



The AfCFTA at a country level: trade liberalization in Kenya

Victor Nechifor¹, Ole Boysen¹, Emanuele Ferrari¹, Antti Simola¹,
Martin Wafula², Joshua Laichena²

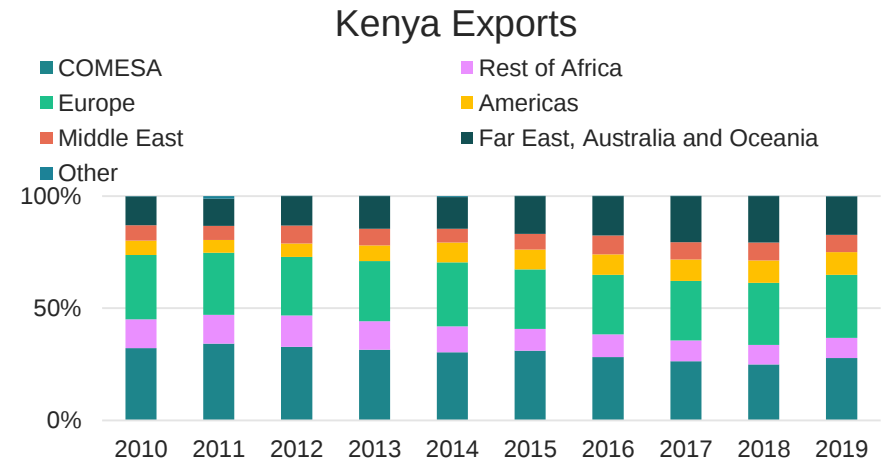
¹European Commission Joint Research Centre, Seville

GTAP 24th Annual Conference

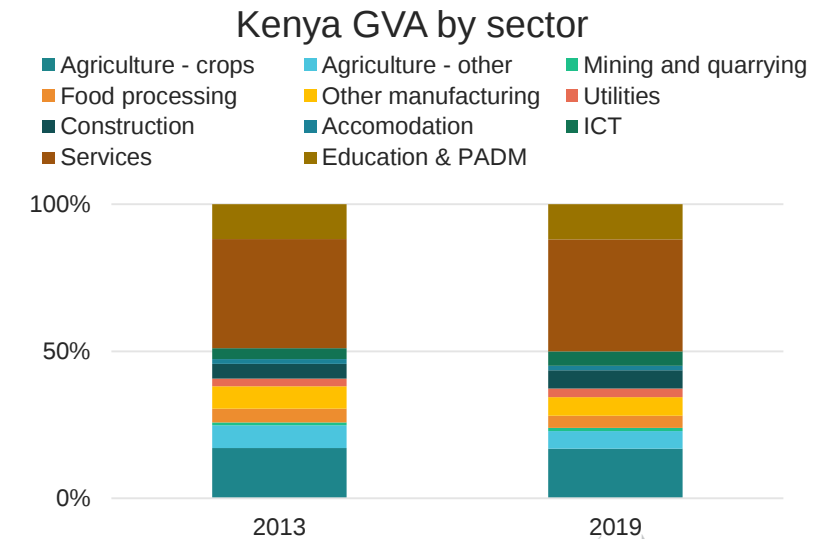
²Kenya Institute for Public Policy Research and Analysis, Nairobi

Introduction

- The sixth largest economy in the African Union and the largest in EAC, growing at 5.7% between 2015-2019
- Kenya submitting the AfCFTA tariff offers through the EAC
- Pre-AfCFTA Kenya's trade structure
 - 37-45% of total exports to African countries but only 8-11% of total imports
 - Main intra-African exports: tea, iron&steel products, paper products, oils
 - Main intra-African imports: maize, paper products, sugar, vegetables
- Kenya's economic structure – largely the same in the past decade



Data source: KNBS



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Free trade agreements at a country level – possible modelling approaches

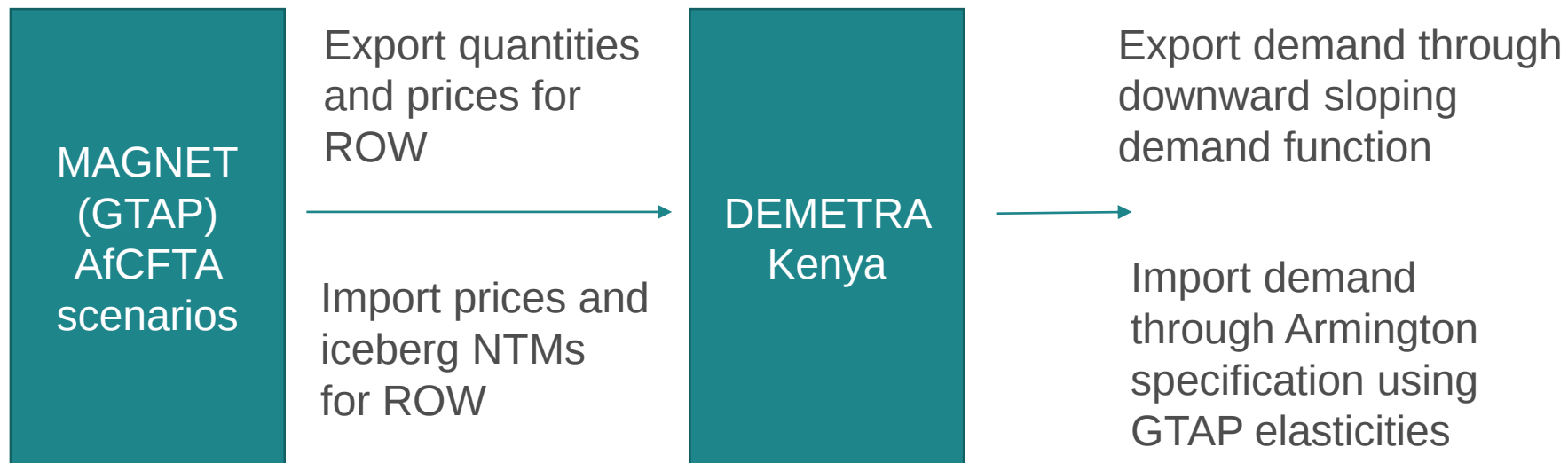
- 1 Global CGE models + poverty microsimulation: World Bank (2020) - AfCFTA, DG TRADE (2017) EPA-EAC, McDonald & Walmsley (2008) SADC-EU (Botswana)
 - GTAP details for African economies, household disaggregation
- 2 Country-level CGE alone with larger and updated SAMs
 - Export demand reaction missing
- 3 Global CGE → country-level CGE: Horridge & Zhai (2006), Boysen et al. (2016) – poverty microsimulation
 - Combining 1 and 2 but with differences in model structure (and data)

