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The Advent of the AfCFTA: New Possibilities and Implications for the African Land-Water-Climate-Food Nexus

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24th Annual Conference on Global Economic Analysis

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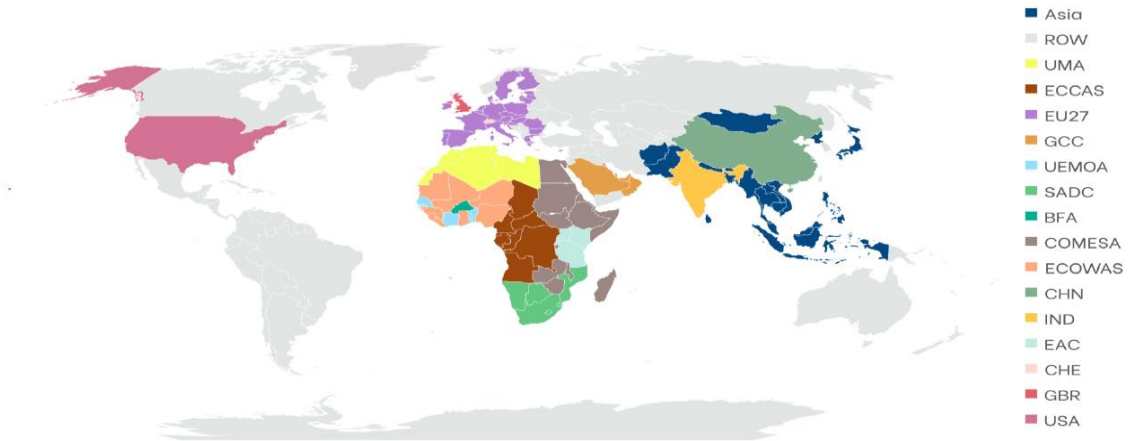
Introduction

We employ the MAGNET CGE model (Woltjer and Kuiper, 2014) to examine the possible impacts of the African Continental Free Trade Agreement (AfCFTA) on Food Security in Africa and the land, water, food and climate nexus in Burkina Faso in particular.

REGIONAL AGGREGATION (17)

