

Disaggregating Underlying Drivers of Fruit and Vegetables Trade : an HS-level Modelling Analysis of the AfCFTA

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The AfCFTA Agreement

- African Continental Free Trade Area (AfCFTA)
 - 54/55 African Union members
 - Came into effect 1 January 2021
 - 31 countries signed & ratified
- Boost interregional trade and integration
 - Anticipate effects for Agriculture as important sector employing >60% population continent-wide



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7 Regions

Regional Economic Communities (RECs)

Africa is moving toward regional integration. There are eight Regional Economic Communities approved by the African Union (AU)

Arab Maghreb Union

Union Économique et Monétaire Ouest Africaine

Rest of Economic Community of West African States

Economic Community of Central African States

Common Market for Eastern and Southern Africa

East African Community

Southern African Development Community

COMESA

(Common Market for Eastern and Southern Africa)
19 member countries



EAC

(East African Community)
5 member countries



ECCAS

(Economic Community of
Central African States)
11 member countries



ECOWAS

(Economic Community of West African States)
15 member countries



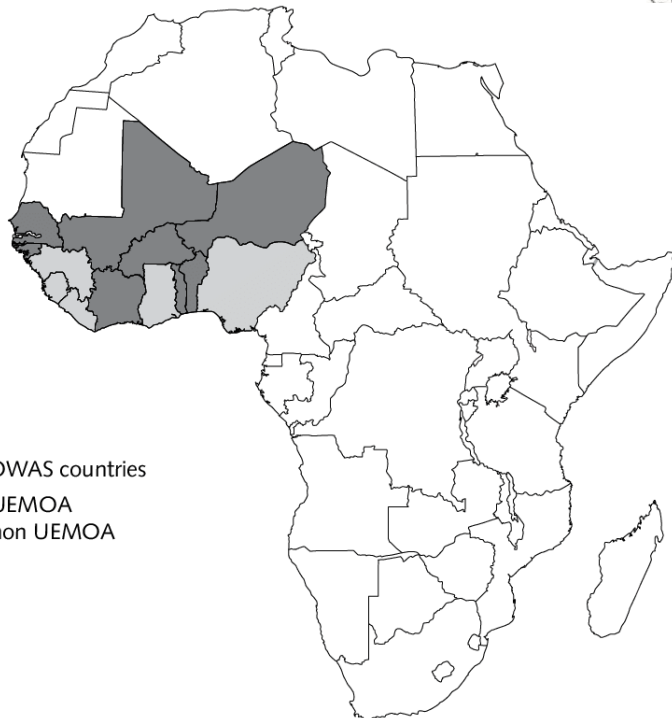
UMA

(Arab Maghreb Union)
5 member countries



SADC

(Southern African Development
Community)
15 member countries



15 ECOWAS countries

■ UEMOA
■ non UEMOA

MAGNET HS Module

- MAGNET Module based on GTAPv7-HS model (Aguar et al. 2019) – hybrid GTAP model to facilitate Harmonized System (HS) level modelling
- Disaggregate standard GTAP-level commodities into sub-commodities at the HS6 level
- user-generic Armington nesting for HS-level commodities
- Regional super-agent decides domestic vs. imported goods
- This super-agent allocates domestic-imported composite goods across individual agents

Fruit and Vegetable Trade between African Regions, million USD

	UMA	UEMOA	ECOWAS	ECCAS	COMESA	EAC	SADC
UMA	137	9	37	2	2	0	0
UEMOA	4	22	29	1	1	0	1
ECOWAS	3	6	10	1	1	0	1
ECCAS	7	0	1	5	0	0	0
COMESA	182	1	13	14	944	17	27
EAC	4	0	2	5	15	37	8
SADC	1	30	100	131	63	34	238

