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Agricultural value chain transformations and policy instruments : The case of the rice value chains in Ghana and Côte d'Ivoire

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Abstract

Agricultural value chains (AVC) are undergoing stages of transformation from traditional to transitional and to modern as a response to economic, demographic and consumption changes. One characteristic of the transitional stage is the growth and importance of SME midstream actors who respond to demand-side as well supply-side factors by means of upgrading. While this stream of research acknowledges the role of policies in conducing those transformations, it still lacks evidence as to what constitute the context-specific policy conditions. This study therefore explores the way policy instruments target midstream segment actors to address upgrading challenges in the context of AVC transformations, exploring the case of the processing segment of the rice value chains in Ghana and Côte d'Ivoire. We adopt a policy tools approach and undertake a content analysis of 138 policy documents related to the implementation of the National Rice Development Strategies since 2010 coupled with 43 interviews with rice stakeholders. Our results demonstrate that the types of policy instruments deployed and the specific actors targeted determine the capacity and capability of processing segment enterprises to undergo upgrading.

JEL Codes: Q180 ; O570

1. Introduction

A growing body of research in the Global Value Chain (GVC) literature establishes the interconnectedness between GVC operations and their policy environment (Horner, 2017; Horner and Alford, 2019; De Marchi and Alford, 2022). This literature emerged following increasing recognition that value chains do not operate in an "institutional and regulatory vacuum", calling for greater attention to the way GVCs are articulated within and through the political-economic environments in which they operate (Bair, 2005; Gibbon and Ponte, 2005). It therefore explores "how state matters" by focusing on the different roles of the State in value chains (VC) and how policies shape the pathway of VC upgrading (Horner, 2017). One of the main body of research concerns the way policies influence or hinder the ability of firms to participate in GVC, capture value, and upgrade (Horner, 2019; De Marchi and Alford, 2022). Some empirical studies demonstrate that state intervention enhances agricultural value chain upgrading such as the coffee value chain in Rwanda or the horticulture VC in Uzbekistan (Behuria, 2020; Lombardozzi, 2021). On the contrary, other studies highlight the way in which state policies limit the potential of SMEs to economically upgrade in the timber VC in Myanmar or to overcome market failures in agricultural VC in Nigeria (Rand et al., 2023; Olomu et al., 2020).

While GVC research is incorporating policy analysis to further comprehend upgrading dynamics and lead firms strategies on a global scale, research on agricultural value chain (AVC) transformations at the domestic level has yet to establish such relationship. This literature reports that over the past three decades AVC have undergone major transformations in developing countries as a result of urbanisation, liberalisation, privatisation and income growth (Reardon et al., 2021). According to the contexts and products, AVCs are experiencing varying degrees of change in structure and conduct, transitioning from traditional to transitional and modern stages (Barrett et al., 2022; Reardon et al., 2021). At the transitional stage, a "quiet revolution" is ongoing in the midstream segment (processors and wholesalers) of agricultural value chains characterised by the rapid proliferation of midstream Small and Medium Enterprises (SME) which upgrade their technologies through investments, move into higher quality products, and further engage into vertical coordination mechanisms (Reardon et al., 2014; Reardon, 2015; AGRA, 2019; Reardon et al., 2021). While research on the "quiet revolution" acknowledges the role of policies in conducing those transformations, through "policy meta conditioners", "public infrastructures" and "enabling conditions", it still lacks evidence as to what constitute the context-specific policy conditions.

This paper therefore investigates how policy instruments target midstream segment actors to address upgrading challenges in the context of AVC transformations. To do so, our study focuses on the rice value chains in Ghana and Côte d'Ivoire. Both countries suffer an ever-increasing rice import dependency ratio since 1960, attaining 69% in Ghana and 64% in Côte d'Ivoire by 2008, exposing them to potential external shocks and food insecurity issues. In this context, upgrading the processing segment of domestic rice VC is considered as a means to increase quality-based competitiveness of domestic rice to reduce rice import dependency (Demont and Ndour, 2015; Demont et al., 2017). Within this strategy, Micro, Small and Medium Processing Enterprises (MSMPE) play an important role. First, because they represent the bulk of processing segment enterprises at the midstream level of the rice value chains

considering there are few semi-industrial and industrial mills active in the region (Soullier et al., 2020). Secondly, they play a key role in supporting agricultural commercialisation among smallholder rice farmers through vertical coordination mechanisms (Alemu et al., 2021; Ruben et al., 2022). Finally, MSMPE can create a comparative advantage by capitalising on their embeddedness in rural communities and rice value chain networks (Arouna, 2019). Although the two countries possess similar endowments for rice development, recent evidence demonstrates that they experience different patterns of midstream segment upgrading (Laurent et al., 2023). While Ghana's rice value chain presents all the characteristics of a quiet revolution, Côte d'Ivoire mostly possesses the characteristics of a traditional value chain. In view of the differences observed, we specifically seek to answer the following questions: What type of policy instruments are implemented at the midstream segment level? Who are the beneficiaries of those policy instruments?

2. Conceptual framework

To explore the relationship between midstream segment upgrading and the policy environment we develop a conceptual framework. For this, we combine insights from three main strand of literature: the characterisation of upgrading of VC (Humphrey and Schmitz, 2000; Gereffi and al, 2005), the area of policy intervention related to upgrading in the rice value chain (Demont and Rizzotto, 2012; Demont, 2013) and the characterisation of policy instruments (Hood, 1986) (**figure 1**).

Upgrading is a central concept of value chain transformations, whether at the global or local level. It is defined as "a process of improving the ability of a firm or an economy to move to more profitable and/or technologically sophisticated capital and skill-intensive economic niches" (Gereffi, 1999, p.52). We distinguish four types of upgrading, including *process upgrading* (transforming inputs into output more efficiently by reorganising the production system or introducing superior technology); *product upgrading* (by moving into more sophisticated product lines), *functional upgrading* (firms can acquire new functions in the chain) and *governance structure upgrading* (reorganising the relationship(s) with suppliers towards greater vertical coordination) (Humphrey and Schmitz, 2000). They are interconnected in a way that process upgrading tends to shift the governance structure towards vertical coordination when it aims to improve the quality of the final product (product upgrading) by controlling the quality of supplies (Gereffi et al., 2005). At firm level upgrading strategies therefore require not only the acquisition of capabilities, but also involve changing relationships with buyers and markets (Humphrey, 2004).