Methods

- Export demand and prices from GTAP-based model MAGNET
- JRC DEMETRA model
 - Single-country CGE model extended from the STAGE-Dev model (Aragie et al. 2017)
 - Calibrated with a 2017 SAM for Kenya: 55 sectors, 22 household groups, 24 labour segments with sector-specific wages
 - SAM re-estimated to include revenue generating NTMs and calculated tariffs
 - Dynamic-recursive runs up to 2035
 - Model closure: savings-driven, fixed government borrowing, flexible gov spending on public administration services

Linking method

- Model linking similar to Horridge & Zhai (2006) and Boysen et al. (2016): exports (prices and quantities) + imports (prices) from global model



- Alternatives considered: fixed export trade quantities with endogenous export prices

Scenarios

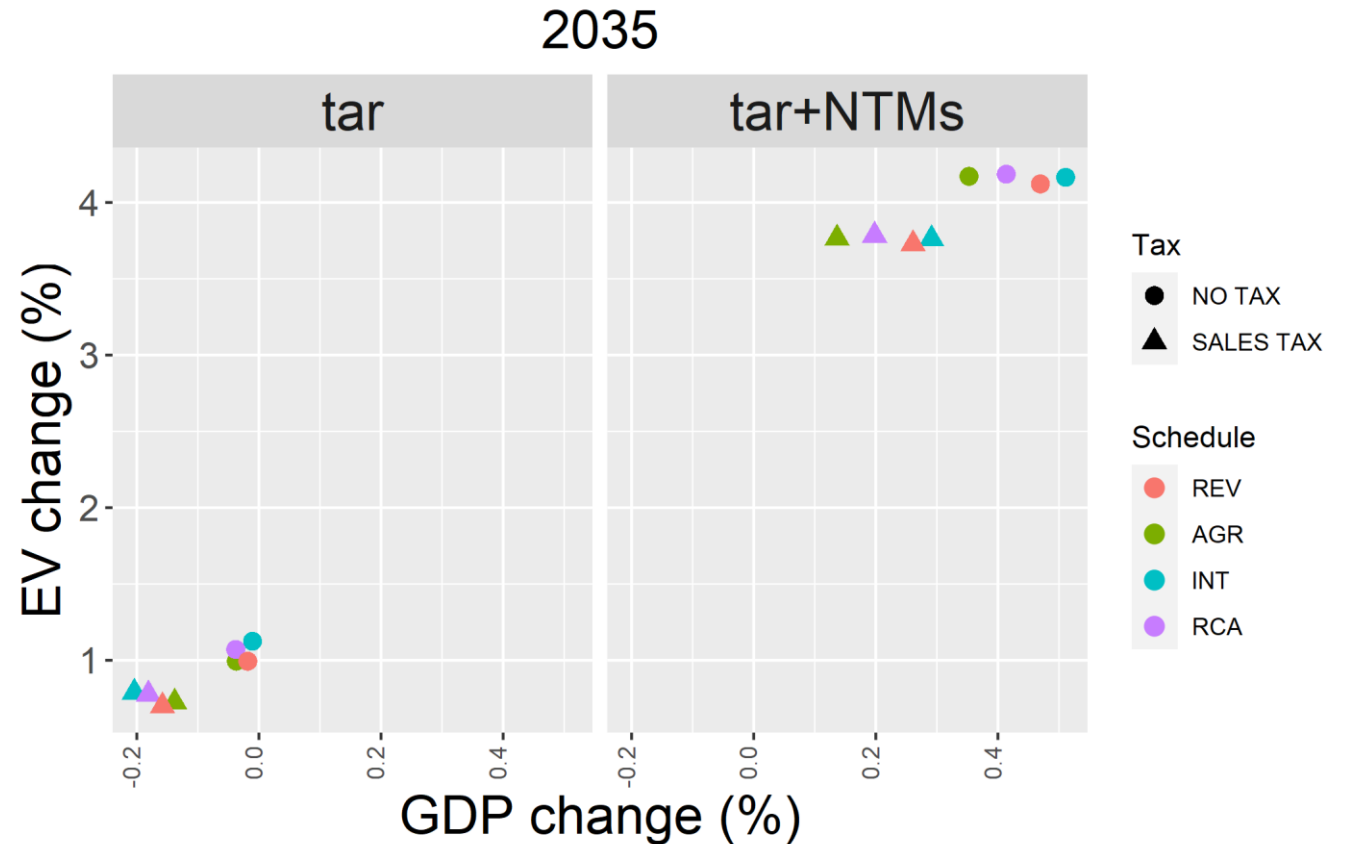
- Liberalization schedules
 - **REV**: government tariff revenue maximization
 - **AGR**: REV + prioritization of agricultural and food commodities for improved food access
 - **INT**: REV + prioritization of intermediate input products
 - **RCA**: REV + prioritization of commodities with RCA
- Variations of the above:
 - Tariff-only (**tar**) reduction and tariff+NTMs (**tar+NTMs**) : NTM reduction over 15 years: by 50% for all AU imports and by 20% for AU exports to RoW; NTMs included as a mix of rent-generating and “iceberg” costs
 - Government intervention: no intervention (**NO TAX**) sales tax adjusting to drop in tariff revenues for all of the above scenarios (**SALES TAX**)

Results 1 – GDP and welfare impacts (2035)

