A new mechanism for trade agreements to revitalize the Global Value Chains

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Abstract

The import tariff system has made a harmful dent on the global trading system. To avoid this, many countries have chosen the second-best option- 'an FTA'; because the first-best where there is no tariff at all in the global trading system is close to impossible to achieve. FTAs due to their structural factors like, stringent Rules of Origin and other non-tariff measures have not been very successful. Also, they have been labelled as discriminatory to non-partner countries. Despite having a potential of estab-lishing and strengthening the Global value chains, FTAs have done a dismal work in dimension too. To overcome this limitation, we propose in this article a new mechanism called 'Sectoral Trade Agreement (STA)' which is an FTA among all major producing countries in a particular sector or industry. An STA in automobile sector will be compared with the traditional bilateral FTA with different utilization rate. In our CGE based study, Welfare as a total rises in STA in comparison to FTA scenarios and this is increasing for some non-participating blocks also. It is also shown here how a composite scenario where both FTA and STA are functioning is a better option for trade liberalization and how this is a new 'second-best'.

Keywords: Free Trade Agreement, Rules of Origin, Global Value Chain, Preference Uti¬lization Rate, CGE Analysis

JEL Code: F13, F15, F17, F47

A new mechanism for trade agreements to revitalize the Global Value Chains

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Abstract. The import tariff system has made a harmful dent on the global trading system. To avoid this, many countries have chosen the second-best option- 'an FTA'; because the first-best where there is no tariff at all in the global trading system is close to impossible to achieve. FTAs due to their structural factors like, stringent Rules of Origin and other non-tariff measures have not been very successful. Also, they have been labelled as discriminatory to non-partner countries. Despite having a potential of establishing and strengthening the Global value chains, FTAs have done a dismal work in dimension too. To overcome this limitation, we propose in this article a new mechanism called 'Sectoral Trade Agreement (STA)' which is an FTA among all major producing countries in a particular sector or industry. An STA in automobile sector will be compared with the traditional bilateral FTA with different utilization rate. In our CGE based study, Welfare as a total rises in STA in comparison to FTA scenarios and this is increasing for some non-participating blocks also. It is also shown here how a composite scenario where both FTA and STA are functioning is a better option for trade liberalization and how this is a new 'second-best'.

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1 Introduction

Trade and its liberalization have been one of the most important drivers for economic growth. For that purpose, almost each country has opened their borders for international trade. Though borders are open and trade is allowed between two countries, there are some structural factors that inhibit the trade. One is tariff barriers and the other one is non-tariff barriers. To remove these barriers multilaterally, General agreement on Tariffs and Trade (GATT) was negotiated in 1947 and later, it was replaced by World Trade Organization (WTO) in 1995. In case of removing tariff barriers, multilateral trade negotiating system (GATT and its successor WTO) has been somewhat successful. The average tariff levels for the major GATT participants in 1947 were about 22% that went down to 5% after Uruguay round in 1999. But for non-tariff barriers and other regulations and trade developments, the multilateral progress has been dismal. Doha Development Round (DDR) which covers many subjects like agriculture, labour standards and environment etc. was started in 2001 but is still in the progress.

The sluggishness in multilateral trade negotiating framework has given an impetus to formation of Free trade agreements (FTA). A free/regional trade agreement is an arrangement or treaty where two or more countries mutually decide to slash and/or eliminate the tariffs on goods and services over a course of time. The premise behind concluding the agreement is that it will induce the trade flows and lead to economic growth. Several studies have pointed out that FTAs induce an increase in intra-trade ranging from 70% to 215% (World Bank,2005; Baier et al.,2016; Egger et al.,2016). The simple logic behind this is that FTA partner-countries do the trade on negotiated tariff rates which are usually less than the most-favoured nation (MFN) tariff rates which are applicable for non-FTA partner countries. Also, the role of FTAs in developing the GVCs has been documented by many scholars (Hayakawa and Yamashita 2011; Orefice and Rocha 2014; Blyde et al. 2015) which is another factor behind the formation of FTAs. According to WTO, as on 15 January 2024, 361 FTAs were in force while 600 FTAs have been notified to WTO. From the 1950s onwards to almost 1990, FTAs increased at almost same pace but from the late 90's onwards FTA activity accelerated. For India, FTA activities got momentum in the first decade of this century and after a long hiatus, again India has started to pursue FTAs. According to the Ministry of Commerce and Industry, Government of India, India has signed 13 Regional Trade Agreements (RTAs)/Free Trade Agreements (FTAs) with various countries/regions. In addition, India has also signed 6 Preferential Trade Agreements (PTAs). Very recently, India has concluded agreements with Mauritius, the UAE and Australia. Apart from these, India is engaged in negotiation talks with several countries/regions like the UK, the EU, the EFTA, Bangladesh, Israel etc. India also wants to review or renegotiate already concluded agreements like India-ASEAN. But India's FTA story has another side too where there is a general perception of low preference utilization rate of FTAs and large trade deficit of India with its FTA partners.

FTA underutilization is attributed to many factors in general. and there is a vast economic literature

that explores these factors. Kawai and Wighnaraja (2011) writes that a lack of information on FTAs is the most significant reason for non-use of preferences as reported by 35% of firms surveyed by them. Low margins of preference (17%) and delays and administrative costs associated with rules of origin (15%) were the second and third most common reasons cited. For an India-specific study, Jha (2013) finds in her enterprise-survey based study that the most used agreement by Indian exporters is India-Sri Lanka, but even in this case the utilization rate is around 11% only. Further she finds that even though Singapore offers tariff-free entry to all Indian exports, exporters are not using the FTA route due to low preferential margin coupled with additional costs attributed to prove origin requirements.

In FTAs, partner-countries do slice down the tariff rates in negotiations but at the same time they create a non-tariff barrier (NTBs) to stymie the entry of products. There are many NTBs which have been documented by many multilateral organisations. Some of them like Quota restrictions, Voluntary export restraints have gone down in practice but others like Technical barriers to trade (TBT), Sanitary and Phytosanitary measures (SPS), Rules of Origin (RoO) are still quite prominent. A fresh wave of new measures like labour standards, environmental norms etc have started to kick in. These measures are not futile per se, all of them have a good purpose; e.g.- SPS ensures that the producers do not use excessive harmful pesticide in producing agricultural products so a limit is prescribed under this set of rules. Likewise, RoO is like an economic nationality of any product so this set of rules ensures that no third-party can benefit from the preferential arrangement by setting the content rule and others. Problems start to kick in when these measures are made so severe that they negate the positive effects of tariff reductions under the FTAs.

Academic literature has established this very clearly that these NTBs impose an additional cost on trade. Anderson and Van Wincoop (2004) showed that costs associated with the cross border-trade even between well-integrated countries were beyond explainable by geographic distance and traditional trade policies. The cost associated with cross-border trade of well-integrated countries Canada and US were as high as 70%. Since then, many studies have tried to capture the impact of NTBs on trade cost (Kee et al.2009; Disdier et al. 2015; Carrere and de Melo 2011; Cadot and Gourdon 2014). A special type of NTB is the Rules of origin (RoO). Rules of origin are basically of two types- 'Non-preferential Rules of origin' and 'Preferential Rules of Origin.' The main purpose of preferential rules of origin is to provide the preferential benefits and to prevent trade deflection as well. RoO are an integral part of an FTA; in fact, many FTAs are concluded just because each party to the agreement is satisfied with the design of RoO. Dattagupta and Panagariya (2001) argue that RoO can improve the political viability of an FTA. When these rules are made very stringent, they become counter-productive to trade flows as well as against the very idea of an FTA. Cadot et al (2002) have established that RoO negate the effect of tariff reductions under an FTA. Because, these rules shrink the input-space for any producer which raise the unit cost of the produce (K. Krishna, Understanding Rules of Origin(ed.), 2005). Bhagwati, in his

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book 'Termites in the Trading System, (2008)' has termed FTAs and their crisscrossed associated rulings as spaghetti in a bowl due to which bowl of trade system is not moving. Put simply, due to overlapping FTAs and their rulings, volume of trade is not going up.

In case of India particularly, the economic survey of the government of India, 2019-20 argues that the overall impact on India's exports to the partners, with which FTAs have been signed, is 13.4 per cent for manufactured products and 10.9 per cent for total merchandise. During the period 1993-2018, trade surplus for India per year has increased 0.7% for manufactured products and 2.3% increase per year for total merchandise. Seeing the size of Indian economy, these are not very encouraging figures.

Evaluating the potential implications of emerging mega trade blocks such as RCEP and TPP using the GTAP model, Ganesh-Kumar and Chatterjee (2016) suggest that India should strive to achieve multilateral trade agreement and in parallel, should participate in bilateral agreements with its key trade-partners. Recently, India walked out of the Regional Comprehensive Economic Partnership (RCEP) agreement at the eleventh hour while it was a lead negotiator in this agreement. Having done ex-post analysis, Sharma et al (2023) have pointed out that India would have lost a significant portion of GDP if it had participated in it. Yet, India has recently signed some FTAs and is negotiating some more.

In modern world, the production of any commodity is fragmented across many nation-boundaries. Each country involved in this supply chain does some value addition to the end-product. A very interesting example is of Apple's iphone. An Asian Development Bank Institute study reports that China exported Apple iPhones to the U.S. at a unit price of USD 179. Of each unit's total value of USD 179, approximately USD 172 consisted of costs for imports of foreign inputs or parts (mostly from Japan, the Republic of Korea, Germany and the U.S.), i.e. the value added in China only represented USD 6.5 (Xing et al.,2011). The literature on connection between FTA and GVC has been developing. Orefice and Rocha (2014) have explored the relationship between these two where they find that on average, signing deeper agreements increases production network trade between member countries. Flaig and Greenville (2021) show that trade agreement increases GVC integration worldwide while the effects differ by type of integration, namely, forward or backward. But this potential of FTAs is not being actualized due to harsh Rules of Origin. Baldwin et al (2009) and Thang et al. (2021) find that there is negative relationship between RoO severity and both backward and forward participation because RoO constrain the firms' sourcing choices.

Even there should be an enhanced focus on NTBs to overccome this limitation, tariffs should also be given a space in trade policy making. Table 1 shows the aggregated import tariffs applied by different countries on their counterparts for certain sectors. In general, the tariffs applied by the developing countries are higher than those of advanced countries.