In the case of the quiet revolution, it is argued that SME upgrading has been spurred mainly by the "demand pull" of urbanization and dietary changes accompanied by the facilitating influence of public infrastructure (AGRA, 2019). To meet consumers' expectations about quality and product differentiation, SMEs have increasingly invested in equipment, increased scale, diversified into higher quality products, and increasingly vertically coordinated (Reardon et al., 2014). In the case of the rice value chains in Ghana and Côte d'Ivoire, a key challenge remains to overcome the "urban-bias" by improving post-harvest standards to compete against imported rice in terms of both intrinsic (cleanliness, homogeneity, sensory attributes, etc.) and extrinsic quality attributes (presentation, packaging, branding, image, etc.) (Demont, 2013). To

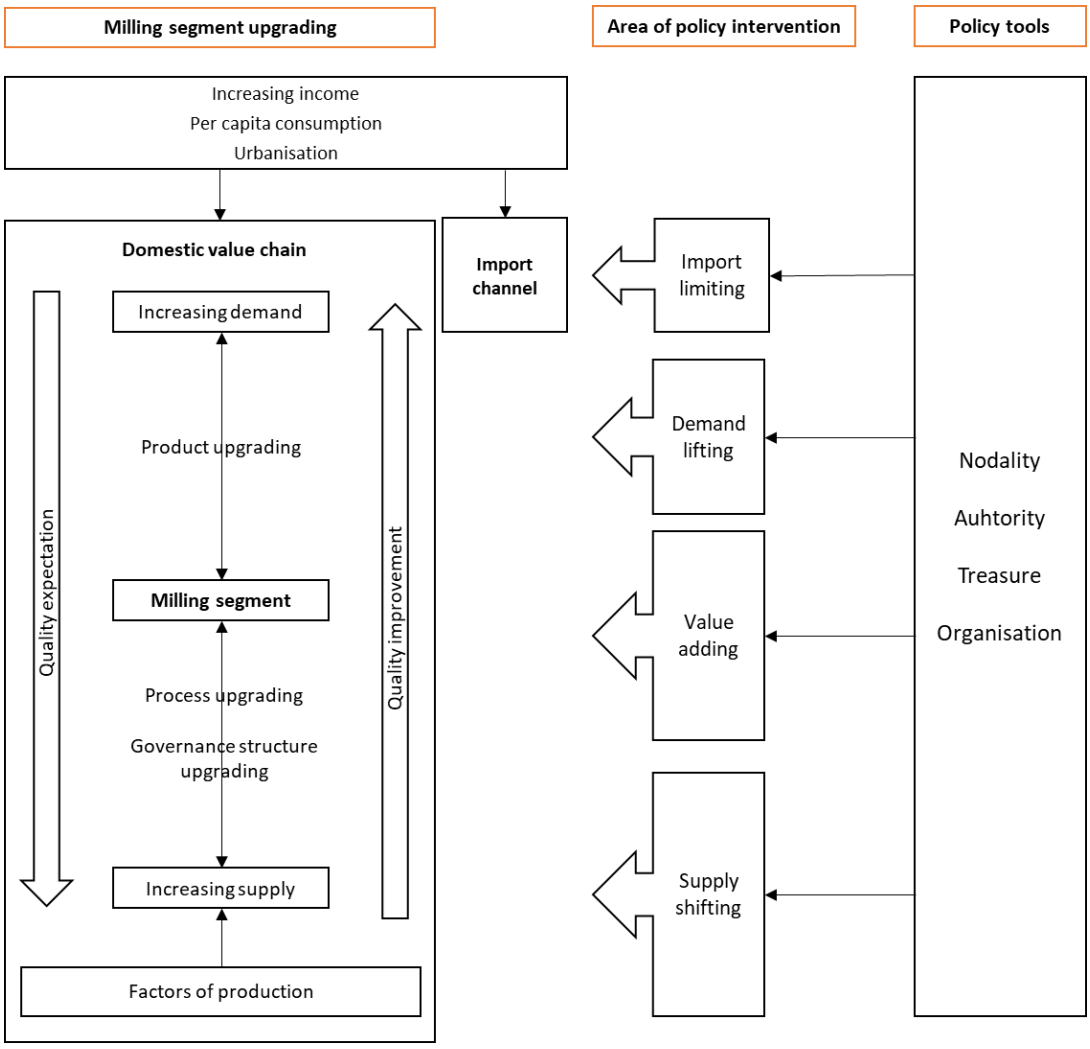
this regard, product, process and governance structure upgrading of the processing segment are considered by academics major enablers to attain this objective. To face the challenges of upgrading rice value chains in West Africa, Demont and Rizzotto (2012) argue that upgrading the rice value chain requires an optimal investment portfolio supported by State interventions in three main areas: (i) value-adding investments in order to bring quality of local produce up to the level of imports; (ii) scaling-up of quality produce through supply-shifting investments; and (iii) demand-lifting investments in order to enhance the chain competitiveness of domestic relative to imported rice (Demont and Rizzotto, 2012; Demont, 2013). We also consider a fourth component comprised of "import-limiting" measures as a means to protect the domestic market. Due to the historical and sustained comparative advantage that Asian producing countries have experienced over the past decades, rice value chains in West Africa have difficulties competing against structured import value chains in terms of quality, cost and scale (Soullier and Moustier, 2019). As Fiamohe and al argue, "trade policies that partially shield the local rice sector against unfair competition with imported rice are necessary in order to create room for policies aimed at boosting production to produce substantive effects" (Fiamohe et al., 2018, p.2).

In order to comprehend how States intervene towards value chains upgrading, we adopt a policy tools approach, which offers the potential of breaking down the complex concept of policy by providing a taxonomy of public policies (Margetts and Hood, 2016). Policy instruments are a critical component of policy-making defined as "the actual means or devices that governments put to use when implementing policies" (Howlett et al., 2020, p. 143). They are devices that guide human behaviour towards achieving certain objectives as well as being tools to correct market failures and achieve economic efficiency. From an industrial policy perspective, policy instruments are used to create incentives for private-sector actors to act in ways that are consistent with the intended direction of structural change (Juhász et al., 2023). However a recent literature review on public policy instruments demonstrates that there are "as many typologies as authors who elaborate them" (Franco Vargas and Roldán Restrepo, 2019, p.107). Among the various typologies that exist, we choose the "NATO scheme" developed by Hood (1986) as it is considered as a "simple and powerful taxonomy" (Howlett et al., 2020, p.144). It stems from the "generic institution-free approach" that focuses on cataloguing the government's toolkit (van Vught and de Boer, 2015). This approach therefore categorises the different instruments according to the nature of the governing "resource" they employ (Howlett, 1991). Hood argues that governments have essentially four resources at their disposal – informational (nodality), financial (treasure), coercive (authority), and organizational (organisation) (**table 1**)- and can utilise those resources for two purposes : to monitor society (detecting tools), or to alter its behaviour (effecting tools). For Hood, as well as many policy instruments analysts, instrument choice is a function of available state resources and capacities, in conjunction with the nature of state aims and the organization and capacity of targeted societal actors (Howlett, 1991).

Tableau 1: Effecting tools of NATO framework (Howlett and al, 2020)

	Nodality	Authority	Treasure	Organisations
Effecting tools	Information Campaign Exhortation Benchmarking Performance Indicators Nudging	Regulation Delegated and Self-Regulation Standard Setting	Financial incentives : Grants and Loans Financial disincentives : Tax Expenditures Taxes User Charges	Direct Provision of goods and services Public Private Partnerships Public Enterprises, Quangos, and Partnerships Co-production Family, Community, and Voluntary Organizations

