Processing (CCP), Oilseed Industry (OI), Bakery, Pastry and Pasta (BPP), Dairy Industry and Fruit & Vegetable Industry (DIFVI), Beverage Industry (BI), Tobacco Industry (TI), Wood Industry (WI), Chemical Industry (CI), Construction and Public Works (CPW), Energy and Water (EW), Miscellaneous Industries (MI), Oil Extraction/Mining and Refining Industries (OEMRI), Public Services (PuS), Private Services (PrS), other branches (OB).

exchange to the country, tax revenues to the state, and income to farmers and agricultural intermediaries. Cash crop farming serves as an Ivorian agricultural model, and since it is dependent on exports or world market, it is highly sensitive to external shocks.

This explains the agricultural slump that Côte d'Ivoire has been experiencing since the 1980s as a result of falling world prices for this crop. This has seriously affected the entire Ivorian economy which used to rely on income from the coffee-cocoa mix, cotton, etc. Despite the industrial potential, it is noted that Ivoirian food and fruit crops still suffer significant post-harvest losses, with rates ranging between 30 and 70% of the production (The Minister of Agriculture, 2013), suggesting that Ivorian agriculture suffers more from a problem of production processing than a lack of productivity. There is, therefore, a great opportunity for the growth of AFIs in Côte d'Ivoire, which could have beneficial effects for the agricultural sector of the country. Overall, the agricultural sector employed almost 49% of the working population in 2009 (National Institute of Statistics of Ivory Coast, 2008, 2009, 2012b, 2016), that is why any unrest in this sector is likely to adversely affect the incomes of majority of Ivorian's and to make many of them food insecure; because it should be noted, Ivorian households dedicate nearly 47.82% of their expenditure to food (National Institute of Statistics, 2008, 2009, 2012b 2016). Our results (Table 1) also show that, some individual branches in the AFI Aggregated Branch, such as Cocoa and Coffee Processing (CCP), Bakery, Pastry and Pasta (BPP), Dairy and Fruit and Vegetables Industry (DIFVI), Beverage Industry (BI), Tobacco Industry (TI), have a structural coefficient less than 1, indicating that these branches are value-added (VA). In other words, products from these branches are also weakly or not processed. The low degree of processing of products from the branches results from the fact that they only undergo first-stage, or at most, second-stage processing. Therefore, these branches do not have an industrial ripple effect; in other words, they are not industrializing. While the Fishing and Fish Farming (FFF) branch and other individual branches making up the Agri-Food Industries (AFI) Aggregate Branch, such as Grain Processing and Manufacture of Starch Products (GPMSP), Animal and Fish Production (AFP), and Oilseed Industry (OI), have structural coefficients greater than 1, and are therefore Intermediate Consumption (IC) branches. As a result, products from these branches undergo a lot of processing and reach at least second-stage processing thanks to private investments from multinational firms.

Indeed, local processing takes place at three different

levels: artisanal, semi-industrial and industrial. Artisanal processing mainly concerns food products, in this case, consumer goods such as starchy foods, cereals and vegetables. Overall, the processing rate remains very low, except for rice, where almost all the paddy rice produced is processed by small units into milled rice. And, the technologies and processes used are rather rudimentary. There is also lack of funding. Semi-industrial processing is in one hand, supported by the National Centre for Agronomic Research (CNRA), whose research activities are aimed at increasing the production and productivity of the agricultural sector and Agri-Food-Industry. The Centre holds the methods for processing cassava and plantain into pre-cooked flour, and yam into flour "Bonfoutou" in the field of food processing. On the other hand, the CDT (Centre for Demonstration and Promotion of Technologies), which was created in 2009, has technologies for the processing, conservation (cold rooms) and packaging of various agricultural products, including food products, fruits and vegetables. Promotion and accessibility for local investors remain difficult. Industrial processing is essentially done by multinationals firms (Nestlé, Cemoi, Blohorn, etc.). They alone process over 80% of the agricultural raw materials processed in Côte d'Ivoire. The remaining 20% is processed by small and medium-sized enterprises (SMEs), from which agricultural producers are absent. Operations by the various operators in the sector made it possible to obtain the following result:

1st-stage processing: Results are satisfactory with a rate approaching 100% for most commodities (oil palm, rubber, cotton, etc.), except for cocoa and cashew whose processing rates were 23% and less than 3%, respectively before 2006. With the investments made in both sectors, the rates rose to 35% for cocoa and 15% for cashew in 2012;

2nd-stage processing: Results are still low, except for the oil palm sector where nearly 80% of the crude oil produced is refined locally. The coffee processing rate is around 20%; the one for cocoa, cotton (cotton fiber) and rubber is less than 2%;

3rd-stage processing: mainly concerns oil palm with the production of margarine, cosmetics, etc. (Ministry of Agriculture and Rural Development, 2016).

