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## Agricultural Value Chain Development and Regional Integration Processes

*Développement de la chaîne de valeur agricole et processus d'intégration régionale*

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# Agricultural Value Chain Development and Regional Integration Processes

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*Domestic and international supply and demand shocks are an important driver of NRP fluctuations through their impacts on relative border or domestic prices.*

The East African Community (EAC) is a regional intergovernmental organization, formed in 2000 between Kenya, Tanzania and Uganda, and today consisting of the founding members together with Burundi, Rwanda and South Sudan. Since 2010 cooperation has consisted of a common market and a customs union, with duty-free intra-regional trade and a Common External Tariff (CET) on imports from outside the EAC. Future goals are the establishment of a monetary union with a single currency, and eventually a political federation with common foreign and security policies (EAC 2017). Despite the existence of a common market, EAC intra-regional commodity trade (in USD terms) as a share of external trade with non-EAC countries has remained stable at around 13 percent during 2010-2014; similarly EAC exports as a share of imports fluctuated around 35 percent, but with no visible tendency for the trade deficit of around USD 15 billion to improve (UN Comtrade 2016).

Rice is a major staple commodity in the EAC. With the exception of South Sudan, which produces insignificant quantities of rice and is excluded from our analysis, all EAC member countries consume, produce and trade large quantities of the commodity. The strategic importance of rice is further underscored by the fact that all rice-producing countries in the EAC have adopted rice development strategies with aims such as raising production or productivity, attaining self-sufficiency (i.e., substituting imports), and expanding exports. Successful implementation of these rice development strategies requires not only an understanding of the constraints faced within domestic rice value chains,

but also how countries' rice value chains can jointly benefit from deepening regional integration.

### *Production rises, but yields have stagnated and imports remain high...*

Milled rice production in the EAC increased from just under one million tonnes in 2005 to 1.8 million tonnes in 2014 (FAOSTAT 2016). During this period Tanzania accounted for around 83 percent of production, Uganda 9 percent, and Kenya, Burundi and Rwanda less than 5 percent each. All EAC countries recorded positive output growth, with the exception of Burundi. Rice yields, however, have stagnated, implying that production increases were mainly driven by land expansion. Yields remain highest in Rwanda, averaging five tonnes per hectare during 2005-2014, while they vary between two and four tonnes per hectare in other EAC countries.

Despite rapid output growth, regional rice production still lags demand. During 2005-2014 around one quarter of rice consumed was sourced from international markets, half of which came from Pakistan. However, there are large disparities in import dependency over the period: Tanzania's rice import share never exceeded 5 percent, while it doubled in Uganda and Rwanda to reach 34 and 54 percent, respectively. Intra-regional rice trade is limited, with only one-tenth of EAC countries' rice imports originating from fellow EAC member countries (UN Comtrade 2016).

Exports from Tanzania to Uganda, Rwanda and Burundi represent the largest intra-regional rice trade flows, but these declined rapidly from 2010 onwards due to adverse weather conditions in Tanzania and internal trade disputes. The latter related to accusations that Tanzanian exporters blended domestic rice with Asian rice, and led to the imposition of a 75 percent import tariff on Tanzanian rice in 2013 by Uganda, Rwanda and Burundi (Kilimo Trust 2014). While intra-regional rice trade has been stifled by policies, the Democratic Republic of Congo (DRC) has emerged as an attractive destination for rice exports, particularly for Uganda and Rwanda, which channelled around one-third of their rice exports to the DRC in 2014 (UN Comtrade 2016).

### *...in spite of protective tariff measures*

In the context of large rice import volumes from non-EAC countries and stagnant rice yields domestically, it is useful to consider how the policy and market environment has shaped incentives for rice value chain actors in the region to increase output, substitute imports, and exploit regional marketing opportunities. Applying a method developed by the Monitoring and Analysing Food and Agricultural Policies (MAFAP) programme of the Food and Agriculture Organization (FAO), we compute yearly average Nominal Rates of Protection (NRPs) for EAC rice farmers during 2005-2015. NRPs are obtained by estimating reference farm gate prices for rice in each country, derived from relevant border prices of imported rice after accounting for trade, transport and other access costs incurred during transportation and transformation of the product along the value chain. Formally, the NRP is computed as

$$NRP = [P_{fg} - P_{ref}] / P_{ref} = PG / P_{ref}$$

where  $P_{fg}$  is the observed farm gate price,  $P_{ref}$  is the estimated reference price, and  $PG$  is the price gap. A positive (negative) NRP indicates that farmers receive a price above (below) the comparable reference price, and this is interpreted as an incentive (disincentive) to produce, brought about by policies or market distortions. Barreiro-Hurle and Witwer (2013) provide a detailed technical description of the methodology.