Figure 1: Relationship between upgrading and policy intervention

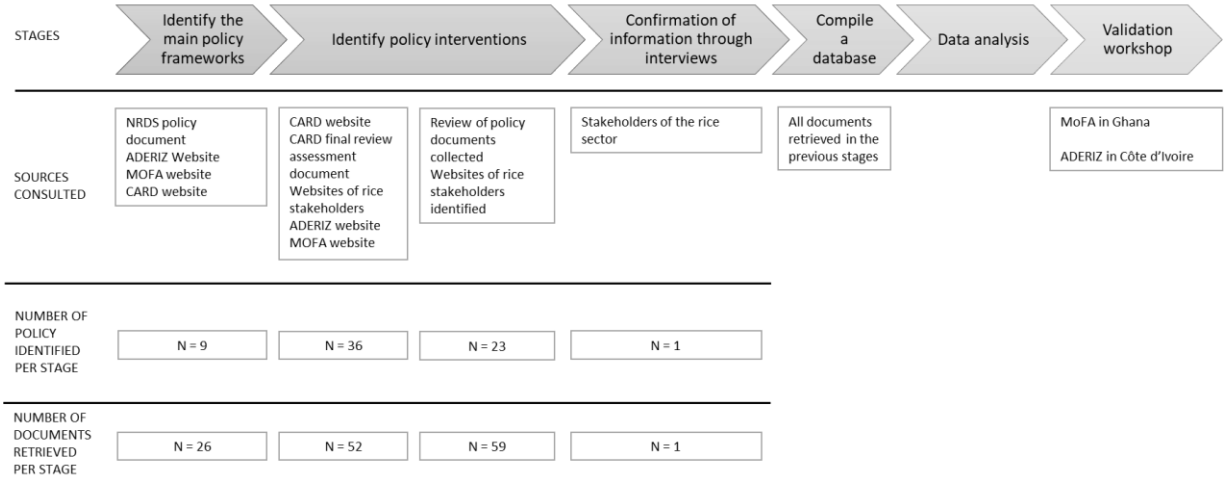


Source: Authors based on Demont and Rizzotto, 2012; Hood, 1986.

3. Methodology

Since the 2008 rice crisis, Alliance for a Green Revolution in Africa (AGRA), Japan International Cooperation Agency (JICA) and New Partnership for Africa's Development (NEPAD) initiated the Coalition for African Rice Development (CARD), to set out an overall strategy and a framework for action to contribute to achieve rice self-sufficiency. The 23 participating Sub-Sahara Afrian countries, including Ghana and Côte d'Ivoire, developed their first generation of National Rice Development Strategies (NRDS) as policy documents for rice development. Implemented from 2010 onwards, an NRDS is a comprehensive strategy for achieving the rice development goal in a country. We gathered and analysed all relevant rice policy documents in Ghana and Côte d'Ivoire since 2010, start of the NRDS implementation, by carrying out a multiple-stage process (see **figure 2**).

Figure 2: Methodological process from data collection to result validation



First, we identified the main policy frameworks within each country and regionally by examining the National Rice Development Strategy (NRDS) of each country, and reviewing the websites of ADERIZ, MoFA, and the CARD. Policy frameworks refer to the general structures, often encapsulated in documents or established practices that provide institutions a guiding architecture for policy action across one or multiple policy areas (Lakhno, 2023). Secondly, upon identifying all policy frameworks, we identified the different policy interventions undertaken within the rice sector. Policy interventions involve any course of action, programme or activity taken or mandated by national or international authorities and non-state actors (Lund University, 2023). This was done by examining documents and information available on the aforementioned websites and by undertaking a detailed review of the "CARD final review assessment document". Once the policy interventions were identified, we retrieved the key documents of each intervention from the corresponding implementing stakeholders such as governmental agencies, international funding institutions, development banks, NGOs. The third stage involved an iterative review of the gathered policy documents, employing a snowball methodology to uncover additional policy interventions. When new policy interventions were discovered, the same meticulous methodology employed in the second stage was repeatedly applied, until no additional policy intervention was discovered. In total we collected and reviewed 138 sources (**table 2**), related to 9 policy frameworks and 60 policy interventions.

Tableau 2: Sources reviewed in Ghana, Côte d'Ivoire and at the regional level

Types of documents	Ghana	Côte d'Ivoire	CARD and regional
Grey literature	29	20	17
Academic literature	6	2	3
Web pages	17	25	1
Official policy document	9	8	1
Total	61	55	22

Source: Authors

Fourth, interviews were conducted with key stakeholders in the rice sector, including representatives from ministries of agriculture, government agencies, donor agencies, international organizations, non-governmental organizations, advocacy groups, and academia. A total of 22 interviews were conducted in Ghana and 21 in Côte d'Ivoire. The enquiries focused on issues identified within the rice sector, the activities and policies executed by the respective stakeholder's institution, and implementation status and difficulties, serving as a means to corroborate the information gathered.

We undertook a content analysis of all the policy documents, a method that allows to describe policies quantitatively (number of policies, frequency, budget) and qualitatively (topic, comparison of policy instruments used) (Hall and Steiner, 2020; Hecker et al., 2019). To this respect we compiled a database for each country comprised of the following information :

Tableau 3: Criteria of the policy content analysis

Category	The frame of the policy interventions	Policy instruments implemented	The institutional framework	The financial aspects	Implementation issues
Specific information	Policy framework it belongs to Name of the programme / project Objective(s) Duration Geographical target Crop targeted	Measures and activities Policy instruments applied (NATO) Value chain actors targeted Type of millers targeted (when the measure applied to the milling segment). Number of millers targeted	Implementing institution(s) Technical and implementing partners Financial entity(s) funding the policy or programme. Share (%) of budget between the entities	Budget expected Type of budget Percentage of the budget allocated to the rice VC (in the case of multiple crops are targeted); Amount allocated per value chain segment (upstream; midstream; downstream).	Information on potential financial and/or technical challenges.

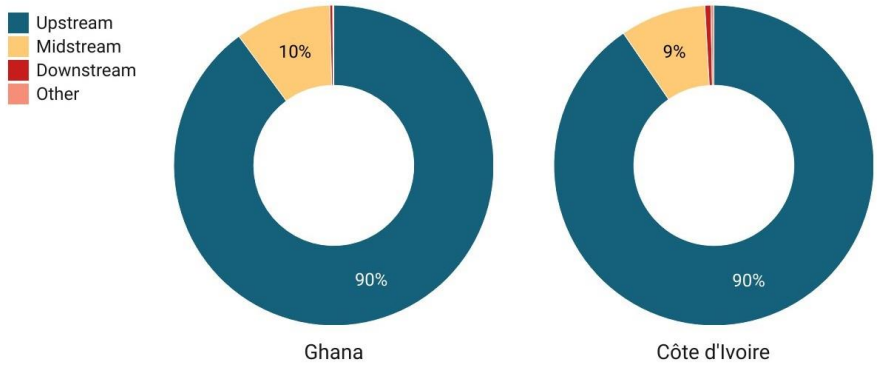
Upon compiling the database, we proceeded analysing the data. The results obtained were presented to the main implementing stakeholder in each country, the rice crop division of MoFA in Ghana and the Aderiz in Côte d'Ivoire, for validation.

4. Results

4.1. A production bias

Since 2010 the two countries have spent a similar budget in the rice sector, estimated at 480 million dollars for Ghana and 464 million dollars for Côte d'Ivoire. They also present similar budget allocation towards the different value chain segments, marked by an overemphasise of budget spending on production representing 90% of the total budget (see **figure 3**). This is the CARD policy approach in essence, which is founded on the idea that African rice development can be achieved through a "green revolution in Africa"[1]. Based on the Asian success experience, the "green revolution" strongly emphasises increasing production through increased productivity by means of improvement of seed varieties, extended application of fertilizers and improvements in irrigation facilities.