Just like the different types of agriculture, AFIs may be classified into two groups:

Export-oriented AFIs; and- AFIs meeting domestic food requirements.

As a matter of fact, industries that meet domestic food requirements are overwhelmingly (in terms of number) small units owned by Ivorian's. Based on local concepts, some develop genuine products by valuing products from subsistence agriculture. The country's food demand, like in Sub-Saharan African countries, is increasing due to the combined effects of rapid population growth (2.2% per year) and rapid urbanization, enabling us to affirm that the development potential of AFIs is significant. Also, the processing of food products would help with the conservation of these highly perishable goods, making them available throughout the year and reducing post-harvest losses considerably. However, Agri-Food Industries that mainly export their products belong to major international firms and make significant profits in Côte d'Ivoire. They are also likely to have a considerable impact on the development of Ivorian agriculture. Strategic action should focus on collaboration between Ivorian agriculture and local industries for transfer of technology, know-how and expertise. It might also be possible to promote the subcontracting by agricultural cooperatives of certain multinational firm processing operations. In other words, there will no longer be any clash between export-oriented agri-food industries and domestic-oriented ones. Our results, even if they are different in statistics, go in the same direction as those of Noufou (1993) and Koko (2013). The descriptive study, based on the 2008 Supply and Use Table, allowed them, to analyze the horizontal coefficients, the vertical coefficients and the degrees of integration of the various branches of AFIs. With these indicators, it was possible to assert that Agri-food industry and agriculture were poorly integrated, given the 17% of agricultural production entering the AFIs processing process. In other words, their study showed that with this structure, AFIs were not determinants of agricultural production and growth. In addition, they noted that 93.96% of the value added of the entire agri-food production complex originated from agriculture and that the consumption of raw agricultural products accounted for 58.34% of household food consumption compared to 41.3% for products processed by AFIs. From this section, it may be noted that agriculture products, in general, are very little processed, especially food crops with a high degree of perishability. As for AFIs, some have a low degree of processing (artisanal processing, or 1st-stage industrial processing) due to lack of investment and support for industrializing industries; others are at high levels of processing, having reached at least 2nd-stage processing thanks to investments by multinationals. The agricultural sector offers great opportunities for developing AFIs because of the availability of raw materials, and the growing demand for food. These results disprove Hypothesis 1 that, "*because of their significance in the Ivorian economy, AFIs foster strong local demand for agricultural products as raw material".*

Destination of The Final Products of Economy Branches

To assess whether the production by branches is more for intermediate use (raw materials) or final use (consumption), the structure of uses, or horizontal coefficients of use of products have been estimated and compiled in Table 2. The use structure of products of the economy shows that 70.74% of products of the Ivorian economy are meant for final-uses (Table 2). This high percentage is mainly due to the agri-food complex where about 85% of AFI products and about 76% of the

Table 2. Horizontal coefficients for product uses.

Coefficient Branches	IU/TU (%)	HC/TU (%)	X/TU (%)	GFCF/TU (%)	IC/TU (%)	FU/TU (%)	TU %
SA	18.15	77.66	0.43	0.00	3.76	81.85	100
IEOA	30.57	9.60	60.22	0.84	-1.22	69.43	100
BH	24.88	71.67	0.11	3.15	0.19	75.12	100
FFF	70.00	53.33	5.52	0.00	-72.94	30.00	100
AFP	6.97	73.54	10.24	0.00	9.26	93.03	100
GPMSP	24.55	72.59	4.86	0.00	-2.01	75.45	100
CCP	7.24	6.79	52.32	0.00	33.65	92.76	100
OI	47.51	37.69	14.66	0.00	0.15	52.49	100
BPP	0.47	92.39	7.10	0.00	0.04	99.53	100
DIFVI	16.75	75.53	7.41	0.00	0.31	83.25	100
BI	17.14	83.25	1.14	0.00	-1.53	82.86	100
TI	0.00	85.73	15.12	0.00	-0.85	100.00	100
WI	39.55	36.06	14.93	0.56	8.90	60.45	100
CI	35.90	21.92	37.88	0.00	4.31	64.10	100
CPW	17.34	28.78	0.31	52.93	0.64	82.66	100
EW	66.17	23.78	10.05	0.00	0.00	33.83	100
MI	40.36	35.24	20.77	23.04	-19.40	59.64	100
OEMRI	58.09	1.28	25.48	0.00	15.14	41.91	100
PuS	0.03	93.75	6.22	0.00	0.00	99.97	100
PrS	54.20	39.70	6.10	0.00	0.00	45.80	100
AB	38.57	14.78	17.70	42.03	-13.09	61.43	100
Total Agriculture	24.36	43.63	30.33	0.42	1.27	75.64	100
Total AFPC	35.90	53.06	16.57	1.00	-17.55	64.10	100
Total AFI	15.08	65.94	14.11	0.00	4.88	84.92	100
Total Economy	29.26	49.29	15.17	5.84	-1.65	70.74	100.00

