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Impact of Non-Tariff Measures in the Indian Ocean Rim Association (IORA): A CGE Approach

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Abstract

The Indian Ocean Rim Association (IORA) is a regional association based on the principle of open regionalism with the objective of promoting liberalization through trade and investment facilitation. This study evaluates two main scenarios having the ingredients of a deeper regional integration compared to its present Open regionalism status. Scenario I evaluate the effect of a gradual tariff cut on IORA while Scenario II combines the impact of tariff cuts, NTM reduction and Trade Facilitation. The result shows a welfare gain for virtually all IORA countries when a trade liberalization involving tariff cut is complemented with NTM reduction and trade facilitation. The results obtained are suggestive that IORA has more to gain if it involves in a deeper regional integration than the present form of open regionalism.

Keywords: CGE, Non-tariff Measures, GTAP, IORA

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I.   Introduction

   The relevance of NTM in the global trade circle has become increasingly pertinent not only because it is reshaping the focus of international trade but also impacting the drive to attaining regional and global sustainable development (UNCTAD, 2019). Recent trade agreements are shifting away from traditional integration agreement, mostly comprising of tariff cut, to deeper integration involving reduction of inefficient non-tariff measures (NTMs) and NTM harmonisation. The trade cost as a result of NTMs is more than double custom tariffs and are indispensable because some NTMs are useful in correcting market inefficiencies and protecting human, animal and plant welfare (Knebel & Peters, 2018; UNCTAD, 2019).

The Indian Ocean Rim Association (IORA) is a regional economic association comprised of countries with diverse economic and developmental configuration. IORA was created in 1997 on the principle of open regionalism (consensus-based, evolutionary and non-intrusive approach) to promote liberalization through trade and investment facilitation. Indian Ocean Rim Association (IORA) comprises 23 countries[1] coming from different regions and regional trade agreements[2]. IORA region has in recent years, just like the world, witnessed an increase in the prevalence of non-tariff measures (NTMs)[3] and accounts for about 18% of global NTMs notified to the World Trade Organization (WTO)[4]. The reduction of NTM causing market imperfection is expected to reduce trade cost and facilitate trade and investment within the region.

Past efforts made to consolidate the regional economic integration included a proposal on the formation of a preferential trade agreement (PTA)[5] and a recent discussion on forming the Comprehensive Economic Partnership Agreement (IORA-CEPA)[6]. The computable general equilibrium (CGE) studies (Anderson, 2002; Rahman et al., 2014; Salam & Meyrandhoyo, 2017) evaluating the impact of proposed trade agreements in IORA had only captured tariff cut with a static CGE approach without consideration on the adjustment path of IORA countries in the long run. Hence, This study aims at carrying out a quantitative analysis using a dynamic CGE to

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[1] List of IORA countries https://www.iora.int/en/about/member-states

[2] AfCFTA, ASEAN, COMESA, EAC , GCC, SAARC and SADC

[3] Non-tariff measures (NTMs) comprise all policy measures other than tariffs that can economically impact international trade. The impact can be both on quantity and price changes. NTMs can be trade enhancing or restricting depending on the motive behind it imposition. https://unctad.org/topic/trade-analysis/non-tariff-measures/NTMs-Introduction

[4] Compiled using WTO Integrated Trade Intelligence Portal (I-TIP). https://i-tip.wto.org/goods/Default.aspx

[5] The formation of PTA have suffered some set back in the past with some members citing economic disparity and development among reasons.

[6] Discussed at the 22nd Indian Ocean Rim Business Forum (IORBF) on 13 of October 2016 in Jakarta

determine the economy-wide impact of Trade facilitation (TF) and NTMs reduction in light of deeper trade integration.

II Literature Review

NTMs had received less attention in the past because it was not implicitly seen as a form of trade impediments (trade cost) and was cumbersome to measure and quantify (Austria, 2013; Fugazza & Maur, 2008). However, in recent years, it had come under international scrutiny which led to negotiation on Trade Facilitation Agreement (TFA) in the WTO 2013 Bali Ministerial Conference and finally entry into force of the TFA on 22 February 2017. TFA contains provision and measures for expediting the release and clearance of goods, cooperation between customs, and technical assistance and capacity building to aid countries to implement the TFA (WTO, 2017).

More so, TFA is expected to enhance welfare while reducing administrative burdens and transaction costs (WCO, 2014). Trade facilitation (TF) and non-tariff trade barriers (NTBs) are interrelated and it expected that reduction of NTBs should facilitate trade (Filson & Adekunle, 2014).

Several kinds of literature have employed the gravity model as an aid to derive some estimates before simulation. This is carried out as a technique to minimize bias in the CGE model. The CGE model provides a detailed outlook of the economy including the linkages between farming, agribusiness, industrial and service sectors of the economy. Since this research is focused on a region, the CGE gives the opportunity to simultaneously analyze the effect of policy shocks, tariff cuts and NTM reduction, on various countries and sectors in IORA. NTBs are considered difficult to model in the Global Trade Analysis Project (GTAP) model. Researchers have employed a combination of approaches like export taxes, import tariffs and efficiency (iceberg cost) and combination of both. The approach to be employed depends on the nature of the policy intended. The export taxes or import tariffs can be used when trade barriers generate rent while efficiency is used when NTB increases the cost of production, i.e. it "puts sand in the wheels". Mostly, the efficiency approach captures the reduction of NTBs as an improvement in technology. (Andriamananjara et al., 2004; Bektasoglu et al., 2017; Boughanmi et al., 2016; Francois et al., 2003; Fugazza & Maur, 2008; Hernando & Nieto, 2007; Vinokurov et al., 2015)

Few literatures have tried to empirically analyse trade within the IORA region but have focused on trade liberalization with respect to tariff reduction and formation of PTAs in the framework of CGE. Anderson (2002) used a CGE model in analyzing the implication of agricultural trade liberalization in the IORA countries. Results from the study revealed that agriculture would provide more than one-third of the IORA developing countries' gains from a freeing of all merchandise trade globally in 2005. It further states that Sub-Sahara African and South-East Asia countries in IORA have to reduce trade barriers in numerous sensitive products to gain from trade reforms.

