

Potential Impacts of Africa Continental Free Trade Agreement (AfCFTA) on Agri-food Sectors and Food Security in Ghana

14th February, 2023

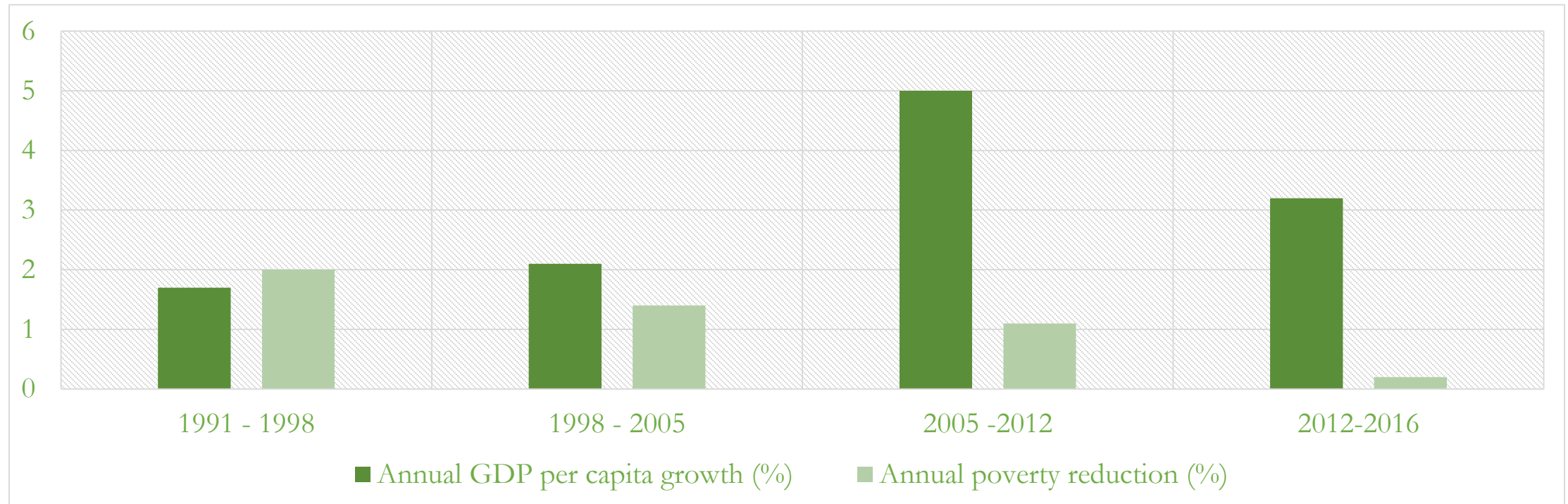
ISSER, University of Ghana, Legon

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1. The nature of growth in Ghana and welfare imperatives I

Figure 1: Growth and poverty reduction in Ghana - % (1991 to 2016)

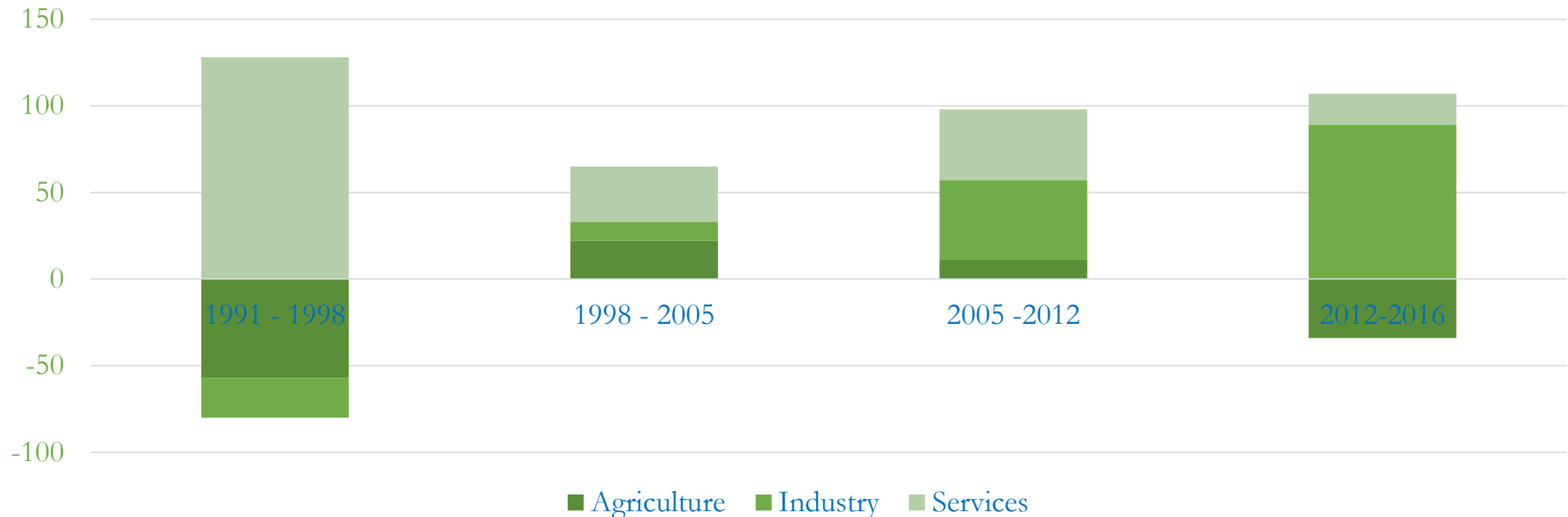
Source: Ghana Living Standards Survey (3 – 7)



1. The nature of growth in Ghana and welfare imperatives II

Figure 2: Changes in contribution to growth by sector- % (1991 to 2016)

Source: Unctadstat and WDI, National Accounts, 2019 and World Bank, 2020



1. The nature of growth in Ghana and welfare imperatives III

Table 1: Poverty rates and inequalities in Ghana (1991 to 2016)

Year	Poverty rates (%)	Inequality using the Gini coefficient
1991	52.7	0.38
1998	39.5	0.38
2005	31.9	0.42
2012	24.2	0.42
2016	23.4	0.43

1. The nature of growth in Ghana and welfare imperatives IV

Region	Change in poverty rate between 2012 and 2016	Source of change	
		Growth	Inequality
Western	0.2	3.3	-3
Central	-5	-5.1	0.1
Greater Accra	-3.1	-1	-2.1
Volta	3.4	8.4	-5
Eastern	-9.1	-6.3	-2.8
Ashanti	-3.2	-3.6	0.4
Brong Ahafo	-1.1	-0.6	-0.5
Northern	10.7	7.6	3.1
Upper East	10.4	7.5	2.9
Upper West	0.2	6.8	-6.6

2. Motivation I: Growth and Trade Theory

- Growth theory suggests that liberalizing trade could expand markets, stimulate R&D, encourage employment in creative activities requiring more human capital and knowledge exchange among countries (Yasmin et al, 2006).
- Thus, trade liberalization which encourages more openness through the reduction of tariffs and non-tariff barriers have been found to have both positive and negative effects. For example, Onafowora & Owoye (1998)
- On the other hand, Baunsgaard, & Keen. (2010) note in their paper that with public finances of many developing and emerging market countries still heavily dependent on trade tax revenues, further trade liberalization could hinder their revenue mobilization