Variable tms for the Fruit and Vegetable Sector for Simulation without HS module, % change

tms	UMA	UEMOA	ECOWAS	ECCAS	COMESA	EAC	SADC
UMA	-0.46	-13.74	-7.06	-23.00	-5.68	-2.41	-0.77
UEMOA	-13.44	0.00	-3.51	-19.11	-8.80	0.00	-4.26
ECOWAS	-14.76	-3.12	-10.76	-3.47	-0.59	0.00	-1.73
ECCAS	-28.11	-11.14	-14.46	-6.01	-15.53	-9.84	-1.97
COMESA	-0.91	-16.10	-16.29	-21.98	-0.85	-4.01	-2.42
EAC	-5.57	0.00	-3.37	-8.34	-4.77	0.00	-4.22
SADC	-11.97	-16.51	-16.36	-30.55	-1.80	-18.18	-1.86

Variable tmsk for the Fruit and Vegetable Sector for Simulation with HS module, % change

tmsk	UMA	UEMOA	ECOWAS	ECCAS	COMESA	EAC	SADC
x070110	-4.09	-4.77	-5.61	-27.85	0	-19.83	-1.14
x070190	-16.77	-16.7	-16.52	-32.78	-0.08	-19.83	-4.16
x070200	-16.77	-16.7	-16.52	-30.31	-5.76	-19.83	-4.77
x070310	-16.77	-16.7	-16.52	-33.14	-0.02	-19.83	-5.55
x070320	-16.77	-16.7	-16.52	-32.14	-0.02	-19.83	-1.44
x070390	-16.77	-16.7	-16.52	-33.05	-2.77	-19.83	-7.75
x070410	-14.73	-16.7	-16.52	-30.06	-1.9	-19.83	-1.8
x070420	-14.73	-16.7	-14.27	-29.88	-1.38	-19.83	-2.75
x070490	-14.73	-16.7	-16.52	-29.98	-13.53	-19.83	-0.51
x070511	-14.73	-16.7	-16.52	-27.14	-1.03	-19.83	-5.18

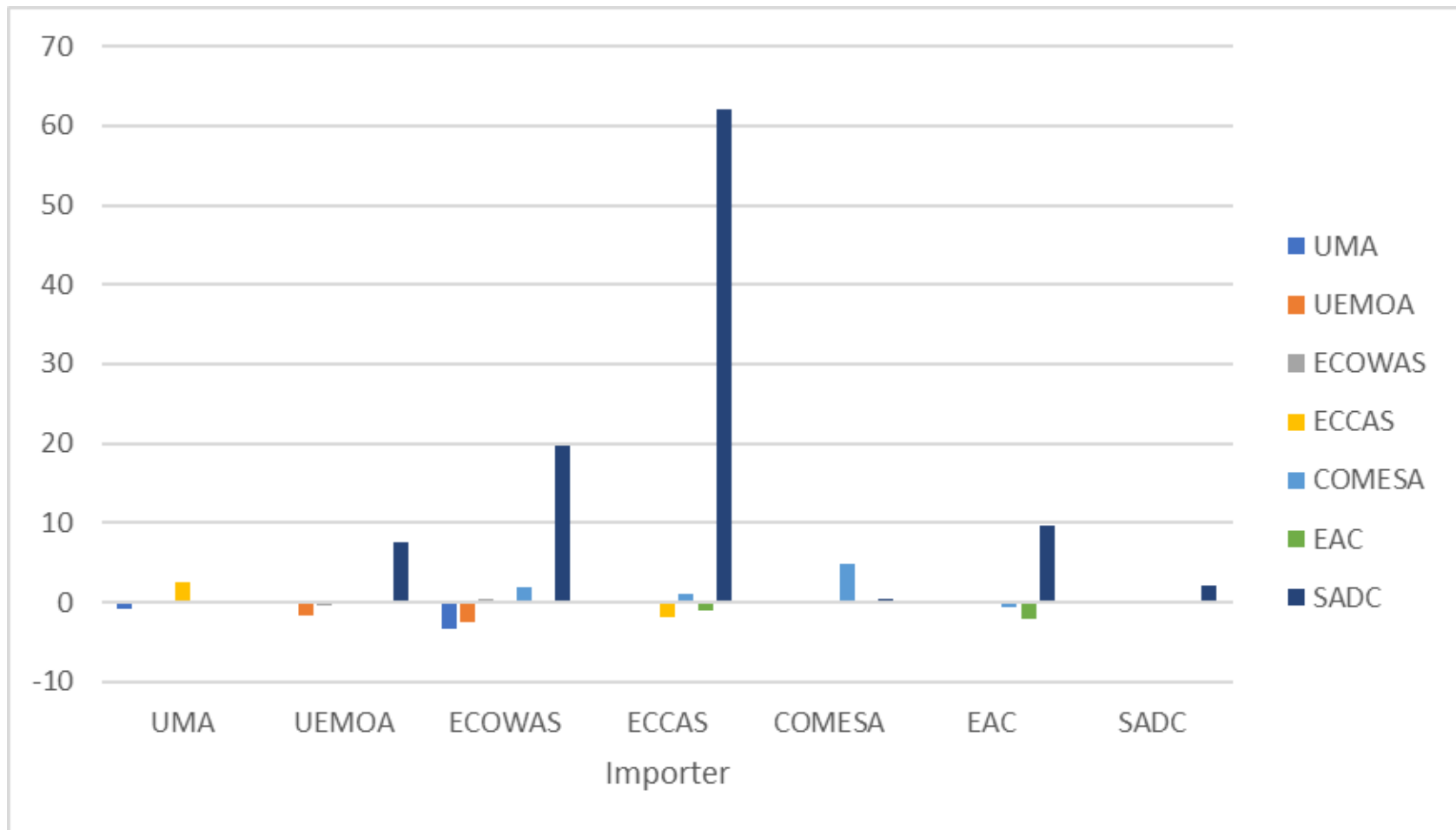
Comparative GDP Results for Simulations with and without the HS module, % change