Results are displayed in Figure 1. In Tanzania and Uganda, for example, average NRPs exceeded 100 percent during 2005-2015, meaning farm gate prices were more than double what they would have likely been under perfect market conditions. We find that domestic and international supply and demand shocks are an important driver of NRP fluctuations through their impacts on relative border or domestic prices. For instance, the drop in rice NRPs in Tanzania during 2008-2011 coincides with a maize export ban

during that time. Once the ban was lifted, rice production declined which led to a rise in NRPs during 2012-2013. More detailed country-specific analyses can be found in the MAFAP (2017).

The persistently positive sign in NRPs in virtually all EAC countries over the analysis period is striking. This reflects a combination of the internalization of import tariffs in observed farm gate prices (tariffs are excluded from the reference price) and other policy distortions, such as minimum prices. However, equally interesting are the large disparities in NRPs across countries, despite the existence of a common market. Rice imported from outside the EAC was initially subject to a CET of 75 percent. However, member countries were subsequently given some autonomy in adopting unilateral tariff structures, which led to a wide range of tariffs being applied. For example, Uganda maintained its import tariff at 75 percent, while Tanzania reduced its tariff to 35 percent in 2013. Kenya also adopted a 35 percent tariff in 2009, while Burundi and Rwanda applied average tariff rates of 23 and 42 percent, respectively, during 2009-2015 (EAC 2016).

Despite variations in tariffs across countries and over time, the trend in the share of the tariff cost within the price gap suggests that import tariffs have increasingly explained high NRPs in EAC countries. In Rwanda, for instance, the tariff share at farm gate level was 36 percent until 2010 and increased to 72 percent thereafter. In Uganda and Tanzania, this share frequently exceeded 100 percent, suggesting either weak price transmission or incomplete application of the 75 percent import tariff rate. The conclusion is that incentives recently enjoyed by rice producers resulted mainly from import tariffs.

Given high price incentives for rice production over the last decade, one may legitimately ask why yields have stagnated or why import dependency remains so high. Shedding light on this puzzle requires a more in-depth look at the supply and demand dynamics within EAC rice markets.

### *Burdened supply faces shifting demand*

With the exception of Tanzania, consumption exceeds domestic rice production in all EAC countries, despite the existence of significant price incentives for rice producers. Of course, price incentives do not imply profitability, and supply expansion is often constrained by structural factors. Therefore, rice yield gaps, which range from 20-45 percent (Njeru et al. 2016; FAO 2015), cannot be closed by price incentives alone.

Water availability and sound water management are major constraints to rice production expansion in East Africa. In Uganda, for example, Kijima et al.

(2012) note that the impact of improved seeds or increased fertiliser application on rice yields is greatly enhanced under irrigation; yet, only around five percent of rice fields are irrigated in Uganda, and similarly in Tanzania. Another constraint is land availability. Most EAC rice growers cultivate small plots of two hectares or less. In Rwanda, for instance, there is a positive correlation between plot size and the proportion of higher-value long grain rice varieties produced, and hence farmers' earnings (Nabahungu and Visser 2013). Land consolidation is therefore likely to have a positive production impact, but will inevitably be associated with challenging land tenure problems (Place 2009).

On the demand side, regional consumption amounted to around 1.8 million tonnes of milled rice in 2013, of which 1.1 million tonnes were consumed in Tanzania (i.e., about 20 kilogram per capita per annum). Consumption has grown rapidly in other EAC countries, doubling, for example, in Rwanda and Kenya to around 10 kilogram per capita per annum over 2005-2014 (FAOSTAT 2016). Consumption trends are driven both by population growth and growing consumer preference for rice in view of its cooking and storage properties. Moreover, as purchasing power increases, demand for higher quality rice, especially aromatic and long grain varieties, also increases (JICA 2013; Kilimo Trust 2014). These shifts explain the increase in demand for imports, especially in urban areas, since the quality of imported rice is usually superior. In Rwanda, for instance, the share of local rice within total food purchases declined from 4.2 to 3.2 percent in urban areas, while the share of imported rice increased from 3.6 to 5.2 percent during 2005-2010 (NISR 2012).

