

The AfCFTA at a country-level: trade liberalization in Kenya

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Abstract

The study explores the impacts of establishing the African Continental Free Trade Area (AfCFTA) on the economy of Kenya. By using a fully disaggregated single-country CGE model (55 commodities, 22 household groups) in combination with a global CGE model, it seeks to offer a detailed characterization of the economic impacts in the country in a number of areas (macroeconomic, sectoral, welfare and food security). In the context of the pre-existing regional trade agreements that Kenya is part of, it captures the incremental value for the Kenyan economy of the further trade liberalization commitments across the continent as may be agreed in the final AfCFTA text. The combined modeling framework allows considering the global repercussions of the AfCFTA and especially the interaction effects of the liberalization between the African countries in assessing the implications for Kenya in higher detail, in particular on agricultural commodities and household groups.

Keywords: trade liberalization; Africa; Kenya; computable general equilibrium; recursive dynamics; DEMETRA

Highlights:

1. Introduction

On March 21, 2018, Heads of state and governments in Africa, signed the Africa Continental Free Trade Area (hereinafter AfCFTA)¹ marking a considerable progress towards achieving continental integration. The agreement with a coverage of 55 countries and a population of 1.2 billion people, offers room for the largest global trade liberalization in goods and services (World Bank, 2020). Central to the formation of AfCFTA is securing a single market for African merchandise with expectation to increase productivity and enhance social economic development. According to the World Bank (2020) report, AfCFTA is expected to lift 30 million people from extreme poverty, increase the amount of income by US dollars 450 million, increase intracontinental exports by 81 percent (with manufacturing increasing by 62 percent) and cushion the continental from external shocks like the current Coronavirus disease 19 (COVID-19) pandemic². The benefits notwithstanding, implementation of AfCFTA may reveal heterogeneous effects across countries³.

The theoretical framework of Free Trade Area asserts that it leads to socio-economic development, improved welfare, higher output and increased intra-trade Stolper and Samuelson (1941), and higher output due to comparative advantage and factor endowments (Ricardo's thesis and Heckscher-Ohlin hypothesis). In addition, empirical literature suggests that the free trade area will enhance welfare and accelerate economic development via increased intra-trade (for details see, Darku and Appau (2015), Masiya (2019) and Bayale et al. (2020)) while Epaphra (2014) opines that they lead to higher trade tax revenue due to increased imports.

This study seeks to improve and complement existing literature by broadening the understanding and implications of AfCFTA to member countries with a view of strengthening membership and coordination of the trade regime. As such, the contribution of this study is fourfold.

First, from a policy perspective, it is crucial to examine the implications of AfCFTA in regard to welfare and revenue as this may assist member countries, and in particular, the Government of Kenya (GoK) to diversify and broaden the revenue sources to improve on social economic welfare. Further, investigation of the implication of AfCFTA on industrialization shall play a critical role in developing an industrial policy that can aid coordination among member countries while advancing national interest⁴.

¹ The AfCFTA agreement was signed on March 18, 2018 and, pursuant to Article 23 of the Treaty, it came into effect on May 30, 2019 after 22 countries submitted the ratified documents to African Union Commission (AUC). Further, the AfCFTA Treaty, Articles 3 and 4 allude to the fact that there should be a single African market to offer free movement of goods and services, businesses, investments, and factor inputs, among others. For details see https://au.int/sites/default/files/treaties/36437-treaty-consolidated_text_on_cfta_-_en.pdf, last accessed on October 17, 2020.

² According to the [Brookings Institute \(2019\)](#) report the AfCFTA will boost intra-Africa trade between 40 percent and 50 percent. The reports note that although intra-trade in Africa has increased on average from 10 percent in 1995 to 17 percent in 2017, it is way below Europe and Asia at 69 percent and 59 percent, respectively.

³ Since the 1960s, integration efforts have been pursued by African leaders, with the formation of the Organisation of African Unity in 1963. These efforts continued resulting to the Abuja treaty of 1991, where African countries were encouraged to create regional economic communities (RECs). For details see, *Treaty Establishing the African Economic Community (the Abuja Treaty)*, available at https://au.int/sites/default/files/treaties/37636-treaty-0016_treaty_establishing_the_african_economic_community_e.pdf. Last accessed on October 17, 2020.