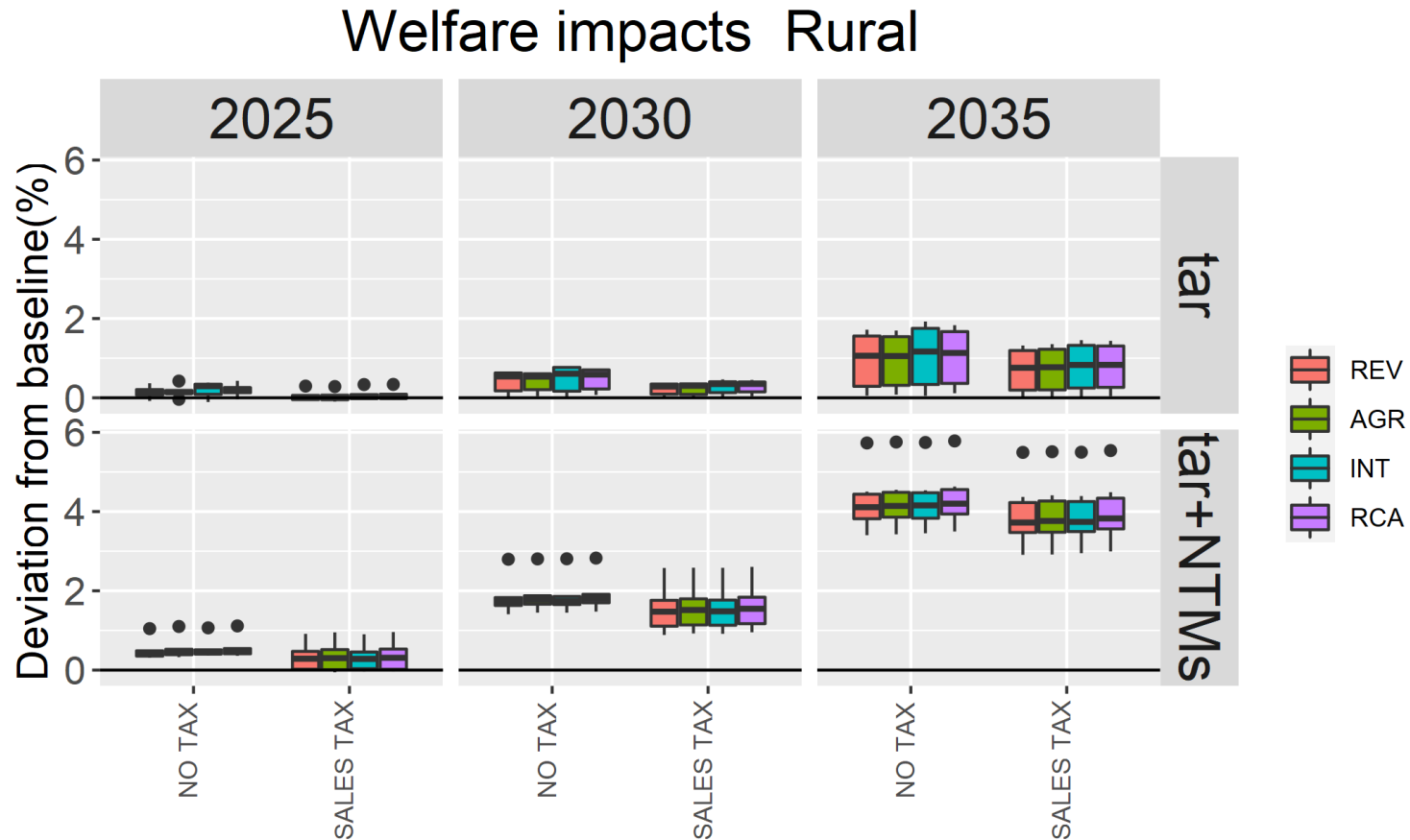
Without NTM reduction (**tar**), GDP impacts negligible and some welfare gains.

NTM reduction leads to similar welfare effects across schedules but impacts GDP differently. INT and REV with highest GDP gains.

Sales tax to compensate for lower tariff revenues determines a decrease in both aggregate welfare and GDP. Negative GDP outcomes in tariff-only scenarios.



Results 2a – Welfare impacts across rural households

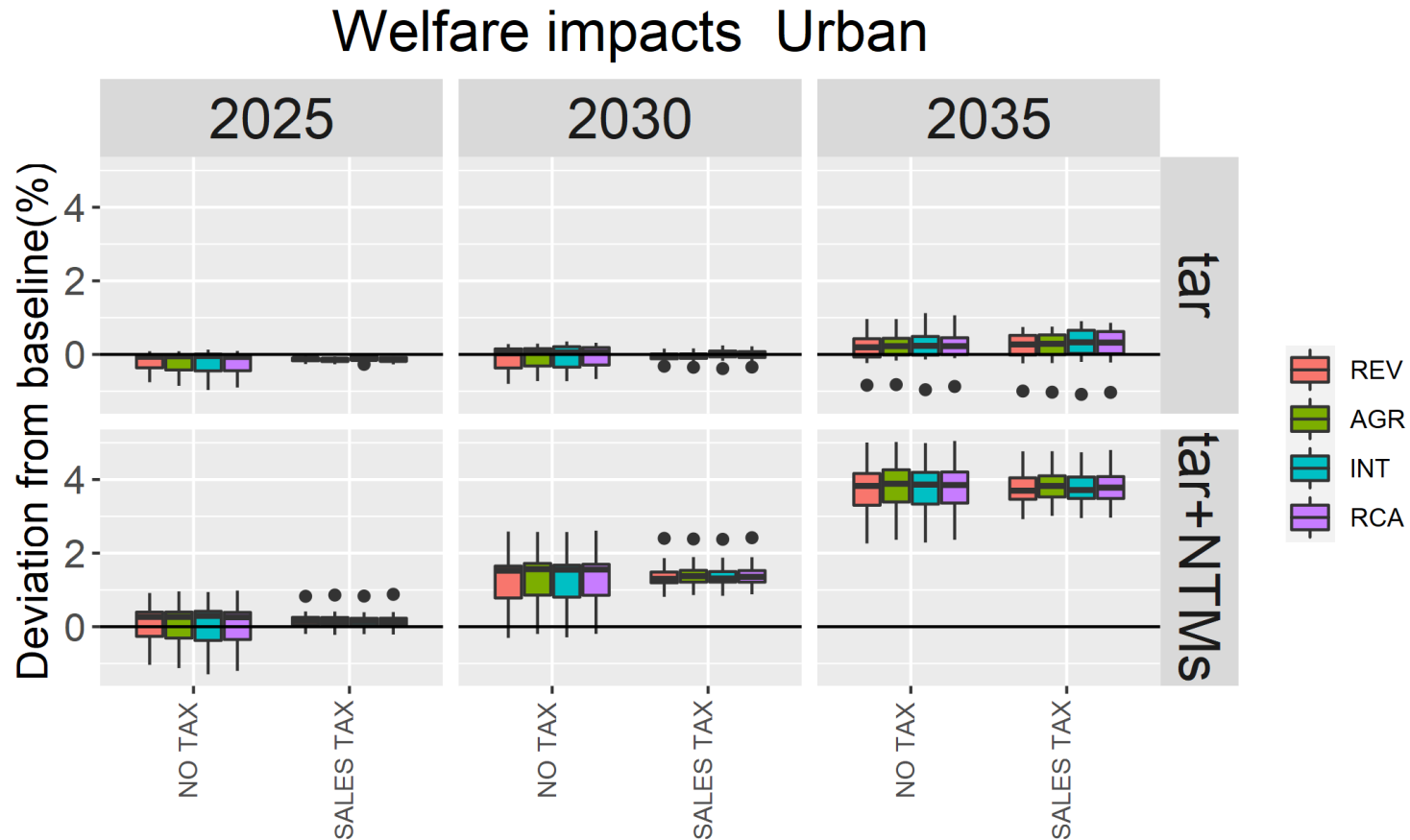


Rural households gain more in welfare due to the expansion of cash crops output with an overall positive effect

The sales tax decreases welfare gains in rural areas.