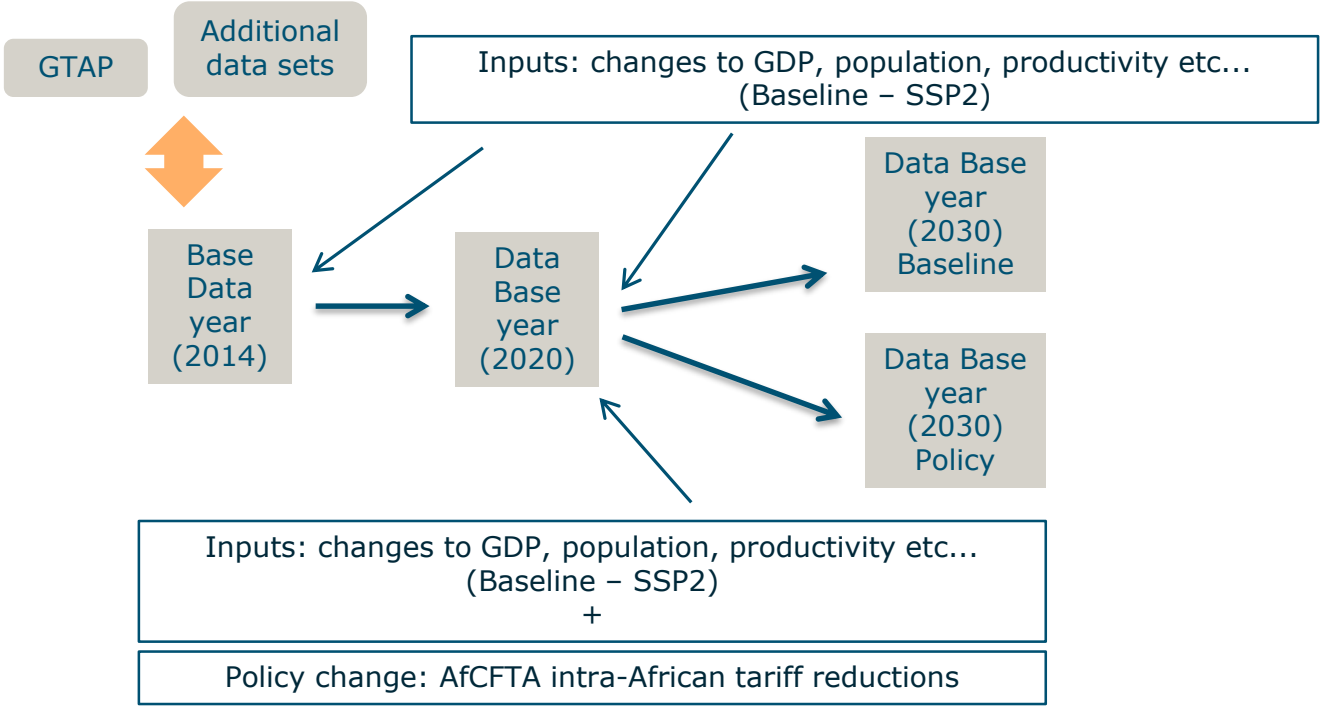


African Continental Free Trade Agreement (AfCFTA)

- The African Continental Free Trade Area (AfCFTA) was signed in 2018 and came into effect in 2019.
- Major expectations for AfCFTA are for increased inter-regional trade and overall levels of economic integration.
- Also, implications for the Food Security as well as land and water use in Agriculture and green house gas emissions.
- Agriculture in Africa is estimated to contribute 15 percent of GDP (Mzali 2019) and employ over 60 percent of the active population (ILO, 2019), continent-wide.

MAGNET:A modular CGE model- GTAP Core

MAGNET: Global CGE macro-economic model- GTAP Core



Scenarios

- Baseline BAU until 2030 without AfCFTA
- Implementation of AfCFTA.
    - Reducing intercontinental tariffs to (near) zero.
    - Africa as a whole and Burkina Faso in particular.
- Policy of expanding irrigated area in Burkina Faso.
    - Doubling irrigated area for most crops.
    - Primarily rice production.
- Examine impact of policies on agricultural GHG emissions.

Food Security Trends 2020-2030 (no AfCFTA)

	Disposable income per capita	Average Food Prices	Share of food expenditure in total disposable income	food consumption per capita
UMA	22.74	-9.56	-13.44	17.86
UEMOA	93.98	-0.71	-24.85	42.29
ECOWAS	30.72	-5.24	-8.94	24.40
BFA	30.35	-3.54	-5.62	28.25
ECCAS	12.41	-9.37	-7.10	14.80
COMESA	40.20	-4.87	-12.20	26.90
EAC	39.98	-5.85	-12.95	28.24
SADC	24.41	-6.27	-16.49	10.29