⁴ [Odijie \(2019\)](#) elucidates that industrialization policy coordination is vital for the success of AfCFTA to achieve the integration agenda and accelerate economic development. The coordination has the effect of mitigating on similar industrial formations that may arise as a result of producing same products with eventual imposition of restrictions on neighbouring countries. For example, in 2000s Cote d'Ivoire had protected the chicken industry while other regional countries (ECOWAS) imported from Europe. This in return, resulted to growth of the poultry sector for exports including to other neighbouring countries. Consequently, during the EPA negotiations, the West Africa countries protected the poultry sector in the agreement. However, a month after signing the EPA agreement, eight West African countries introduced chicken-development schemes to protect chicken production in their countries. In the end, this protectionist measures impeded Cote d'Ivoire chicken export to the region. Similar, actions have happened in Nigeria on cement industry and Botswana on the car industry (for details see [Odijie \(2019\)](#)).

Second, a number of studies with a focus on AfCFTA have emerged, for example, Masiya (2019), Obeng-Odoom (2020), Aniche (2020), Ndonga et al. (2020), Simo (2020) and Bayale et al. (2020) among others. All these studies assess the relevance of AfCFTA Treaty to achieve Africa's integration agenda and implications of the Treaty on welfare and trade revenue. While we acknowledge the valuable information from these studies for policy to strengthen the Treaty going forward, they also fall short of addressing country dynamics. For example, Masiya (2019), Ndonga et al. (2020) and Bayale et al. (2020) address similar objective we focus on in this study, however, they fail to consider Kenya's dynamic nature in international trade market. Importantly, coffee, tea and horticultural sectors are key export goods to the international market and thus, provides the need to assess AfCFTA implications on Kenyan products.

Third, in spite of a plethora of empirical studies on this topic, the findings are at best equivocal or conflicting. For instance, a number of studies establish that AfCFTA will increase intra-trade, improve welfare, increase trade creation and accelerate economic development (Darku and Appau (2015), Masiya (2019) and Bayale et al. (2020)). In addition, empirical evidence suggest that specific goods have a detrimental effect on trade revenue (for details see Masiya (2019)). On the other hand, FTA's have been censured for accentuating inequality and advancing trade imbalance at the expense of Less Developed Countries (LDC's) (Chang (2002), Robinson and Joan (1979), Dunn (2009) and Valiente-Riedl (2016)). From a theoretical standpoint, trade liberalization via Free Trade Area is geared towards a reduction in trade tax revenue (Matlanyane and Harmse (2002), Lang (2006)). However, Epaphra (2014) opines that lower tariffs as a result of trade liberalization leads to cheaper imports and thus increasing import volumes resulting to increased trade tax revenues. Indeed, the above lack of consensus both from the theoretical and empirical stand-points, highlights the need for further investigation of this thematic area.

Fourth, the present study focuses on Kenya, because of the country's relevance in trade and GDP contribution to Africa. In terms of GDP size, Kenya is ranked sixth biggest economy in Africa and third in sub-Saharan Africa (SSA)⁵. In addition, the country has experienced a steady GDP growth averaging 5.8 percent for the period 2010 – 2019 which is way above SSA average of 4.1 percent during the same period (IMF, 2020). However, Kenya's GDP growth rate is below the expectations outlined in Kenya Vision 2030 of annual GDP growth rate of 10 percent. As such, it is anticipated that with the entry of AfCFTA, Kenya will experience increased intra-trade that will accelerate economic growth to actualize the objectives of Vision 2030. Although AfCFTA has been touted with lofty ambitions resulting to increased empirical analysis by policy makers, academics and researchers, the Kenyan perspective has not been examined. Importantly, the focus has been on the continents benefits with limited evaluation at the country level. In addition, most of the numerous available information, although valuable, has merely been reports without rigorous empirical analysis.

The research objectives of the study are thus to: a) determine the macroeconomic effects (GDP and government revenues) coming from reduction of tariffs and non-tariff measures (NTMs) under the AfCFTA; b) evaluate the trade-offs between the different economic sectors; c) determine the impacts of delaying or excluding liberalization of selected commodity groups; and d) quantify the changes in welfare for households, with groupings based on income and the urban-rural division.

The analysis is carried out using the DEMETRA model, a single-country dynamic CGE model calibrated using an updated Kenya 2016/2017 Social Accounting Matrix (SAM). As a general equilibrium model, the results from DEMETRA will capture the direct impacts of liberalization on

⁵ IMF (2020), World Economic Outlook Database, available at <https://www.imf.org/en/Publications/WEO/weo-database/2020/October/select-countries?grp=2603&sg=All-countries/Emerging-market-and-developing-economies/Sub-Saharan-Africa>. Last accessed on October 19, 2020.

commodity import and export demand, and their extended effects on supply chains, household income, investment, government revenues, exchange rates etc. To ensure the coherence of the AfCFTA impacts on Kenya and its trading partners, the model trade shocks integrate in a top-down manner the bilateral trade changes obtained from the JRC AfCFTA continental-scale analysis. With the liberalization schedules still to be defined by many governments, the analysis considers four liberalization schedules based on alternative or complementary policy objectives regarding tariff revenues, food security and sectoral development prioritization.