Rahman et al, (2014) assessed the economic impact of the proposed PTAs by IORA using a computable general equilibrium (CGE). The study simulated that if the high-income countries eliminate all tariff while the middle income and the least developed countries (LDCs) cut tariff by 75% and 50% respectively, the welfare and exports of all IORA countries are better off except Madagascar. The study concludes that the proposed PTA is likely to have a significant impact on the economy of these countries with highly labour-intensive manufacturing sectors benefiting the most.

III   *Model Specification*

This study makes use of a recursive GDyn CGE model (Lanchovichina & McDougall, 2000) which is an extension of the static GTAP model documented in Hertel (1998). Recursive dynamic models are useful in assessing long-term structural changes[7] and the adjustments path of economies involved in trade liberalization. The GDyn Dynamic model allows inter-sectoral movement of factors and tracks capital inflow from foreign sources using the investment disequilibrium approach[8] (Strutt & Walmsley, 2011).

The baseline data for Gross Domestic Product (GDP), labour and population in GTAP10a database[9] would be updated from the year 2014 to 2030 using projection data from International Monetary Fund (IMF). GTAP sectors and region were aggregated into 31 sectors and 31 regions[10] .

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[7] Britz & Roson, (2018) explains that structural change means involves the variation that occur over time on the productive structure , primary endowments of resources , trade and demand patterns of an of an economy.

[8] The disequilibrium approach involves incorporation of errors in expectations about the actual rate of return when dealing with investment. This is necessary to match the reality and capital mobility theory. (https://www.gtap.agecon.purdue.edu/models/Dynamic/dynamic_inv.asp)
[9] https://www.gtap.agecon.purdue.edu/databases/v10/index.aspx

[10] The GTAP region contains only 17 IORA members.

Scenarios and Simulations

 The following scenarios were simulated :

    (i)   Baseline case (Open regionalism scenario): IORA continues with the principle of open regionalism

    (ii)   Scenario I (Region trade integration scenario): Tariff cut gradual over 10 years within IORA in a reciprocal fashion

    (iii)   Scenario I + 50% NTM reduction + Trade Facilitation

We expect that all scenarios would lead to an overall efficiency gain but the extent of these gains will depend on the sectors considered. In the agricultural sector, we assumed a 75% tariff cut[11] and complete removal of tariff in the manufacturing sector. AVE of NTMs are taken from the World Bank database based on estimation method developed in Kee & Nicita (2016)

Since the aim of the study focuses on NTMs and trade facilitation, the efficiency approach (technological change) treats the NTMs as non-rent seeking and this tool is readily available in GTAP as "AMS" variable which represents technological advancement reflecting on the price of imports from a particular trade partner (Fugazza & Maur, 2008). The "AMS" is an additional "effective" import price as explained by Hertel, (1998) where

$$PMS_{i,r,s}^1 = PMS_{i,r,s} - AMS_{i,r,s} \ldots\ldots\ldots\ldots \qquad \text{(eq.1)}$$

PMS^1 is a percentage change of effective import price of i supplied from region r to region s;

PMS is a percentage change of domestic price for i supplied from r to region s;

AMS is import i from region r augmenting technical change in region s.

An increase of the AMS indicates that the effective domestic price of good i exported from region r to s falls and thereby mirrors a reduction of real resource costs.

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[11] The 75% tarriff cut in agriculture is based on the premise that agriculture is always a very sensitive sector in trade negotiation.

IV   RESULTS AND DISCUSSION

Welfare effects

The equivalent decomposition in the GTAP models allows measuring in monetary terms the impact of policy shock on the welfare of an economy. Figure 1 shows that both scenarios had a positive welfare effect on all IORA members except in UAE and Iran. The negative effect on Iran is as a result of the negative effect of the allocative efficiency and technological change which impact an economy productive capacity. The rest of non-IORA countries had welfare gain in both scenarios (Fig 2). Comparing both scenarios to baseline (open regionalism), Most IORA countries are expected to be better of on regional integration which considers NTM reduction and trade facilitation