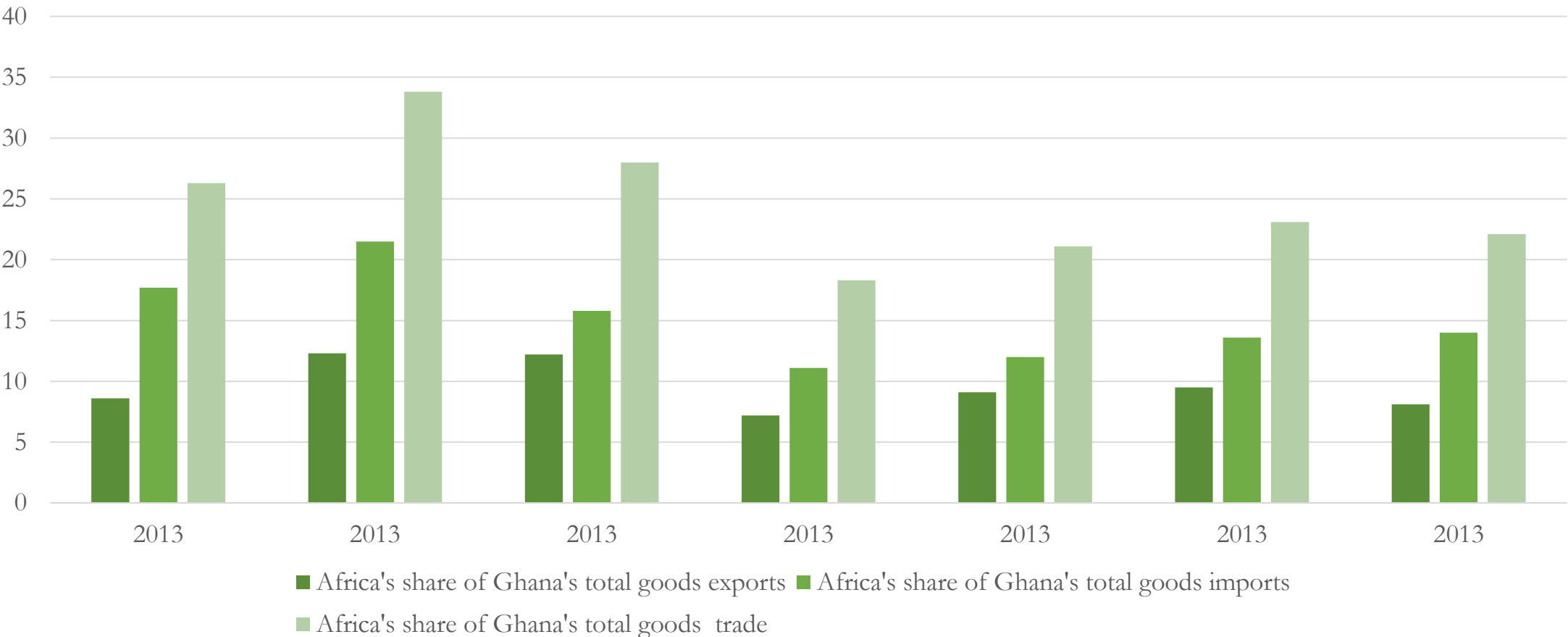
2. Motivation II: AfCFTA

- Africa is a big market, fragmented into small pieces. 22 African countries have populations under 10m
- Trade is frustrated by 107 unique land borders between 54 states
- Rules diverge across: regulatory standards, competition, investment intellectual property rights, services – making the scaling of business across borders difficult
- AfCFTA consolidates Africa into \$2.3 trillion market of 1.3bn people. Creates: market opportunities, scale economies, improved competition, lower business costs

2. Motivation II: Ghana and AfCFTA

- Ghana's global trade is mainly driven by extractives and agricultural commodities
- This trade is with more of the rest of the world rather than Africa – our trade with Africa is barely 15 to 30% depending on the year
- And the top two trading partners are Burkina Faso and south Africa
- Our main trading commodities include extractives, fruits and nuts and fish

2. Motivation III: Ghana trade with AU (%)



4. Data and methodology

4.1 Description of Ghana 2015 SAM

- The SAM of Ghana, which was prepared in 2015 by the GSS, ISSER and IFPRI is used in a CGE framework to study the effects of AfCFTA
- The 2015 SAM of Ghana is good for analysing issues like employment, poverty, growth income distribution, and trade.
- The 2015 SAM consists of:
 - 45 sectors or activities (10 household agricultural activities or home producers and 35 activities);
 - 69 commodities, consisting of 14 home commodities and 55 marketed commodities;
 - and 100 household groups, disaggregated into income quintiles for 10 regions and by rural/urban, region and quintiles)
 - 4 taxes accounts.
 - 74 factors of production (60 labour accounts, 10 land factors and 4 capital factors).

4.2 The DEMETRA Model I

- This study will use a single-country computable general equilibrium (CGE) model—the Dynamic Equilibrium Model for Economic Development Resources and Agriculture (DEMETRA) for Ghana.
- The DEMETRA, which was developed by the Joint Research Centre of the European Commission, comprises a large number of economic sectors and Households.
- The model is able to describe the Ghanaian economy and its relationship with the rest of the world including the Africa continental region.

4.2 The DEMETRA Model II

- Production of marketed commodities are separated from subsistence commodities, which is assumed to be non-marketed commodities but only for home consumption.
- Perfect competition assumptions are made for the determination of prices and quantities of output. Thus, prices and quantities are not subject to market power on the supply or demand side.
- The model has high disaggregation of economic activities into individual production processes.
- There are many different households that offer labour and capital in exchange for factor incomes and therefore allow for distributional consequences of a policy.

4.2 The DEMETRA Model III

- Key features of the DEMETRA model include the following:
 - Output is produced through CES production function nested with the possibility to specify separate market and home production functions.
 - Assumes a small open economy whose domestic activities cannot affect global prices. In this regard, household demand can be obtained from both domestically produced goods and imports.
 - In like manner, marketed commodities output produced domestically can either be consumed locally or exported.

4.2 The DEMETRA Model IV

- Key features of the DEMETRA model include the following:
 - Perfect competition assumptions are made for the determination of prices and quantities of output. Thus, prices and quantities are not subject to market power on the supply or demand side.
 - There are many different households that offer labour and capital in exchange of factor incomes and therefor allow for distributional consequences of a policy.

4.3 Policy Scenarios

4.3.1 Liberalization schedules

The impacts of the free trade agreement are considered across four liberalization schedules:

- *a. TARREV (Tariff Revenue)*: tariff liberalization seeking government revenue maximization. The authors consider this the main liberalization schedule as it responds to immediate government revenue concerns.
- *b. AGR (Agricultural Trade)*: a full liberalization of agri-food tariffs to improve food access with government revenue maximization as secondary objective
- *c. INT (Intermediate Inputs Trade)*: the promotion of industrialization through full liberalization of intermediate input products with government revenue maximization as secondary objective
- *d. RCA (Revealed Comparative Advantage)*: Improving the efficiency of competitive sectors by fully liberalizing sectors with revealed comparative advantage with government revenue maximization as secondary objective.

5. Preliminary results

- 5.1 Macroeconomic impacts
- 5.2 Trade impacts
- 5.3a Sectoral impacts
- 5.3b Employment impacts
 - Inputs (capital & intermediates)
 - Labour employment by sector
- Welfare impacts
 - Incomes
 - food demand and prices
- 5.5 Government revenue