Source: Calculations based on 2013 SUT at current prices (The Minister of Agriculture, 2013).
Key: Subsistence Agriculture (SA), Industrial or Export-Oriented Agriculture (IEOA), Breeding and Hunting (BH), Fishing and Fish Farming (FFF), Animal and Fish Production (AFP), Grain Processing and Manufacture of Starch Products (GPMSP), Cocoa and Coffee Processing (CCP), Oilseed Industry (OI), Bakery, Pastry and Pasta (BPP), Dairy Industry and Fruit & Vegetable Industry (DIFVI), Beverage Industry (BI), Tobacco Industry (TI), Wood Industry (WI), Chemical Industry (CI), Construction and Public Works (CPW), Energy and Water (EW), Miscellaneous Industries (MI), Oil Extraction/Mining and Refining Industries (OEMRI), Public Services (PuS), Private Services (PrS), Other branches (OB), Agri-Food Industry (AFI), Agri-Food Production Complex (AFPC), Intermediate Use (IU), Household Consumption (HC), Inventory change (IC).

agricultural products are mainly for final uses (consumption). In other words, only about 29, 15 and 24%, respectively of the economy, of AFIs and of agriculture are used as raw material in the branches of the economy for production purposes. When comparing these data with Koko's (2013). We find that the degree of non-processing of agricultural and AFI products is currently lower. This also indicates that, as these sectors increase their productions, very little is used as intermediate consumption. In the light of these results, the second hypothesis according to which, "*Ivorian AFIs, given the reasons for their development, are well integrated into the agricultural sector*", may be invalidated. The low participation in the production process of other branches of the economy suggests a weak integration of AFC with the other branches. This is what will be discussed in the next section.

In the final-use components of AFC products, the most significant item is final consumption (consisting exclusively of final household consumption) accounting for about 44% of agricultural product use and about 66% of AFI products. From the foregoing, it can be deduced that taken as a whole, AFC branches are branches that produce consumer goods intended mainly for local households. It is also noted that products from certain branches, including the Industrial and Export-Oriented Agriculture (IEOA) branch and the cocoa and coffee processing (CCP) branch are export-producing branches, because they export, respectively 60.22 and 52.32% of their production. First, this section shows that a very small number of products from Ivorian economy branches serve as raw materials and that agriculture and AFIs provide a very small amount of their products as raw materials to other branches of the Ivorian economy. In other words, the demand for value addition to agricultural products is low, so is the degree of processing of the Ivorian industry (mainly 1st-stage processing). Our data confirm the conclusions of N'Guettia's studies (N'Guettia, 2000; 2012). Secondly, the IEOA and CCP branches remain highly extroverted. These branches provide a lot of foreign currency to the country while reinforcing the dependence of the Ivorian economy.

The Input-Output Table (IOT) or SUT analysis is based on a linear equation system showing the distribution of a branch's production across the economy (Yu et al., 2010). The SUT is a dual entry table that tracks all economic transactions in goods and services. It helps describe the structure of the national economy and

product flows, which makes it useful for prioritizing operations and highlighting the driving branches and the driven branches of the economy. It is considered, not only as a predictive medium to predict the effect of a given policy on the production of branches, but also as an economic impact analysis tool, because it helps measure the effects of the variation of an element of final demand for a strategic product on the entire economy (Zaoujal, 2012; Malassis and Ghersi, 1992). In the light of our results, we may rightly ask why, despite long years of industrialization, the rate of processing of agricultural products is low, and that in addition, the exported products are poorly processed? One could therefore wonder why the strong growth of the local market during the first two decades of independence induced by the initial choices of the (liberalism, political stability, external openness, voluntarist growth) model as well as the abundant financial resources that the strategy entailed did not result in the building of a dense fabric of industries? So, did the Ivorian strategy present serious hazards in terms of skill transfer? A failure of this strategy may jeopardize continued industrial growth. Yet, this hazard is inherent in successful unbalanced growth through external openness. The low rate of agricultural products processing illustrated in our results is a result of the inconsistencies of the policies carried out in Côte d'Ivoire since independence. These policies have inhibited the emergence of a dynamic and endogenous industrial fabric. Indeed, several constraints were behind this failed industrialization, and are grouped into three broad categories: first, those related to the nature of the industry; second, those related to the hostile administrative and political environment; and third, those related to the lack of industrial culture (Chevassu, 1997).