The results of the study thus allow for a quantification of GDP and welfare gains in Kenya due to the AfCFTA. These gains are conditional on liberalization approaches in the country's trade partners directly but also on those in other African countries indirectly, the reduction in NTMs at a continental level and Kenya's economic and political objectives. Employing a CGE model with a large number of agricultural commodity and household groups, results particularly help inform on the implications of the trade agreement on agricultural output and food security.

2. Related literature

The creation of Free Trade Areas, has for a long time, been advocated as a catalyst for international trade and a core ingredient for economic development. Importantly, considerable attention has been given to the welfare effects of free trade. Several theories underscore this analogy with a view that Free Trade Area and its application will result to enhancement of welfare and socio-economic development. For example, Adam Smith hypothesis posits that a country has absolute advantage to a product if it uses less resources in the production of the output. In return increasing income levels and accelerating economic development. Along the same line, Ricardo's thesis of comparative advantage underscores the need for countries to specialise in production of goods and services they have greatest advantage relative to other countries. Building on Ricardo's work, Heckscher-Ohlin argues that countries with relative abundance of factor inputs will have higher outputs. In more recent work Stolper and Samuelson (1941) as advocates for free trade, argue that owners of abundant endowments shall support free trade with increase in returns. Further, the new trade theory supports the view of free trade among countries. It is important to note that the theories share a common view that free trade generates benefits to countries and can enhance economic development.

From a theoretical standpoint, trade liberalization via Free Trade Areas (Agreements) is geared towards a reduction in trade tax revenue (Matlanyane and Harmse (2002), Lang (2006)). Additionally, FTA's have also been censured for accentuating inequality and advancing trade imbalance at the expense of Less Developed Countries (LDC's) (Chang (2002), Robinson and Joan (1979), Dunn (2009) and Valiente-Riedl (2016)). However, Epaphra (2014) opines that lower tariffs as a result of trade liberalization leads to cheaper imports and thus increasing the import volumes resulting to increased tax revenues. In the same vein, Darku and Appau (2015) examines the effect of regional trade agreements in a dynamic gravity model and finds that, trading blocs results to increased intra-trade.

Several empirical work has been undertaken to test the efficacy of AfCFTA in advancing accelerated growth and enhancement of welfare. Bayale et al. (2020) examines the potential implications of AfCFTA for Ghana. The authors use 2018 dataset in World Integrated Trade Solution-Single Market Partial Equilibrium Tool (WITS-SMART). The findings show that total trade will increase and result to enhanced consumer welfare and a reduction in tariff revenue and via FTA Ghana's trade balance shall improve. Along the same lines, Simo (2020) examines the provisions of AfCFTA and how they contribute to realisation of a single market of services. Ndonga et al. (2020) undertakes an

exploratory examination of Malawi's intra-African trade position to determine the likely impact of AfCFTA in Malawi. They find that Malawi has experienced a trade deficit with its reliance on tobacco exports and thus limiting ability for diversification. They further find that the effect of AfCFTA for Malawi will be gradual and there is need to consider inclusivity in the implementation of FTA as some countries heavily rely on trade taxes. Relatedly, Masiya (2019) examines revenue implications of Malawi joining AfCFTA using liberalization and SMART techniques. The findings indicate that Malawi will benefit by joining the AfCFTA via trade creation despite the expected loss of trade revenue from capital goods. In addition, the study endorses liberalizing trade while holding specific tariffs for capital goods. In also recent work by Obeng-Odoom (2020) examining the efficacy of implementation of AfCFTA, argues that without explicit focus on redistribution of resources, improved private sector and social development, enhanced institutions to foster free trade then the current agreement may result to increased inequality and poverty.