In the backdrop of such a debate, one can assume that FTAs have potential of growth for any economy but it has not been actualized yet, especially in case of India. So, in this article we try to articulate a

different approach and design of an FTA. In traditional FTA, two or more countries get engaged in a negotiation of almost full range of products that they usually trade. As a result of these negotiation, RoO come into picture. They are of two forms- Regime-wide rules (or General rules) which apply on each product and another is Product-specific rules which are different for different products. The severity of these rules makes an FTA unviable. Second most common thing in traditional FTA is the exclusion of sensitive sectors. For example- Dairy and tobacco are among some sectors that have been excluded from negotiations under the India-UAE agreement. In this way, a traditional FTA comes with its own set of challenges, called second-best option in trade regime while first-best (multilateral liberalization) is unattainable. As an alternative to this, we propose Sectoral Trade Agreement (STA).

In the next section, we define STA and its advantages over a traditional FTA. In section 3, we present the conceptual framework behind the study. Section 4 is about data and methodology while its subsection details about the anaytical framework and experiment design. The fifth section is about the results and discussion while the final one concludes.

2 Sectoral Trade Agreement

Sectoral Trade Agreement may be a type of Free Trade Agreement wherein emphasis would be given on a particular sector (or industry) with all the major producer countries involved in that sector. For example, suppose an STA of Automobile sector is formed. In this STA, all the major producing countries will be included. These countries will be producing different items at different level of value addition, some would be producing fully-built vehicles like cars while some would be doing parts and accessories like seats, engines, gear-box, tyres etc, some would provide the raw materials like steel, iron and ores, rubber and plastics etc. In a nutshell, all the countries involved in STA will be doing value-addition at some stage of the global value chain (GVC) in automobiles. A country might be related with others in both backward and forward linkages in the GVC. Also, this mechanism will be open for others to join in, any minor producer can join the agreement at any time later.

This type of agreement has other advantages over the traditional FTAs in terms of negotiation and implementation.

- **Rules of Origin:** The idea behind RoO is to determine the nationality of any product and to prevent the trade deflection. Since STA will be comprising all the major producers in the agreement, there is a meagre chance of trade deflection so the severity of RoO will dial down automatically. Any product coming from one partner to another partner will not be turned down unnecessarily if it is meant for a particular sector. A consignment of steel coming from Korea to Germany for Automobile sector will not be rejected because of value-addition criteria. While it may be rejected

under a traditional FTA between Korea and Germany if it lacks value-addition criteria.

- **Trade Diversion:** A fine criticism of a traditional FTA is that it is a discriminatory device against non-party country and can lead to trade-diversion. Since in an STA, all the major producer countries will be the members, the chances for trade diversion will be very less.

- **Sensitive Sectors:** In traditional FTAs, some sectors are excluded from negotiation because they are sensitive. In STA, there is going to be negotiation about only one sector particularly. So other sectors will not be touched upon. In this way, it will be easier to conclude the agreement early.

- **Preference Utilization:** The preference utilization rate of FTAs is very less for some countries. This is more evident in case of developing countries. Several reasons have been cited and one of them is administrative cost of proving origins. Since STA does not involve stringency of RoO, it may boost utilization rate as well.

- **Minimal disruption in Supply Chains:** Seeing from the management point of view, an STA might be very beneficial when it comes to supply chains disruption. Suppose there is a kind of negative trade shock locally, it will jeopardize the entire supply chain because it will disrupt the supply of commodities to other countries. Since an STA has an areal advantage, shock will be having minimum effects on supply chain.

These types of agreements are well suited for those sectors wherein the production is fragmented across many nation boundaries. Or, a product which requires many intermediate inputs as well as factor inputs may be considered under this type of agreement. As another example, we may think of electronics industry, particularly a mobile phone, where many countries are involved from R&D to production to distribution. But sectors or products which require less varied inputs like textile industry, food processing industry etc may not be ideal ones for forming an STA. So, this may be counted as a limitation of STA. Another practical limitation would be to bring all producers on board because of institutional conditions relating to judiciary mechanisms especially when legal and intellectual property rights are weak in some of the potential member states. Further, political and other non-economic consideration also might be a factor to deal with.

3   Conceptual Framework

In this conceptual model, we suppose that there are N+M countries, N are producers of commodity 'x' and M are not, while they're producers in other product-groups, say 'y'. There is Constant returns to scale technology and perfect competition in the economy. Let there be two countries A and B which both belong to N producers group. A is importer-producer while B is net exporter-producer of commodity x. Before agreement, world equilibrium price is P_x^{*0}. Country A, producer-importer of x applies tariff t_x^A

which imports m_x^{A0} where $c_x^{A0} - y_x^{A0} = m_x^{A0}$. c, y stands for consumption and output.

$P_x^{\alpha A0}$ be the import price for commodity x in country A. Now, country B being the net exporter country will export at the price P_x^{*0}. Since $P_x^{\alpha A0} > P_x^{*0}$, export will flow from B to A. For the brevity, we assume that the domestic prices of commodity x in country A is less than or equal to the import prices because more often the tariff is placed to hike the import price in comparison to the domestic prices so that domestic industry is protected from outside competition. Let $P_x^{d A0}$ be domestic price of x in country A. Hence,

$$P_x^{\alpha A0}(\geq P_x^{d A0}) = P_x^{*0} + t_x^A$$

Now, if an agreement takes place between these two, the tariff on x will be removed. The import price in country A will be reduced to the world equilibrium prices. That is,

$$P_x^{\alpha A1} = P_x^{*0}$$

so that

$$P_x^{\alpha A1} < P_x^{\alpha A0}$$

That means import prices will be equal to world equilibrium prices and by assumption domestic prices will be equal to or less than import prices. But in equilibrium, all three prices- domestic prices, import prices and export prices- will be equal. If post-agreement, the domestic prices are less than the import prices then the firms will be having an incentive to make profit so domestic prices will shoot up. If domestic prices are higher than import prices then due to ensuing competition, firms have to adjust their prices. Ultimately, prices will be in equilibrium.

$$P_x^{d A1} = P_x^{\alpha A1} = P_x^{*0}$$

In this way, for country A, the new import price index P_M^{A1} will be less than the pre-agreement import price index while export price index $P_X^{A1}(= P_X^{A1})$ will remain as it is. We know that the terms of trade for any country is the ratio of export price index to import price index. And, an improvement in the terms of trade leads to the improvement in the welfare for that country.

$$\frac{P_X^{A1}}{P_M^{A1}} > \frac{P_X^{A0}}{P_M^{A0}}$$

since $P_x^{\alpha A1} < P_x^{\alpha A0}$. Hence $Welfare^A \uparrow$

Now, for country B, there is no change in the export prices. It was supplying 'x' at the same price in pre-agreement phase what it is charging in the post-agreement phase. so the terms of trade has neither

improved nor deteriorated for country B.

$$\frac{P_X^{B1}}{P_M^{B1}} = \frac{P_X^{B0}}{P_M^{B0}}$$

since $P_x^{*0} = constant$. Hence $Welfare^B = constant$

Now, the demand channel will be activated in country A because of the lower prices of commodity x. This means firstly, the domestic prices will shoot up to P_x^{dA2} that will lead to higher domestic production and ultimately import demand will rise too because by definition A is an producer-importer.

$$c_x^{A0} \to c_x^{A1} \Rightarrow y_x^{A0} \to y_x^{A1} \Rightarrow m_x^{A0} \to m_x^{A1}$$

Now country B will supply at an increased prices that means, $P_x^{*0} \to P_x^{*1}$, and they will eventually inflate prices too. Theoretically speaking, to ensure the flow of trade from country B to country A, domestic prices of x in country A must be greater than or equal to world export price of commodity x. That is $P_x^{dA2} \geq P_x^{*1}$. Now the increased export prices will lead to increased import prices for commodity x, that is $P_x^{\alpha A1} \to P_x^{\alpha A2}$. Since there is no tariff distortion now, $P_x^{*1} = P_x^{\alpha A2} \leq P_x^{dA2}$. In equilibrium, domestic prices will cool down because of market mechanism. Hence, all three prices will again be in equilibrium. Now the export price index for country B will increase than earlier.

$$\frac{P_X^{B2}}{P_M^{B2}} > \frac{P_X^{B1}}{P_M^{B1}}$$

since $P_x^{B2} > P_x^{B1}$. Hence $Welfare^B \uparrow$

The increased demand for x will induce the demand for its input-products. Country B will now demand for inputs for x which will be supplied by countries which are in country group M. Suppose they supply inputs 'y'. Now if the country B removes the tariff on inputs then $P_y^{\alpha B2} < P_y^{\alpha B1}$. Again, the terms of trade will improve for country B because of lower import prices. Hence, welfare will improve for country B.

The countries which are in country-group M and supplying y to country B, do consume x as well. Since the new equilibrium price for x has increased they will have to pay more. So their import price index will go up. At the same time, the export price index will also go up for them because y are in demand and their prices will go up.

$$\frac{P_X^{O2}}{P_M^{O2}} > \frac{P_X^{O1}}{P_M^{O1}} \ldots if \Delta P_Y^{*O} > \Delta P_X^{\alpha O}$$

So their welfare will depend upon how much they are exporting vis-a-vis importing. Simply, saying, the other non-producer countries will gain more if they are more involved in the supply chains.

4 Data and Methodology

In this article, we'll be doing a comparative analysis between traditional FTAs and a STA and their implications. For forming an STA in our analysis, we are taking 'Automobile and its parts and accessories' sector. A fully-built car needs around 3000 parts and accessories which are produced and procured by different countries, or we may say that the production of a vehicle is fragmented across many nations. So, this sector contains a potential for forming a robust GVC. For traditional FTAs, we take already-signed bilateral agreements of India with countries which are major producers in Automobile and its parts and accessories. Such bilateral agreements are India-Japan, India-Korea. Apart from these, we take two prospective bilateral agreements for which negotiations are going on – India-UK and India-EU. Apart from this, India-Thailand agreement has been taken. Though this has not been concluded yet but the early harvest scheme was implemented in 2006 between India and Thailand.

To showcase an STA, the first step is to identify all the major producers of two categories- automobile and its parts and accessories. For output data of these selected categories, we have used the 2023 edition of UNIDO Industrial Statistics Database at 4-digit level of ISIC (INDSTAT 4). ISIC class of 2910 and 2930 stands for 'Motor Vehicles' and 'Parts and accessories for Motor Vehicles' respectively. These two classes are prominent for our analysis. Some parts (e.g.- bodies for motor vehicles) lie in class 2920 but this class deals mainly with industrial and freight vehicles and there is no way to disaggregate the data so we are not taking this class in our consideration. We have taken data for the years 2012- 14 and for 2017-19 to capture any recent trends.