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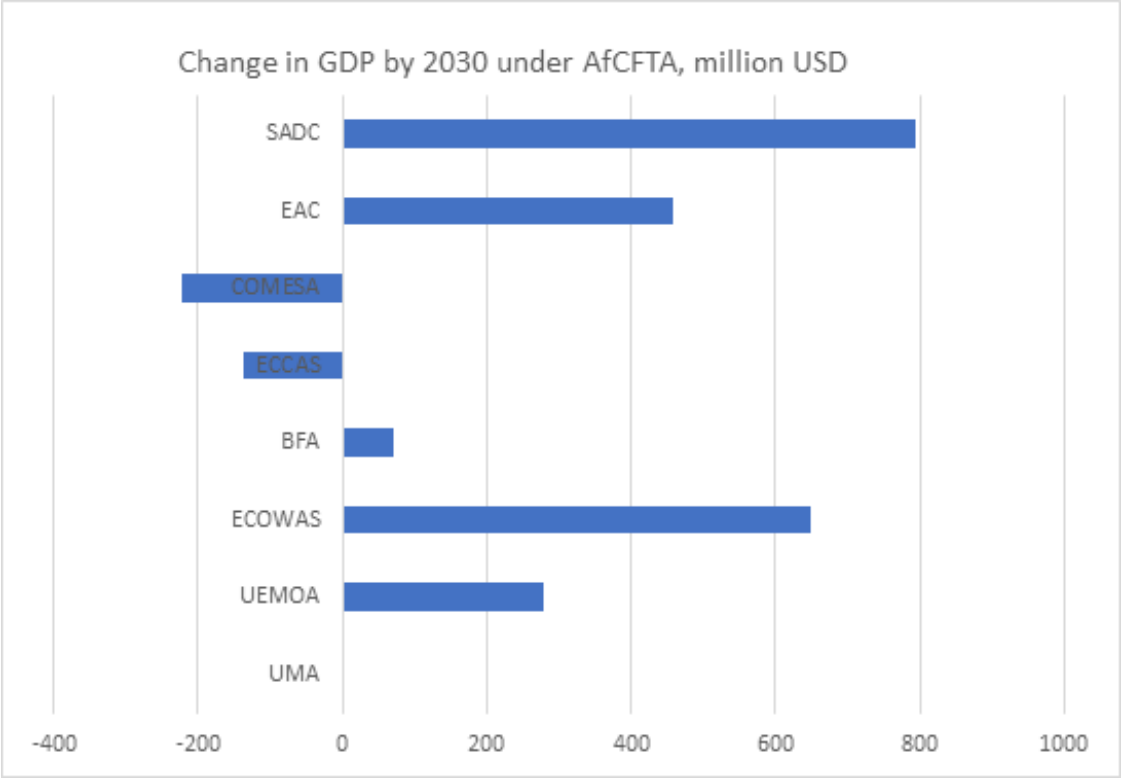
Impact of AfCFTA tariff reductions: GDP



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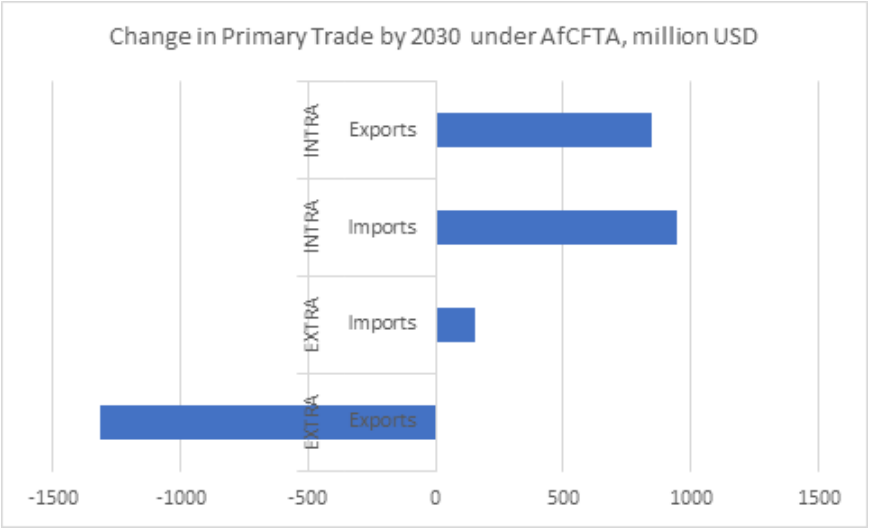
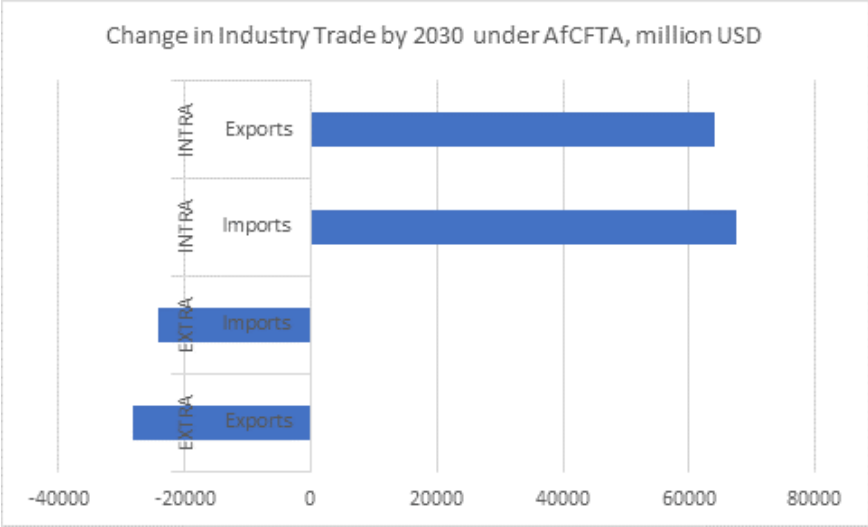
Impact of AfCFTA tariff reductions: Extra-Continental Trade