5.1 Macroeconomic impacts

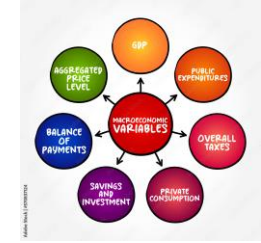
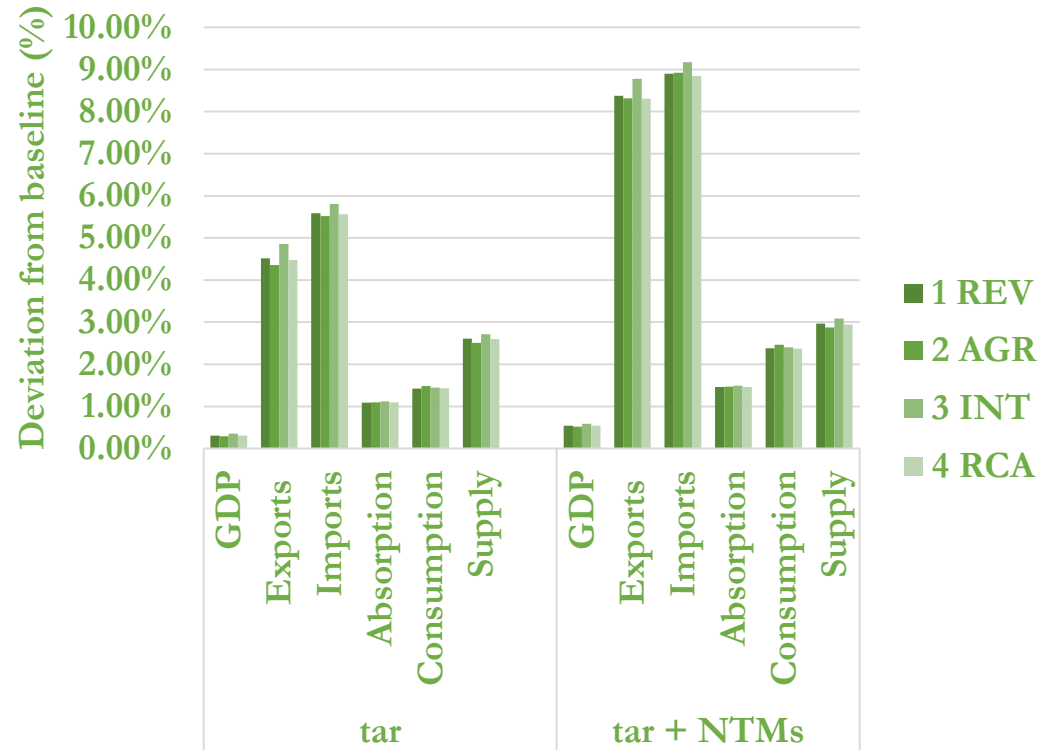
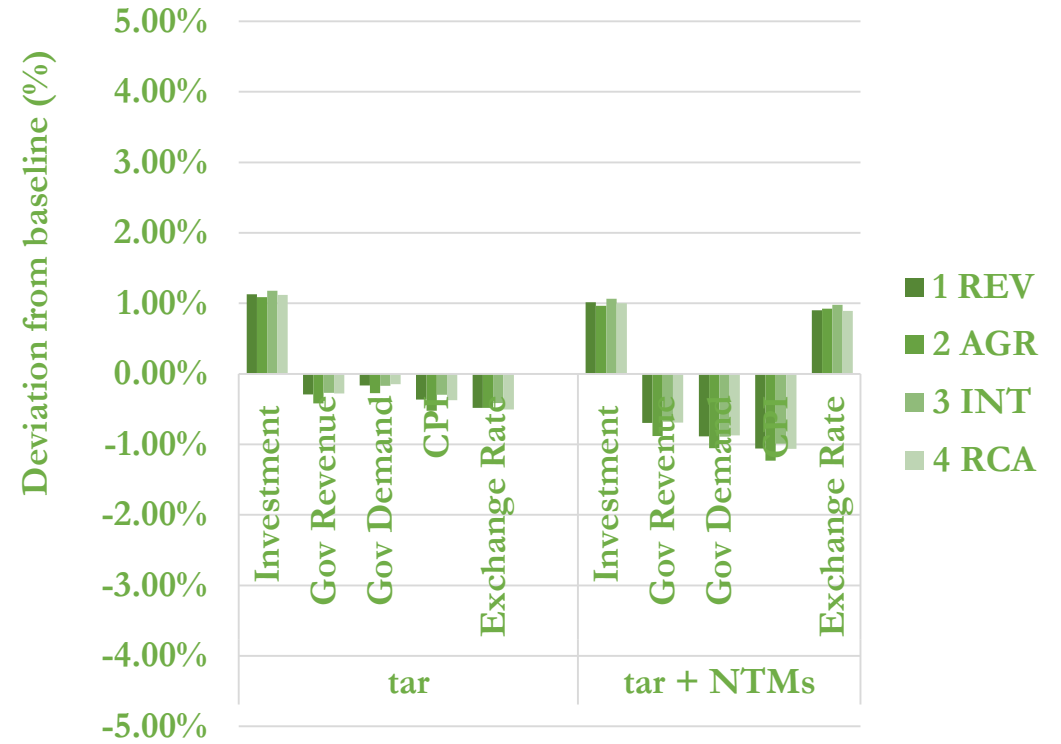


Figure 3. Ghana: macroeconomic impacts of the AfCFTA across liberalization schedules in 2035