Two major problems have been encountered with INDSTAT. One is unavailability of data for some countries for chosen years and other is aggregation of data at division level (in our case, division is 29), while we need a more disaggregated data at class level (that is 2910 and 2930). To deal with the first one, we just replaced the unavailable entry with the average of last three available entries. But in some instances where data was not available from a long time, those countries have been discarded from dataset. The countries that have been discarded comprise more often Islands (Bahamas, Carbo Verde, Iceland etc.), African (Angola, Ghana, Morocco etc.), Latin American (Chile, Bolivia, Peru etc.), East and Southeast European (Albania, Armenia, Belarus etc.) and some Middle east countries like Iran and Iraq etc. Their exclusion does not affect our analysis as these are not major industrial economy. To disaggregate the data into two categories, the proportionality assumption of exports has been applied wherever is applicable.

After this, the countries which are producing more than 1% share of the global production for the average of 2012-2014 and 2017-19 have been taken. These will be considered as the major producer countries in concerned categories. Though the cut-off of 1% is arbitrary, it will encapsulate all those countries which have some kind of production capability. This set of identified countries has been cross-verified using GTAP input-output table. To account for the exceptions between datasets, a union set of both

UNIDO-identified country set and GTAP-identified country set has been taken. In this way, with some exceptions the set of producer countries identified is common to both datasets. It is to be noted that our idea here is not to identify the exact number of producers or precise figures of production data for any year but to showcase an alternative mechanism of a trade agreement. For that purpose, above method fits well. In this way, we get 14 countries whose average production share is more than 1% in global production in category 2910 and another 5 countries for category 2930.

Now we need to identify the intermediate input sectors for Automobile and its parts sector. For this identification, we use OECD Inter-country Input-Output table for above mentioned years. We take average of shares and find a set of input sectors. This has been verified by looking at GTAP input-output database. Same set of input sectors is found but with varying shares possibly due to differences in the aggregation of commodities in two datasets. Table 2 provides the final identified countries and sectors.

Now turning our focus back on bilateral FTAs, we find from the literature that the preference utilization rate is very low in India. There is no availability of secondary data about the utilization rate. Some studies have tried to conduct a survey to get an estimate of this. Unavailability of this type of data is also true for some countries like Japan, Korea, and Singapore also. Kawai and Wignaraja (2011) find a distinct pattern of usage of FTAs among the different firms of Asian countries. The greatest proportion of People's Republic of China (PRC) firms (45 per cent) use FTA preferences, followed by Japanese firms (29 per cent) and Thai firms (25 per cent). In contrast, fewer firms in the Republic of Korea (21 per cent), the Philippines (20 per cent) and Singapore (17 per cent) make use of FTAs. Jha (2013) reports the utilization rate of India-Sri Lanka FTA is 11% only. Apart from these, to the best of our knowledge we don't find any comprehensive study that talks about the utilization rate of India-specific bilateral FTAs.

If we use the figures of Kawai and Wignaraja study, the average rate for Japan and Korea comes at 24%. While this figure is of firm's usage, the actual number might be low when we incorporate the rejection of certificates of origin from the importer country. But, we may consider the other factor like increased awareness among the exporters regarding the usage of FTAs. Hence, we take a lower bound of utilization rate as 25% and upper bound as 50%. Though latter is quite high but it will subsume the possibility of increment in utilization rate. We take five bilateral agreements for analysis. India has already concluded agreements with Japan and Republic of Korea (Korea onwards) and are in force. While there are two prospective FTAs, one with the United Kingdom and other with the EU and remaining one is with Thailand, making this a mix of ex-ante and ex-post analysis of bilateral FTAs. The reason behind choosing these agreements is that these countries are also in the major producing countries set.

4.1 Analytical Framework and Experiment Design

For our analysis, we use standard GTAP model and GEMPACK software suite. The GTAP model is a comparative-static multi-region multi-sector CGE model. The assumptions for this model includes perfect competition, constant returns to scale, and the bilateral trade is determined by the Armington assumption. While GTAP model assumes full employment condition of factors but here we've relaxed the full employment condition for skilled and unskilled worker as well as for capital to make this model more realistic. This model is based on the concept of circular economy where each country is represented by a regional household which sells factor endowments to firms and receives income in lieu of this, and a subsidy from the government. Then this income is spent according to Cobb-Douglas function. Firms get revenue by selling in domestic market and foreign market and pays the returns to primary factors, import taxes, domestic taxes. Each region is then linked to each other by international trade and investment flows. The use of domestically produced and imported ones are determined by the Armington function. So in this way, a shock or a change in any part of the economy will affect the whole world economy. Some region and sectors will get a direct impact while others will experience due to inter-sectoral linkages of the economies. After shock, the world economy will again reach an equilibrium where for each region its difference between savings and net investment will equal trade balance and as a whole economy total exports of world economy will be equal to total imports.

4.1.1 Disaggregation of a GTAP sector

For our analysis, we have aggregated the regions and the sectors according the requirements. Above mentioned countries have been chosen as major producer countries in Automobile and parts and accessories sectors. Same way the input sectors have also been aggregated.

In GTAP database there are total 134 regions and 57 sectors which have been aggregated initially into 22 regions and 18 sectors respectively. The five factors of production are retained as such here. One limitation of GTAP is that it does not allow sectoral disaggregation of data, like the category mvh includes 'Motor vehicles and parts' so both fully-built vehicle and associated parts are clubbed into one. For disaggregation of these two, we use SPLITCOM software. To split 'mvh' into two categories, simple user-weights (SPLITCOM disaggregates a sector into many according to user-provided weights for split) have been used based on the calculation of UNIDO production data. One may use different data like exports data to get user-weights. For STA specification, we take the average share of 2910 and 2930 for included countries over a period of 2012-2019 and it comes 0.61 and 0.39 respectively. While for FTA scenarios it comes 0.55 and 0.45 respectively. Though one may use more complex user weights, we use simple ones to make our experiment simplistic.

In this way, we finally have 22 regions but 19 sectors, one added sector is parts. Table 3 provides the aggregation scheme of countries while Table 4 provides that of sectors.

4.1.2 Input Tariff Removal

As an extension to our idea of STA, there will be tariff relaxation not only on the end-product but also on the inputs going into the end-product. For example- A tariff removal will be done on the automobile in a country coming from the potential STA member country. In addition to this, a member country will remove tariffs on intermediate inputs going into automobile imported from any country whether the exporting country is a member or not. A country will import some inputs for its automobile industry while for some inputs it will procure domestically. Even in the domestic contents, there will be some imported contents. These both direct and embodied import contents will be provided tariff relaxations. In order to that STA will be implemented in two steps. The first step is to provide tariff relaxation amongst all the major producer countries on the end products. The other part will be to provide tariff relaxation on the identified inputs that are going into automobile sector. Dis-aggregation using SPLITCOM serves a half purpose. It actually splits the sector C29 of ISIC into two- 'Automobile' and 'Parts and accessories'. That means the end product that are being used in automobile like car-body etc will be split from fully-built vehicles. But for the raw materials and intermediate inputs like chemicals, metals etc, we have to take another course.

Actually we need a data like tms(i,j,r,s) and VIFM(i,j,r,s) in GTAP but GTAP does not provide such data. To fulfill this purpose, we analyse the world input-output tables from 2000 to 2014. We calculate the direct and indirect imports coming form other countries' sector to a particular country's sector over the time-period. Indirect imports are the import contents embodied in the domestic contents used by a sector in a country. For aggregate inputs that are going into a country's automobile industry, tariffs will be removed. Here, we've taken a cutoff of 0.1% that means all the inputs which have contributed to more than or equal to 0.1% on average since 2000-2014 in automobile, they will be considered. After that, we map ISIC commodity codes to GTAP aggregations and finally we get data like VIFM(i,r,s) which serves our purpose of input tariff removal.

4.1.3 Scenarios

In all, six scenarios have been carried out here to do the required analysis.

- **FTA_25 Scenario (Low Utilization):** This is business-as-usual scenario where there is an agreement of India with four countries and one region namely- Japan, South Korea, UK and Thailand and EU functioning just at 25% utilization rate. So, in order to this, we slash tariff rates by 25% across the tradable commodities for all the agreements but removed export taxes and subsidies by 100% on all the tradable commodities.

- **FTA_50 Scenario (High Utilization):** In this scenario, everything is same but with an increased

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utilization rate of 50%. Here, import tariffs have been slashed down by 50% and removed all the export taxes and subsidies across the tradeable commodities.

- **STA Scenario:** In this scenario, an STA in sectors 'Motor Vehicles' and 'Parts' is formed with identified countries where the tariffs are removed on both 'Motor Vehicles' and 'Parts' sectors; also, the export taxes and subsidies on these two sectors amongst the STA countries.

- **STAi Scenario:** In this scenario, an STA is formed. Tariff is relaxed on only end-product but also on inputs that are going into automobile sector.

- **Composite_25 Scenario:** In this scenario, we try to get more realistic picture of trade regimes where bilateral FTAs are going on in parallel with a particular STA. While FTAs are still functioning at the low utilization rate of 25%.

- **Composite_50 Scenario:** Here, we do same simulation as that of composite_1 was done but with increased utilization rate. Here the utilization rate for FTAs is 50% while usual Automobile and Parts STA is also functioning in tandem.

- **Global Multilateral Agreement (GMA) Scenario:** Theoretically, this will be the first best situation where all the import and export taxes as well as export subsidies are removed for all the sectors for all the countries in the world.

5 Results and Discussion

The experiments have been performed according to above mentioned scenarios. Results have been distributed in two parts. In part 1, from table 5 to table 13, India specific as well as other countries' results regarding STA have been discussed. In part 2, from table 14 to table 18, a detailed comparative analysis between FTA, STA and Composite scenarios have been discussed.[1]

5.1 Part 1

5.1.1 Macro-variables

Table 5 provides the results regarding the volume changes for India's output, domestic sales, gross exports, private household imports and government imports for each sector including Motor vehicles and Parts for STA scenario only. Firstly, if we consider the motor vehicles and parts sector, the domestic sales of these two sectors are going down while output, exports, private household and government imports are going up. Output is increasing for both the Motor Vehicles (MVH) and Parts sector and as an indirect effect of the shock for these industries, other industries like Services, Trade and Transport etc

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[1]All the result tables are in appendix.

are also gaining. Services is a biggest achiever here because of the aggregation since many subsectors like construction, sea transport, air transport are clubbed in Services. Exports are going up for MVH and Parts so they definitely push the transportation sectors up. Output increment is there for intermediate input sectors like FMP, ELE and OME etc that means these sectors are witnessing increased demand from MVH and Parts. This has been elaborated in the next table. Output for some sectors is declining as well. All the sectors which are losing output, also lose out in exports as well, e.g.- Manufacturing, Textile-Leather and Chemical-Rubber-Plastic etc. This correlation suggests that some non-competitive units might have shut down so they are producing less and exporting less.