qgdp	With HS Module	Without HS Module
UMA	0.023	0.008
UEMOA	0.387	0.489
ECOWAS	0.014	0.034
ECCAS	-0.012	-0.008
COMESA	0.006	0.012
EAC	0.012	0.028
SADC	0.106	0.079

Comparative V_F Production Results for Simulations with and without the HS module, % change

qo	With HS Module	Without HS Module
UMA	0.00	-0.06
UEMOA	-0.65	-1.01
ECOWAS	-0.04	-0.04
ECCAS	-1.04	-1.14
COMESA	0.01	0.00
EAC	-0.09	-0.13
SADC	0.93	1.54

Difference in Fruit and Vegetable Imports (without HS module – with HS module), million real USD



HS level changes to imports from SADC

HS level shocks to tariffs on imports from SADC

tmsk	UMA	UEMOA	ECOWAS	ECCAS	COMESA	EAC	SADC
x070190	-17	-17	-17	-33	0	-20	-4
x070310	-17	-17	-17	-33	0	-20	-6
x080810	-8	-17	-16	-29	-1	-20	-3

HS level changes in imports from SADC, % change

qxsk	UMA	UEMOA	ECOWAS	ECCAS	COMESA	EAC	SADC
x070190	87	89	69	101	-4	114	8
x070310	82	86	75	124	-12	103	10
x080810	29	53	40	83	0	50	5

HS level changes to imports from SADC

HS level imports from SADC in the base data, million USD

VMSBK	UMA	UEMOA	ECOWAS	ECCAS	COMESA	EAC	SADC
x070190	0	0	0	23	1	0	33
x070310	0	0	0	29	3	0	15
x080810	0	24	87	46	16	20	23

HS level changes in imports from SADC, million real USD

	UMA	UEMOA	ECOWAS	ECCAS	COMESA	EAC	SADC
x070190	0	0	0	23	0	0	3
x070310	0	0	0	36	0	0	2
x080810	0	13	35	38	0	10	1

Conclusions

- high difference between scenarios: trade flows from Southern Africa
 - i. the tariff shock at the HS- versus GTAP- level
 - ii. underlying value of trade
 - iii. differing theoretical structure of the HS module



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