(a) Set I



(b) Set II

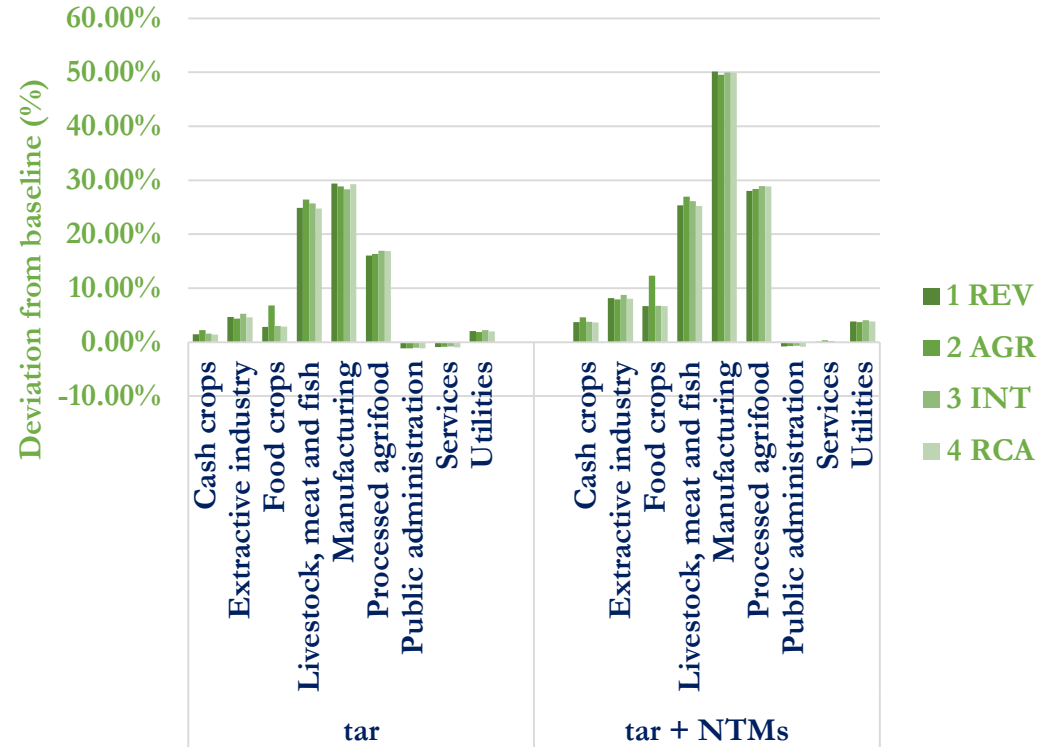


5.2 Trade impacts

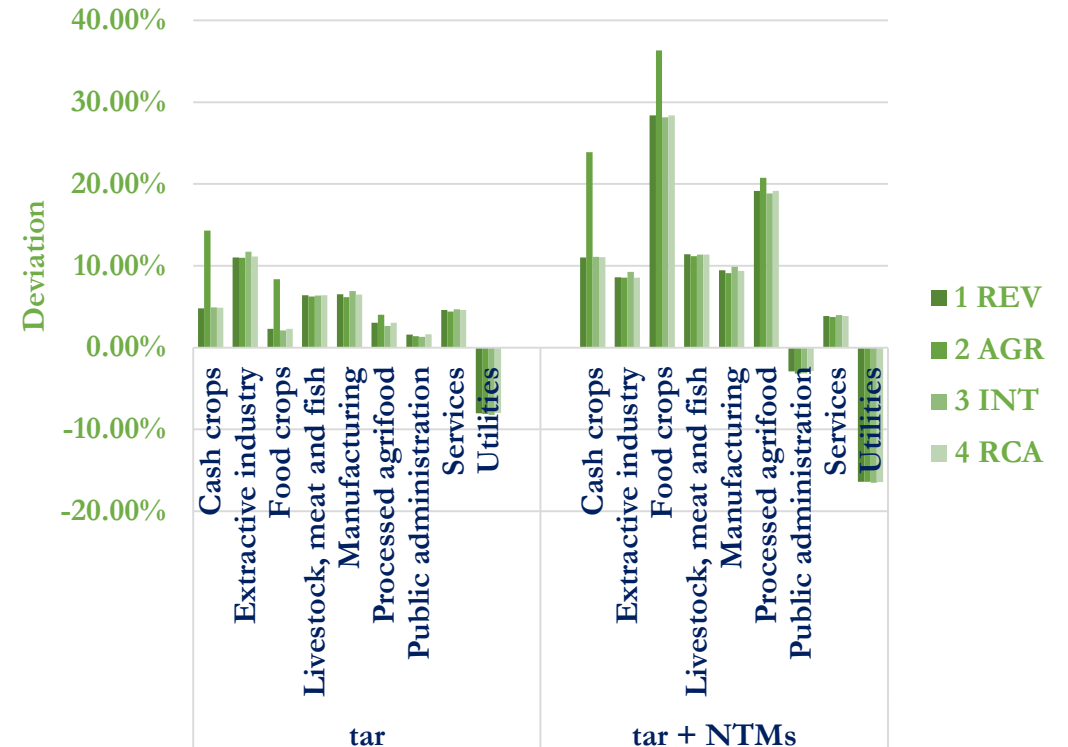


Figure 5. Trade impacts across liberalisation schedules in 2035

a. Exports



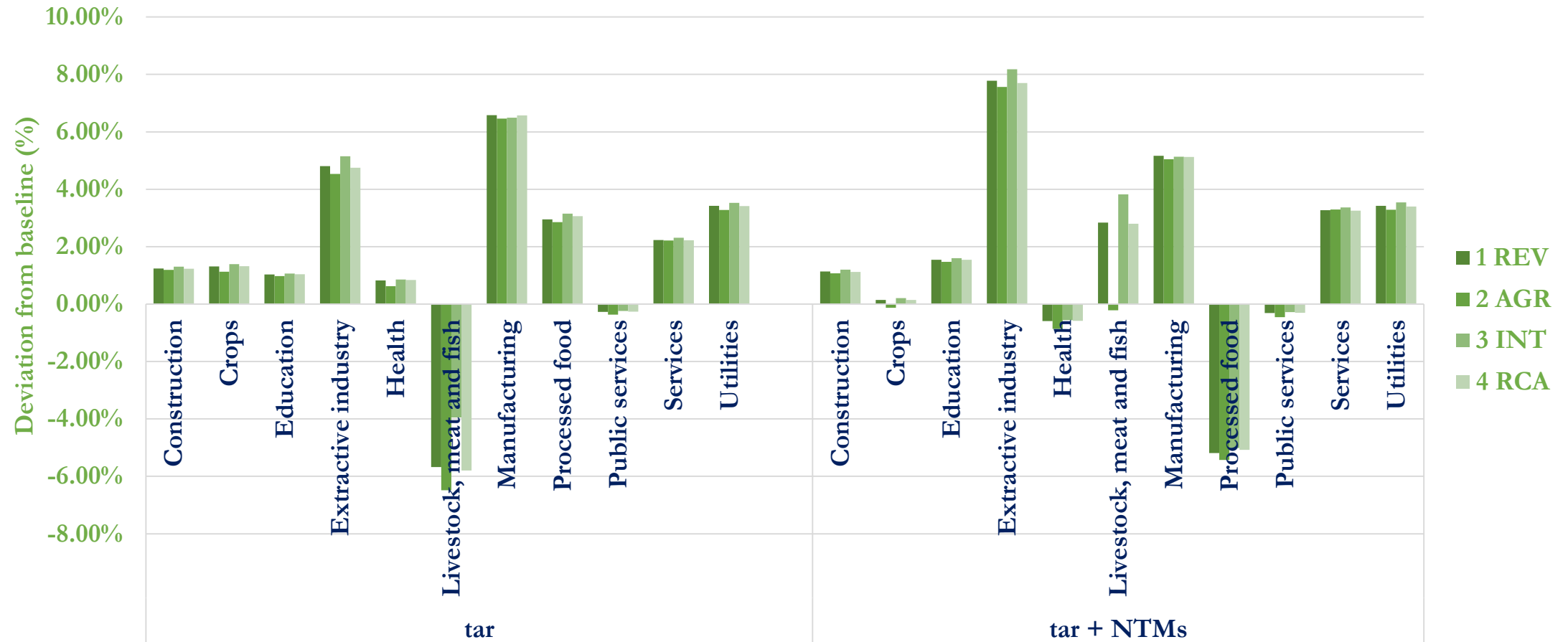
b. Imports



5.3a Sectoral impacts



Figure 6. Output changes across main economic sectors in 2035

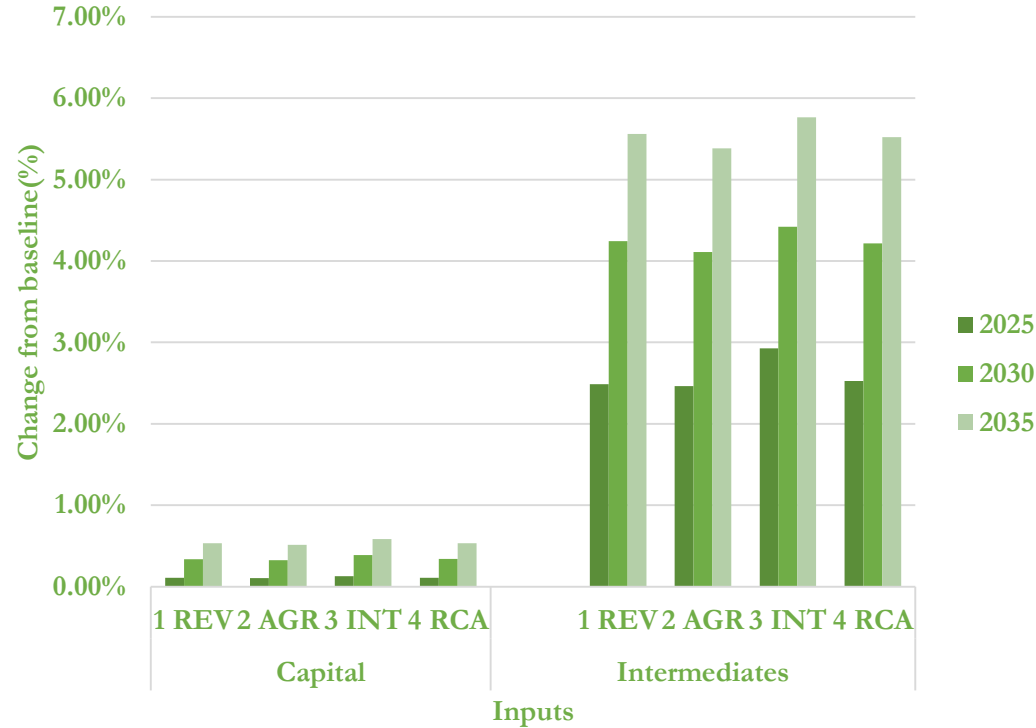


5.3b Employment impacts: inputs

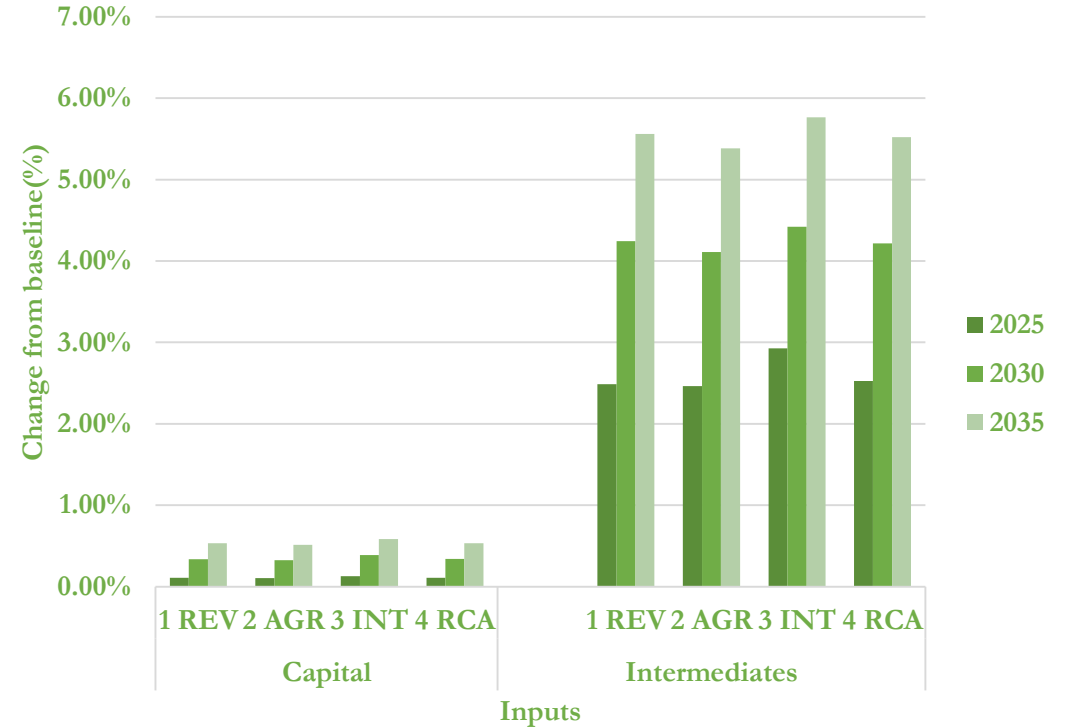


Figure 7: Employment impact of main production inputs (2025, 2030 and 2035)

a) Changes in general employment (tariff-only)