For MVH and Parts sector, the highest increase in exports has been registered. This may imply that India is exporting more of low-end models and importing more of high-end models while the domestic demand for low-end models has gone down as domestic sales for these two sectors are in red.

In domestic sales category, MVH and Parts are the biggest losers that means there is less demand for domestic products. As far as domestic sales are positive even if output and exports are in negative, this is not a matter of concern because there is demand for these products in the economy. To corroborate this, we can see that the imports for these sectors are also positive which show increased demand because of cheaper imported products due to tariff liberalisation. Such sectors are Manufacturing and Textile-Leather. The only sector for which demand in the whole economy has gone down is Nonferrous metals. If we see the aggregate (total) for all the macro variables, we find the same pattern that has been observed for MVH and parts sector. Production in the economy has increased by 2897.14 million \$US with high volumes of exports registering an increase of 3119.66 million \$US. Domestic demand has risen in terms of imported commodities not for domestic ones.

5.1.2 Intermediate Consumption

Table 6 details about the volume changes in intermediate consumption of any commodity in Motor Vehicles and Parts industry. Domestic procurement of all the commodities for usage in these two sectors are going up except Motor Vehicles and Parts. In parts, NFM sector's input is going down with a very low amount of 0.07 million \$US. While for imported input commodities, all the input sectors are showing an uptick including Motor Vehicles and Parts. One interesting fact here is that the imported demand for the MVH and Parts is higher than reduced domestic demand for the same sectors.

This pattern explains one more finding that these two sectors are using imported inputs more due to either their cheapness or superior quality. Price factors behind this will be explained in further tables.

5.1.3 Factor Endowment Demand

Table 7 illustrates the results for absolute change in the demand for factor endowment in different sectors. Change in factor demand is the direct result of a change in output. All the sectors which are losing in

terms of output are also losing in terms of factor employment. Such sectors are Manufacturing, Textile-Leather, Chemical-Rubber-Plastic and Nonferrous Metals. At the same time, the biggest positive jump is for Services sector in all three categories of unskilled labour, skilled labour and capital. MVH and Parts are also net employers of factors. As an aggregate, in STA scenario, India employs 516 thousand unskilled workers and 178 thousand skilled workers while 669 million $US comes in the economy in terms of capital formation.

In a nutshell, STA formation will create jobs and assets in the economy.

5.1.4   Output

In terms of output (table 8) a high positive percentage change for Motor Vehicles and Parts sector is for Japan, south Korea and Thailand while others like Brazil, India and South Africa also produce more. Others are losing in output for these two sectors. But the countries which are losing in these two sectors are gaining more or less in others. Though Australia lost in these two, it registered significant output change in all other sectors. Same is with EU, China, US etc. The absolute winners in output are Japan, Korea, Thailand, Brazil and South Africa as they gain in each sector. The biggest positive output change in both MVH and Parts is for Thailand. One of the reason is that Thailand applies the highest tariff on MVH and Parts sector (25.3%) so when it removes tariff and joins STA, many producers shift there to produce because of cheap labour available there, as the labour prices go down by 0.14% in Thailand and capital increases by 14.5% in MVH sector and 13% in Parts sector (table 13). India also applies high tariffs on MVH but here factor prices go up by 0.11% that's why it attracts less capital, merely 1.22% in MVH and 0.4% in Parts. So that's why there is less output but still positive. South Africa is the biggest achiever in terms of output and it registers highest output increment in all sectors except MVH and Parts because of the biggest cut in factor prices of 1.35% here. While the case of Japan and Korea is different, they are producing more at the same time when factor demand and prices go up. This might be due to their monopolistic production of automobiles and parts.

Now if we just exclude MVH and Parts sector, we find that almost each country except Turkiye registers more output even some non-STA blocs like Oceania, Rest of Europe and Sub-Saharan Africa.

5.1.5   Export Prices

Before discussing the changes in exports of commodity in a region, export prices should be seen too. Table 9 gives the percentage change of exports for different commodities in different regions for STA simulation. Except for Japan, each country and region experiences a slump in the prices of exports of Motor Vehicles and Parts sector. India's export prices are lowest in both sectors. Notable point here is that the prices for developing countries like China, India, Mexico, South Africa etc are going down in big number in respect to their advanced counterparts. Apart from these two sectors, other sectors also get

prices lower. EU, Australia, Mexico, Brazil and Russia registers low prices for almost sectors including Motor Vehicles and Parts.

The reason behind export price slump may be due to ensuing competition and efficiency effects. Export prices for non-STA regions are also going down. The impact of trade agreements on world export prices is not very clear from the literature but in general it is considered that the membership to an agreement lowers the trade barriers on imported commodities that leads to a reduction in export prices as well through cost-reducing effects.

5.1.6   Export Volumes

Now we can analyse the changes in exports (table 10) together with export prices. Changes in exports are on line with the changes in export prices. India's exports for Motor Vehicles category has gone up by 86.6% while for Parts it is around 87.7%. Almost each developing country show a high positive jump in exports for both categories as these countries experience low prices for exports. In case of India, it might be said that there is low volume-base effect. For other sectors, there is a jump in export volumes. EU, Australia, US, Mexico, Turkey etc. export more in sectors other than MVH and Parts.

Non-STA regions are also gaining in almost sectors including Rest of Asia and Rest of America. India is gaining in Motor Vehicles and Parts as wells as in some other sectors too like Extraction, Services, and Transport but it is losing export shares in other sectors.

5.1.7   Import Prices

Table 11 reports the changes in market import prices in percentage terms for each country for STA simulation. Import prices for Motor Vehicles and Parts are going down for each country. Their biggest cut has been observed for India in both sectors. Import prices for India in these two sectors have gone down by around 21%. China, Thailand, India, Brazil, Russia, South Africa and Mexico all these developing countries prices for these two sectors are going down in bigger numbers. This pattern should be seen in the context of import tariffs (table-1). All the developing countries are applying higher tariffs in comparison to advanced economies. So in this STA, when tariffs are removed, the bigger beneficiaries turn out to be developing countries. MVH and Parts import prices for non-STA blocs are also going down so they are beneficiary of STA regime without being a subscriber to it. Apart from MVH and Parts, other sectors are experiencing an uptick in import prices because of non-removal of their tariffs. Since output in MVH and Parts has expanded, their demand also increased so that's why the import prices.

5.1.8 Import Volume

Table 12 details about the percentage changes in volume of imports for different commodities by the countries. We have seen that there is biggest cut in import prices of Motor Vehicles and Parts for India. Now putting this finding into context, it may be easily understood that India is the biggest importer of products in these two categories. India imports 70% and 74% products of these two category respectively. Same can be said about other developing countries like China, Thailand and South Africa etc. Cheaper imports are beneficial also for non-STA partner countries. Excluding Rest of America, each non-STA bloc imports more in these two category.

5.2 Part 2

5.2.1 Welfare

Now we turn our focus back towards bilateral FTAs as well as STA. FTA utilization rates for both the scenarios have been mentioned above. Table 15, table 16 and table 17, table 18 and table 19 decomposes the welfare into allocative efficiency, endowment, terms of trade and investment-savings effect. Table 15 explains the welfare for countries in case of bilateral FTA between some countries. There is a significant welfare improvement for the countries which are part of bilateral FTAs namely, EU, Japan, South Korea, India, Thailand, and UK in both base scenario and second scenario. Though in second scenario- with 50% utilization rate (FTA_50)- their metric for welfare is increasing, non-FTA countries like China, Canada and USA etc are losing in both scenario and particularly in the second scenario they are losing much. This corroborates the much-debated argument about FTA being discriminatory against the non-participant economies. The aggregate welfare of world economy is improving by 29116.4 million USD while the countries which are involved in FTA are gaining 33124 million USD collectively in the second scenario in comparison to base scenario. That means some countries are gaining at the cost of others.

India is gaining in allocative efficiency, endowment and investment-saving while losing in Terms of trade. A high and positive allocative efficiency shows a better utilization of resources in the economy while endowment-effect shows better employment of factors situation. A negative terms of trade means India loses out in terms of export prices in comparison to import prices. Since India is more involved in labour-intensive production or basically low-grade automobile models that may fetch lower value in comparison to imported products.

Now in table 16, welfare results for STA and GMA scenario have been shown. A very interesting fact here in STA is that no country except Turkey is losing in terms of welfare. Even the non-STA blocs except Rest of America, are gaining in welfare here. And this is the biggest advantage of STA over bilateral FTA. The former overcomes the criticism of FTA being discriminatory.

India's welfare is going down but positive in STA so is with EU and UK. India is a part of automobile GVC and a producer but not as big as Japan, Korea and Germany etc and since it is a one sector STA, India's welfare has gone down in comparison to base and second scenario which exhibit full bilateral FTA. Same case is with EU. In our analysis, EU comprises 27 countries and out of which the major producer are few to name- Germany, France, Sweden, Italy etc. Majority of the EU countries are not producer in this sector. UK is not losing much, with just one sector (MVH plus Parts), it is coming close to the FTA situation.

Rest of America is losing, its welfare is in negative. Rest of America comprises the countries from Latin America and here except Brazil and Argentina, no country is a big economy. Brazil is gaining in welfare as a direct member of STA but others might not be benefiting due to STA spin-off or GVC effects because they don't have much production capabilities. If we analyse the welfare loss in terms of GDP (relative welfare) of a country, it would show a more granular picture.

$Relative\_welfare = \Delta EV / Post\_GDP$

So the relative welfare loss for the Rest of America is just 0.04% of GDP (GDP data is in table 14). Same is true with Turkey where it loses around a slight higher 0.26% of GDP.

Table 17 decomposes results for composite scenarios welfare. The aggregate welfare for the world economy is improving in both composite scenario. This is simply to showcase that in bilateral FTA, participating countries were benefiting much in comparison to STA. In STA, gains from trade liberalization was being distributed over many countries making it non-discriminatory while in a scenario like composite scenarios, both things are happening simultaneously. For example- India gained around 18 billion USD in low utilization scenario while it improved to 25 billion USD but it deteriorated in STA. In both composite scenario, India is now close to bilateral level FTA welfare. Same is with EU, in fact EU is gaining more in composite scenario. From this perspective, composite scenarios are better than bilateral FTA and standalone STA. Now we may think that if there are many STA in different sectors among the countries depending on their production capabilities and also, regional and bilateral FTAs are also functioning at the same time, global trading system may reach close to the GMA scenario.