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Impact of AfCFTA tariff reductions: 2030 Food Security

% Change in Food Security indicators AfCFTA tariffs reduction compared to BAU

	Disposable income per capita	Average Food Prices	Share of food expenditure in total disposable income	food consumption per capita
UMA	0.38	0.27	-0.04	0.05
UEMOA	2.92	1.018	-0.79	0.93
ECOWAS	0.41	0.45	0.05	0.01
BFA	1.29	1.43	0.52	0.48
ECCAS	-0.59	-0.98	-0.14	0.25
COMESA	0.27	0.24	0.02	0.05
EAC	2.12	1.67	-0.05	0.33
SADC	1.49	1.36	-0.04	0.10

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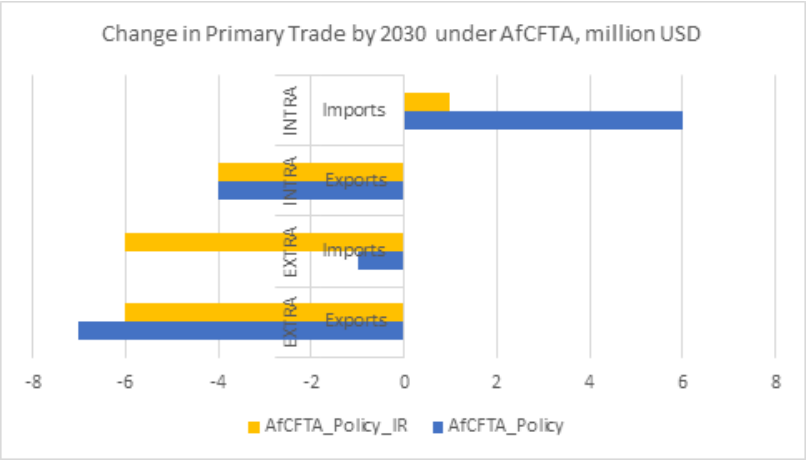
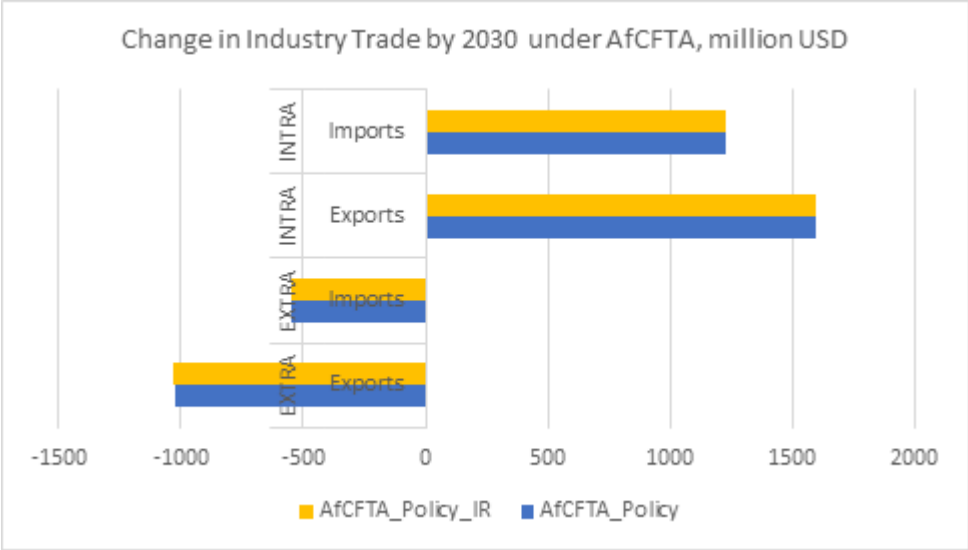
Results: Burkina Faso, Trade



- Exports of primary crops to all destinations decrease, while imports from African sources increase.
- Industry trade shifts to Africa continental sources and increases.