Figure 3: Share of budget spending per value chain segment

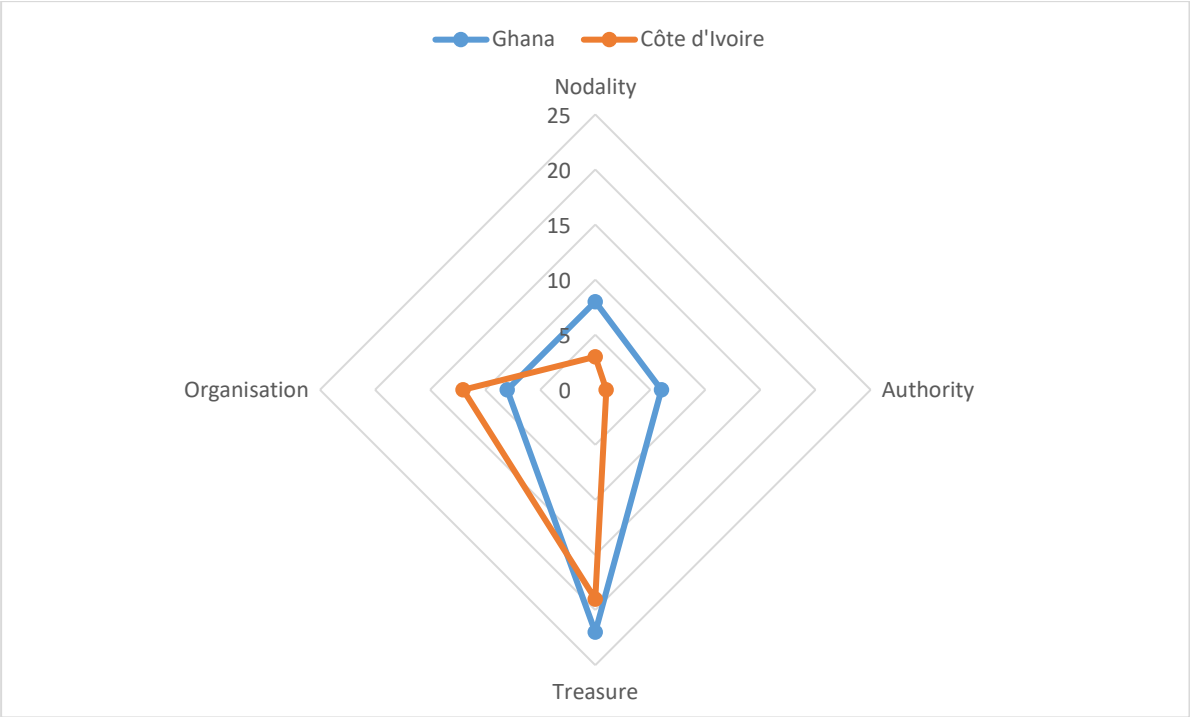


4.2. Different types of instruments mobilised

Overall we observe that "treasure" instruments are more commonly used in both countries followed by "organisation" tools (**figure 4**). While Ghana has used a few "nodality" and "authority" instruments, Côte d'Ivoire has only implemented very few of these instruments. We explore its implications in more details in the following sections.

[1] JICA and AGRA, 2008, "Coalition for African Rice Development (CARD)"

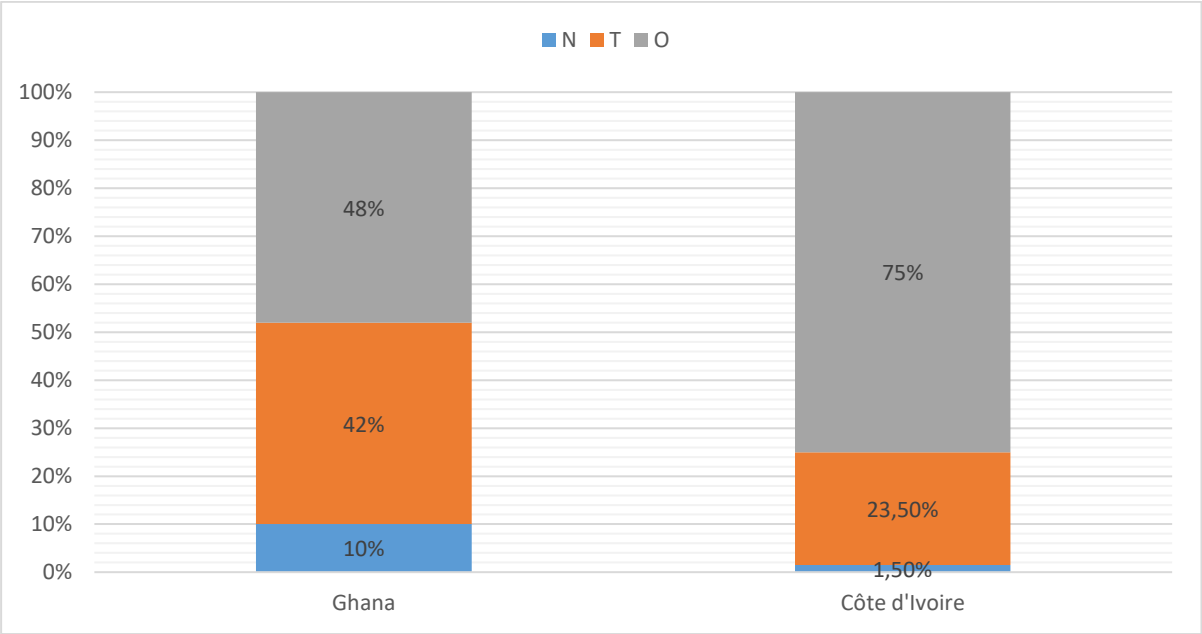
Figure 4: Number of policy instruments implemented by type in Ghana and Côte d'Ivoire since 2010



However the types of government tools don't receive the same financial weighting (**figure 5**). For both countries the largest expenses are related to "organisation", representing 75% of total budget spent in Côte d'Ivoire and 48% in Ghana. Most instruments in "organisation" are related to the provision of infrastructure in the form of irrigation development and Public Private Partnerships (PPP), both of which require a significant amount of investment. The provision of irrigated schemes is a key infrastructure in the rice sector. Since 2010, Ghana has developed around 3.388 ha of irrigated land through irrigation schemes with total water control, compared to 8.595 ha in Côte d'Ivoire most of which is irrigated lowlands with partial water control. A key characteristic of irrigation schemes is its reliability in terms of quantity and quality produced compared to rainfed production, representing a key incentivising instrument for rice processors' investments. As stated by a MoFA regional officer, "the factors that have motivated the investments [of processors] is the irrigated rice, which presents no risk compared to rainfed agriculture. Milling in rainfed areas is not a good business venture. In rainfed areas […] the mills don't have destoners or graders nor platforms for drying"[2]. In Ghana "treasure" instruments are also a significant portion of budget spending, corresponding to 42% of the total budget. This is intimately related to the input subsidy policy run through the Fertilizer subsidy programme (FSP) and the Planting for Food and Jobs (PFJ) policy that have mobilised 79% of the Treasure budget.