Constraints Related to The Nature of Industry

If few Ivorians (about 5%) have created industrial firms, it is certainly not because of a lack of entrepreneurship, as private initiatives have emerged in the craft, trade and service sectors over the last decade. It is, therefore, reasonable to ask whether the specificities of the industrial sector are not responsible for the sector's low attractivity to local entrepreneurs, including:

The indivisibility of industrial investments, which is a barrier to entry in relation to real estate, trade, crafts, transportation or services. The industry is considered a capitalistic sector. The profitability for these capital investments is determined by the market size, which allows for economies of scale, and by the rate of utilization of production capacity, which usually requires a longer maturation period than other sectors to reach cruising level. In Côte d'Ivoire, the market for industrial products is limited by the size of the population and its low purchasing power. Large potential consumers of manufactured goods belong to advantaged social classes. The strong income growth generated by the success of the Ivorian model until the outbreak of the crisis encouraged the privileged strata to adopt the consumption model conveyed by expatriates, which explains their preference for imported industrial products over local products. For all these reasons, the import-substitution industry could only develop with strong protection barriers (tariffs, quotas and export licenses, tax exemptions by investment codes). Despite all the facilities granted to the industry by the Ivorian Government, the profits that this sector could expect remained very limited compared to those offered by competitive sectors. Therefore, how to convince the still very small number of Ivorian's with significant savings capacity to invest in the industry, knowing they will have to wait at least 4 to 5 years before having a chance to draw profit from their capital.

The higher technicality (competence, professionalism, etc.) of the industry is another barrier to entry. As a matter of fact, the industry requires greater managerial capacities than other sectors. Organizational capacity, fostered by integration into national and international technical, financial and information networks, which facilitates the ability to forecast and plan technological changes and innovations, and is essential to competitiveness is also an entry barrier.

-*The business climate,* which helps (or not, if bad) firms to emerge, is also an explanatory factor for the attraction of Foreign Direct Investments which can be a factor in the industrialization of the country.

Constraints Related to Administrative and Political Environment

The policy to make private capital and foreign firms Ivorian frightened investors, who had to change their nationalities to avoid tax pressure and a transfer of their firms and skills, and at the same time to benefit from funds originally intended to revive Ivorian SMEs, which is a circumvention of the then legislation in force.

Lack of policy coherence. For example, the Government-endorsed import of rice inhibits an efficient revival of the local production capacity for this commodity, which is essential for food security and food sovereignty.

The cost of production factors such as petrol, electricity, water, credit or capital, and communication to a lesser extent, is today the most significant constraint to the development of SMEs (CIRES, 2009; IOS Partners, 2014). For many promoters, the only concern for the Government is to bail out its coffers without worrying about the impact of tax burden on firms. In addition to these, there are shortcomings in the judicial system, which only increase banks' reluctance to participate in the financing of SMEs/SMIs. They complain that they have difficulties in recovering their debts and in enforcing guarantees. It takes, according to them, three to four years to have court permission to access the guarantees given. By then, the debtor has time to arrange their insolvency.

The administrative burden for setting up a business has significantly improved with the creation of CEPICI (Investment Promotion Centre). However, the conditions

to settle, to import production factors, to export production, etc. are still difficult because of administrative and customs harassment (subjective cumbersome procedures). It is also observed that some nationals seem to have more difficulty than large foreign firms in obtaining licenses, especially when they do not belong to social groups linked to political leaders' network

Poor governance also remains a major handicap to the emergence of a broad industry base which, even the single window strategies and the political will to talk about could not stem.

Lack of technical and economic *information* in the different sectors of the economy, a necessary ingredient at the time of the creation or during the operation of a firm also remains a handicap.

Also, of note is *the weak competence of government entities responsible for promoting firms* in feasibility and market studies. While profit taxation is the main argument in favor of Côte d'Ivoire, it is clear that the tax burden on labor and consumption (especially the import of inputs) largely offsets this competitive advantage.