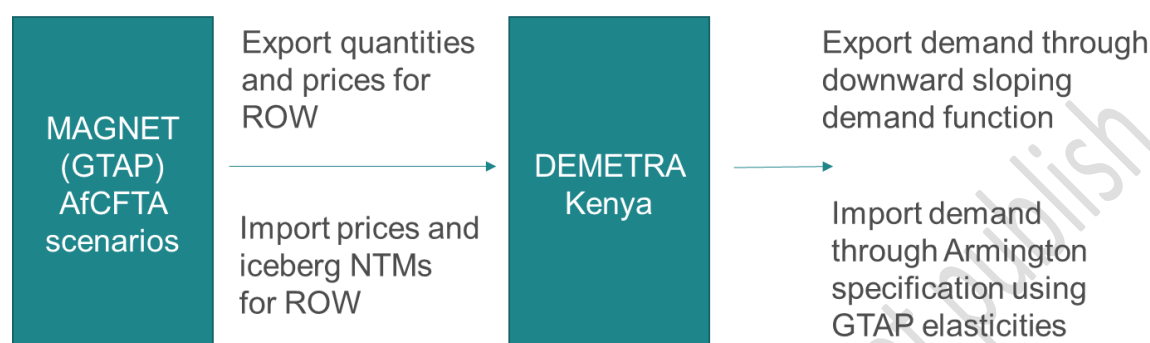
Empirical analysis of Regional Economic Communities (REC's) has also been evaluated to establish their effect to enhance welfare and social economic development. Makochehanwa (2014) examines the Impact of a tripartite free trade area (T-FTA) that include COMESA-EAC-SADC on welfare on member countries. WITS-SMART was used in the analytical framework and the findings show that new trade equivalent to US\$ 2 billion will be created and the highest beneficiaries include DRC and Angola. Further, the tripartite will lead to trade diversion resulting to positive net trade balance in the 26 member countries, although import revenue will be lost. Along the same line, Jensen and Sandrey (2011) utilize the Global Trade Analysis Project (GTAP) model in the tripartite arrangement. They find that South Africa and Mozambique will benefit more compared to other regional countries. Using the gravity model on East Africa Community Integration, Buigut (2012) finds that customs union resulted to disproportionate impacts on intra-trade that varied between countries. Indeed, they establish that Kenya, Uganda and Rwanda experienced increased intra-exports while intra-EAC imports increased in Kenya and Tanzania.

3. Modelling framework and scenarios

The present analysis is carried out using the DEMETRA model, a single-country dynamic CGE model calibrated using an updated Kenya 2016/2017 Social Accounting Matrix (SAM). As a general equilibrium model, the results from DEMETRA capture the direct impacts of liberalization on commodity import and export demand, and their extended effects on supply chains, household income, investment, government revenues, exchange rates etc. To ensure the coherence of the AfCFTA impacts on Kenya and its trading partners, DEMETRA integrates in a top-down manner the bilateral trade changes obtained from the JRC AfCFTA continental-scale analysis (Figure 1). The Africa-wide assessment employs a global GTAP-based CGE model (MAGNET) with most African countries represented as individual trade partners. The liberalization trade effects are determined through a hybrid approach, following the approach from Horridge and Zhai (2006) also implemented in Boysen et al. (2016). As changes to the export demand cannot be explained by the single open-economy model, the DEMETRA model simulations include export quantity and price shocks reflecting the MAGNET results as deviations from the global model's 2021-2035 baseline. These deviations are then applied to the bilateral trade volumes of the DEMETRA baseline. For imports, quantity variables are endogenised in the single-country model and in order to reflect the model's response to tariff liberalization and the gradual reduction in NTMs, but also to changes in the exchange rate.

The single-country CGE model uses as baseline the tariff structure of existing regional trade zones and agreements Kenya is part of (EAC and COMESA). The changes to tariffs and NTMs are considered at a commodity level and by trade partner. Tariff and NTM estimates data for the models' base data and scenarios are derived based on HS 6-digit level bilateral data taken from ITC's 2014 MAcMap and other relevant literature.

Figure 1 - MAGNET-DEMETRA model integration



The analysis includes multi-year simulations allowing for the gradual reduction in tariff rates over a period of 10 years, the period until full implementation of the AfCFTA in Kenya, with a more realistic inclusion of liberalization schedules and a wider consideration of the long-run impacts over factor markets and economic development. As a starting point, trade liberalization is assessed through the elimination of customs tariffs relative to the pre-AfCFTA levels. Since AfCFTA tariff offers including Kenya's are still unknown (although Kenya has already submitted these together with the other EAC members), the study incorporates four scenarios for liberalization strategies regarding the products that are either excluded or delayed from the liberalization process while respecting the double qualification approach required by the AfCFTA. Scenarios cover:

- ➔ The tariff liberalization seeking government revenue maximization (REV)
- ➔ In addition to revenue maximization, the liberalization of tariffs at a continental scale with a view towards:
 - A reduction in food prices to improve food access (AGR)
 - The promotion of industrialization through liberalization of intermediate input products (INT)
 - Improving the efficiency of competitive sectors by liberalizing sectors with revealed comparative advantage (RCA)

Across these four liberalization schedules, the analysis also accounts for both tariff-only reduction (**tar**) and the the reduction in NTMs as expected from the alignment of product standards across countries and a reduction in red tape under AfCFTA (**tar+NTMs**). The NTMs are introduced in the model as a combination of ad-valorem tariffs (to reflect the rents resulting from institutional barriers e.g. licenses) and "iceberg" costs whereby time delays and standard misalignment determines a fraction of the import values to "melt away". The NTMs are assumed to reduce by 50% over a 15 year period for all African Union imports and by 20% for all African Union exports to third countries.