Fig 1 Equivalent Variation Welfare Effects of IORA Countries ($U.S. millions)
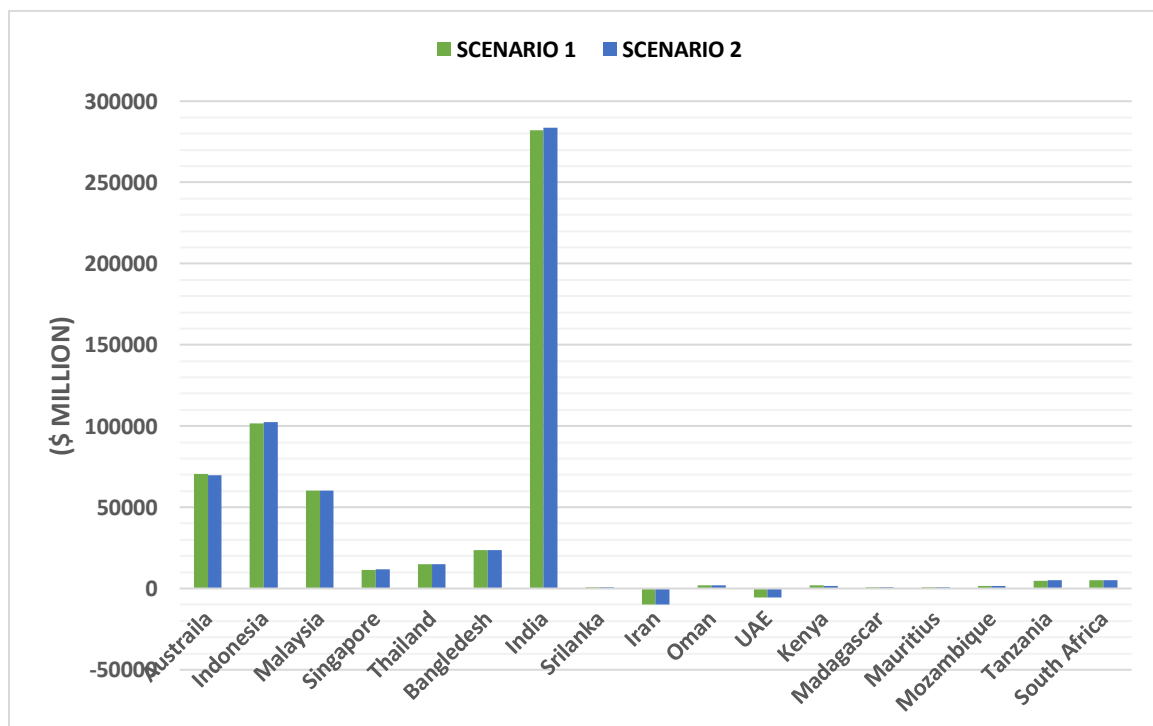
Fig 2 Equivalent Variation Welfare Effects of Non- IORA Countries ($U.S. millions)
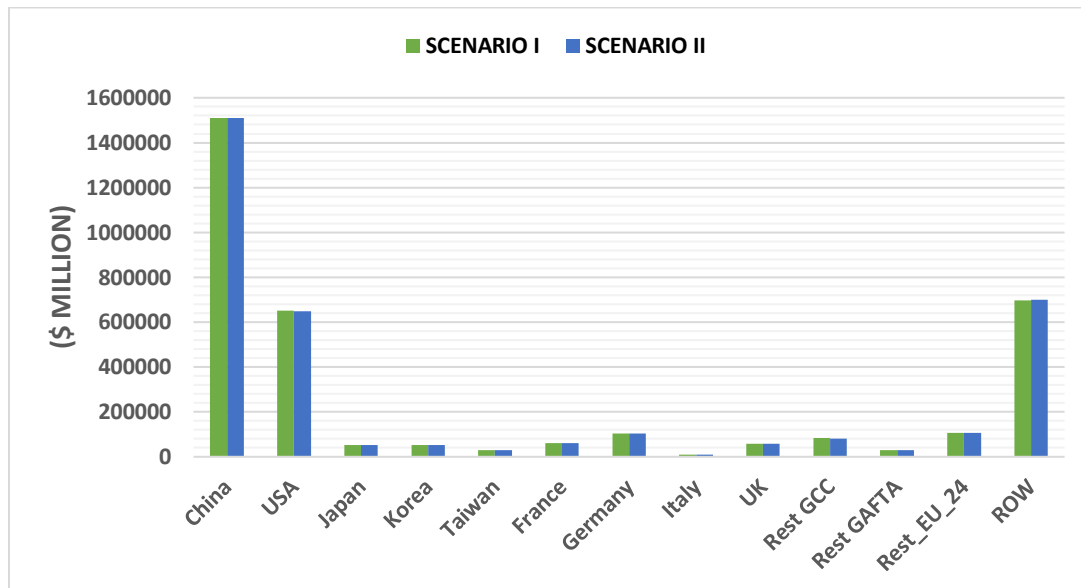
Effects on real GDP

All IORA countries showed a positive change in their real GDP for both scenarios except for Iran Fig 2. Scenario 2 (Tariff cut + NTM removal + TF) had more impact on the real GDP than scenario I which only considered tariff cut. Despite the negative change in real GDP for Iran, scenario II shows that Iran can further increase its real GDP when NTMs are reduced and trade is facilitated.

Fig 2 Percentage change in IORA countries real GDP (relative to baseline)
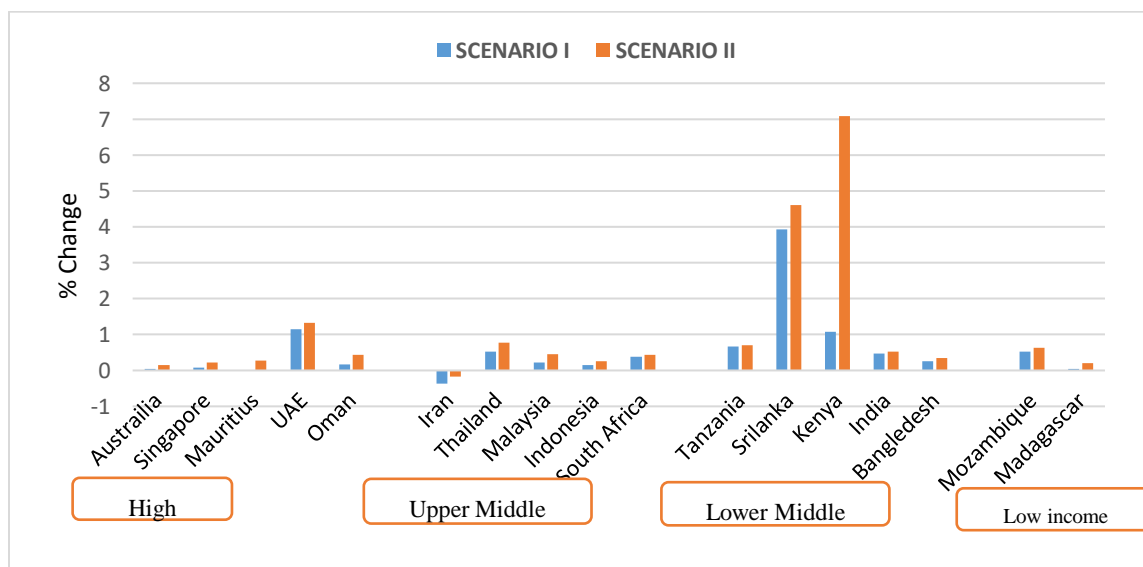
The results further show that countries within the region that belong to Lower middle income and low income would benefit more from reduction in NTM coupled with trade facilitation.