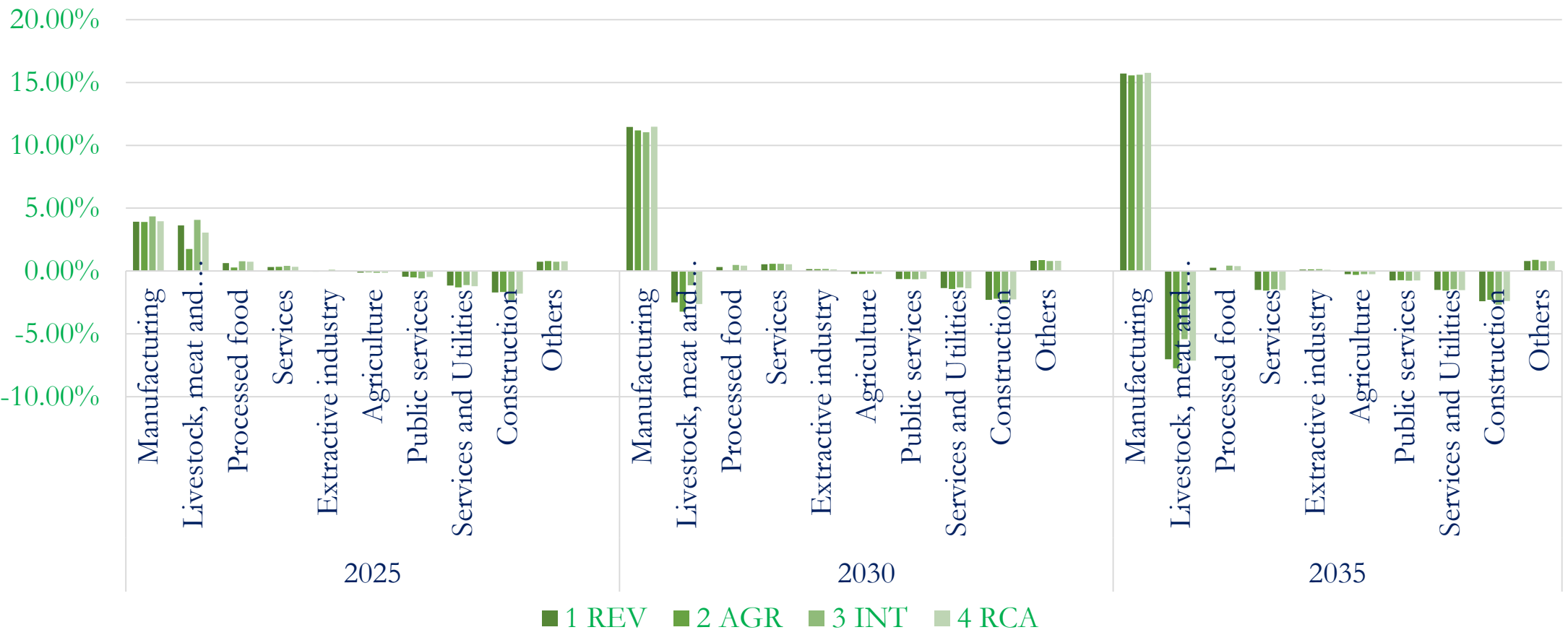
b) Changes in general employment (tariff + NTMs)



5.3c Employment impacts: labour I



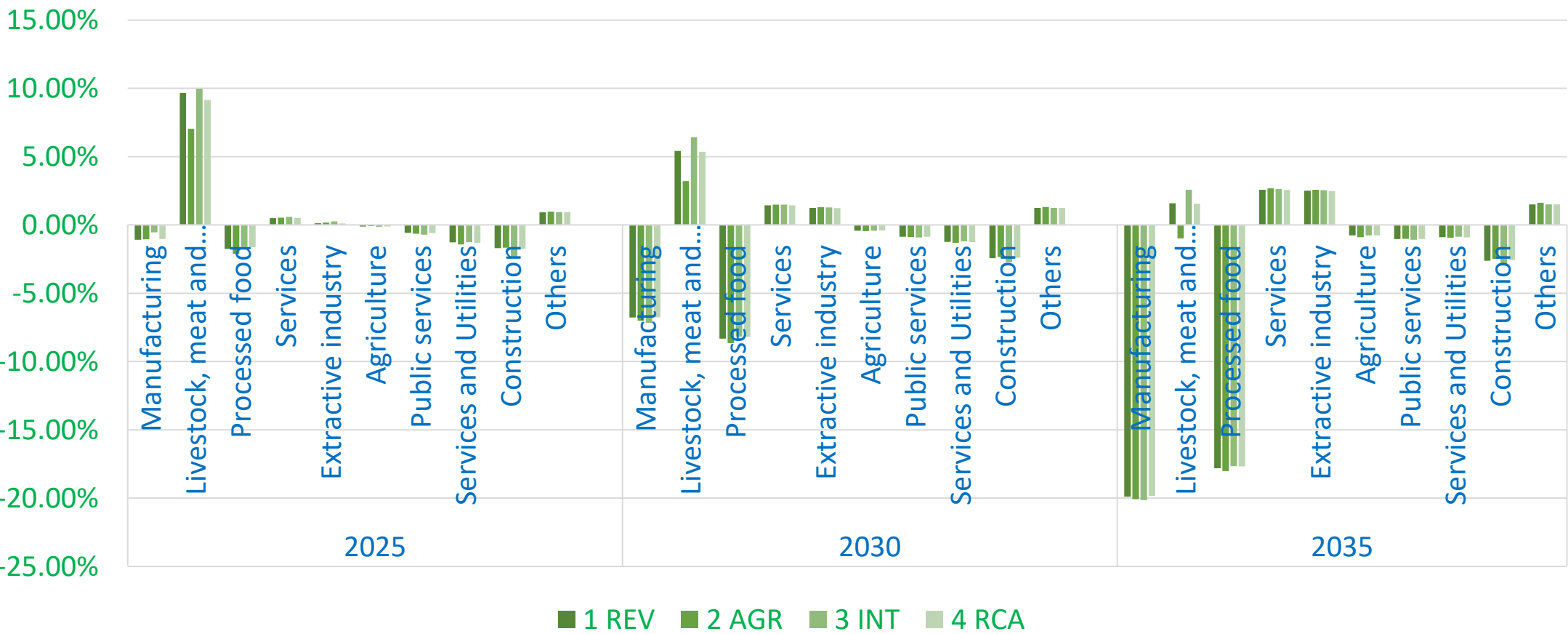
Figure 8: Employment impact on main labour – tar only (2025, 2030 and 2035)



5.3c Employment impacts: labour II



Figure 8: Employment impact on main labour – tar + NTMs (2025, 2030 and 2035)