Regional differences grow over time in both *with* and *without* sales tax variants.

Results 2b – Welfare impacts across urban households

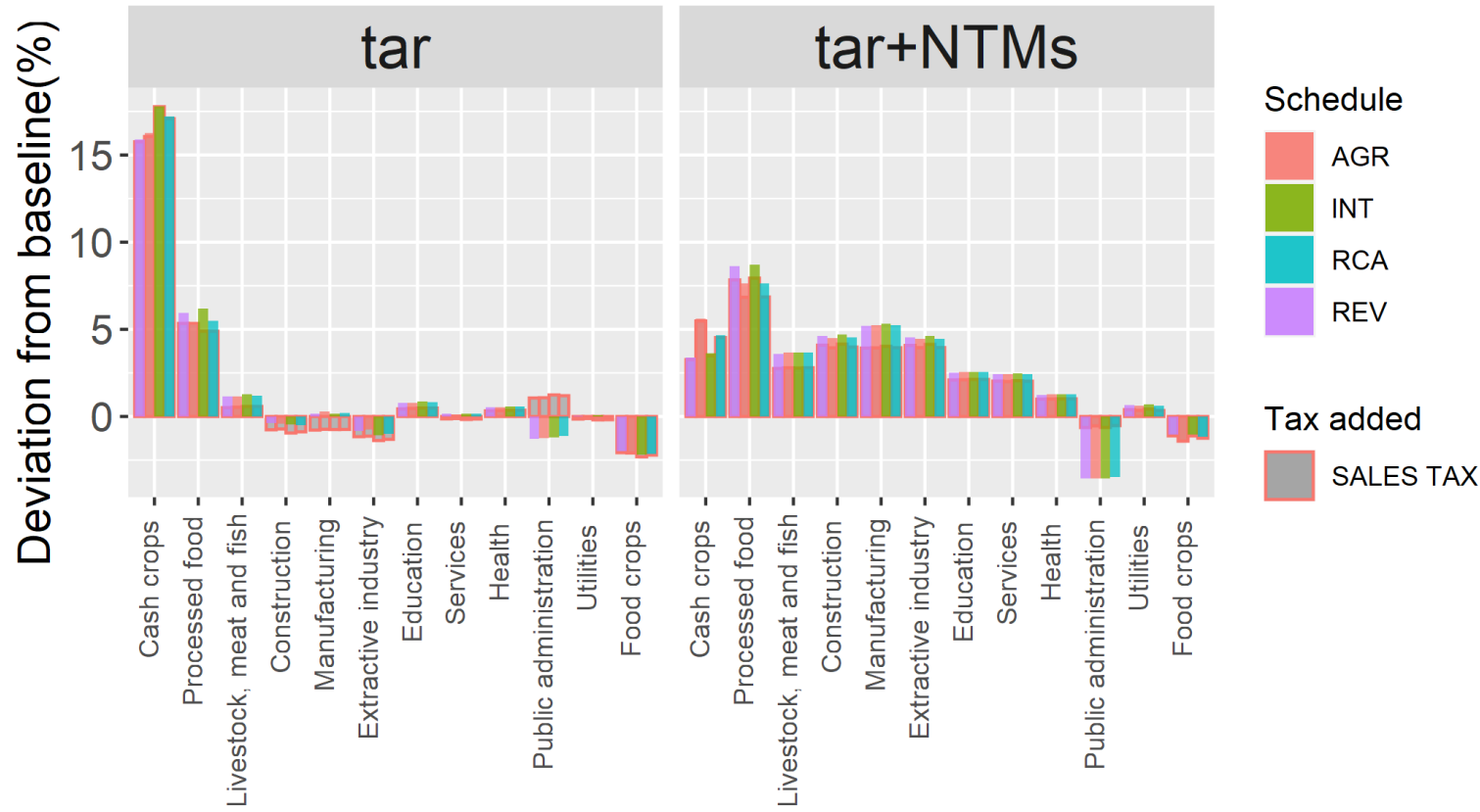


Most urban households would be negatively impacted in the medium-run without NTM reduction (**tar**).

With NTM reduction, some households are adversely affected by 2025-2030 but longer term impacts are positive for all groups.

The sales tax alleviates the negative effects and reduces differences across urban households.

Results 3 – Output changes (2035)



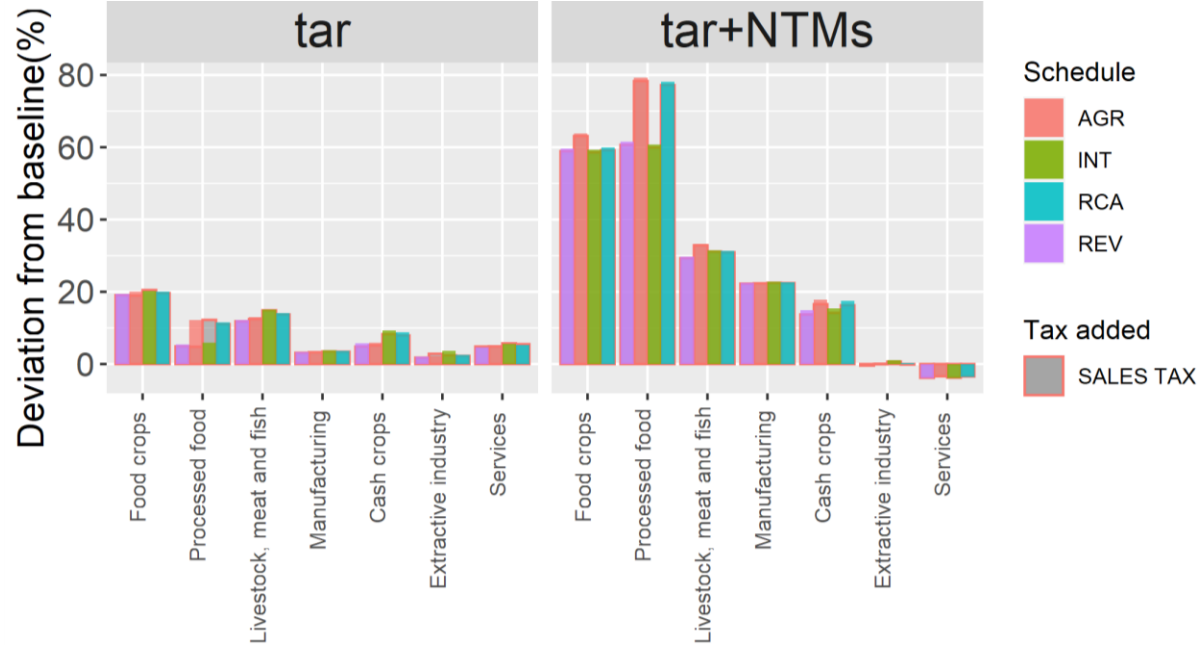
Tariff-only liberalization enhances output in a few sectors – cash crops and processed food -, but has negative impacts on good crops.