If we look at table 18 that shows welfare for all countries with input tariff removal, this is almost same what STA is. But welfare for non-participating countries increase because their terms of trade is increasing. Just because of tariff removal on inputs, non-participating countries can penetrate the market of producing countries and they get involve in GVC. Due to these GVC effects, their terms of trade rise and eventually, welfare rises.

As a summary, we can look at table 19 where gains and losses have been tabulated for members and non-members in each scenario. One very interesting thing to look at is the gain and loss for the non-members. In FTA_25 scenario, non members lose around 4 billion dollars in welfare and this gets double in FTA_50 scenario. In the later case, we may assume that the exporters and importers are using the preferential

channel much and that's how they are doing more trade with members while not doing or reducing with non-members. So, in the later case members are gaining 34 billion dollars while non-members' gain have reduced by 700 million dollars and losses have doubled approximately. This shows how FTAs work against the non-members.

Now in STA scenario, non-members' gain have multiplied five times in comparison to FTA_50 while the loss has gone down by around 92%. Not to mention, the gains for members are increasing significantly in STA scenario. In fact, these are increasing in composite scenarios. Welfare gains for member countries rise up to 447 billion dollars in composite_50 scenario. The loss for non-members reduced to only 24 million dollars. This highlights two things that the non-members are not in the loss due to trade agreements, instead they are gaining. Secondly, the gains for members is rising when FTAs are functioning in tandem with STA and this inches towards the GMA situation.

5.2.2 Output of India in all scenarios

Now, we compare the outputs for India for all three scenarios in table 20. From any dimension, percent change in output in composite scenarios is far better than STA scenario. Except business services sector, none is losing out. Composite scenarios depict the miniature model of GMA scenario if welfare and output is compared.

6 Conclusion

A dominating parochial way to assess an FTA is to see trade balance with partner countries. Trade activities should not be seen in a binary perspective of trade deficit or trade surplus. It comes with its own pros and cons and this has been established theoretically in the literature. To see an FTA as an export-booster or output enhancer mechanism is an inappropriate narrative as this is just the scratching of the surface, instead one must dig deeper to find its effects. Some countries will gain via trade, some will experience efficiency increase, some may find it more useful to import than to produce, some may lose output in some sectors but these things happen when two or more countries involve in free trade. But, an FTA comes with some structural inhibiting elements like stringent RoO, exclusion of sensitive sectors etc. which lower its utilization rate.

Here comes the utility of an STA actualized. Sectoral Trade Agreement may overcome the fault lines created by Free Trade Agreement. Each country gains in one way or other. And, more importantly, this mechanism is not discriminatory against non-partners as they also gain via GVC effects. In our model, even non-partners also gain in one way or other. Their welfare is enhancing even being non-participant. But the composite scenario which are hybrid of FTA and STA are better than both the FTA and STA. This means that our first best choice should be the GMA situation but due to some obvious reasons,

it is difficult to get there. So the second best choice would be a composite scenario. Since there will be no place for stringency of RoO in STA as the partner countries are involved in a GVC here so they would not try to stymie the entry of commodities as far as they are coming from their partner-countries of STA. Hence, Countries should strive to make sectoral agreement in particular sectors but at the same time there should be a work on reducing non-tariff barriers in bilateral trade agreement regimes because this composite trade regime will enhance welfare of an economy.

STA can be thought of as a means to revitalize the global value chains because it enhances the welfare of all the countries which are involved here at any layer. One more advantage can be thought of in terms of minimization of supply chains disruptions. If supply chains are disrupted locally, still STA will be functioning because many countries are involved, its areal scope is large.

Though STA comes with its own limitation, it carries a promising prospects of economic growth for partner-countries as well as non-partners.

The paper is based on GTAP version 8.1. The same scenarios are to be replicated with the latest GTAP database 11. The updation of database is underway. Further, we'll do a robustness check to the idea of STA vis-a-vis traditional FTAs to see the potential for the former, more STAs will be formed. For that purpose, we have selected the electronics sector. The countries and inputs identification part for the electronics sector has been completed. The only remaining part is to implement the model in GTAP and further, it's discussion.

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8 Appendix

Table 1: Import Tariffs

Country	MVH	Text_lea	crp	nmm	i_s	nfm	fmp	ele	ome
1 Australia	9.1	6.5	2.1	3.4	3.4	1.7	4.1	0.9	2.6
2 China	12.9	9.4	7.1	10.5	4.1	2.7	8.5	1.6	6.4
3 Japan	0	8	0.9	0.9	1	0.6	0.4	0	0.1
4 SKorea	6.6	6.9	4.8	6.8	0.5	2.6	5.8	1.3	5.3
5 Thailand	25.3	7.2	6.3	9.9	2.6	1.5	10.9	0.9	5.1
6 India	20.2	14.1	13.3	14.2	18.5	14.2	14.3	3.3	13.5
7 Canada	3.4	7.5	1.4	1.6	0.3	0.3	2.3	0.4	0.9
8 USA	0.8	5.8	0.9	2.5	0.1	1.2	1.1	0.3	0.5
9 Mexico	10.9	9.6	5	8	4.8	4.8	7.9	1.8	5.1
10 Brazil	17.1	13.9	6.5	9.1	8.9	5.5	14.3	8.4	11.4
11 Czech	2.2	2.5	0.7	1.1	0.2	1.8	0.9	0.5	0.5
12 France	2.4	2.6	0.8	1.1	0.2	1.3	0.9	0.7	0.5
13 Germany	2.7	2.5	0.9	1.2	0.2	1	0.6	0.4	0.5
14 Italy	2.6	1.9	1	1.1	0.1	1	0.6	0.5	0.5
15 Poland	2.7	2.4	1	1	0.1	1.6	0.8	0.6	0.5
16 Spain	2.6	2.6	1	0.9	0.1	1	0.9	0.8	0.5
17 Sweden	2.6	2.9	1	1.2	0.1	1.1	0.8	0.8	0.5
18 UK	2.4	2.6	0.8	1.2	0.1	0.6	0.7	0.4	0.5
19 Russia	9.5	10.6	8.8	11.9	6.3	9.5	12.5	6.1	5.5
20 Turkiye	2.8	2.4	1.2	1.1	1.7	1.2	0.7	1	0.4
21 SouthAfrica	14.9	12.7	3.8	4.5	0.7	0.7	5.1	0.8	2.3
22 Oceania	6.4	5.9	2.2	3.2	2.5	2.5	4.3	1.2	2.8
23 RestofAsia	12.9	7.5	3.6	6.2	3.7	2.1	7.6	1.8	3.6
24 RestAmerica	12.1	9.5	5.7	7.8	4.8	3.8	8	4.8	6.1
25 RestEurope	2.7	2.5	0.9	1.1	0.1	1	0.8	0.4	0.5
26 MENA	17.3	11.9	6.5	11.3	5.7	4.9	11.1	5.2	6.9
27 SSA	11.4	13.8	7.6	13.6	11.9	7.7	14.2	8.4	7
28 RestofWorld	6.5	5	2.9	4.5	3.9	1.3	4.1	2.1	4.1

Calculations are based on GTAP Database(v 8.1)

Sectors' description is defined in Table-4.

Table 2: Identified coutries and sectors

Countries(21)	Input Sectors(14)
Australia	Textiles and Leather Prods
Japan	Chem,Rub,Plastic
China	Non-metallic Mineral
South Korea	Iron and Steel
India	Non-ferrous metals
Thailand	Fabricated metal products
Czech Republic	Motor vehicle and parts
France	Electronic equipments
Germany	Machinery nec
Italy	Trade including reparing
Poland	Transport (Road,Rail)
Spain	Financial Services
Sweden	Business Services
UK	Government Services
US	
Canada	
Mexico	
Brazil	
Russia	
Turkey	
South Africa	

Table 3: Aggregation of countries

No.	New Code	region Description	Comprising regions
1	Aus	Australia	Australia.
2	Chn	China	China.
3	Jpn	Japan	Japan.
4	Kor	South Korea	Korea.
5	Tha	Thailand	Thailand.
6	Ind	India	India.
7	Can	Canada	Canada.
8	USA	USA	United States of America.
9	Mex	Mexico	Mexico.
10	Bra	Brazil	Brazil.
11	GBR	United Kingdom	United Kingdom.
12	Rus	Russia	Russian Federation.
13	Tur	Turkiye	Turkey.
14	Zaf	South Africa	South Africa.
15	EU	European Union	Austria, Bulgaria, Cyprus, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Bulgaria, Crotia, Romania
16	Ocn	Oceania	New Zealand; Rest of Oceania.
17	RoAsia	Rest of Asia	Hong Kong; Mongolia; Taiwan; Rest of East Asia; Cambodia; Indonesia; Lao People's Democratic Republ; Malaysia; Philippines; Singapore; Viet Nam; Rest of Southeast Asia; Bangladesh; Nepal; Pakistan; Sri Lanka; Rest of South Asia.
18	RoAmerica	Latin America	Rest of North America; Argentina; Bolivia; Chile; Colombia; Ecuador; Paraguay; Peru; Uruguay; Venezuela; Rest of South America; Costa Rica; Guatemala; Honduras; Nicaragua; Panama; El Salvador; Rest of Central America; Caribbean.
19	RoEur	Rest of EU	Switzerland, Norway, Albania, Belarus, Rest of EFTA
20	MENA	Middle East and North Africa	Rest of Western Asia; Egypt; Morocco; Tunisia; Rest of North Africa.
21	SSA	Sub-Saharan Africa	Benin; Burkina Faso; Cameroon; Cote d'Ivoire; Ghana; Guinea; Nigeria; Senegal; Togo; Rest of Western Africa; Central Africa; South Central Africa; Ethiopia; Kenya; Madagascar; Malawi; Mauritius; Mozambique; Rwanda; Tanzania; Uganda; Zambia; Zimbabwe; Rest of Eastern Africa; Botswana; Namibia; Rest of South African Customs .
22	RoWrld	Rest of World	Switzerland; Norway; Rest of EFTA; Albania; Bulgaria; Belarus; Croatia; Romania; Ukraine; Rest of Eastern Europe; Rest of Europe; Kazakhstan; Kyrgyztan; Rest of Former Soviet Union; Armenia; Azerbaijan; Georgia; Bahrain; Iran Islamic Republic of; Israel; Kuwait; Oman; Qatar; Saudi Arabia; United Arab Emirates; Rest of the World.