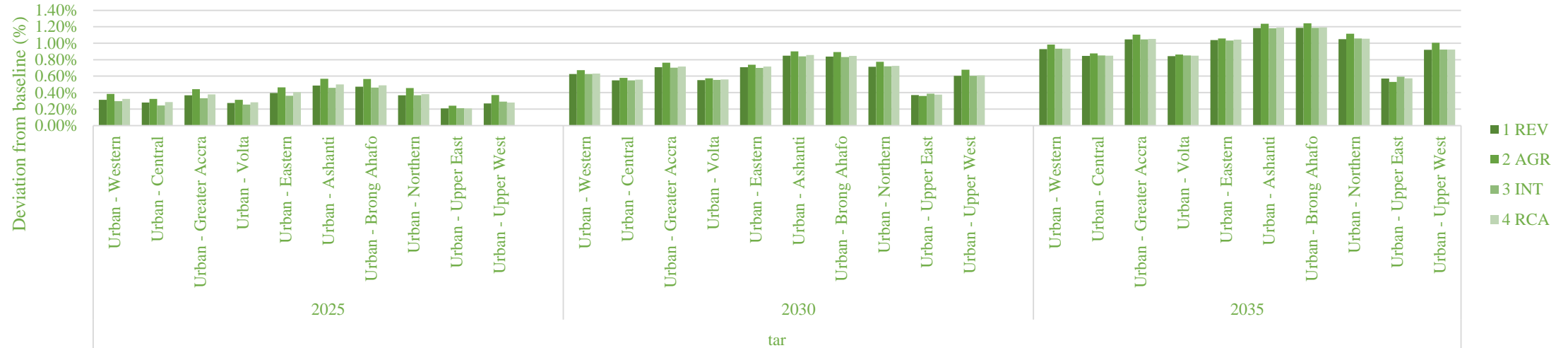


5.4a Household welfare impacts: incomes

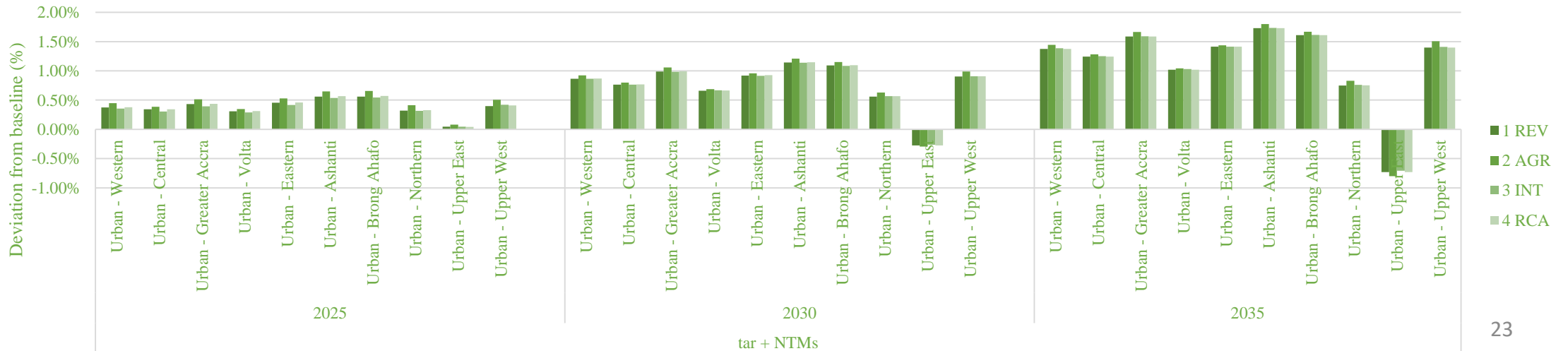
Figure 9: Effects of AfCFTA on Ghana's HH incomes



i. Urban (tar only)



ii. Urban (tar + NTMs)



5.4b Household welfare impacts: incomes I

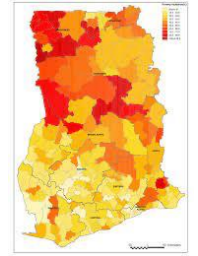
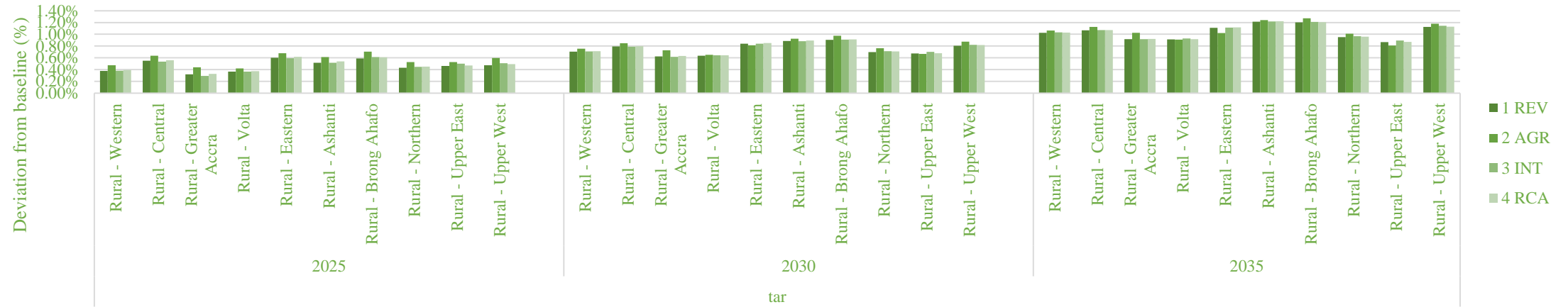
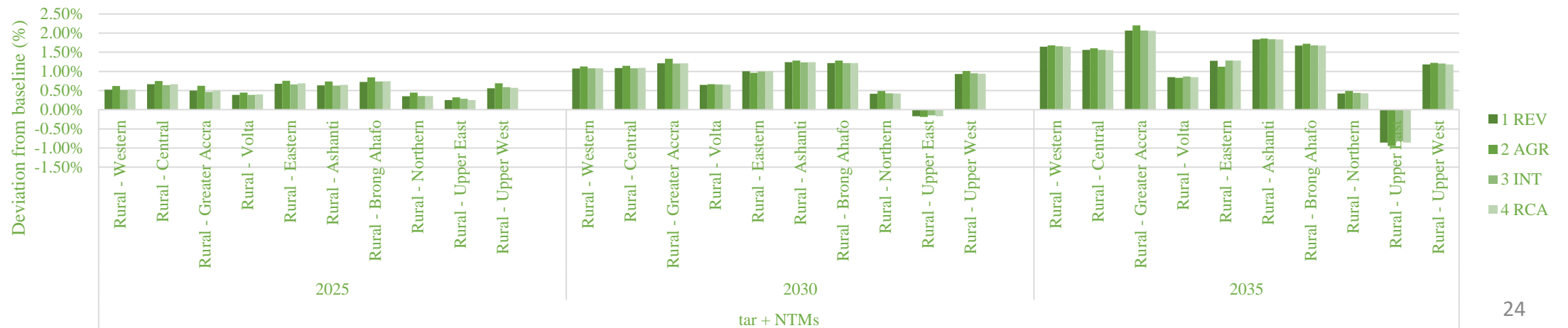


Figure 10: Effects of AfCFTA on incomes of HH in Ghana

i. Rural (tar)



ii. Rural (tar + NTMs)

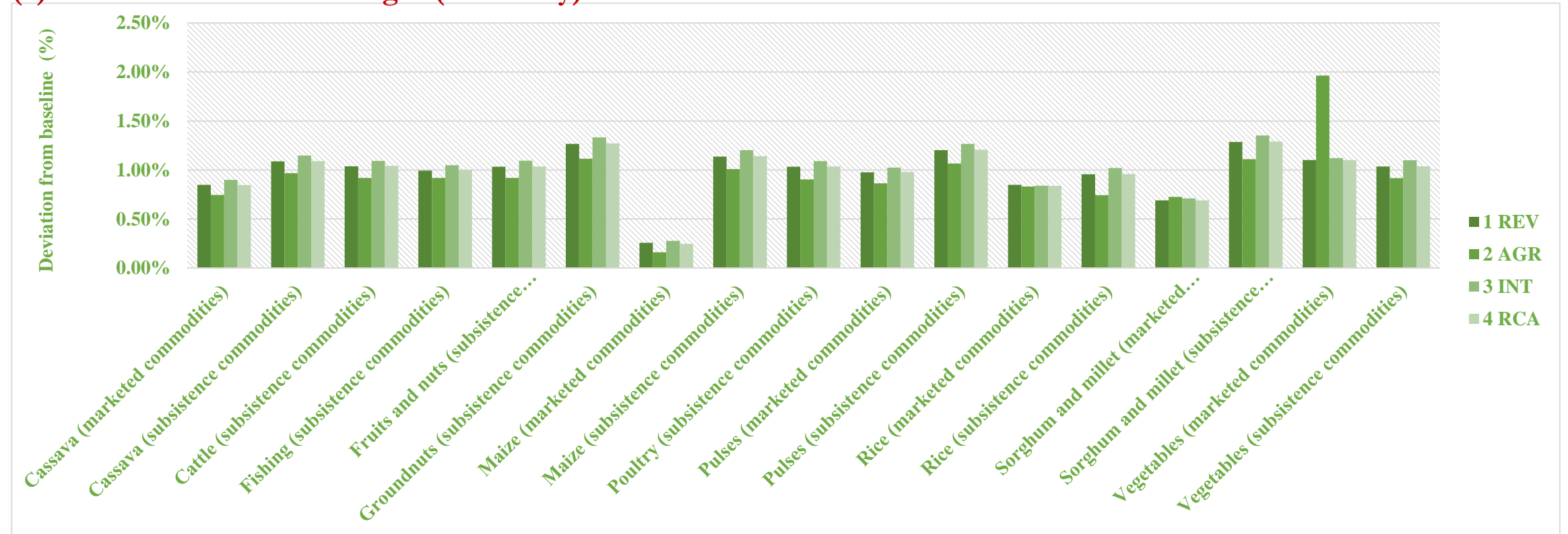


5.4b Household welfare impacts: food demand I



Figure 11a: Food commodities demand and prices in 2035

(a) Household demand changes (tariff-only)