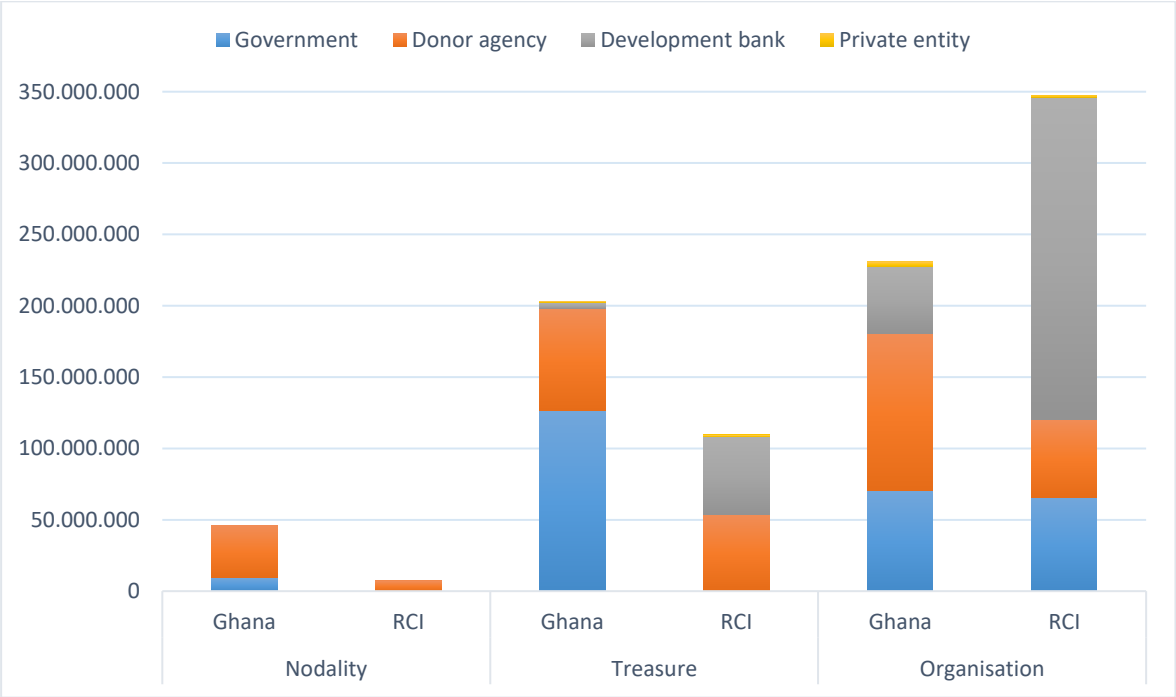
[2] CR 22-12-12

Figure 5: Budget allocation per government tool expressed in % of total budget



When looking at the financial sources (**figure 6**), both cases demonstrate an important level of dependency on external funding. In Ghana it represents 58% of total financial resources, and more significantly 85% in Côte d'Ivoire. In both countries Governments' funding are intimately related to "flagship" policies. Since 2010, Ghana has implemented three flagship programmes, the Fertilizer Subsidy Programme (FSP) and Planting for Food and Jobs (PFJ) related to treasure, and the One district One factory (1D1F) in organisation. In Côte d'Ivoire it has mainly consisted of the Leader de Pole policy, related to organisation.

Figure 6: Source of finance per government tool in dollar



4.3. Presence and absence of demand-lifting and import-limiting measures

When focusing on the type of instruments implemented per key area of policy intervention, we observe that Ghana implements instruments in the four categories (**table 4**). In contrast, Côte d'Ivoire's emphasis on value addition and supply-shifting aspects restricts the breadth of impact, potentially limiting efforts to increase domestic rice demand and protect the local value chain against imported rice. In this section we therefore provide a detailed account of the "demand lifting" and "import limiting" instruments applied by Ghana.

Tableau 4: Type of policy instruments implemented per key area of policy intervention

	Import limiting	Demand lifting	Value adding	Supply shifting
Ghana	Regulation (A)	Exhortation (N) Standard setting (A) Local food procurement (O)	Group-target messages (N) Standard setting (A) Matching fund mechanisms and tripartite arrangements (T) Grants (T) Income tax incentives (T) Subsidised equipments (T) Subsidised loans (T) Public Private Partnerships (O)	Direct provision of irrigation schemes (O) Local food procurement (O) Input subsidy (T)
Côte d'Ivoire			Matching fund mechanisms and tripartite arrangements (T) Grants (T) Income tax incentives (T) Subsidised equipments (T) Public Private Partnerships (O)	Direct provision of irrigation schemes (O)

Legend: (N) = Nodality; (A) = Authority; (T) = Treasure; (O) = Organisation

Ghana has employed a range of instruments to stimulate the demand for locally produced rice, including exhortation campaigns, regulations, and local food procurement systems. These measures collectively aim to shift consumer perceptions, promote local rice consumption, and thereby incentivise investment within the rice sector. Exhortation strategies have aimed to alter perceptions toward local rice consumption. Initiatives such as the "Eat Ghana Rice Campaign," the "Ghana Rice Festival" and the "National Farmers' Day" have served as platforms to promote local rice through media, events, and branding efforts. These campaigns, coupled with training programs on quality standards by the Ghana Standards Authority, have contributed to a notable shift in public perception, encouraging increased demand for locally produced rice. Observers note that these changes in consumer perception have, in turn, incentivised rice processors to invest and upgrade. A senior researcher[3] from an international research institute based in Accra mentioned that "these changes [process upgrading and vertical coordination] have also been brought by the government actions. They have encouraged eating local rice which has favoured a change in perception. There is also a policy shift from production to consumer perception on

[3] CR 22-11-17

local rice". Similarly, an NGO president[4] indicated that "there have been huge investments made over the years, from 2007 until today. People saw an opportunity. The attention given to the rice sector, through the media campaign for instance, has influenced interests".

Furthermore, the integration of local rice within the "School Feeding Programme" is also encouraging a shift in perception. This program, initiated in 2005, not only aims to provide free meals to schoolchildren but also emphasises sourcing these meals from local producers. By contracting local millers and caterers to supply rice to schools, the program enhances the demand for domestic rice while contributing "to have a generation that shifts to local rice consumption" as one civil servant[5] explained. Efforts are underway to extend this concept to other public institutions such as hospitals, prisons, and police stations through partnerships between NAFCO, the Ministry of Health, and the Ministry of Interior. Contracts with large scale processing facilities (LSPF) have been established to supply local rice to these institutions, to meet the demand of these new parternships. Additionally, Ghana has implemented regulations, including labelling requirements, packaging standards, and branding specifications specifically tailored for rice through GS 765: 2016, enforced by the Ghana Standards Authority. These regulatory measures ensure quality assurance and standardisation within the local rice market, bolstering consumer trust and confidence in locally produced rice products.

Regarding import limiting measures, regulations have been implemented in Ghana since 2010, a contrast to the absence of specific measures in Côte d'Ivoire. On one hand, specific actions undertaken as part of the Planting for Food and Jobs (PFJ) rice chapter programme concerned regulating rice imports. The latter included restrictions on the issuance of import licenses and the establishment of import quotas for rice importers, mandated to source 20% of their rice from the domestic market. However their effective implementation is uncertain considering that there are no official decree. On the other hand, other measures were prompted by the economic crisis of 2022, described as a "full-blown macroeconomic crisis", which resulted in a considerable devaluation of the cedi (losing up to 50% of its value against the US dollar) coupled with a high inflation rate (World Bank, 2023). In response, the Ministry of Finance reversed the benchmark value discount policy which previously entailed a 50% discount on the import duty of benchmark values, including rice, while the Central Bank of Ghana had restricted access to foreign exchange for the importation of rice. Although these measures concern import regulation, they are more akin to fiscal policies.

4.4. Midstream segment actors targeted differently per country

Although both countries have respectively allocated around 10% of its budget to the midstream segment, the targeting of the processing segment differ greatly. To understand these differences, we first lay out their respective policy approach to the midstream segment, and explore how it is materialised in terms of instruments used and targeting.