Trade effect and sectorial

The overall sectorial percentage change in export and import was positive for IORA countries (Appendix 2 and 3). The rice and other crops witnessed the highest export value change across IORA with meat and fishery witnessing the least value changes. The value export changes are more significant when NTMs and TF are introduced (Scenario 2).

Fig 4 Value of Merchandise Export change 2021-2030 in IORA (relative to baseline)
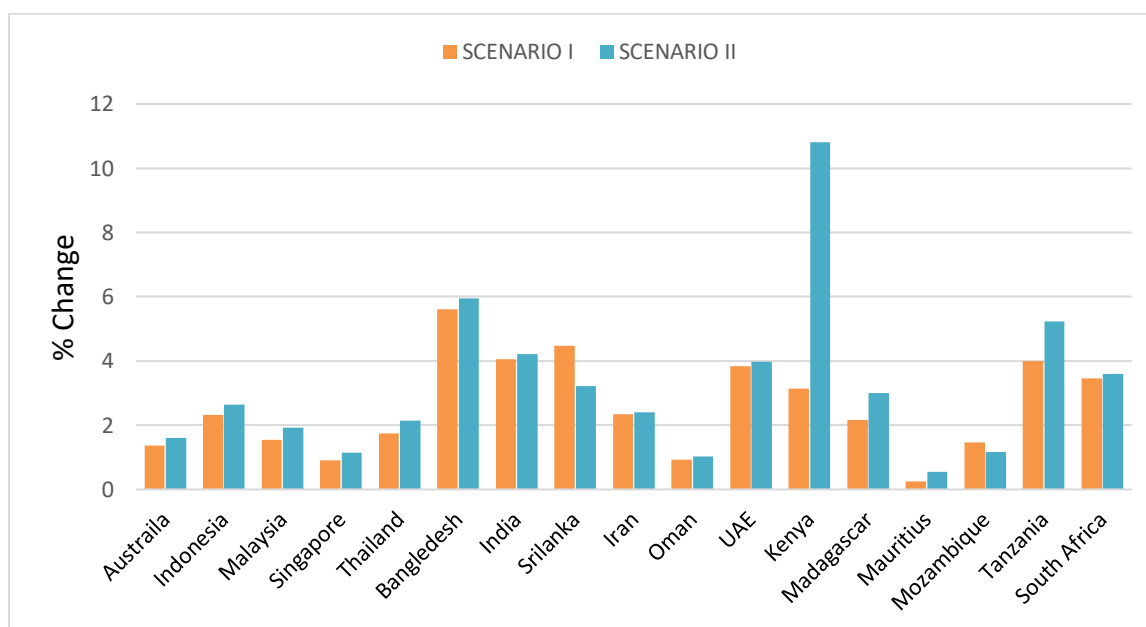
All of the IORA countries witnessed an increase in their merchandise export and import (Fig 4 and 5). Scenario II showed a more significant increase in Merchandise trade compared to a regional agreement involving tariff cut only except in Mozambique and Sri-lanka where the value of trade was significant in Scenario I. Countries like Kenya and Mauritius had the value of merchandise trade to double as a result of NTM reduction and TF.

Fig 5 Value of Merchandise Import change 2021-2030 in IORA (relative to baseline)
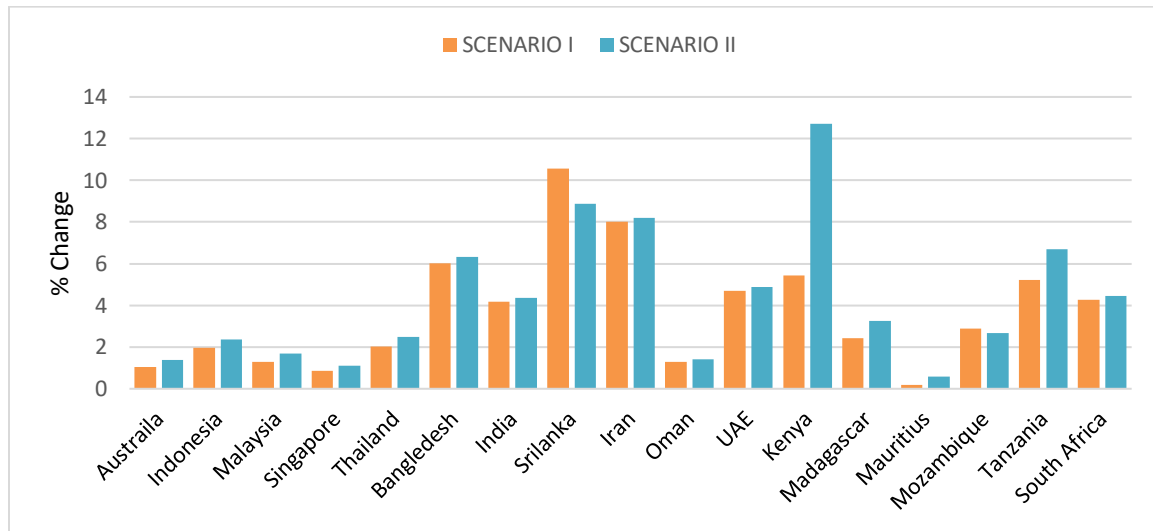
## V.	Conclusion

The Indian Ocean has always been a trade nexus connecting Asia, the Middle East and Africa and its importance to world trade has continued to increase. It is expected that the region's economic growth and productivity will rise capitalizing on its relatively large population, growing markets and strategic location. There had been Various proposal in IORA on forming a PTA and Comprehensive Economic Partnership Agreement (IORA-CEPA). Most of the studies carried out had only evaluated the effect of deeper economic integration in the region without studying the long term effect of trade liberalization within the region. Our study uses a dynamic CGE to further study the impact of a regional integration in IORA which involves tariff cut and reduction in NTMs coupled with trade facilitation. Our results showed welfare-enhancing effect when for all IORA countries except Iran and UAE. The effect on trade was found to increase the value of merchandise export and import of IORA countries and that increase even doubled in some countries like Kenya and Mauritius when NTM and TF are introduced along with a tariff cut. There was a positive impact on the real GDP was noticed for IORA countries with the countries belonging to lower-middle-income and low-income countries within the region. The results from this study are suggestive that (i) any future proposed regional agreements should include NTM reduction and WTO trade facilitation implementation as a cogent part of their negotiations (ii) the region can gain more from deeper regional integration compared to the present form of open regionalism that is presently operating.