NTM reduction broadens the economic areas with positive impacts.

With a lower government income, public administration decreases output but recovers with the sales tax.

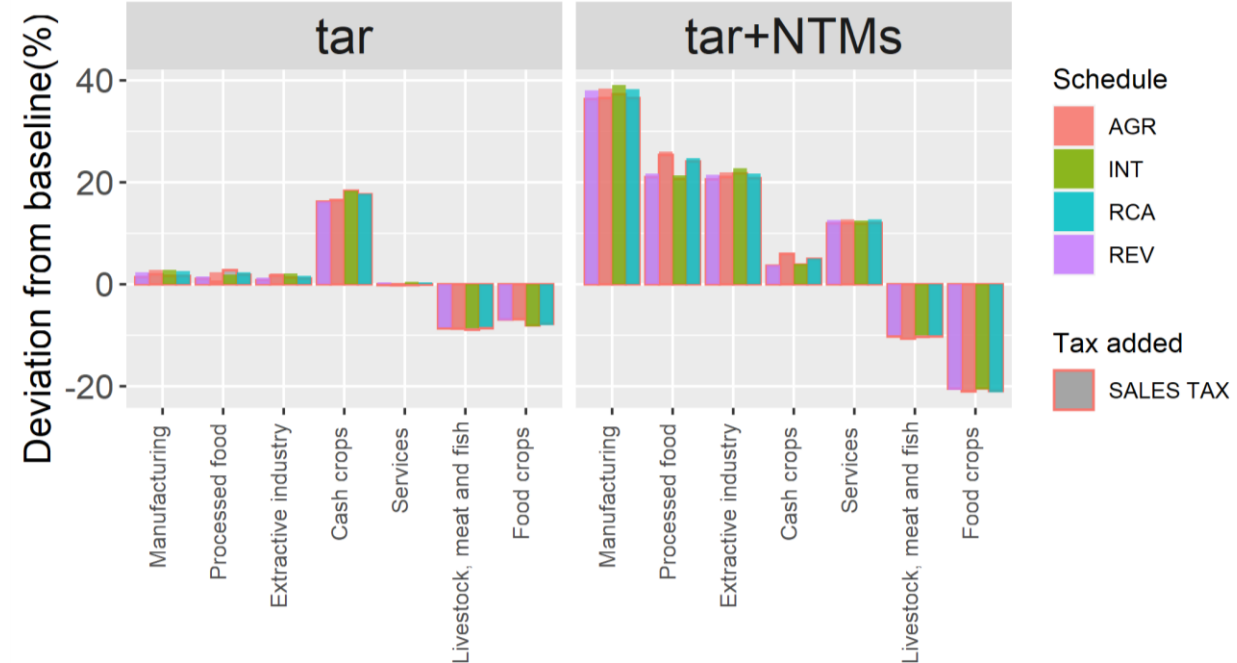
Results 4 – Aggregate trade changes (2035)

IMPORTS



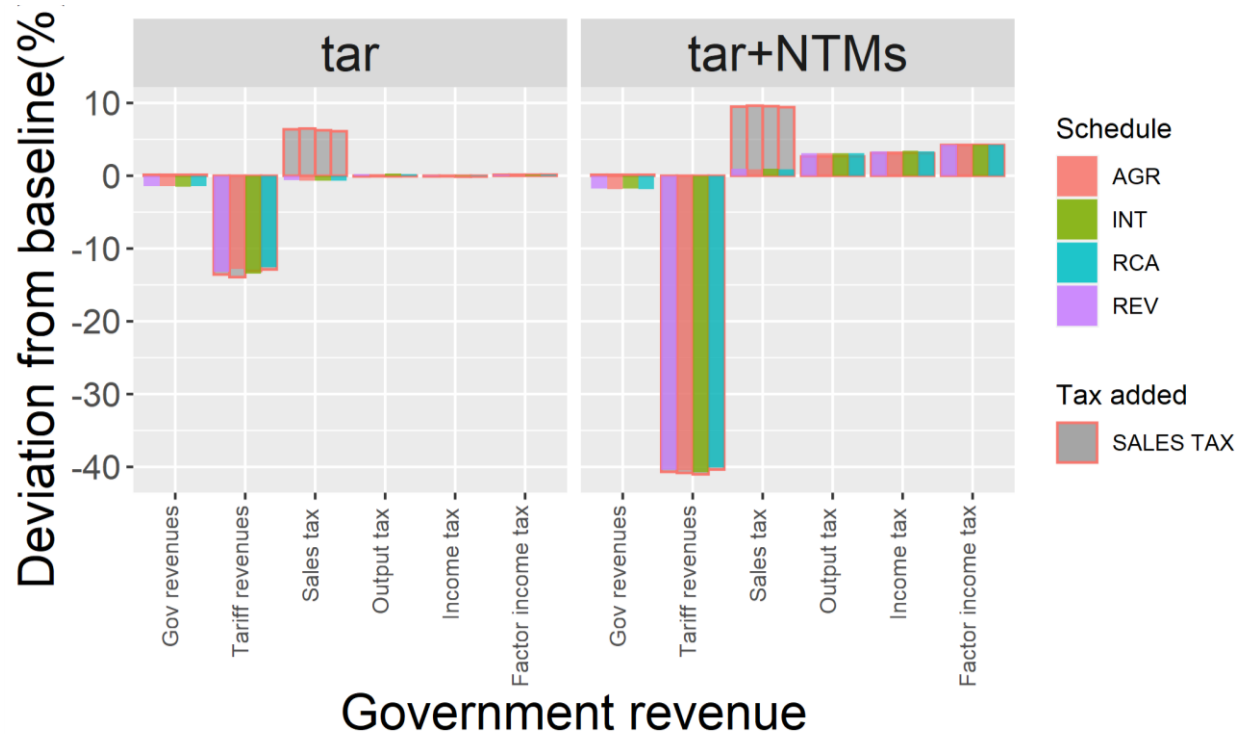
- Food crops, livestock and processed food imports expand more with NTM reduction.
- AGR schedule does encourage trade of agrifood products.
- A marginal effect of sales tax on imports: processed food for tariff-only

EXPORTS



- Cash crops exports expand most with a tariff-only reduction.
- Food crops and livestock exports decrease
- NTM reduction encourages exports of non-agri commodities: manufacturing, processed food, extractive industry and services

Results 5 – Government income (2035)



Government revenues in 2035 are about 60bn KSh (550m USD) lower than the baseline in 2035 (tariff+NTMs reduction) and 50bn KSh (tariff-only) = 1.8% and 1.4% of budget respectively.

e.g. the increases in revenues from income and output taxes do not compensate enough for the decrease in tariff revenues.