Another variation to the scenarios above consists in the addition of government intervention. This involves endogenising the sales tax in Kenya to compensate for any reduction in government revenue from the reduction in tariff rates and rent-generating NTMs, directly through the reduction in tariff-related revenues and indirectly through changes in tax revenues through economy-wide effects.

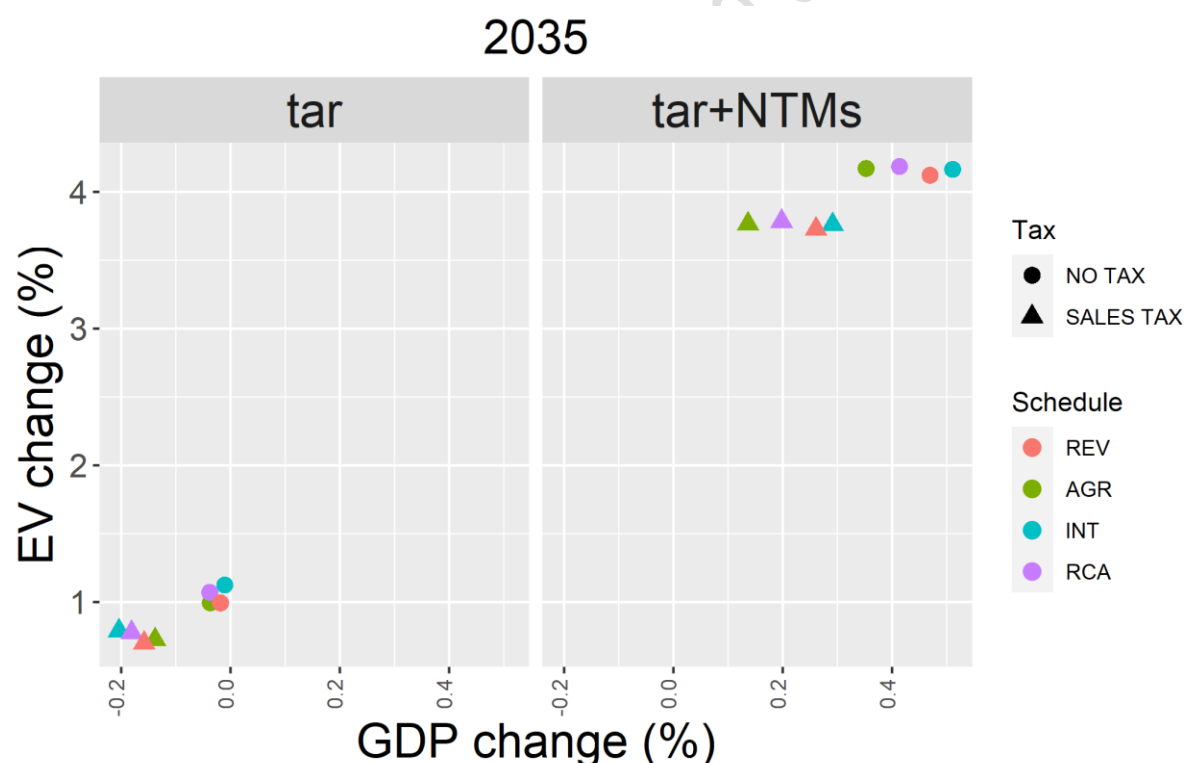
For the closure, the model adopts a variable exchange rate whereby total foreign capital inflows are exogenous and grow over time with the baseline GDP projections, while bilateral capital flows are endogenous to balance the current account. The model also assumes a semi-endogenous evolution of government spending. Thus, changes to the government income as a consequence of the AfCFTA implementation will impact the government spending levels on public administration, while the public borrowing and spending on education and health remain fixed to the multi-year baseline values.

4. Results

Without NTM reduction (**tar**), GDP impacts negligible and some welfare gains. The NTM reduction leads to similar welfare effects across schedules but impacts GDP differently (Figure 2). The INT and REV liberalization schedules lead to the highest GDP gains of about 0.5% in 2035 relative to the baseline, while welfare gains are similar across the four schedules at 4.2% above the baseline.

The sales tax to compensate for lower tariff revenues determines a decrease in both aggregate welfare and GDP. The GDP reduction of increasing the sales tax for revenue neutrality is about 0.2%. This determines negative GDP outcomes in tariff-only scenarios for all four liberalization schedules.