Constraints Related to Lack of Industrial Culture

Indeed, we believe, like Mathieu (1990) that the fragility of the African economic sphere is due to cultural logics (solidarity, mutual aid, etc.) that are incompatible with the business world in the industrial sector. These traditional behaviors create a community constraint of rights and obligations that largely determine individual economic calculation. Africa is thought to be a huge community transfer society, which partly explains the failure of macroeconomic models. Cultures and traditions do not respect the rules of the game of market economy, and induce strong family and social pressures, compromising the economic calculation, whereas this should ensure business balance through the professional virtues of rigor, sober management, sustained operation, and self-financing. Individuality is only in relation to the group and for the group in the Ivorian culture. Rationality, rigor, diligence, and professionalism are not Ivorian entrepreneurs' strong points. According to our investigations, 65% of Ivorian firms suffer from poor management or governance, and 39% from poor business organization; about 33% for financing reasons. 83% of Ivorian firms experience these failures, reflecting an overall problem of governance, mainly due to family and social pressure. We agree with Chevassu (1997) statement that, the low level of industrialization and the small number of Ivorian entrepreneurs are much more due to psycho-ethnological factors ("mentalities are not suited to industrial matters") than to large foreign firms accused of stifling any attempts to emerge, and to technical factors (lack of training, funding).

Determinants for The Emergence of An Efficient Industrial Fabric

Based on the constraints to a powerful industrial fabric presented above, actions have been identified and are as follows:

The Government will need to develop policies that are consistent with each other; instill good governance for a healthy business climate, a prerequisite for attracting domestic and international investors.

The Government should stimulate and encourage a sound integration of training and research institutions with the business world in order to improve the professionalism of the country's future executives;

It will also need to identify and coach national investors' first, then international ones. This will have the benefit of forming a class of investors.

The Government should develop an industrialization program, in which the following actions need to be taken:

The Government should encourage banking in order to build up funds in financing institutions (banks, microfinance institutions) by facilitating access to such institutions, like *Orange Money* outlets. This will have the advantage of building up capital and selling it at motivational rates for investors (maximum 5%).

Government entities responsible for promoting firms (Ministry of Industry, CEPICI, Chamber of Industry and Commerce, etc.) should direct investors to national or international research firms for feasibility and market studies.

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Adopt outsourcing or fragmented production processes as an opportunity. Indeed, this globally advocated strategy distributes the production of different material and immaterial (services) components across the planet depending on what the actors in different countries can offer. Outsourcing thus remains an opportunity for the Ivorian economy, in sub-regional value chains, in terms of extra-industrial production, to compensate for technological, and managerial and organizational capacity failures.

Despite the failures listed, we believe that, the level of processing of agricultural products can be improved through the following opportunities: Côte d'Ivoire has the fundamentals to revive sustainable industrialization, such as the existence of numerous academic training institutions and research, numerous financing institutions (banks, microfinance), the country's interconnection on the international market, and the development of entrepreneurship spirit among young people.

Conclusion

The objective of this study was to assess the degree of processing of agricultural products. It is important to note that: First, agricultural products remain weakly processed. As a matter of fact, 77.66% of food production is consumed by households without any

processing. Industrial crops, however, are exported as raw product at a rate of 60.22% to other countries. Secondly, a very small amount of products from the branches of the Ivorian economy is used as raw material, and agriculture and AFI provide a very small amount of their products as raw materials to other branches of the Ivorian economy; in other words, agricultural product valorization demand is low, so is the level of processing of agricultural products by the Ivorian AFI (mainly first-stage processing). In light of these results, it is therefore appropriate and necessary to adjust the AFIs to the potential of agricultural production with a view to a coherent agricultural policy, the reason for which the following recommendation was made:

In terms of subsistence agriculture, the creation of more agri-food industries should be encouraged to process agricultural products (especially food) so that the agricultural products are no longer mostly for final use, but rather for intermediate use. This would boost agricultural activity by reducing post-harvest losses while improving Ivorian agri-food activity. A high level of processing of food products would make them available throughout the year (avoiding periods of scarcity) and would be an additional gain for producers of such raw materials who will see their post-harvest losses reduce considerably. The focus should be on the quality, packaging and presentation of finished products. This will increase their market share as they access large-scale distributors (supermarkets, wholesalers, etc.). To do so, the Government will need to create favorable conditions to attract foreign investors and especially create a climate conducive to the emergence of Ivorian businessman, with skill transfer.

In terms of Industrial and Export-Oriented Agriculture, 60.22% of their production is exported without any processing. This high rate is mainly due to cocoa and coffee, of which 52.32% of the production is exported as raw product. There should be more processing units to ensure at least full first-stage processing before export. There should also be second-stage and third-stage processing units because such units can have very high ripple effects due to their purchases from other branches. It must be said that the coffee branch is very powerful in terms of added value. Therefore, substantial processing in this area could boost the economy and make Côte d'Ivoire a global giant. The existence of numerous opportunities, such as training and research institutions, financing institutions, the local and international market and the entrepreneurial spirit, remain the levers for improving the level of processing of agricultural products.

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