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Appendix 1 : Aggregations of Region and Sector

REGION (31)		SECTOR (31)	
Australia*	United Kingdom	Rice	Oil
China	Switzerland	Wheat	Gas
USA	Iran*	Vegetables	Chemicals
Japan	Oman*	Vegetableoil	Mach_Equip
Korea	UAE*	Dairy	Metals
Taiwan	Kenya*	OtherCrops	Coal_Mining
Indonesia*	Madagascar*	Meat	Trans_Equip
Malaysia*	Mauritius*	Forestry	Elec_Equip
Singapore*	Mozambique*	Fishery	Manuf
Thailand*	Tanzania*	Foodproducts	Motor_Parts
Bangladesh*	South Africa*	Bever_Tobaco	LandTranspo
India*	R_GCC	Sugar	WaterTransp
Sri Lanka*	R_GAFTA	Textile	AirTranspor
France	R_EU_24	LightMnfc	Utilities
Germany	ROW	HeavyMnfc	Services
Italy		Petro_coal	

Note: * are IORA countries; UAE: United Arab Emirates

Appendix 2 Percent Changes of Scenarios II on Agricultural and Manufacturing Merchandise Trade over at 2030 (relative to baseline)

Export

	Rice	Wheat	Vegetables	Vegetableoil	Dairy	OtherCrops	Meat	Forestry	Fishery	Foodproducts	Bever_Tobaco	Sugar	Textile
Aus	0.0	22.8	9.8	3.6	8.0	-3.4	-2.6	-0.9	0.0	0.6	1.4	6.7	-1.0
Idn	-6.7	-13.8	0.4	19.8	-4.7	9.0	-11.5	-0.8	0.4	-2.2	-5.5	-7.2	0.5
Mys	-2.0	-8.5	-1.9	18.2	1.4	-15.3	-12.4	7.0	4.5	1.2	1.3	-13.3	5.7
sgp	16.0	-15.6	-0.7	1.2	-1.2	10.6	-2.3	-0.5	0.1	4.9	21.9	1.3	3.8
tha	3.9	-1.7	-0.4	46.5	-0.6	-1.9	2.4	58.9	1.3	4.1	-0.3	8.9	7.3
bgd	-0.8	8.1	27.0	-33.6	-2.0	16.2	2.7	-4.6	0.9	1.3	16.8	2.4	5.8
ind	9.3	2.3	3.1	37.8	3.0	6.2	2.5	5.2	1.9	3.3	44.1	7.1	7.3
lka	24.9	43.1	25.5	44.0	7.2	95.9	17.3	16.2	-4.8	14.3	25.3	33.4	-0.6
irn	44.4	66.8	14.8	-19.9	22.8	24.3	22.9	11.0	1.9	14.8	68.4	18.4	16.8
omn	7.8	0.6	8.9	2.7	8.2	-1.0	-1.3	0.6	0.8	5.6	-2.4	3.8	2.3
are	-2.0	5.0	3.7	-18.7	-3.2	-2.9	-8.6	-0.2	-3.4	-1.4	4.6	-0.7	22.7
ken	34.5	45.7	4.2	-1.0	-7.2	5.3	-1.1	-1.2	-1.7	3.8	2.2	-7.6	4.5
mdg	-1.1	-1.5	5.9	1.6	-1.5	4.6	-1.4	-2.8	0.5	0.1	-0.5	-25.7	1.1
mus	-0.2	-7.2	0.5	5.2	-1.6	0.1	-0.2	16.2	0.2	-0.5	1.0	0.1	-1.5
moz	2.6	2.0	11.1	-1.4	3.1	6.1	-1.0	-1.1	4.7	2.3	9.9	0.2	0.7
tza	-8.4	5.9	10.8	5.5	5.4	5.3	1.9	0.4	1.7	2.2	5.5	-1.1	2.0
zaf	-0.8	-0.6	1.1	5.9	-0.3	0.4	1.4	-1.5	0.1	0.1	3.5	9.4	1.8