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Results – Burkina Faso

	Disposable income per capita	Average Food Prices	Share of food expenditure in total disposable income	food consumption per capita
AfCFTA	1.294	1.427	0.522	0.481
AfCFTA_IR	1.236	1.184	0.439	0.526

- AfCFTA tariff reductions show food prices rise more than disposable income leading to higher average food consumption and a higher share of disposable income spent on food.
- Expanded irrigation reduces food prices and increases consumption.

Results – Burkina Faso

	Consumption	Exports	Imports	Production	Price production
Prim Agri: AfCFTA	0.05	-1.08	2.8	0.01	0.76
Ind and Serv: AfCFTA	0.74	5.76	11.54	0.02	0.55
Prim Agri: AfCFTA_IR	0.18	-0.97	-2.22	0.35	0.46
Ind and Serv: AfCFTA_IR	0.77	5.66	11.56	0.00	0.60

- A wealthier Burkina Faso consumes more of all sectors

	Unskilled Labour	Skilled Labour	Capital	Land
Prim Agri: AfCFTA	0.01	0.04	0.02	-0.03
Ind and Serv: AfCFTA	-0.01	0.00	0.00	
Prim Agri: AfCFTA_IR	0.20	0.28	0.25	-0.09
Ind and Serv: AfCFTA_IR	-0.26	-0.01	-0.01	

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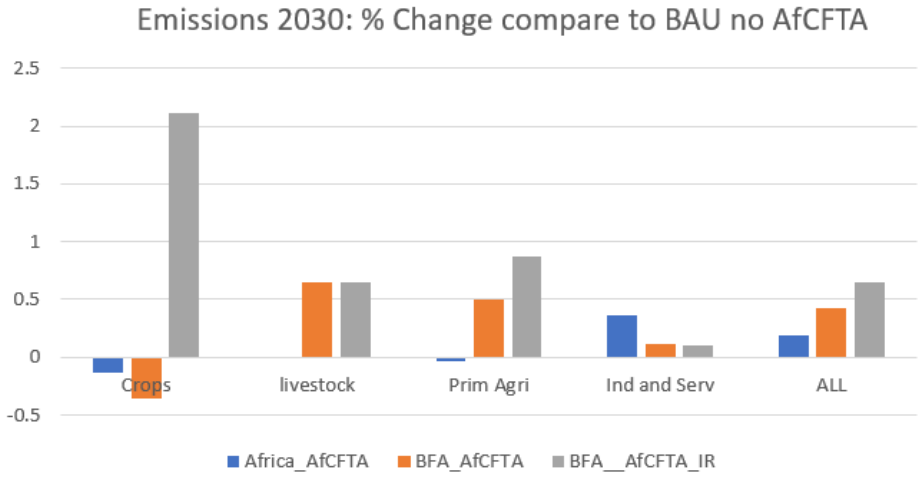
Results: Emissions

Emissions 2030 BAU no AfCFTA mill tons of CO2 eq

	Crops	Livestock	Prim Agri	Ind and Serv	ALL
BFA	6	33	39	27	65
Africa	399	1006	1405	2602	3932
World	2323	4671	6994	45531	50640

- GHG emissions in BFA come largely from agriculture.

- Emissions increase under the AfCFTA tariff reductions.
- Emissions from increase further in the irrigation scenario.



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Conclusions

- All examined food security indicators for all African regions are positive under the baseline trends even without the implementation of the AfCFTA.
- Our AfCFTA scenario increases food consumption in all regions, income and food prices rise in most regions.
- In Burkina Faso, the AfCFTA tarrif reductions result in increased food consumption and disposable income and a larger share of income spent on food.
- Increased irrigation investment in agriculture results in lower food prices, reduced demand for land, increased demand for labour endowments in agriculture, and higher emissions (rice).