4.4.1. Policy approach in the processing segment

Ghana's strategic approach to rice development is underpinned by a location-specific comparative advantage, as gauged by the prevalence of rice in agricultural practices and per

[4] CR 22-11-14
[5] CR 22-11-21

capita rice production by districts (FASDEP, 2007). At the processing segment level, there exists a strategy aimed at fostering both investment promotion and the enhancement of existing processing facilities within the value chain. Key policy documents underscore the imperative of quality enhancement, achieved through the upgrading of processing equipment and facilities at the artisanal level (MSMPE) while concurrently fostering direct investment and partnership with private investors in the form of PPPs. The NRDS best encapsulates this approach stating that : *Paddy will be processed into acceptable national minimum standards by providing standard rice mills (equipped with pre-cleaners, destoner, hullers, polishers, paddy separators, aspirators, and graders). Existing one-pass mills will be improved by adding attachments while processing centres will be equipped with storage facilities for paddy/milled rice* (NRDS, 2009, p.15). In the realm of LSPF development, PPPs stand as the primary policy instrument. The Ministry of Trade and Industry chiefly administers this through the One District One Factory (1D1F) policy. Under this policy, prospective investors are required to submit project proposals accompanied by comprehensive business plans, which are evaluated based on various financial and technical criteria. As of 2023, twelve LSPF have been established across the country (**figure 7**).

In **Côte d'Ivoire**, the development of the rice value chain is approached through an even distribution across the national territory. The primary strategy involves the division of the country into 10 distinct production basins, often referred to as rice development poles, each envisioned to yield a potential production of at least 200,000 tons of milled rice annually[6]. The government directly acquired 32 LSPFs with a theoretical capacity of 5 tonnes per hour, dispersed across the 10 rice development poles (**figure 8**). Paradoxically, some of these LSPFs are located in rice deprived areas, such as in the regions of Bas-Sassandra, Comoé, Denguêlé, Lacs, Lagunes and Zanzan which respectively produce less than 2,5% of the national production (indicated in light yellow on the map). Private operators, designated as the "leader de pole," are appointed to oversee each rice development pole and manage the LSPFs under a PPP agreement with the government. Under this approach, the processing segment is conceptualised as a dual system, delineated by MSMPE catering to lower-tier markets, juxtaposed with the envisioned establishment of a novel modern milling segment represented by the LSPF. As outlined in the NRDS : *The strategy expects two (2) rice processing systems: A first processing system based on taking into account small processing units at the level of cooperatives and private operators (500 to 2,000 tons per year) [...] A second processing system composed of larger units (15,000 to 24,000 tonnes per year) with private operators who will benefit from initial financial support within the framework of projects* (Ministère de l'agriculture, 2012, p.27). In practice, MSMPEs are anticipated to persist in their role of processing rice for local consumption, or alternatively, to transition their operations towards supplying paddy to the LSPF. As mentioned by a civil servant from the Aderiz[7]: "The model of large factories is a complementary model: they provide pre-financing to small processing units to acquire paddy, which will supply cargo rice and no longer produce white rice […] It is a matter of developing a supply chain system under the financing and direction of leader de pole. This supply chain would involve subcontracting with

[6] National Rice Development Office, 2018, "Promotion of private sector investment in Ivoirian rice farming". 7th CARD general meeting.
[7] CR 22-03-01

existing small and medium-sized factories and would involve establishing contractual frameworks".

4.4.2. PPP instrument: private sector-driven VS state-driven decision making

The design of PPP approaches under the Leader de Pole policy in Côte d'Ivoire and the 1D1F policy in Ghana has elicited dissimilar reactions and responses from the private sector. While in Ghana it has led to private sector-driven decision-making and investments, the Leader de Pole policy in Côte d'Ivoire has encountered challenges in instigating a similar response from the private sector. Indeed, the "leader de pole" policy has encountered significant impediments in its implementation, evident in the non-operational status of LSPFs. Among the ten designated rice development poles, only one has been taken over by a private operator, who manages a single mill out of the four assigned. This dearth of private sector involvement underscores a pervasive lack of incentives for investment, related to several factors. A critical challenge faced by these processing facilities lie in securing an adequate supply of paddy to sustain optimal mill capacities. Notably, the majority of the available paddy is acquired by the longstanding value chain operated by MSMPEs, complicating the envisioned operational framework outlined by the "leader de pole" policy. As expressed by a director, "there is an issue with paddy supply [...] currently, the contracting model [between LSPF and MSMPE] isn't working because the paddy is being acquired by small and medium processing units"[8].

Furthermore, the reliance on rainfed rice production in Côte d'Ivoire, contingent upon unpredictable weather conditions, exacerbates the supply-related risks. Consequently, the existing processing facilities often operate at a capacity far exceeding the availability of paddy supply, leading to financial losses. One of the key limitations identified in the PPP model within Côte d'Ivoire lies in the state's pre-determination of the size and location of the LSPFs instead of allowing this decision-making process to be driven by the private sector, as observed in Ghana. A senior researcher working in the rice sector in Côte d'Ivoire[9] emphasized the significance of enabling the private sector to self-locate, positing that this approach would foster increased incentives for investment. The hesitation of potential investors, grounded in doubts about the viability of the business operation due to paddy supply and the associated risks, contributes to the reluctance in acquiring or investing in these facilities. Echoing similar sentiments, an observer from an international development agency expressed scepticism about the efficacy of the "leader de pole" model, highlighting that "the model is questionable […] with the leader de pole model, it's necessary for the private sector to see that there can be a return on investment to be incentivised to invest"[10].

[8] CR 22-03-01
[9] CR 22-03-07
[10] CR 22-03-03

Figure 7: Location of LSPF implemented under the 1D1F policy and rice irrigation schemes (Ghana)