Figure 2 - GDP and welfare changes from the AfCFTA alternative liberalisation schedules (2035)



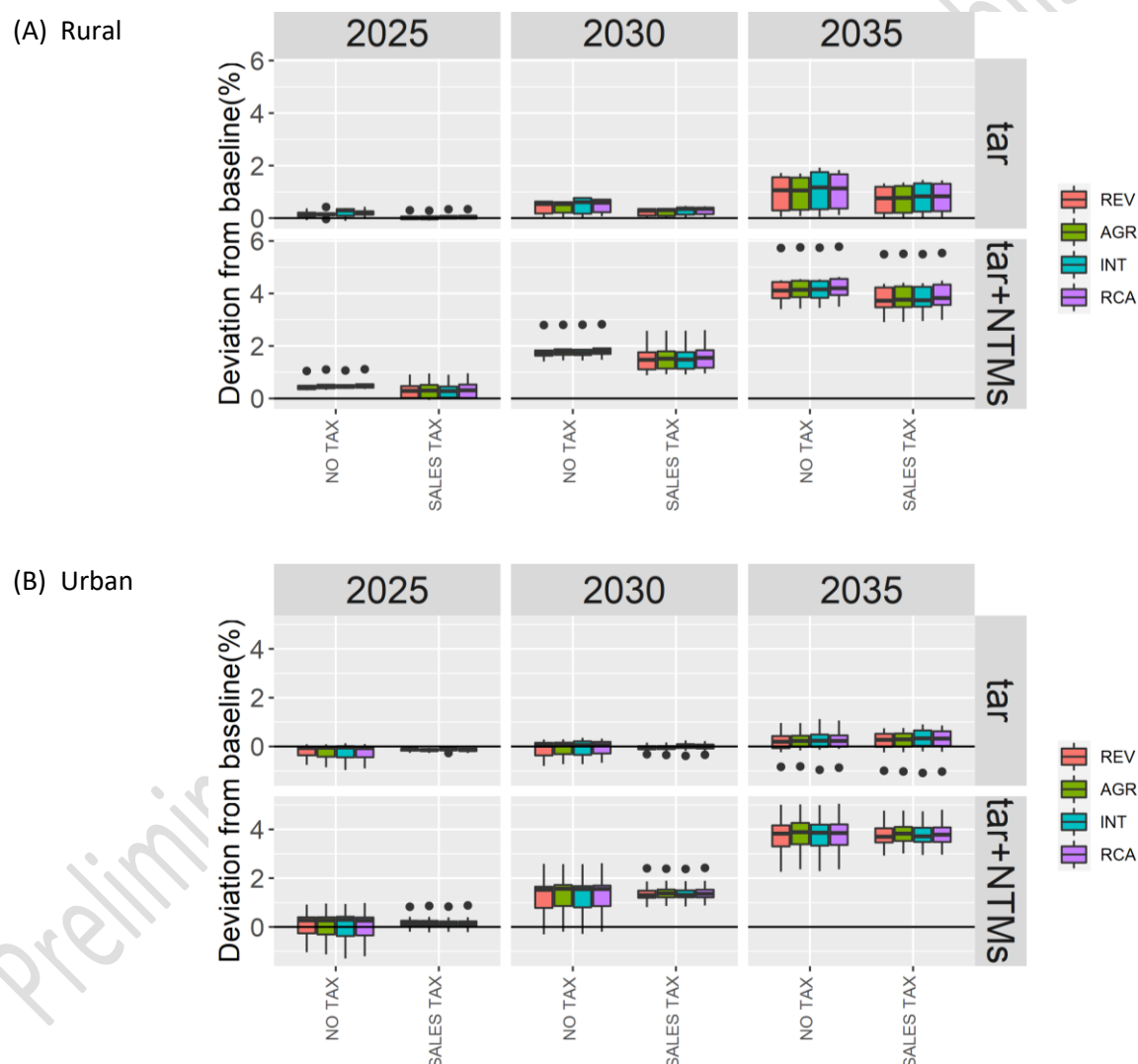
Both rural and urban households have significantly different welfare outcomes depending on whether the NTM reduction is obtained or not through the implementation of the AfCFTA (Figure 3). At the same time, rural households gain more in welfare due to the expansion of cash crops output resulting from the AfCFTA (Figure 3). With the tariff-only reduction, the median gain in welfare is

about 1% in 2035, while the median gain for urban households is about 0.2%. With NTMs reduced, gains grow to above 4% and slightly less than 4% for rural and urban households respectively.

To be highlighted is that most urban households would be negatively impacted in the medium-run (2025) without NTM reduction (tar). With NTM reduction, some urban households are still adversely affected by 2025-2030 but longer-term impacts are positive for all groups.

The addition of the sales tax decreases welfare gains in both urban and rural areas, however, while the regional differences grow for rural households, the differences decrease for the urban ones. In addition, the increase of the sales tax offsets the negative transitional effect on the welfare of some urban households.