For revenue neutrality, the sales tax needs to gradually increase by 2035 by ~0.45% for tariff-only scenarios and by ~0.55% for tariff-NTMs (applied on all sales). Nevertheless, the CPI is lower than the baseline even with the sales tax included.

Conclusions

- Results are highly dependent on the reduction of NTMs.
- With NTMs reduced, a liberalization schedule favoring intermediate goods trade across AfCFTA countries provides the largest GDP benefits to Kenya.
- In general, the AfCFTA would impact positively exports of cash crops, mining products, manufacturing and services. Food crops production would decrease due to higher imports across all schedules considered.
- Increasing the sales tax to compensate for lower government revenue reduces the GDP and welfare gains, however, it acts as an alleviation to the medium-term negative welfare impacts on urban households.

Thank you

victor.nechifor@ec.europa.eu



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Export demand shifts

- Exports demand function with FP “export demand locator”:

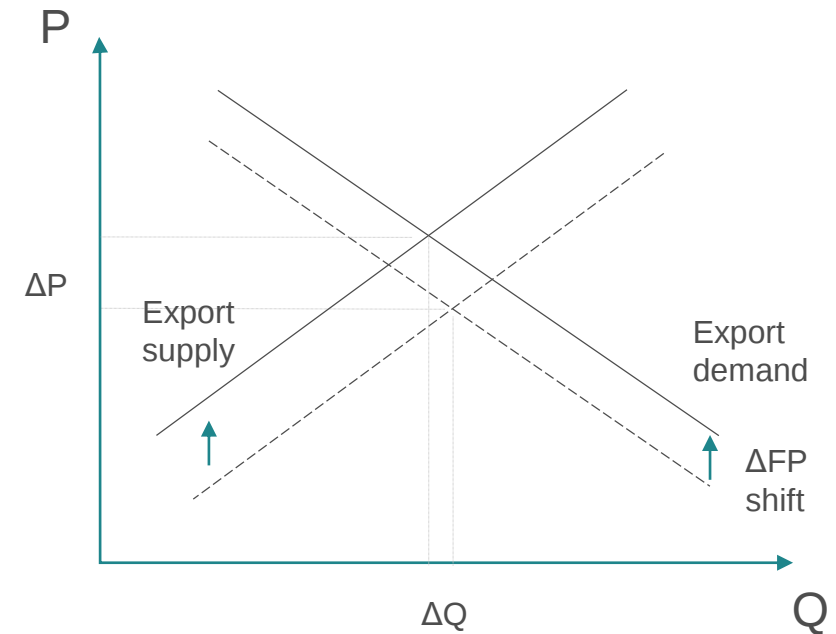
$$QE = \left(\frac{FP}{PWE} \right)^{\frac{1}{ESUBM}}$$

$ESUBM$ = GTAP Armington elasticity, PWE domestic price of exports

- Calculation of liberalization-induced export demand shift

$$\Delta FP = \left(\frac{QE_{sc}}{QE_{Baseline}} \right)^{\frac{1}{ESUBM}} * \frac{PE_{sc}}{PE_{Baseline}}$$

PE = MAGNET world export prices



Source: Horridge & Zhai (2006) and Boysen et al. (2016)

Export demand shifts

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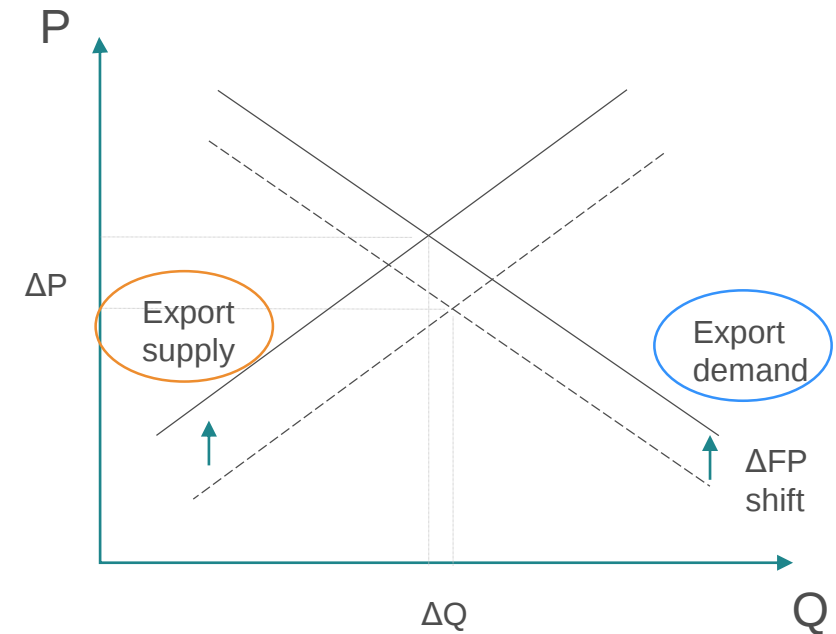
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DEMETRA