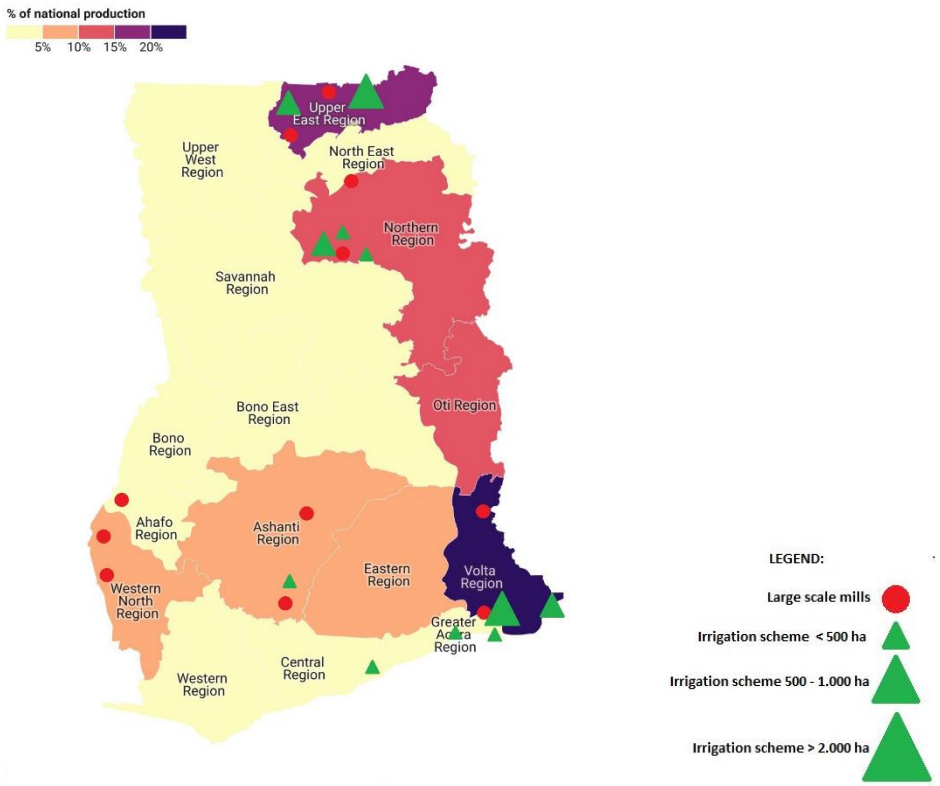
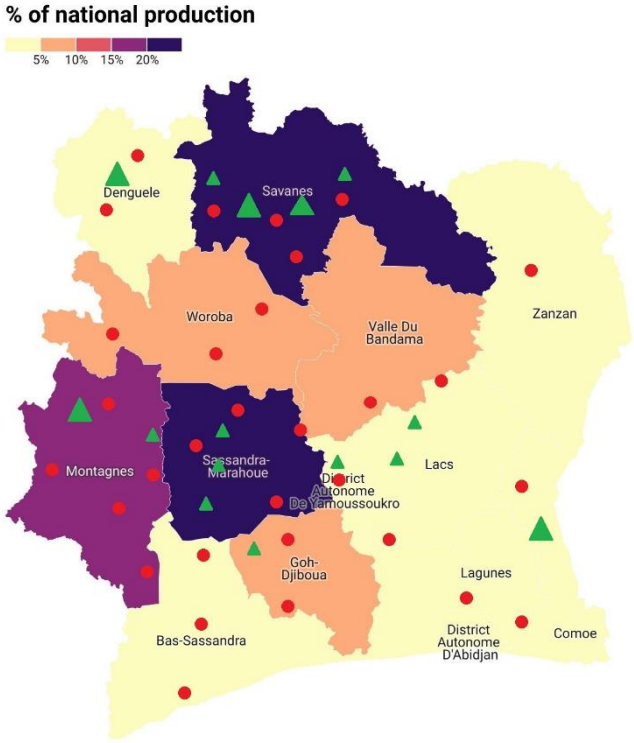


Figure 8: Location of LSPF implemented under the Leader de Pole policy and rice irrigation schemes (Côte d'Ivoire)



Source: Developed by author from different sources

Category	Ghana	Côte d'Ivoire
Regional production level	MoFA data (NRDS, 2021)	USDA data (Grand and feed annual, 2023)
Irrigation schemes	Investment guide for agriculture (2021) and Ghana Irrigation sector mapping (2022)	Aderiz website and project reports
Large-scale rice mills	1D1F website and newspaper articles	Promotion of private sector investment in Ivoirian rice farming (20 7th CARD general meeting) and the SNDR 2012 presentation

4.4.3. Instruments targeting all processing units: a key divergence

When focusing on policy instruments implemented at the processing segment level (**table 5**), it is evident that distinct policy measures are directed towards specific types of processing units. Indeed, the main policy interventions towards MSMPEs in both country involve capacity building and technical support; enhancing contract farming arrangements facilitated by grants to buy paddy or matching fund mechanisms; and the provision of subsidised milling equipment. Regarding LSPF, the main instruments implemented are public private partnerships (PPP) which incorporate matching fund mechanisms and tripartite arrangements to establish outgrower schemes and income tax incentives to attract foreign investments.

Table 5: Policy instruments implemented per type of processing unit per country

	MSMPE	LSPF	All processing units
Ghana	**Group-target messages:** Training on best practices and management **Income tax incentive :** Subsidised loan under the Cap business support scheme (CAP BuSS) Reduced tax rate for young entrepreneurs (< 35 years old) **100% subsidised provision of milling equipment** through international donors' programmes	**Public Private Partnerships** under the One District One factory Policy **Income tax incentive:** Tax holiday and reduced corporate tax rate : Agro processing businesses conducted wholly in the country benefit from a 1% tax rate during the first 5 years, and reduced corporate tax rate afterwards according to the location of the business. **Regulation:** Quota of expat employment in 100% owned foreign firms **Group-target messages:** Agribusiness conference and fairs	**Group-target messages:** Agriculture investment guide Technical assistance **Matching fund mechanisms** and **tripartite arrangements** to establish outgrower schemes **Subsidised Loan:** Export development and agricultural investment funds (EDAIF) and the CARES Obaatab Pa program **Grants** through international donors' programmes and projects **Custom incentive:** Exemption of import duties and taxes on equipment, machinery and parts
Côte d'Ivoire	**Group-target messages:** Training on best practices and management **100% subsidised provision of milling equipment** through international donors' programmes	**Public Private Partnerships:** 30 5 t/h milling units and 60 2 t/h milling units through the leader de pole policy. **Income tax incentives :** Régime de déclaration - On income tax; the contribution of patents and licenses; the employer's contribution; property tax **Régime d'agrément** : Exemption from customs duties; temporary suspension of value added tax on the acquisition of goods, services and works. Eligible for companies with a minimum of 25 million CFA investments. Foreign companies benefit from additional tax credit (2%)	**Matching fund mechanisms** and **tripartite arrangements** to establish outgrower schemes **Grants** through international donors' programmes and projects

Nevertheless a key divergence emerges regarding the use of instruments targeting all processing units, indifferently of their type. Ghana has implemented various treasure instruments accessible across all type of processing enterprises, by leveraging fiscal incentives and providing financial support mechanisms. Notably, the exempts import duties and taxes on machinery, equipment, and parts, provide a conducive environment for investments in agro-processing. In Côte d'Ivoire, a comparable policy is enacted, albeit conditional upon a minimum investment threshold of 25 million Franc CFA. Moreover, subsidised loans and grants have been made available through programmes such as the Export Trade, Agricultural, and Industrial Development Fund (EDAIF) and the CARES Obaatab Pa program. EDAIF (merged into EXIM Bank since 2016), provided subsidised loans to agro-processing enterprises funded through import levies (World bank, 2019). As for the CARES Obaatab Pa initiated in 2020, the program allocated GH¢600 million specifically to assist MSMEs and entrepreneurs through a soft loan scheme known as the Corona Virus Alleviation Programme - Business Support Scheme (CAP-BuSS). However, concerns from the Institute for Statistical, Social and Economic Research (ISSER) arose regarding the availability of funds, particularly given the requirement for 70% of the funds to be sourced from the private sector.

From a budget perspective, we observe that 66% of the total budget allocated to the processing segment in Ghana has targeted MSMPE, while it only represents 17% in Côte d'Ivoire (**table 6**). These differences can be explained by their different policy approach (section 4.4.1).

Table 6: Budget allocation and source of finance per type of processing facility

Type of processing unit	Estimated number of beneficiaries	Financial distribution	Total budget allocated in $
GHANA			
MSMPE	129	International donor (98%) Development bank (2%)	11.289.500 (66%)
LSPF	16	Private financial entity (48%) International donor (37%) Development bank (9%) Government (6%)	5.924.000 (34%)
CÔTE D'IVOIRE			
MSMPE	209	International donor (90%) Private financial entity (7%) Government (3%)	6.600.445 (17%)
LSPF	30	Government (95%) International donor (5%)	31.744.482 (83%)

In both countries instruments targeting MSMPEs are mostly delivered through projects and programmes financed by international institutions (donors and development banks). The latter have a tendency to target more MSMPE as part of their intervention in the processing segment compared to other stakeholders : In Ghana they have funded 100% of the policy measures implemented while it represents 90% in Côte d'Ivoire. Regarding LSPF, the instruments are mostly initiated by the government itself through different sources of funding. In Ghana, it is a mix of

finances from private financial entities (48%) and international donors (37%), while in Côte d'Ivoire it is quasi solely the government (95%) itself through loans from Exim bank.