Table 4: Aggregation of Sectors

No.	New Code	sector Description	Comprising sectors
1	AgrFd	Agricultural Primary Food	Paddy rice; Wheat; Cereal grains nec; Vegetables, fruit, nuts; Oil seeds; Sugar cane, sugar beet; Plant-based fibers; Crops nec; Cattle,sheep,goats,horses; Animal products nec; Raw milk; Wool, silk-worm cocoons; Forestry; Fishing; Meat: cattle,sheep,goats,horse; Meat products nec; Vegetable oils and fats; Dairy products; Processed rice; Sugar; Food products nec; Beverages and tobacco products.
2	Extrct	Mining and Extraction	Coal; Oil; Gas; Minerals nec; Petroleum, coal products.
3	Mnf	Rest of mnfc industries	Wearing apparel; Wood products; Paper products, publishing; Transport equipment nec; Manufactures nec.
4	**TexLea**	Textiles and Leather Prods	Textiles; Leather products.
5	Srvcs	Rest of Services	Electricity; Gas manufacture, distribution; Water; Construction; Sea transport; Air transport; Communication; Insurance; Recreation and other services; Dwellings.
6	**CRP**	Chem,Rub,Plastic	Chemical,rubber,plastic prods.
7	**NNM**	Non-metallic Mineral	Mineral products nec.
8	**IS**	Iron and Steel	Ferrous metals.
9	**NFM**	Non-ferrous metals	Metals nec.
10	**FMP**	Fab_metal prods	Metal products.
11	**MVH**	Motor_vhcle parts	Motor vehicles and parts.
12	**ELE**	Electronic equipments	Electronic equipment.
13	**OME**	Machinery nec	Machinery and equipment nec.
14	**Trade**	Trade including reparing	Trade.
15	**Trspt**	Trnsprt (Road,Rail)	Transport nec.
16	**FinS**	Financial Services	Financial services nec.
17	**BusnS**	Business Services	Business services nec.
18	GovtS	Government Services	PubAd/Compulsory Social Security/Health/Edu
19	**Parts**	Automobile Parts	Automobile Parts

Table 5: Volume Changes for India Macro Variables (million USD)

Sectors	Output	Exports	Dom sales	prvt hhld import	govt import
1 AgriFood	177.19	-36.94	214.13	35.06	0.15
2 Extraction	536.53	319.15	217.38	-1	0
3 Mnfctring	-41.79	-126.14	84.35	4.92	1.2
4 TextLeather	-82.92	-88.66	5.74	12.62	0.28
5 Services	1047.8	-1.02	953.6	22.88	2.71
6 ChmRubPlast	-79.74	-68.94	-10.8	4.88	0.93
7 NonmtlMNRL	56.92	-7.43	64.36	0.48	0
8 IronSteel	54.28	-26.62	80.9	0	0
9 NonfrsMetal	-113.09	-51.83	-61.26	0	0
10 FabMetalProd	74.6	-10.18	84.78	0.39	0.04
11 MotorVhcles	242.44	2176.49	-1934.06	214.86	51.53
12 Parts	50.3	1108.64	-1058.34	117.95	27.9
13 ElecEqpmnts	23.18	-0.88	24.06	6.3	2.17
14 MachineNec	130.76	-36.13	166.89	3.04	0.62
15 Trade	286.04	-1.03	287.07	13.4	0.23
16 TrnsprtRdRl	230.89	14.86	214.93	3.19	0.15
17 FinServices	102.23	-4.81	107.04	4.26	0.73
18 BusnServics	28.23	-36.22	64.45	4.89	4.66
19 GovtServcs	173.29	-2.66	175.96	0.69	1.5
Total	2897.14	3119.66	-318.83	448.82	94.8

Table 6: Volume Changes for Intermediate Consumption (million USD)

	Domestic		Imports	
Intermediate consumption	Motor Vhcles	Parts	Motor Vhcles	Parts
1 AgriFood	0.14	0.03	0.01	0
2 Extraction	0.1	0.02	0.06	0.01
3 Mnfctring	3.24	0.57	1.56	0.43
4 TextLeather	0.67	0.13	0.13	0.04
5 Services	12.19	2.43	1.19	0.34
6 ChmRubPlast	9.46	1.72	2.97	0.86
7 NonmtlMNRL	0.43	0.08	0.06	0.02
8 IronSteel	21.96	4.1	5.76	1.65
9 NonfrsMetal	0.54	-0.07	1.98	0.59
10 FabMetalProd	13.46	2.57	2.47	0.74
11 MotorVhcles	-90.92	-62.37	119.67	74.04
12 Parts	-48.23	-33.73	65.28	40.4
13 ElecEqpmnts	1.43	0.22	1.96	0.49
14 MachineNec	17.85	2.94	10.83	3.01
15 Trade	11.02	2.29	0	0
16 TrnsprtRdRl	8.15	1.69	0.16	0.04
17 FinServices	14.95	3.02	1.29	0.35
18 BusnServics	14.47	2.89	1.71	0.47
19 GovtServcs	0	0	0.2	0.04
Total	-9.09	-71.47	217.29	123.51

Table 7: Absolute change for factor demand

Factor Demand	Land	UnSkLab	SkLab	Capital	NatRes
1 AgriFood	0	58.64	1.99	32.21	-0.04
2 Extraction	0	29.26	4.32	90.86	0.04
3 Mnfctring	0	-6.31	-0.88	-5.51	0
4 TextLeather	0	-9.59	-1.48	-9.08	0
5 Services	0	211.09	48.22	265.39	0
6 ChmRubPlast	0	-4.13	-0.85	-10.51	0
7 NonmtlMNRL	0	5.26	0.87	12.53	0
8 IronSteel	0	3.46	0.57	10.54	0
9 NonfrsMetal	0	-4.75	-0.86	-17.45	0
10 FabMetalProd	0	9.61	1.66	8.58	0
11 MotorVhcles	0	24.85	4.52	22.47	0
12 Parts	0	5.15	0.94	4.66	0
13 ElecEqpmnts	0	0.93	0.2	1.57	0
14 MachineNec	0	10.35	2.21	14.72	0
15 Trade	0	62.61	12.91	127.37	0
16 TrnsprtRdRl	0	49.26	10.16	33.61	0
17 FinServices	0	13.54	9.88	55.27	0
18 BusnServics	0	6.93	5.06	6.51	0
19 GovtServcs	0	50.29	78.33	24.97	0
Total	0	516.45	177.79	668.71	0

Labour is in thousand workers

Capital is in US million dollars

Table 8: Percentage change in Output

Output	EU	AUS	CHN	JPN	KOR	THA	IND	CAN	USA	MEX	BRA	UK	RUS	TUR	ZAF	OCN	RoASIA	RAmerica	RoEUR	MENA	SSA	RoWorld
AgrFd	0.24	2.75	0.27	1.81	1.12	0.67	0.04	0.27	0.19	1.07	1.2	0.34	1.44	-0.15	5.58	0.37	-0.01	-0.03	0.09	0.08	0.38	0.08
Extrct	0.52	1.75	0.47	2.13	1.62	1.32	0.36	0.36	0.29	1.01	0.98	0.39	0.94	0.3	2.72	0.8	0.39	0.38	0.29	0.25	0.31	0.31
Mnf	0.34	3.99	0.41	1.74	1.5	1.71	-0.04	0.33	0.19	1.98	1.95	0.45	2.94	-0.11	8.99	0.45	-0.17	-0.19	0.09	-0.08	0.4	-0.25
TexLea	0.42	5.04	0.44	1.05	0.45	1.47	-0.12	0.27	0.15	2.01	1.85	0.49	3.42	0.12	9.17	0.46	-0.25	-0.19	0.17	-0.16	0.35	-0.14
Srvcs	0.27	3.22	0.41	2.34	2.01	2.34	0.23	0.13	0.21	1.5	2	0.43	1.91	-0.24	8.76	0.5	0.02	-0.05	0.23	0.17	0.64	0.18
CRP	0.38	4.23	0.44	1.82	1.65	1.92	-0.07	0.21	0.2	1.95	1.91	0.43	2	-0.17	9.11	0.44	-0.04	-0.2	0.27	-0.21	0.21	-0.27
NMM	0.27	3.39	0.41	2.29	1.91	2.05	0.17	0.12	0.16	1.57	1.89	0.4	2.15	-0.13	9.19	0.38	-0.02	-0.17	0.07	0.05	0.39	0.05
IS	0.05	3.31	0.18	2.27	2.37	3.36	0.09	-0.15	0.09	1.87	2.25	0.03	2.44	-0.36	8.89	0.54	-0.28	-0.49	-0.11	-0.55	-0.08	-0.5
NFM	0.08	1.95	0.26	1.5	0.95	0.03	-0.53	-0.54	0.02	2.13	1.86	0.35	3.58	-0.28	10	0.97	-0.47	-0.91	-0.16	-0.23	1.97	-0.78
FMP	0.17	3.71	0.36	1.88	1.95	2.48	0.16	0.04	0.1	2.09	2.17	0.34	3.05	-0.61	9.55	0.24	-0.16	-0.39	-0.04	-0.12	0.08	-0.18
MVH	-1.92	-7.58	-3.12	10.43	13.36	14.48	1.22	-2.32	-0.43	-0.2	3.32	-0.69	-8.27	-2.89	7.73	-1.94	-4.39	-7.29	-7.94	-1.28	-2.55	-2.9
Parts	-1.61	-7.5	-2.92	10.2	12.77	12.9	0.4	-2.15	-0.37	-0.18	2.94	-0.49	-8.13	-2.49	6.95	-1.55	-3.76	-6.22	-6.91	-1.07	-2.22	-2.39
ELE	0.76	6.12	0.64	1.48	0.44	1.56	0.1	0.59	0.33	2.64	2.31	0.74	3.64	0.03	13.12	0.39	0.19	0.01	0.23	-0.03	0.25	-0.05
OME	0.44	5.36	0.41	0.46	1.14	2.55	0.13	0.4	0.2	2.35	3.07	0.49	3.34	-0.01	11.36	0.57	-0.05	-0.4	0.15	-0.44	0.11	-0.19
Trade	0.24	3.03	0.35	2.49	2.18	2.34	0.13	0.1	0.2	1.51	2.03	0.4	1.8	-0.31	8.6	0.48	0	-0.16	0.18	0.17	0.53	0.24
Trnsprt	0.25	3.11	0.37	2.4	1.7	2.01	0.13	0.11	0.17	1.42	1.78	0.36	1.78	-0.19	7.52	0.45	0.05	-0.11	0.22	0.08	0.48	0.19
FinS	0.26	3.14	0.38	2.33	2.08	2.42	0.13	0.12	0.2	1.59	2.14	0.41	1.7	-0.35	9.05	0.48	-0.04	-0.09	0.14	0.25	0.71	0.24
BusnS	0.25	3.08	0.37	2.38	1.83	1.74	0.03	0.12	0.21	1.66	2.02	0.42	2.06	-0.32	9.32	0.47	-0.03	-0.11	0.17	0.05	0.59	0.12
GovtS	0.21	2.9	0.28	2.52	2.21	1.89	0.12	0.1	0.2	1.52	1.93	0.39	1.72	-0.3	8.62	0.51	0.01	-0.06	0.21	0.28	0.65	0.34
CGDS	0.24	3.81	0.47	2.4	2.19	3.62	0.36	0.14	0.25	1.45	2.3	0.45	1.89	-0.26	10.99	0.55	0	-0.03	0.23	0.22	0.67	0.19