	LightMnfc	HeavyMnfc	Petro_coal	Oil	Gas	Chemicals	Mach_Equip	Metals	Coal_Mining	Trans_Equip	Elec_Equip	Manuf	Motor_Parts
Aus	-0.9	2.5	1.3	0.5	1.5	5.4	3.2	7.7	1.3	-1.1	0.3	-0.3	3.5
Idn	1.1	4.5	0.9	0.3	0.8	3.6	-1.3	-1.1	1.3	-5.6	-0.2	2.0	0.2
Mys	0.9	2.0	2.0	0.4	1.9	3.7	-0.4	6.6	-1.0	2.5	-1.7	5.4	-0.2
sgp	0.9	2.4	2.7	-3.5	-12.1	2.2	2.0	3.9	-7.0	-1.1	-0.4	9.4	0.9
tha	4.8	1.7	0.7	-1.1	-5.3	2.9	1.4	3.0	-3.0	2.4	-0.5	0.7	3.8
bgd	2.5	0.4	0.8	25.8	4.2	3.8	3.4	3.3	8.8	1.0	19.6	8.5	0.6
ind	2.6	6.1	3.1	0.9	156.9	4.8	3.3	8.4	5.9	13.4	8.2	2.9	21.0
lka	28.4	11.1	11.0	-8.2	-55.6	19.8	6.8	6.7	-11.7	3.8	10.2	10.8	5.1
irn	6.4	7.6	6.4	-3.0	25.8	13.1	15.2	17.5	4.4	33.4	20.0	8.2	7.8
omn	1.9	19.4	0.2	0.2	1.8	5.9	14.8	5.4	3.8	-2.1	-1.8	-10.6	4.0
are	19.8	13.1	5.2	-0.2	53.4	3.4	-7.6	11.3	21.8	-13.4	-6.7	16.3	-2.7
ken	2.3	-2.0	0.6	-0.1	-6.2	10.8	3.8	8.2	1.2	-5.3	2.4	4.9	1.8
mdg	0.7	-0.3	-2.1	0.1	-18.3	19.6	8.1	9.7	-3.5	8.0	16.0	0.2	5.5
mus	1.5	2.4	0.8	0.2	-1.7	1.9	0.0	9.1	-2.0	0.5	1.8	2.3	1.8
moz	0.1	5.0	10.7	0.1	0.6	9.7	15.2	1.4	-0.2	-0.8	1.2	-0.1	2.1
tza	1.9	1.9	1.7	30.4	-24.2	13.6	6.4	4.5	-27.1	6.6	5.0	2.9	1.3
zaf	-0.3	1.6	0.1	0.4	-13.0	11.7	-1.1	4.5	0.2	3.2	-0.4	0.2	14.8

Import

	Rice	Wheat	Vegetables	Vegetableoil	Dairy	OtherCrops	Meat	Forestry	Fishery	Foodproducts	Bever_Tobaco	Sugar	Textile
Aus	0.4	21.5	2.9	0.1	2.1	0.8	2.2	0.5	0.0	0.8	0.4	-0.7	1.7
Idn	27.0	0.9	4.2	13.8	5.5	17.6	7.4	3.8	0.8	6.3	1.0	11.4	1.7
Mys	40.8	1.0	1.7	15.2	1.8	10.3	3.8	1.4	0.9	1.0	19.5	1.2	0.9
sgp	3.7	2.7	1.1	1.4	1.3	4.2	0.4	3.2	0.4	0.7	0.7	1.8	0.2
tha	50.0	4.3	3.9	24.5	5.0	4.1	40.2	9.4	2.1	0.8	1.7	4.3	4.9
bgd	32.2	0.2	13.0	10.8	40.2	1.6	1.5	2.6	24.5	15.3	5.9	3.2	9.8
ind	33.4	81.9	7.8	127.7	23.5	64.3	8.9	11.2	2.4	25.6	15.1	4.4	5.9
lka	34.4	3.8	9.7	16.2	29.2	23.1	25.6	42.1	7.6	4.7	49.5	3.5	0.6
irn	38.1	19.0	6.5	1.7	-4.4	5.0	-2.8	18.9	11.7	10.5	2.8	17.9	24.4
omn	1.9	1.6	0.6	1.9	1.5	0.7	1.9	1.8	1.5	1.0	-1.4	3.0	2.9
are	0.5	0.5	3.1	3.1	1.7	-0.7	3.7	4.8	6.1	3.1	8.6	1.3	4.1
ken	27.0	7.2	11.4	9.3	161.6	6.5	27.1	0.9	4.8	8.2	11.0	100.1	9.9
mdg	-0.1	-0.4	1.1	7.5	13.1	2.6	23.2	2.4	-0.6	3.1	0.5	6.9	2.8
mus	0.7	1.2	-0.2	0.7	0.0	0.3	-0.5	-0.3	0.1	0.1	0.0	-0.8	0.3
moz	8.2	-0.8	14.1	2.6	10.9	5.8	13.7	1.2	1.6	2.5	2.2	2.2	8.3
tza	205.5	4.0	11.9	4.4	71.3	3.1	0.5	0.0	5.2	8.5	6.7	60.4	11.9
zaf	0.6	0.2	0.3	8.3	4.1	3.0	2.8	1.0	-0.7	3.0	1.2	1.1	22.1

	LightMnfc	HeavyMnfc	Petro_coal	Oil	Gas	Chemicals	Mach_Equip	Metals	Coal_Mining	Trans_Equip	Elec_Equip	Manuf	Motor_Parts
Aus	0.8	1.3	0.5	0.6	13.9	1.1	0.8	2.1	2.7	0.9	0.6	1.2	2.2
Idn	3.2	3.3	0.6	0.3	15.2	2.5	1.3	2.6	14.8	1.3	1.1	2.8	2.6
Mys	0.9	0.9	0.6	4.0	7.3	1.7	1.2	1.0	1.2	1.5	-0.3	1.1	1.0
sgp	0.6	0.5	1.6	2.3	1.4	1.3	0.7	1.3	1.8	0.4	0.0	0.5	0.2
tha	2.0	2.5	1.0	1.0	2.5	1.7	2.6	1.4	2.8	3.7	1.3	2.8	4.0
bgd	9.5	1.5	4.4	-12.1	-3.8	2.8	2.4	7.5	0.6	28.8	4.4	10.0	9.4
ind	4.5	4.6	2.6	1.1	1.1	2.6	3.2	7.4	4.7	5.0	2.6	9.6	7.3
lka	5.6	12.5	11.2	-0.7	6.4	22.6	13.8	11.9	12.9	12.9	13.3	10.6	17.3
irn	6.5	5.4	5.6	3.9	18.6	3.0	4.7	9.6	4.2	37.9	3.9	6.9	2.3
omn	2.0	1.5	6.8	-0.2	14.8	1.6	1.0	2.2	0.9	0.4	1.0	0.8	0.7
are	7.2	9.5	3.8	4.2	4.5	6.8	5.3	6.1	5.2	3.9	2.2	6.6	2.8
ken	5.9	12.4	4.6	0.5	0.9	2.3	1.5	4.7	1.4	7.7	4.3	6.6	3.0
mdg	3.5	8.3	0.5	1.1	5.5	3.7	0.7	5.1	1.7	1.2	0.6	3.9	0.5
mus	0.5	0.2	0.2	0.9	-3.3	0.2	-0.1	0.9	1.4	-0.2	0.0	1.5	0.0
moz	2.5	3.0	2.0	2.7	4.6	2.2	4.0	1.6	-3.1	6.8	4.3	4.9	4.9
tza	2.5	6.9	2.5	-1.3	15.7	-0.1	2.8	9.5	19.4	4.2	5.1	3.4	3.8
zaf	4.2	4.4	3.5	0.1	2.6	3.4	4.6	4.9	5.2	2.4	3.6	7.2	10.9