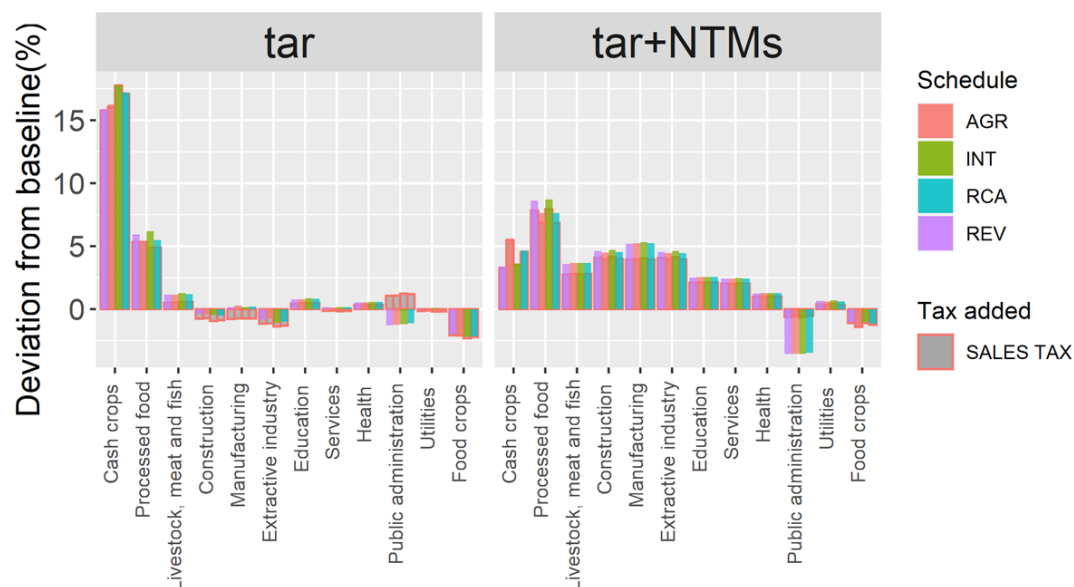
Figure 3 – Welfare impacts across rural and urban household groups at 5-year timesteps



The tariff-only liberalization enhances output in a few sectors – cash crops and processed food -, but has negative impacts on food crops (Figure 4). The NTM reduction broadens the economic areas with positive impacts with cash crop output increasing less but transformation sector such as food processing and manufacturing benefiting more. The underlying trade services and construction also increase their output as opposed to the tariff-only liberalisation.

With a lower government income and consequently less public spending, the public administration services decrease output in both with and without NTM reduction simulations but recover with the introduction of the sales tax.

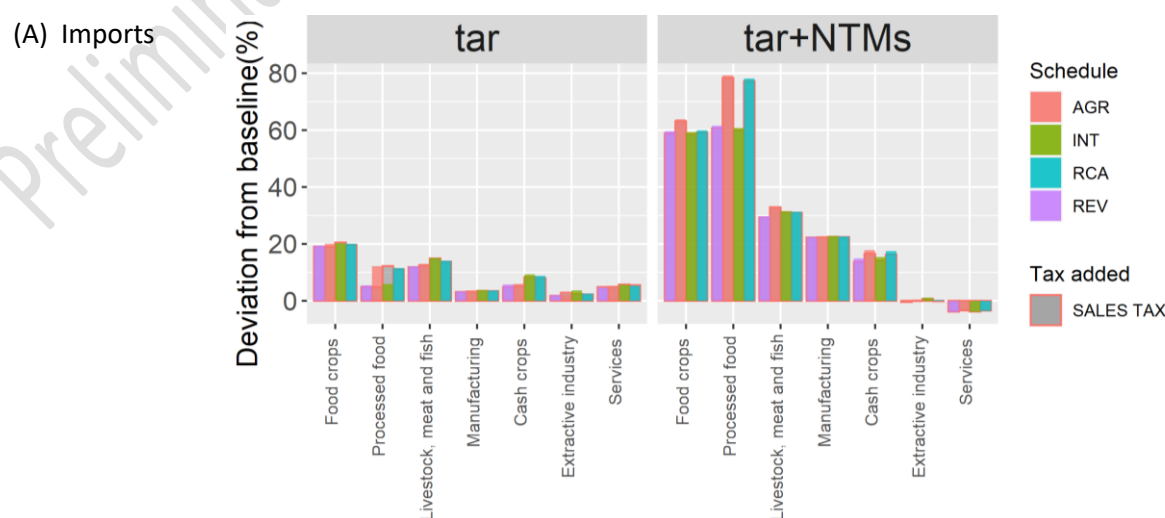
Figure 4 – Sectoral output changes in 2035