Table 9: Percentage change in Export Prices

Exp Price	EU	AUS	CHN	JPN	KOR	THA	IND	CAN	USA	MEX	BRA	UK	RUS	TUR	ZAF	OCN	RoASIA	RAmerica	RoEUR	MENA	SSA	RoWorld
AgrFd	-0.04	-0.45	0.08	0.34	0.58	0.19	0.16	-0.02	0.05	-0.21	-0.08	-0.03	-0.39	-0.04	-1.04	0.06	0.11	0.07	0.04	0.12	0.09	0.11
Extrct	0.34	0.5	0.37	0.44	0.43	0.57	0.4	0.39	0.37	0.4	0.52	0.4	0.44	0.28	0.74	0.57	0.49	0.44	0.41	0.43	0.45	0.5
Mnf	-0.06	-0.74	-0.01	0.21	0.14	-0.07	0.1	-0.04	0.03	-0.31	-0.22	-0.05	-0.62	-0.05	-1.17	0.01	0.1	0.07	0.01	0.09	0.04	0.09
TexLea	-0.05	-0.72	0.01	0.18	0.14	-0.06	0.12	-0.03	0.03	-0.27	-0.19	-0.04	-0.53	-0.03	-1.2	0.01	0.1	0.06	0.01	0.09	0.04	0.08
Srvcs	-0.04	-0.82	0	0.24	0.16	-0.01	0.13	-0.03	0.04	-0.32	-0.22	-0.03	-0.59	-0.01	-1.23	0.05	0.14	0.09	0.04	0.17	0.06	0.13
CRP	-0.01	-0.65	0.04	0.25	0.23	0.01	0.18	0.03	0.07	-0.25	-0.13	0	-0.23	0.02	-1.07	0.02	0.16	0.09	0.04	0.17	0.05	0.19
NNM	0	-0.69	0.04	0.26	0.19	0.05	0.17	0	0.07	-0.26	-0.11	0.01	-0.53	0	-1.26	0.08	0.19	0.11	0.07	0.14	0.07	0.15
IS	-0.02	-0.57	0.09	0.27	0.18	-0.02	0.13	0.02	0.05	-0.26	-0.1	0.03	-0.53	-0.02	-1.13	0.05	0.14	0.11	0.03	0.14	0.09	0.16
NFM	-0.01	-0.09	0.09	0.22	0.21	0.18	0.13	0.08	0.03	-0.22	-0.09	0	-0.46	-0.05	-1.08	0.11	0.22	0.17	0.01	0.1	0.08	0.13
FMP	-0.06	-0.67	0.01	0.23	0.16	-0.04	0.1	-0.03	0.03	-0.3	-0.19	-0.04	-0.7	-0.06	-1.18	0.02	0.11	0.08	0	0.1	0.03	0.08
MVH	-0.34	-2.03	-3.66	0.17	-0.41	-5.2	-8.62	-0.39	-0.14	-1.33	-4.42	-0.19	-2.62	-0.26	-6.34	-0.1	-0.02	-0.12	-0.05	-0.05	-0.06	-0.02
Parts	-0.34	-2.03	-3.66	0.17	-0.41	-5.2	-8.61	-0.39	-0.14	-1.33	-4.42	-0.19	-2.62	-0.26	-6.34	-0.1	-0.02	-0.12	-0.05	-0.05	-0.06	-0.02
ELE	-0.05	-0.73	0.02	0.21	0.11	-0.02	0.09	-0.04	0.02	-0.27	-0.2	-0.04	-0.54	-0.06	-1.16	0.01	0.09	0.05	0.01	0.08	0.02	0.08
OME	-0.07	-0.69	0	0.22	0.14	-0.04	0.09	-0.05	0.02	-0.28	-0.44	-0.05	-0.76	-0.05	-1.22	0	0.1	0.07	0	0.08	0.02	0.07
Trade	-0.08	-0.96	-0.04	0.23	0.18	-0.11	0.11	-0.05	0.02	-0.39	-0.27	-0.06	-0.82	-0.05	-1.33	0.02	0.1	0.07	0.02	0.11	0.04	0.1
Trnsprt	0.05	-0.84	-0.1	0.26	0.2	-0.25	0.09	0.09	0.12	-0.31	-0.17	0.08	-0.64	0.02	-1.09	0.11	0.16	0.15	0.08	0.19	0.13	0.2
FinS	-0.07	-0.92	-0.03	0.22	0.14	-0.13	0.11	-0.06	0.02	-0.39	-0.25	-0.05	-0.79	-0.05	-1.3	0.03	0.1	0.07	0.02	0.11	0.04	0.09
BusnS	-0.07	-0.87	-0.07	0.23	0.14	-0.1	0.09	-0.06	0.02	-0.38	-0.25	-0.06	-0.79	-0.04	-1.3	0.03	0.1	0.07	0.01	0.11	0.04	0.09
GovtS	-0.07	-0.88	-0.04	0.23	0.15	-0.13	0.11	-0.06	0.03	-0.37	-0.24	-0.06	-0.76	-0.05	-1.69	0.03	0.11	0.07	0.02	0.11	0.04	0.09

Table 10: Percentage change in Export Volumes

Exp Vol	EU	AUS	CHN	JPN	KOR	THA	IND	CAN	USA	MEX	BRA	UK	RUS	TUR	ZAF	OCN	RoASIA	RAmerica	RoEUR	MENA	SSA	RoWorld
AgrFd	0.36	2.97	0.68	-0.86	-1.46	-0.16	-0.23	0.61	0.5	1.16	0.77	0.39	2.36	0.44	5.16	0.41	0.13	0.1	0.08	-0.22	-0.04	-0.2
Extrct	1.12	1.01	1.66	0.66	0.76	-0.37	1.11	0.73	1.15	0.46	-0.1	0.52	0.21	2.15	-1.95	1.57	1.03	0.8	0.33	0.33	0.28	0.41
Mnf	0.51	5.97	0.56	-1.13	-0.71	0.88	-0.45	0.52	0.29	2.32	1.7	0.54	4.44	0.39	8.95	0.85	-0.21	-0.16	0.06	-0.55	0.13	-0.46
TexLea	0.58	6.06	0.58	-0.67	-0.47	0.96	-0.52	0.51	0.37	2.26	1.73	0.56	4.1	0.39	9.72	0.77	-0.29	-0.09	0.25	-0.51	0.18	-0.34
Srvcs	0.7	3.74	0.91	0.4	0.64	0.61	0.52	0.58	0.61	1.66	1.37	0.7	2.56	0.63	5.42	0.44	0.38	0.33	0.59	-0.04	0.63	0.18
CRP	0.5	5.09	0.79	-0.51	-0.45	1.01	-0.37	0.35	0.43	2	1.19	0.48	1.92	0.34	7.26	1.15	0.08	0.01	0.32	-0.51	0.1	-0.42
NNM	0.41	4.46	0.74	-0.05	0.04	0.81	-0.36	0.34	0.32	1.65	0.98	0.45	3.02	0.39	6.99	0.18	0.2	-0.26	0.1	-0.22	0.22	-0.19
IS	0.08	4.3	0.32	-0.09	0	0.65	-0.37	0.07	0.29	1.61	1.15	-0.08	3.04	0.06	7.25	0.73	-0.01	-0.22	-0.06	-0.82	-0.09	-0.76
NFM	0.13	1.67	0.31	-0.85	-0.63	-0.13	-0.71	-0.56	0.25	1.89	1.02	0.45	4.16	0.34	9.85	1.32	-0.4	-0.93	-0.13	-0.77	2.27	-0.87
FMP	0.35	5.06	0.38	-0.87	-0.51	1.4	-0.29	0.41	0.14	2.29	1.41	0.34	5.03	0.37	8.52	0.27	-0.14	-0.45	-0.08	-0.7	0.12	-0.49
MVH	-1.77	15.76	26.35	15.48	24.6	34.34	86.68	-2.4	1.46	2.19	24.58	0.37	14.16	-3.37	51.78	-19.92	-12.43	-19.65	-15.08	-6.69	-8.37	-15.33
Parts	-1.37	16.03	26.74	15.99	25.13	34.8	87.57	-2.21	1.61	2.41	24.88	0.81	14.28	-2.98	52.58	-19.51	-12.16	-19.24	-14.75	-6.43	-8.12	-15.04
ELE	0.95	7.16	0.6	-0.86	0.03	1.26	-0.05	0.87	0.82	2.63	1.63	0.85	5.23	0.9	10.78	1.02	0.24	0.49	0.47	-0.14	0.45	-0.15
OME	0.64	6	0.56	-1.03	-0.46	1.15	-0.35	0.56	0.43	2.32	3.62	0.59	6.15	0.37	9.88	1.14	0	-0.34	0.21	-0.74	0.3	-0.38
Trade	0.63	4.28	1.26	-0.3	0.1	0.85	-0.04	0.64	0.68	1.78	1.4	0.57	3.46	0.43	5.74	0.31	0.15	0.19	0.29	-0.01	0.29	0.14
Trnsprt	0.62	3.83	1.14	-0.04	0.72	1.56	0.22	0.69	0.38	1.67	1.16	0.45	2.5	0.57	4.83	0.51	0.39	0.18	0.51	-0.08	0.41	0.37
FinS	0.46	4	0.6	-0.65	-0.31	0.86	-0.19	0.46	0.34	1.68	1.16	0.43	3.28	0.38	5.36	0.24	-0.02	0.08	0.08	-0.11	0.22	0.08
BusnS	0.5	3.69	0.95	-0.51	-0.1	0.68	-0.08	0.53	0.51	1.73	1.22	0.49	3.29	0.35	5.41	0.23	0.06	0.08	0.16	-0.1	0.18	0.02
GovtS	0.53	3.91	0.78	-0.41	-0.14	0.85	-0.17	0.52	0.6	1.65	1.18	0.5	3.3	0.48	7.04	0.25	0.03	0.11	0.16	-0.05	0.19	0.05