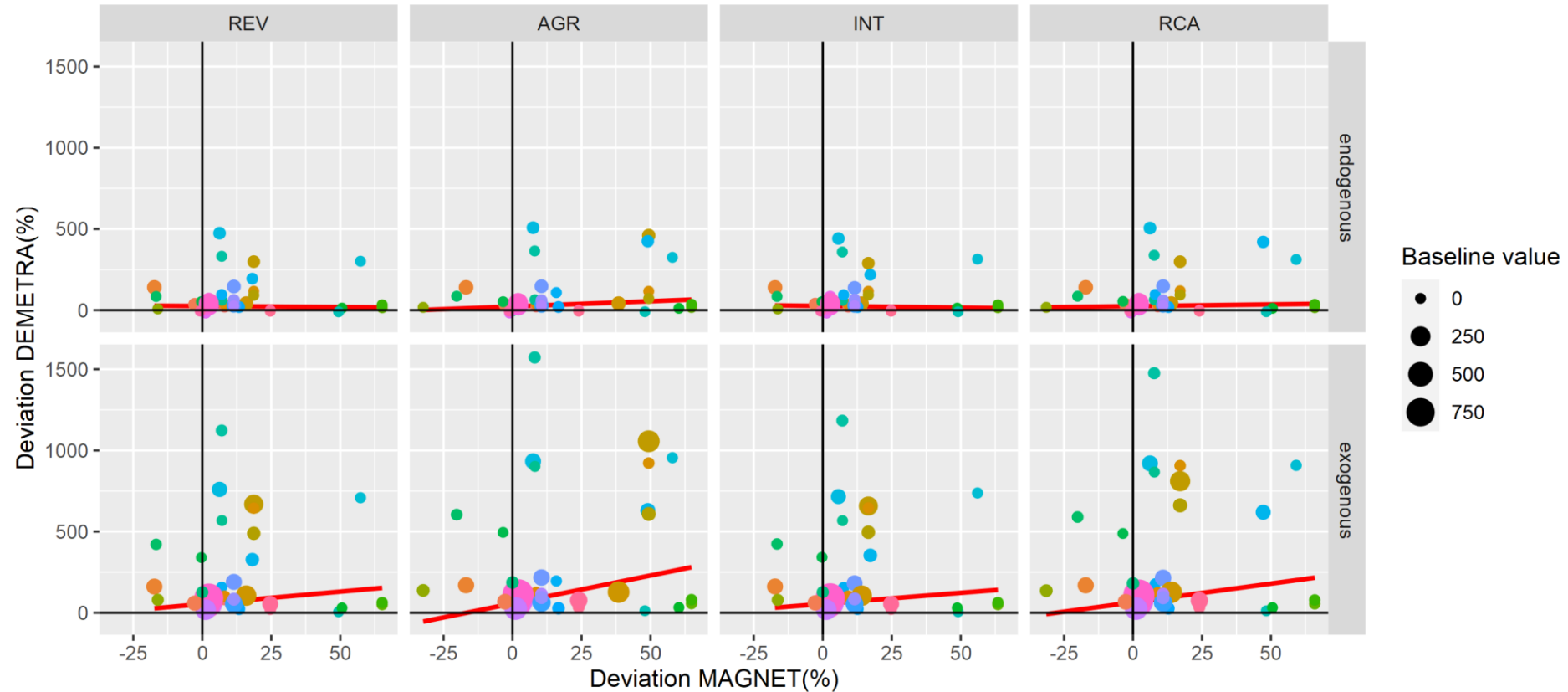
MAGNET

Source: Horridge & Zhai (2006) and Boysen et al. (2016)

Model linking comparison

Import quantities (tar+NTMs)

Endogenous vs exogenous export demand function

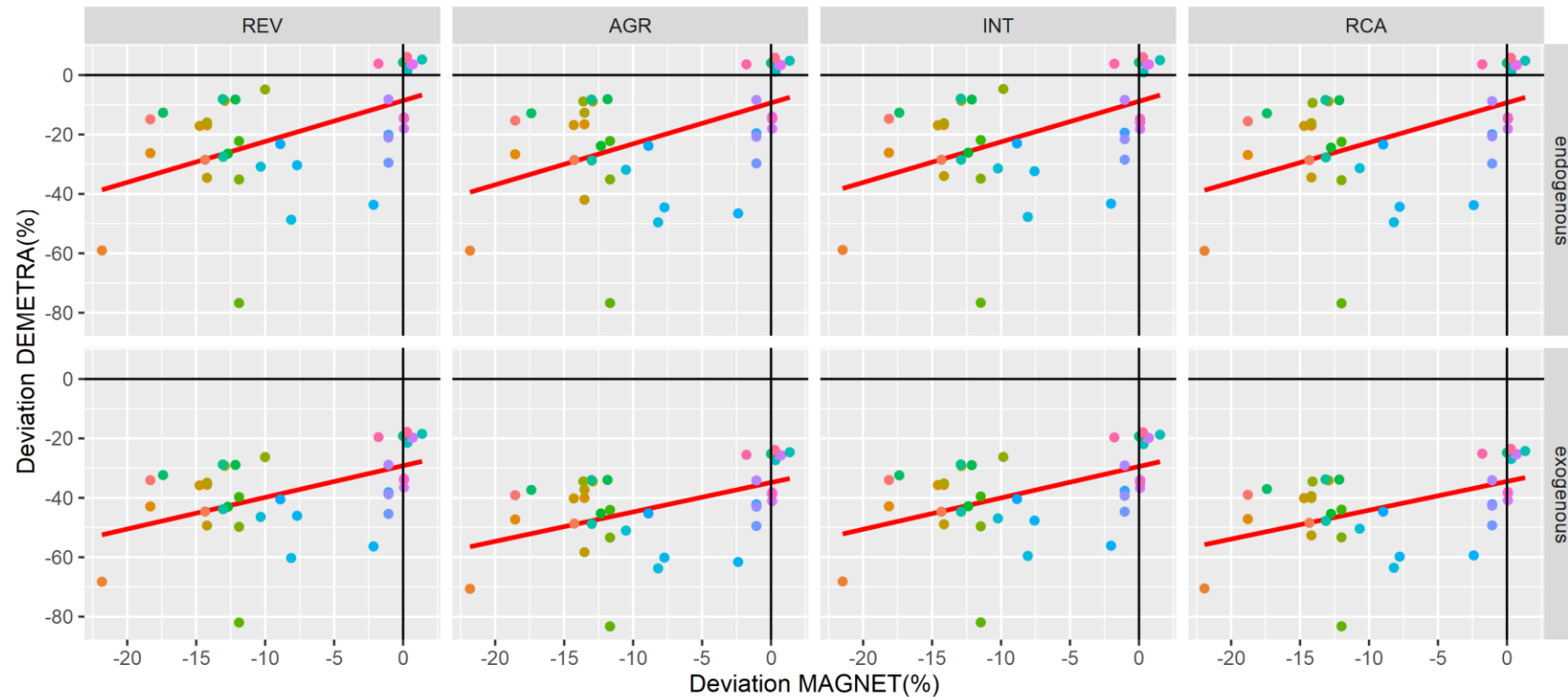


Export quantity equilibrium in DEMETRA is lower with endogenous export demand

Model linking comparison

Import prices (tar+NTMs)