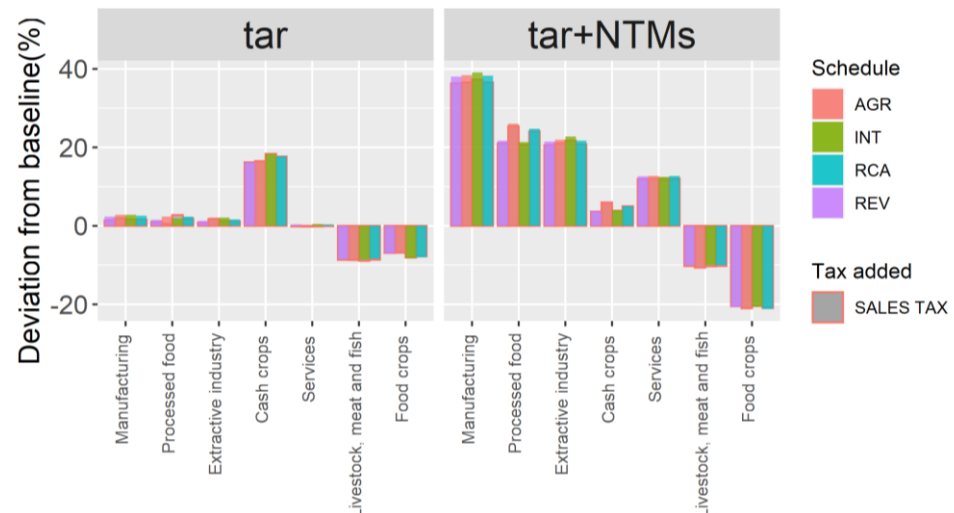
With respect to changes in trade by commodity groups, the introduction of the AfCFTA through the tariff reduction determines an increase in imports of food crops, processed foods and animal products (Figure 5A). On the exports side (Figure 5B), there is an increase in cash crops but a decrease in animal products and food crops.

The NTM reduction significantly increases trade volumes for both imports and exports. Furthermore, the differences across liberalisation schedules become clearer, with trade of agrifood products increasing more under the AGR liberalisation. On the exports side, the NTM reduce favours the trade of commodities outside the agrifood sectors – manufacturing, extractive industry and services.

Figure 5 – Trade changes in 2035



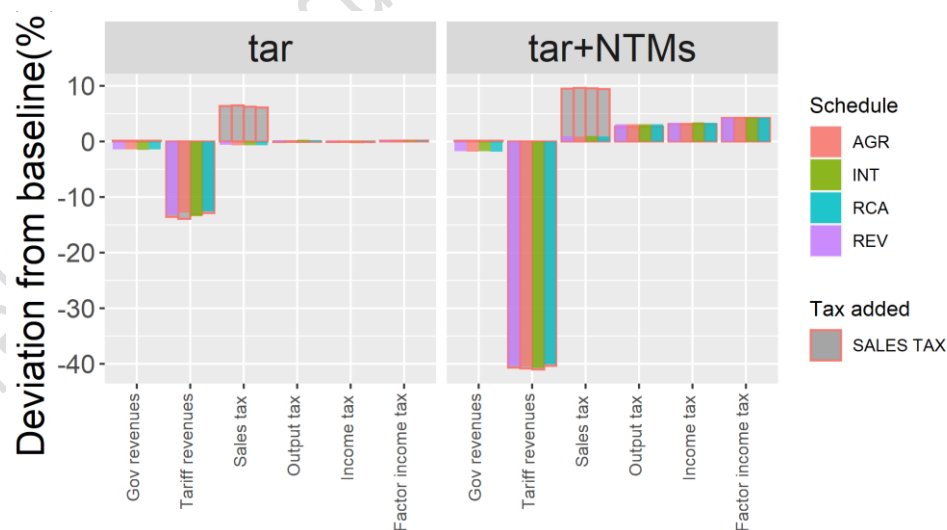
(B) Exports



Government revenues in 2035 are about 60bn KSh (550m USD) lower than the baseline in 2035 with the tariff+NTMs reduction and 50bn KSh lower for tariff-only. This corresponds to a 1.8% and 1.4% share of the government budget for year respectively. This fall in income thus show that the increase in revenues from income and output taxes resulting from higher economic output do not compensate enough for the decrease in tariff revenues.

For government revenue neutrality, the sales tax needs to gradually increase by 2035 by about 0.45% for tariff-only scenarios and by about 0.55% for tariff-NTMs. In the model simulations, this increase is applied uniformly to all sales and modifies general prices. Nevertheless, the CPI is lower than the baseline even with the sales tax included.

Figure 6 – Change in government revenues by revenue source in 2035



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