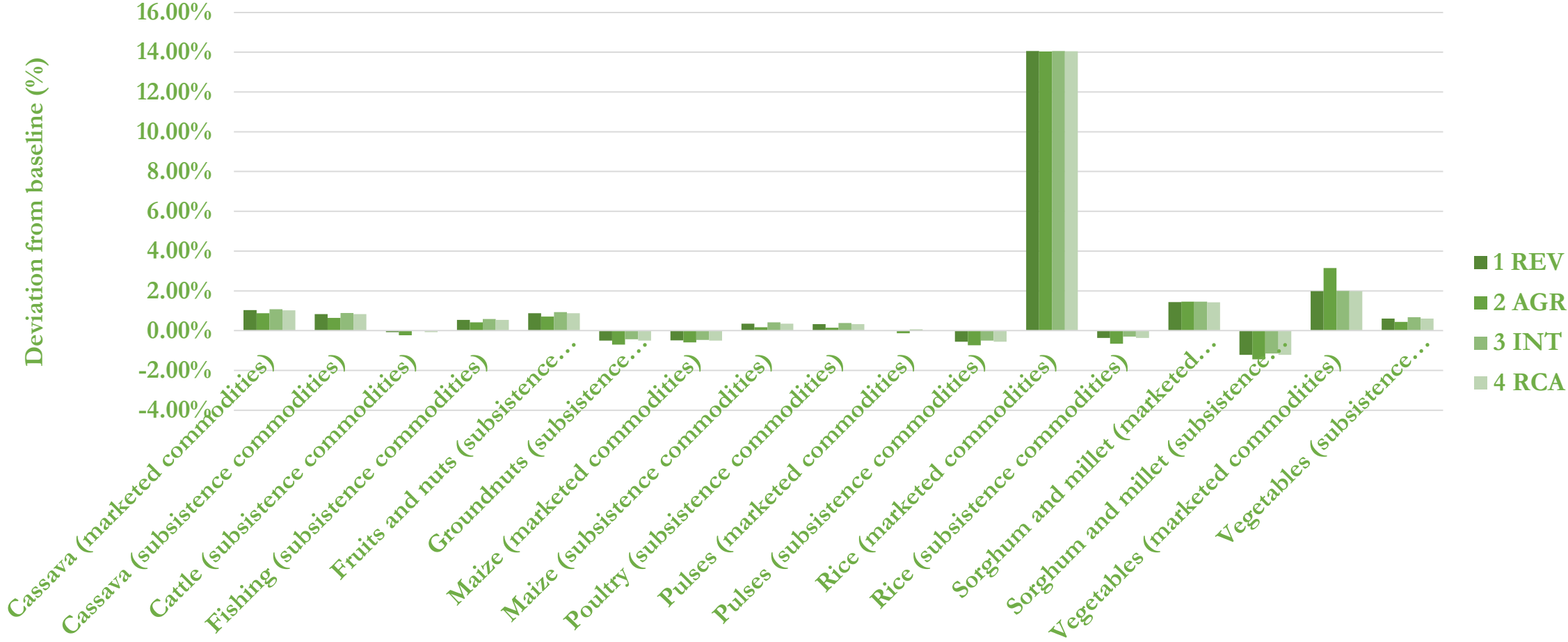


5.4b Household welfare impacts: food demand II



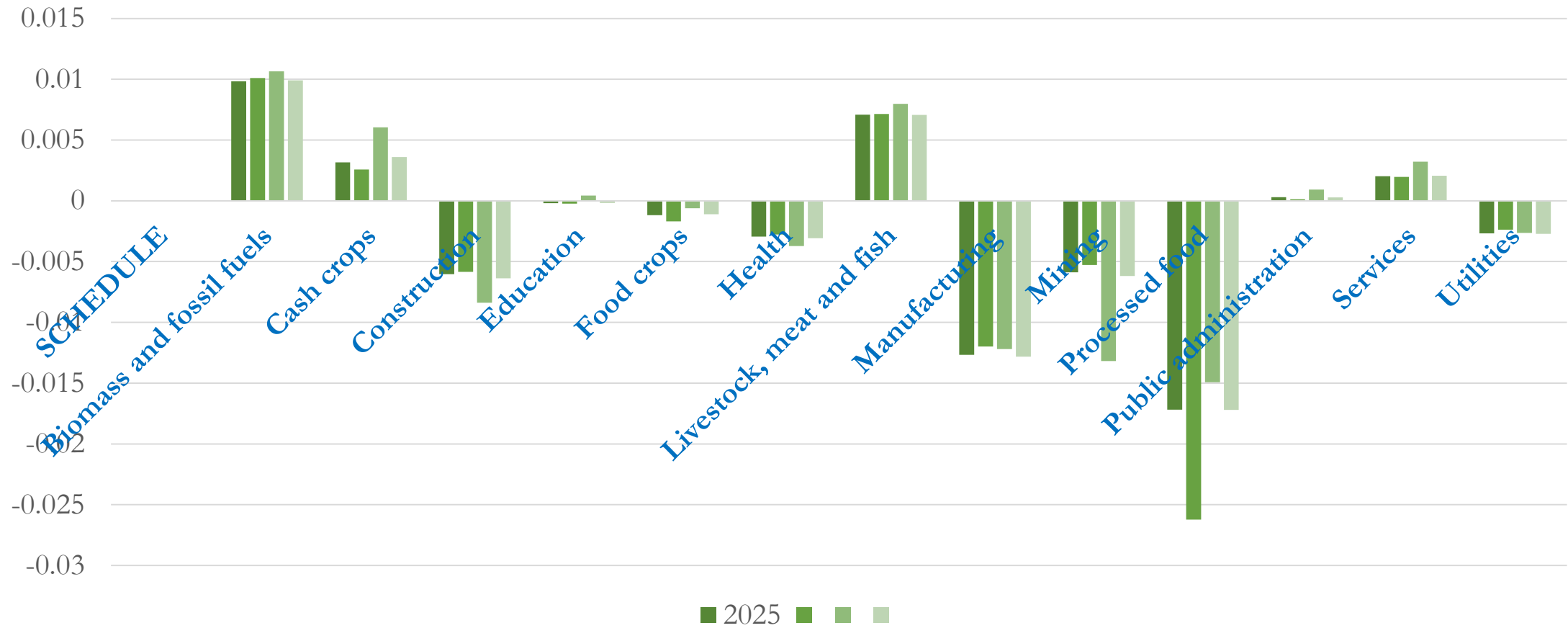
Figure 11a. Food commodities demand 2035

(b) Household demand changes (tariff & NTMs)