5. Discussion

Boosting the rice sector and reversing the urban bias in West Africa requires an optimal portfolio and sequence of supply-shifting, value-adding, demand-lifting and import-limiting measures to be enacted by State actions (Demont and Rizzotto, 2012). Our study demonstrates that there is an overemphasise of budget spending on production, the "supply-shifting" component, confirming similar results of past studies on the NRDS which denote a narrow focus on supply feature of policies and strategies (Fiamohe et al., 2018; Demont, 2013). As Fiamohe and al explain, the underlying assumption is that local rice is competitive against imported rice in terms of price and/or quality, and, therefore, increasing the production of local rice will automatically result in an increase in its consumption (Fiamohe et al., 2018). This is strongly grounded on the belief that the Asian green revolution experience can be replicated to enhance African rice development. However it is not a sufficient condition, which necessitates to address the demand side of the equation through quality standards, certification, branding, and promotion campaigns (Demont et al., 2017). While Ghana has implemented a few instruments aimed at promoting local rice consumption and shifting consumers' perception, Côte d'Ivoire lacks any initiatives in this domain. In an attempt to promote local rice consumption in Côte d'Ivoire as part of the PRORIL project, JICA indicated that the result had failed due to "the strong preference of consumers for imported rice" (JICA, 2020).

Rice import dependency remains high in both countries, representing 54% of total rice consumption in Ghana and 58% in Côte d'Ivoire in 2022, although it has decreased by 15% and 7% respectively since the price crisis of 2008 (USDA, 2023). A key observation is the tension between importation policies and price affordability, a trade-off which undermines the domestic value chain capacity to compete effectively against imported rice. Historically, pricing policy has been the cornerstone of policy intervention in which rice importation served as a key food policy instrument to regulate consumer prices and assure affordability (Harre, 1989; Asuming-Brempong, 1987). Many academics have discussed the way in which importation serves as a means to ensure social peace in urban areas to effectively respond to urban demand at the expense of the trade balance (Le Roy, 1998; Leonard, 1997; Roch, 1988). From an infant industry standpoint however, it is suggested that domestic industries require protectionist measures from international competitors until they are mature, stable, and competitive – although the extent and effect of such measures are subject to great debates among economists. Yet, our study demonstrates that no import-limiting measures are applied in Côte d'Ivoire while policy measures undertaken by Ghana are more apparent to fiscal revenue policies in the face of adverse economic situations.

The value-adding dimension is intricately connected to upgrading the midstream segment, prompting significant policy interventions in both Côte d'Ivoire and Ghana. Our scrutiny of the policy instruments implemented in the midstream segment underscores the criticality of targeting, transcending the discourse surrounding the "hidden middle." The term "hidden middle" pertains to the observation that a dynamic midstream segment of SMEs propels AVC transformations,

which has however been relatively overlooked in policy debates (Reardon et al., 2021). Contrary to this tendency, the policy documents and debates do acknowledge the presence of MSMPE but do not automatically subject them to the same targeted policy instruments as their LSPF counterparts. In the Ghanaian context, upgrading MSMPE was explicitly recognised in policy documents as a catalyst for developing the rice value chain. Policy wise, targeted incentive measures have been implemented to both MSMPE and LSPF, leading to more technologically advanced mills, more vertically coordinated governance structures, and hence product upgrading among MSMPE (Laurent and al, 2023). On the contrary, the case of Côte d'Ivoire demonstrates that policy intervention in the midstream segment has been more segmented, envisioned through a dual rice system with MSMPE and LSPF contained into different end- markets. Policy attention has been particularly directed towards promoting large-scale capital-intensive processing under the "leader de pole" policy, introducing a competitive asymmetry between MSMPE and LSPF. Indeed, in addition to navigating existing obstacles such as securing access to finance, enhancing operational efficiency, ensuring product quality, and achieving economies of scale, MSMPE find themselves in direct competition with larger enterprises that enjoy advantages such as fiscal benefits, procedural expediency and access to subsidised facilities (Van der Ven, 2018). However, the State's intervention to promoting LSPF has generated a geographical mismatch of infrastructure with production basin in Côte d'Ivoire, the oversizing of processing units and, ultimately, a lack of incentivisation for private sector involvement.

These differences also highlight the role and place of State intervention in rice policies. Ghana fulfils the criteria of a facilitative state, which actively seek to encourage, attract, and maintain private investment that are footloose and have a significant degree of choice in location, as well as to support local actors in order to participate in value chains and integrate its networks (Horner, 2017). The type of policy instruments implemented at the MSMPE and LSPF level have led to investments which are private sector-driven. Côte d'Ivoire however, strongly adopts a state-led approach as exemplified by the leader de pole policy. Historically, Ivorian rice policies consistently focused on a large-scale agro-industrial model, centred on high-capacity rice mills scattered across the country, to the detriment of the existing artisanal sector (Hirsch, 1993). Just as the current dual rice system, past policy approaches distinguished an 'official' sector supported by the government's intervention and a 'traditional' or 'artisanal' sector lacking state support (Diomande, 1997). The case of the leader de pole policy is therefore emblematic to a lack of policy learning, considering that past large-scale policy interventions have resulted in repeated bankruptcy and setbacks. Echoing the terms of Frimpong Boamah and Sumberg, it is their "symbolic and political value", not their economic value, which keeps the discussion around them alive (Frimpong Boamah and Sumberg, 2019).

6. Conclusion

This study explores the way policy instruments target midstream segment actors to address upgrading challenges in the context of AVC transformations, exploring the case of the rice value chains in Ghana and Côte d'Ivoire. Notably, these two countries exhibit distinct patterns of midstream segment upgrading within their respective rice value chains (Laurent and al, 2023).

While Ghana exemplifies the "quiet revolution" and the transitional phase of AVC transformation, Côte d'Ivoire presents more characteristics of a traditional value chain, with few upgrading. The comparative analysis between Ghana and Côte d'Ivoire provides insights into the intricate interplay among the key areas of policy intervention, the types of policy instruments deployed, and the specific actors targeted. These factors collectively determine the capacity and capability of enterprises within the processing segment to undergo upgrading.

This paper enriches the existing literature on food value chain transformations in three key dimensions. Firstly, it integrates two streams of literature - economic studies and policy science - to provide an understanding of the policy environment within which midstream enterprises operate. Secondly, the paper extends insights beyond the conventional "hidden middle" assertion, emphasising the critical role of targeting, which requires further academic attention and nuance. Finally, the study delves into the analysis of the position and targeting of SMEs within policy actions, which had received little attention.

This paper opens new research opportunities. To achieve a comprehensive understanding of the policy environment, it is imperative to extend the analysis beyond the surface of policy instruments and delve into the underlying political factors that shape the formulation and implementation of these policies. This entails an exploration of the intricate political dynamics at play. A valuable lens through which to examine policy formulation is the advocacy coalition framework.

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