Appendix 3 Percent Changes of Scenarios II on Agricultural and Manufacturing Merchandise Trade over at 2030 (relative to baseline)

Export

	Rice	Wheat	Vegetables	Vegetableoil	Dairy	OtherCrops	Meat	Forestry	Fishery	Foodproducts	Bever_Tobaco	Sugar	Textile
Aus	0.5	22.8	12.8	4.2	12.1	-3.4	-3.6	-0.8	0.1	3.5	2.0	6.6	-0.2
Idn	-7.5	-14.3	0.1	20.5	-0.3	9.5	-11.7	-1.2	0.2	0.4	-5.8	-7.5	0.6
Mys	4.5	-7.4	-1.7	19.9	5.8	-13.7	-7.6	6.8	5.0	3.8	5.0	-13.0	8.5
sgp	19.9	-19.5	0.9	10.8	1.4	15.1	-2.4	-0.5	0.4	6.4	29.1	3.3	4.5
tha	2.7	-1.8	-0.4	47.2	5.8	-2.2	2.1	58.5	1.3	6.1	-0.3	9.9	7.9
bgd	1.3	8.4	30.4	-34.1	-3.2	18.0	-1.8	-4.5	0.7	2.8	16.7	2.3	6.1
ind	10.1	1.8	2.9	37.2	5.2	7.4	4.7	3.3	1.6	4.3	47.6	6.6	7.6
lka	46.9	61.4	54.2	75.5	14.1	136.8	41.7	45.7	15.0	31.3	27.4	62.2	-3.1
irn	54.5	74.1	25.6	-12.3	29.3	27.1	24.4	9.5	1.2	17.1	82.3	24.7	19.4
omn	27.2	5.4	11.4	7.3	18.8	0.6	2.9	0.5	0.5	11.4	-0.6	4.6	3.3
are	0.9	7.9	5.3	-13.9	-2.2	-3.4	0.0	-0.1	-3.7	1.9	7.2	2.4	26.1
ken	42.4	47.4	15.3	9.6	6.4	38.7	4.7	0.8	-5.3	9.7	3.8	29.3	13.1
mdg	2.4	-1.3	7.4	2.1	0.7	5.9	0.4	-2.7	0.2	1.6	-0.3	-26.0	2.5
mus	27.6	-6.1	0.3	4.8	-0.6	-0.7	0.2	16.3	-0.1	-0.1	1.7	-0.1	-1.5
moz	4.1	2.4	10.8	-1.6	2.4	-0.6	-1.8	-0.8	2.3	1.5	10.1	-0.3	1.4
tza	-21.5	-14.8	-1.3	-0.8	-11.6	101.3	-19.4	-5.7	0.0	-7.3	2.6	-13.5	-7.8
zaf	15.4	-0.8	1.2	7.8	0.1	-0.9	1.3	-1.1	0.2	0.6	4.1	10.4	2.7

	LightMn	HeavyMnf	Petro_coal	Oil	Gas	Chemicals	Mach_Equi	Metals	Coal_Minin	Trans_EquI	Elec_Equi	Manuf	Motor_Part
Aus	-0.8	2.6	1.8	0.7	1.6	6.3	4.3	8.4	1.3	-0.6	2.3	0.1	4.2
Idn	1.1	4.6	1.1	0.2	0.8	6.4	-0.8	-1.1	1.3	-6.1	-0.1	1.3	-0.2
Mys	3.7	2.2	2.2	0.4	2.0	5.5	-0.4	7.7	-1.4	2.1	-2.2	7.7	0.0
sgp	1.3	2.8	3.3	-4.0	-12.5	2.7	3.0	4.3	-7.5	-1.3	-0.3	9.9	3.9
tha	5.1	2.1	0.9	-1.4	-6.6	3.6	2.1	4.5	-3.3	3.2	-0.2	0.7	4.7
bgd	2.4	0.5	0.7	26.6	3.9	8.6	3.8	3.5	8.4	0.8	19.1	8.5	0.5
ind	2.5	5.9	3.4	0.9	157.7	5.2	3.5	8.6	5.9	12.9	8.4	3.2	21.1
lka	35.3	12.1	10.8	6.1	-27.8	16.6	3.9	5.4	-1.1	1.5	5.6	12.1	3.7
irn	6.5	7.8	6.9	-3.4	25.5	12.6	15.5	18.0	4.1	35.1	20.6	8.7	8.1
omn	2.4	19.5	0.3	0.2	1.4	6.1	14.8	5.8	3.5	-2.4	-1.6	-10.3	4.0
are	19.6	14.8	5.4	-0.2	53.1	3.6	-7.7	11.1	20.7	-13.9	-6.6	20.9	-2.8
ken	8.3	1.4	0.9	-5.2	-13.8	16.4	10.7	11.5	-1.6	-0.9	6.9	12.3	3.3
mdg	1.3	-0.3	-3.7	0.2	-38.1	40.4	8.6	10.3	-4.2	8.1	16.0	1.1	5.6
mus	1.0	3.1	0.5	0.3	-2.8	1.6	-1.0	9.3	-3.4	-0.5	23.5	2.3	1.3
moz	0.3	4.9	10.9	0.7	1.0	9.0	14.2	0.6	0.1	-1.1	0.5	-0.5	1.9
tza	-2.7	-1.6	-1.8	35.0	-15.2	14.2	-2.9	-2.0	46.9	-2.8	-4.9	8.5	-4.4
zaf	-0.4	1.5	0.1	0.6	-10.6	11.8	-1.3	4.5	0.1	3.3	0.9	0.1	15.8