5.4b Household welfare impacts: food demand III

Figure 12. Food commodities demand 2035

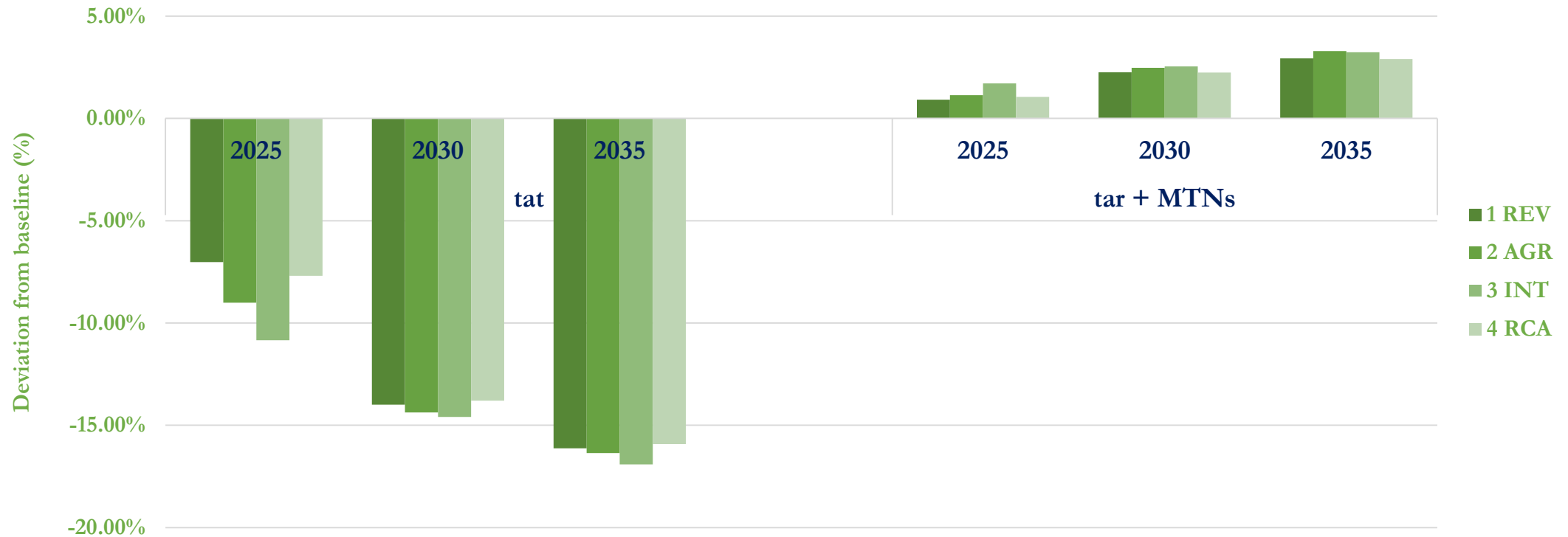


5.5a Government revenue



Figure 13: Effects of AfCFTA on Ghana's tax revenue

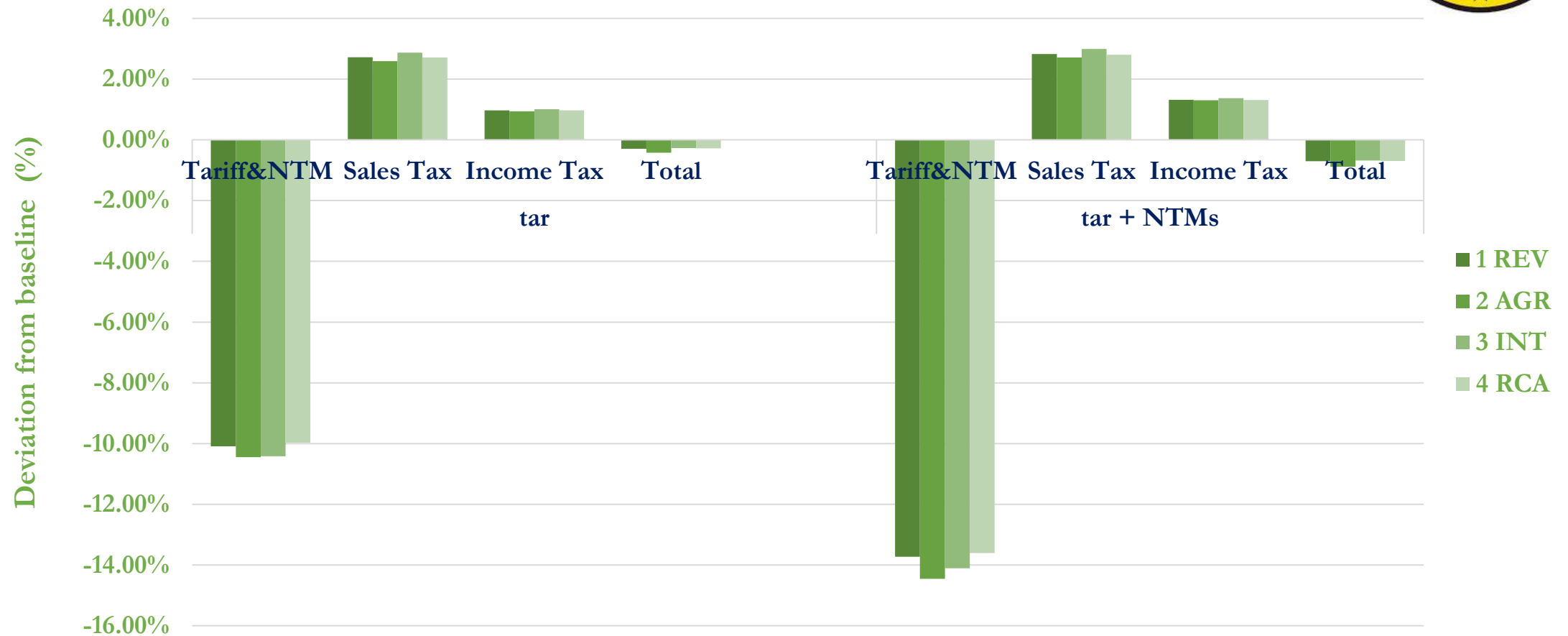
Total government fiscal revenue changes over time without additional fiscal intervention (tariff-only)



5.5b Government revenue (by tax type in 2035)



Figure 14: Effects of AfCFTA on Ghana's tax revenue



6. Implications of these findings on Ghana's development objectives

6.1 Macroeconomic impacts

6.2 Trade impacts

6.3a Sectoral impacts

6.3b Employment impacts

- Inputs (capital & intermediates)
- Labour employment by sector

6.4 Welfare impacts

- Incomes
- food demand and prices

6.5 Government revenue (mixed)

6.1 Macroeconomic outcomes

- Tariff-only liberalisation leads to a GDP increase of between 0.31% and 0.35% resulting in an expansion in aggregate supply and trade.
- Out of the four liberalization schedules, the INT and REV are important determinants of the magnitude of import and export increases.
- A combination of the tariff-only and NTMs liberalization gives a further push to the GDP gains over the baseline (0.52% to 0.59%) and boosts trade further.

6.2 Trade

- The tariff-only liberalization generally leads to positive results on the exports of the main product groups except public administration and services which falls slightly by 2035
- As expected, a full liberalization of agricultural trade under the tariff-only schedule will be drives increases in exports of cash crops by 2035 relative to the baseline.
- A combination of the tariff-only and NTMs pushes exports of the various product groups further. A very prominent gain is the manufacturing sector which records an increase of nearly 50% over the baseline value by 2035.
- Imports of all product groups observe an increase, except utilities . The NTMs drive significant increases in export of food crops, processed agri-food, cash crops and livestock, but pushes the export of public administration and utilities further down.

6.3 Employment

- Overall, both capital stock and intermediary inputs will rise gradually from 2025 to 2035 as a result of tariff-only liberalization. However, the gains by intermediate inputs are relatively higher when compared with the growth in capital stock.
- On average capital stock will increase by 0.10% in 2025 over the baseline and by 2035 it will record an increase of at least 0.52%. Similarly, intermediate inputs will grow by at least 2.57% in 2025 and by 2035 it will record an increase of at least 4.60% over the baseline.
- A combination of tariff-only and NTMs pushes the expansion of capital investment and intermediate inputs a bit further – for both inputs the INT schedule produces the highest growth over the baseline.

6.4 Household welfare and consumption

- Consumption effects of tariff-only liberalization are positive for all commodities with some product specific variations.
- The most important driver of this positive impact of tariff-only liberalization amongst many commodities of tariff-only liberalization is the INT schedule. Nevertheless, in the case of vegetables, the positive impact of AGR is very high.
- A combination of tariff and NTMs have mixed outcomes on demand for marketed and subsistence commodities by households. Instances of reversal of tariff-only positive gains is reversed by the NTMs reductions – a case in point is sorghum.
- An improved tariff and NTMs liberalization results in an increase in the demand for marketed rice by nearly 14 percentage points over the baseline, perhaps as a result of reduced cost of imported rice.