Endogenous vs exogenous export demand function

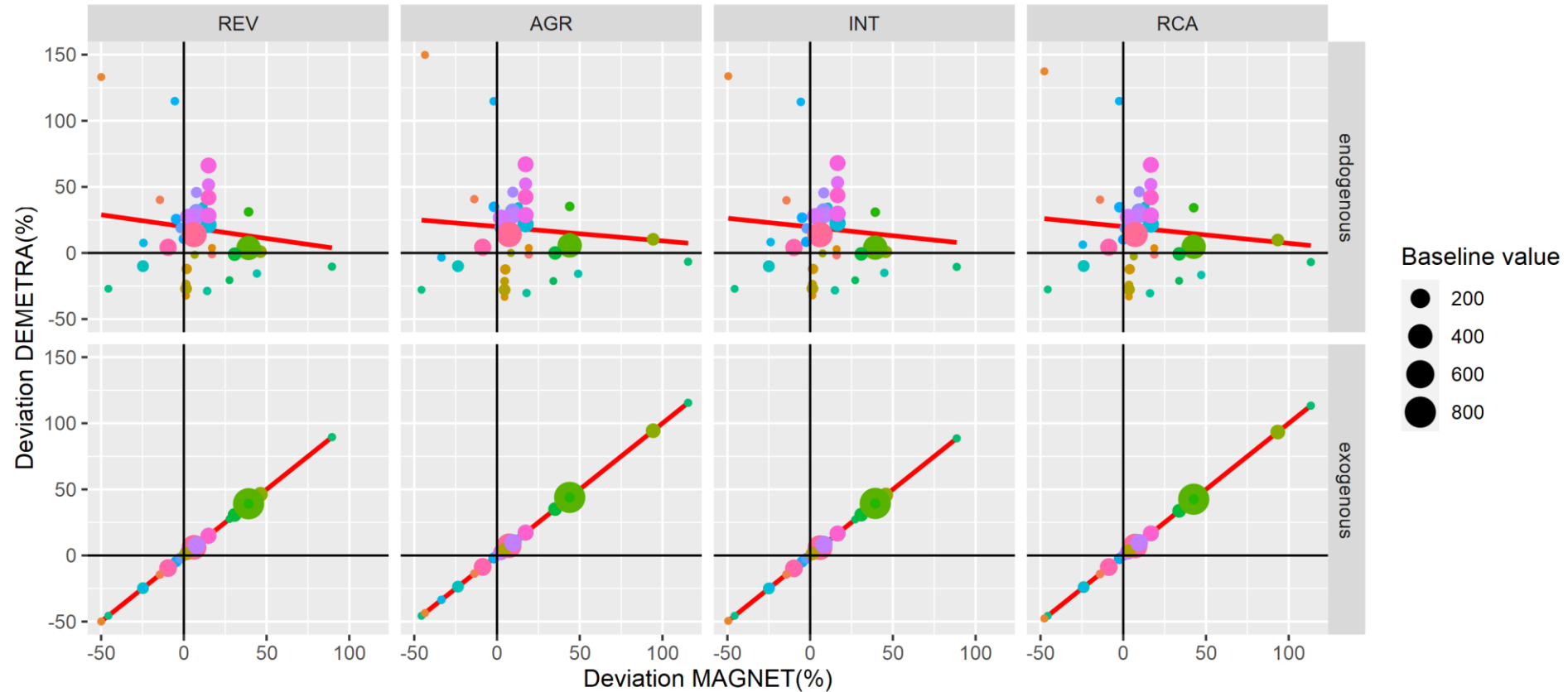


Import prices with exogenous export demand are lower in DEMETRA compared to MAGNET

Model linking comparison

Import quantities (tar+NTMs)

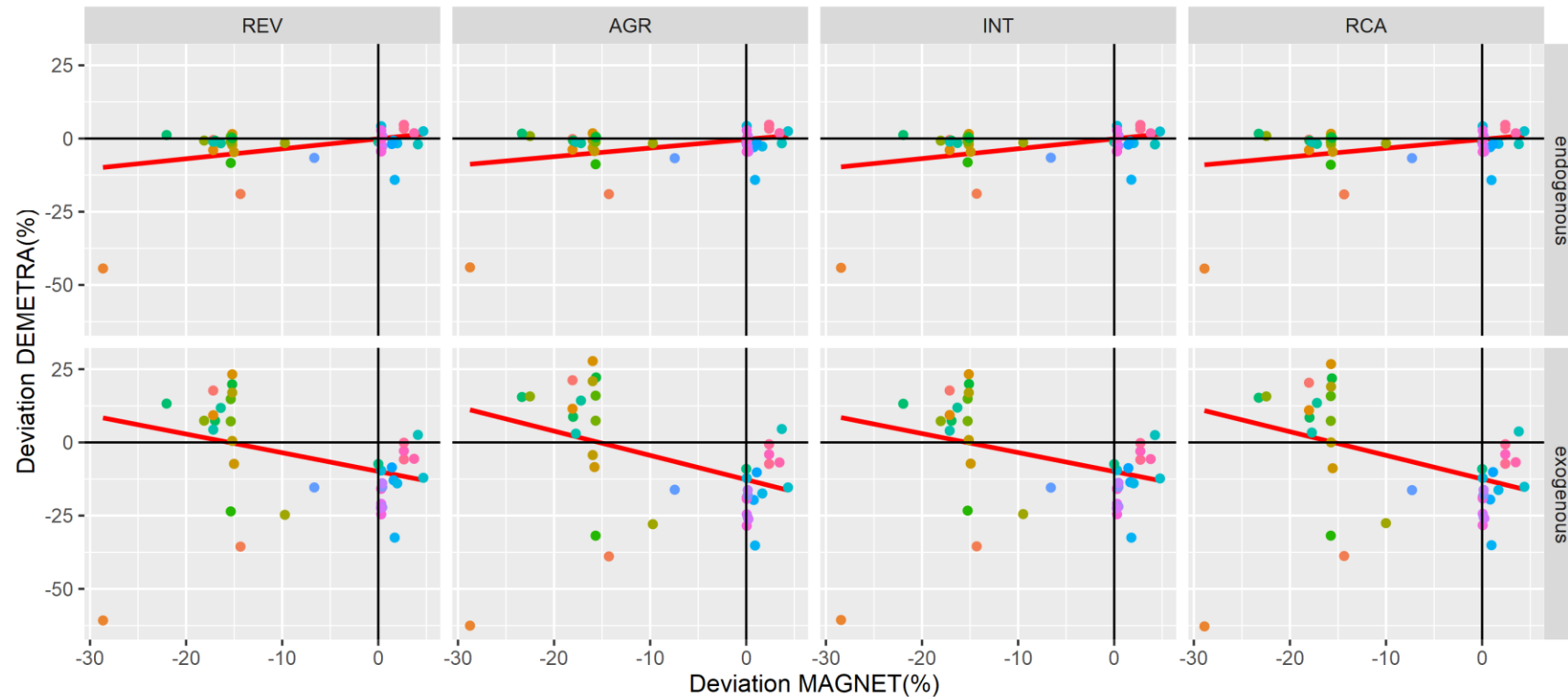
Endogenous vs exogenous export demand function



Model linking comparison

Export prices (tar+NTMs)

Endogenous vs exogenous export demand function



Export price changes with endogenous demand are of same sign and similar magnitude across the two models