Tanzania is an exception to the rest of the EAC: firstly, Tanzanian aromatic varieties already compete effectively with Asian imports on quality terms; and secondly, the share of imports within national supply has traditionally been small given high levels of local supply and protective policies (FAO 2015). The question is whether rice value chains in Burundi, Uganda, Rwanda or Kenya could be transformed so that domestic producers can effectively compete with imports, at least in the medium-term, and within the current protected market environment, or in the long term in a more liberalized one. The literature provides mixed responses. Kikuchi et al. (2016) argue local rice in Uganda is competitive only under irrigation. They further argue that the quality differential with imports needs to be addressed at the processing stage, echoing findings from Stryker (2010) for Rwanda. Evaluating cost-benefit ratios of investments in rice milling equipment across the EAC is an important area for further research.

## *Conclusion: dividends of regional integration for East African agriculture appear difficult to pinpoint in the foreseeable future*

Within an environment of deepening regional integration, the performance and development of domestic agricultural value chains would tend to be affected by both domestic and regional policies, thus posing significant coordination challenges to value chain actors and policymakers. In this context, the example of rice value chains in the EAC countries is interesting, especially considering the strategic importance attached to this value chain in the majority of member countries.

Regional integration in the EAC is currently premised on the principle of a common market with duty-free intra-regional trade and a CET applied on imports from non-EAC countries. Yet, already early on in the integration process, EAC member countries were given a significant degree of autonomy in defining country-specific protective measures for rice, resulting in members adopting an inward-looking approach to rice sector development. This included the imposition of unilateral restrictions on both external rice imports and intra-regional rice trade, seemingly with a clear intention of insulating domestic rice markets from the effects of a deeper integration. However, significant levels of protection did not translate into yield increases or declining import-dependency in Rwanda, Uganda or Kenya in particular. This reflects both structural constraints to production expansion (e.g. ability to exploit irrigation potential or land tenure issues) and a failure of domestic rice value chains to compete with higher-quality imported rice varieties that are increasingly preferred by consumers.

More broadly, there appears to be a lack of a common vision around joint agricultural sector development across EAC countries. This undermines the foundations of the Community and, as a result, regional integration in agriculture has not been able to address most of the structural barriers to the emergence of a vibrant and well-integrated agricultural sector. In the case of rice, targeted and concerted regional policies on irrigation (to increase yields), market information (to improve price transmission), market infrastructures (to reduce costs and supply deficit areas more easily) or diversification and transformation (to improve quality and respond to demand shifts) could have, arguably, been strongly beneficial to EAC rice value chains. While in the short run, rice producers in each EAC country may gain from unilateral protection—which also has clear political pay-offs for national governments—the lack of integration may ultimately translate into persistent import dependency in the long run, as a large portion of producers fail to improve their competitiveness.



We conclude that the premises of regional integration, which include the need for some agriculture areas or countries to specialize, are not yet readily accepted by EAC members. For example, given its dominant position as a producer of high-quality rice, Tanzania could conceivably adopt the role of supplying high-quality rice to urban markets in the region; Rwanda, in turn, already a high-yielding rice producer, could specialize in production and regional supply of cheaper short grain varieties often preferred by poorer, rural consumers.

Ultimately, risk aversion stands out as the main constraint to regional integration in the EAC. Members are reluctant to increasingly rely on regional trade, accept and implement common decisions, and eventually deliberately transfer sovereignty to the regional level, at which point the Community's interests prevail over those of individual members. These obstacles are not uncommon in regional integration processes, and are in many respects similar to what has been observed elsewhere, such as in the European Union. It remains that if the premises of regional integration are not met, it is unlikely that it can bear fruits.

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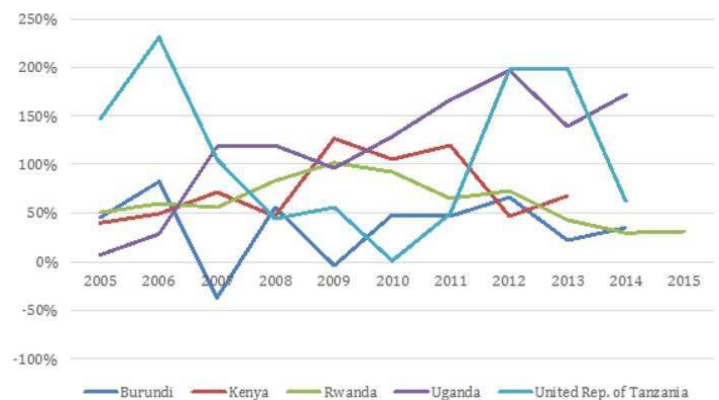
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### Annex

Figure 1. Nominal Rates for Protection (NRPs) for rice faced by representative producers in Burundi, Kenya, Rwanda, Uganda and Tanzania, 2005-2015.



Source: Authors' computations, based on MAFAP price incentive indicators databases (MAFAP 2017).