Import

	Rice	Wheat	Vegetables	Vegetableoil	Dairy	OtherCrops	Meat	Forestry	Fishery	Foodproducts	Bever_Tobaco	Sugar	Textile
Aus	1.9	21.5	3.2	0.7	2.9	0.4	2.3	0.2	0.1	1.5	0.5	0.5	2.7
Idn	32.7	1.2	4.4	14.6	7.7	19.4	8.5	4.3	1.2	8.1	0.7	12.4	2.1
Mys	43.7	1.5	1.6	22.4	2.5	11.9	7.9	2.9	1.2	1.5	19.9	0.7	1.2
sgp	1.2	3.2	0.1	6.8	2.8	4.2	1.2	4.0	0.4	0.5	1.0	1.9	0.3
tha	79.1	5.2	4.7	25.4	6.6	4.8	41.6	9.8	2.6	1.6	2.7	5.1	5.3
bgd	55.4	-0.1	13.7	13.0	43.7	1.0	3.2	3.0	24.7	18.7	6.7	3.4	10.1
ind	56.4	83.2	8.4	130.0	27.6	69.5	12.6	11.3	2.7	29.9	17.0	5.1	6.2
lka	32.9	7.9	6.1	14.3	32.2	16.8	17.3	30.3	-5.0	0.7	55.1	3.7	-1.3
irn	36.7	18.4	6.6	-0.3	1.5	6.2	-0.6	19.8	12.4	16.4	2.0	16.6	24.0
omn	-1.5	2.9	-0.4	-0.1	1.2	-2.8	1.1	2.1	2.2	-0.7	-5.8	5.1	3.0
are	-4.1	0.7	2.5	2.1	1.7	-2.4	4.3	4.9	6.3	3.1	9.0	1.3	4.3
ken	29.2	10.3	5.7	10.9	183.4	582.1	29.6	2.8	10.8	10.0	14.1	84.4	10.6
mdg	15.5	-0.8	0.4	7.4	12.1	2.1	22.4	2.9	-0.2	3.7	0.3	8.0	3.1
mus	-8.0	1.3	1.9	0.7	0.1	-0.5	3.4	-0.3	0.3	0.3	0.1	1.2	0.5
moz	9.2	-0.7	15.1	3.9	12.3	7.2	15.2	1.2	4.6	3.6	2.8	3.4	9.6
tza	268.0	11.9	24.0	2.0	88.5	24.2	21.6	3.7	7.4	20.2	10.7	63.1	16.7
zaf	-0.7	0.0	0.2	9.3	4.9	4.6	2.9	1.1	-1.1	4.3	1.3	1.2	22.2

	LightMnf	HeavyMnf	Petro_coal	Oil	Gas	Chemical	Mach_Equi	Metals	Coal_Minin	Trans_Equi	Elec_Equi	Manuf	Motor_Part
Aus	1.4	1.9	0.6	0.6	14.1	1.3	1.1	3.3	2.9	1.0	0.8	2.1	2.6
Idn	3.9	4.2	0.7	0.6	15.6	3.0	1.6	3.1	15.1	1.6	1.3	3.3	3.0
Mys	1.2	1.3	1.0	4.2	8.7	2.2	1.7	1.2	1.6	2.0	-0.2	1.5	1.4
sgp	0.8	0.8	1.9	2.7	1.7	1.7	1.0	1.6	2.1	0.6	0.1	0.7	0.4
tha	2.6	3.0	1.2	1.3	3.1	2.0	3.3	1.9	3.3	4.6	1.8	3.5	4.7
bgd	9.6	1.6	4.3	-12.4	-3.7	2.9	2.5	7.6	0.8	28.9	4.4	10.1	9.5
ind	4.7	5.0	2.7	1.2	1.1	2.8	3.5	7.5	4.8	5.0	2.9	10.9	7.5
lka	2.6	10.4	11.0	-1.4	3.3	22.0	11.8	10.2	11.0	11.0	12.2	9.8	15.1
irn	6.8	5.6	5.9	4.5	18.8	3.3	5.1	9.9	4.7	38.5	4.4	7.1	2.6
omn	2.4	1.9	7.1	-0.1	15.6	1.9	1.3	2.6	1.2	0.7	1.2	1.0	0.9
are	7.5	10.0	4.1	4.4	4.8	7.2	5.6	6.2	5.7	4.0	2.4	7.0	3.0
ken	6.8	13.2	7.9	3.8	7.4	1.7	2.2	8.5	4.0	9.7	6.8	7.7	6.4
mdg	3.5	8.9	0.9	3.3	20.1	3.9	1.0	5.4	2.0	1.5	0.8	3.6	0.7
mus	1.0	0.6	0.4	0.7	-2.3	0.6	0.7	1.4	2.1	0.6	0.8	2.1	0.7
moz	2.6	2.3	2.4	2.3	2.7	2.0	2.8	1.2	-2.9	6.1	3.3	4.3	3.8
tza	3.8	8.7	2.3	-3.4	11.1	-0.1	3.9	9.4	-17.7	4.9	6.0	3.9	4.6
zaf	4.3	4.5	3.6	0.2	2.6	3.5	4.9	5.0	5.3	2.6	3.8	7.4	11.2