Table 11: Percentage change in Import Prices

Imp Price	EU	AUS	CHN	JPN	KOR	THA	IND	CAN	USA	MEX	BRA	UK	RUS	TUR	ZAF	OCN	RoASIA	RAmerica	RoEUR	MENA	SSA	RoWorld
AgrFd	-0.02	0.04	-0.02	0.01	0	0.04	0.04	0.03	-0.01	0.04	0.05	-0.03	0.01	0.01	0.03	-0.11	0.04	0.03	-0.04	0.01	-0.04	0
Extrct	0.41	0.45	0.42	0.44	0.44	0.46	0.42	0.37	0.42	0.36	0.39	0.41	0.4	0.42	0.43	0.46	0.45	0.41	0.4	0.41	0.43	0.43
Mnf	-0.03	0.01	-0.01	-0.01	0.01	0.02	0.01	0.01	-0.01	0.01	0	-0.02	-0.01	-0.03	-0.01	-0.14	0.02	-0.01	-0.04	-0.04	-0.03	-0.03
TexLea	-0.01	0.02	0.07	0.01	0.02	0.04	0.01	0.02	0.01	0.02	0.03	0	0	0.02	0.02	-0.09	0.05	0.01	-0.04	0.01	-0.02	0.01
Srvcs	-0.03	0.01	-0.01	0	-0.01	-0.01	-0.01	0.01	-0.03	0	0.01	-0.03	0	-0.17	0	-0.01	-0.03	-0.01	-0.02	-0.02	-0.02	-0.02
CRP	0.01	0.06	0.12	0.05	0.11	0.12	0.07	0.05	0.03	0.06	0.03	0.01	0.03	0.03	0.04	-0.12	0.1	0.02	-0.01	0.05	-0.08	0.04
NNM	0.01	0.07	0.14	0.06	0.12	0.12	0.05	0.05	0	0.06	0.03	0.02	0.03	0.04	0.05	-0.06	0.11	0.02	-0.01	0.05	-0.03	0.01
IS	-0.03	0.08	0.08	-0.01	0.08	0.07	0.02	0.04	-0.02	0.03	-0.02	-0.03	0.09	-0.07	0.04	-0.09	0.05	0	-0.08	0.02	-0.11	-0.01
NFM	-0.03	0.08	0.07	-0.1	0.04	0.09	-0.08	0.05	-0.06	0.06	0.1	-0.03	0.06	-0.2	0.05	-0.04	0.09	0.01	-0.01	0.04	-0.11	-0.02
FMP	-0.04	0.01	0.08	0.02	0.04	0.11	-0.01	0.02	-0.01	0.03	0	-0.03	-0.02	-0.02	0	-0.18	0.05	-0.04	-0.06	-0.01	-0.17	-0.04
MVH	-1.58	-12.76	-13.94	-1.67	-7.51	-16.98	-20.95	-1.25	-1.24	-5.51	-12.54	-1.65	-10.13	-1.82	-15.94	-0.61	-0.72	-0.68	-0.36	-0.45	-1.05	-0.49
Parts	-1.54	-12.75	-13.95	-1.64	-7.51	-17.01	-20.99	-1.27	-1.22	-5.53	-12.57	-1.61	-10.14	-1.78	-15.9	-0.6	-0.72	-0.68	-0.36	-0.45	-1.04	-0.48
ELE	0	0.04	0.09	0.05	0.07	0.08	0.03	0	0	0.05	0.04	0	0	0.01	0	-0.07	0.07	-0.04	-0.02	-0.01	-0.1	0
OME	-0.04	0.01	0.08	0.01	0.06	0.09	0	0	-0.03	0.03	0	-0.03	-0.02	-0.02	-0.03	-0.13	0.06	-0.05	-0.06	-0.03	-0.15	-0.03
Trade	-0.04	0.01	0.03	-0.01	0	-0.01	-0.02	0.01	0	0.01	-0.02	-0.04	-0.04	-0.11	-0.01	-0.04	-0.03	-0.04	-0.04	-0.05	-0.05	-0.04
Trnsprt	0.05	0.07	0.03	0.05	0.05	0.04	0.03	0.05	0.02	0.09	0.05	0.04	0.04	-0.08	0.03	0.03	0	0.03	0.05	0.03	0.03	0.03
FinS	-0.03	0.01	-0.01	-0.01	0.01	-0.02	-0.01	0.01	-0.04	0.02	0.01	-0.01	-0.04	-0.02	-0.02	-0.03	-0.02	-0.03	-0.05	-0.03	-0.03	-0.03
BusnS	-0.05	-0.02	-0.01	-0.01	0	-0.03	-0.04	0.01	-0.02	0.01	-0.01	-0.04	-0.04	-0.05	-0.03	-0.04	-0.03	-0.04	-0.04	-0.04	-0.04	-0.04
GovtS	-0.04	0.01	-0.07	-0.01	-0.01	-0.03	-0.04	0.01	-0.04	0.01	-0.01	-0.03	-0.04	-0.04	-0.01	-0.03	-0.06	-0.02	-0.03	-0.02	-0.02	-0.02

Table 12: Percentage change in Import Volumes

Imp VOl	EU	AUS	CHN	JPN	KOR	THA	IND	CAN	USA	MEX	BRA	UK	RUS	TUR	ZAF	OCN	RoASIA	RAmerica	RoEUR	MENA	SSA	RoWorld
AgrFd	0.16	1.37	0.53	2.61	2.33	1.37	0.34	0.04	0.32	0.54	0.88	0.33	0.33	-0.3	2.87	0.76	0.12	0.04	0.29	0.36	0.75	0.39
Extrct	0.25	2.32	0.23	2.11	1.65	1.54	0.23	0.22	0.17	1.45	1.77	0.34	2.02	-0.2	4.55	0.8	0.25	0.14	0.24	0.22	0.58	0.31
Mnf	0.16	1.35	0.34	2.84	2.29	2.18	0.41	0.04	0.3	0.78	1.42	0.33	0.51	-0.31	4.96	0.88	0.1	0.03	0.26	0.42	0.7	0.36
TexLea	0.14	1.88	0.16	2.55	1.8	1.33	0.41	-0.02	0.2	1.16	1.11	0.29	1.04	-0.21	4.15	0.64	-0.02	-0.01	0.21	0.22	0.63	0.26
Srvcs	0.2	1.31	0.37	2.86	2.42	2.04	0.42	0	0.32	0.93	1.48	0.39	0.63	-0.03	5.55	0.62	0.31	0.09	0.29	0.48	0.75	0.47
CRP	0.16	1.56	0.1	2.99	2.06	2.12	0.27	-0.03	0.27	1.02	1.52	0.35	1.2	-0.27	5.52	0.64	0.06	-0.07	0.16	0.26	0.66	0.35
NNM	0.19	1.02	0.09	2.94	2.3	2.91	0.54	-0.24	0.33	0.66	1.76	0.36	0.59	-0.37	5.28	0.64	0.16	0.06	0.25	0.25	0.73	0.45
IS	0.05	1.39	0.23	3.62	2.84	4.84	0.5	-0.2	0.26	1.12	2.2	0.27	0.24	-0.4	6.12	0.62	-0.15	-0.15	-0.31	0.06	0.6	-0.01
NFM	0.08	2.72	0.34	3.43	1.94	3.05	0.43	-0.3	0.35	1.26	2	0.29	0.84	-0.11	9.32	0.93	-0.1	-0.34	-0.12	0.09	1.38	0.14
FMP	0.05	0.92	0.12	3.18	3.33	3.15	0.6	-0.49	0.28	0.92	1.58	0.29	0.2	-0.55	4.89	1.04	0.05	0.15	0.06	0.34	0.88	0.34
MVH	1.4	17.73	38.58	10.96	30.14	29.12	70.45	0.28	2.43	6.64	30.6	2.42	10.43	1.56	31.91	0.9	0.1	-0.72	-0.02	0.39	1.18	0.59
Parts	1.54	19.5	39.87	10.95	30.81	31.69	73.97	0.45	2.54	7.48	32.28	2.58	11.47	1.74	34.14	0.96	0.21	-0.64	0.01	0.43	1.27	0.64
ELE	0.27	2.44	0.37	2.66	1.26	1.8	0.37	0.08	0.28	1.61	1.47	0.41	1.11	-0.46	8.28	0.71	0.15	-0.07	0.23	0.35	0.79	0.37
OME	0.13	2.26	0.06	2.5	1.84	3.92	0.53	0.01	0.37	1.38	1.21	0.37	0.27	-0.31	6.81	0.64	0	-0.03	0.27	0.17	0.8	0.31
Trade	0.17	1.11	0.17	2.96	2.49	1.87	0.39	-0.09	0.23	0.81	1.58	0.38	0.34	-0.21	6.64	0.64	0.22	-0.04	0.3	0.47	0.76	0.55
Trnsprt	0.21	1.23	0.09	2.78	2.31	1.3	0.23	0.14	0.33	0.83	1.31	0.44	0.43	-0.13	5.72	0.56	0.27	0.1	0.25	0.48	0.73	0.51
FinS	0.18	1.34	0.34	2.7	2.49	2.49	0.37	-0.01	0.32	0.9	1.54	0.32	0.17	-0.39	7.3	0.6	0.17	-0.02	0.27	0.52	0.81	0.44
BusnS	0.19	1.47	0.21	2.84	2.36	2.6	0.3	-0.17	0.29	0.8	1.42	0.36	0.82	-0.29	6.42	0.59	0.18	0.02	0.26	0.31	0.72	0.36
GovtS	0.15	1.23	0.33	3.44	2.54	1.76	0.22	-0.05	0.29	0.78	1.53	0.34	0.59	-0.36	5.33	0.62	0.3	0.1	0.29	0.4	0.71	0.5

Table 13: Percentage change in factor prices

	Motor Vehicles					Parts				
	Land	UnSkLab	SkLab	Capital	NatRes	Land	UnSkLab	SkLab	Capital	NatRes
1 EU	-0.75	-0.08	-0.08	-0.08	-1.60	-0.62	-0.08	-0.08	-0.08	-1.36
2 Australia	-2.14	-0.95	-0.95	-0.95	-6.94	-2.10	-0.95	-0.95	-0.95	-6.88
3 China	-1.17	-0.03	-0.03	-0.03	-2.51	-1.08	-0.03	-0.03	-0.03	-2.35
4 Japan	6.22	0.23	0.23	0.23	8.44	6.13	0.23	0.23	0.23	8.26
5 SKorea	7.16	0.14	0.14	0.14	10.62	6.91	0.14	0.14	0.14	10.16
6 Thailand	6.75	-0.14	-0.14	-0.14	11.17	6.1	-0.14	-0.14	-0.14	9.95
7 India	0.7	0.11	0.11	0.11	1.08	0.34	0.11	0.11	0.11	0.43
8 Canada	-0.89	-0.07	-0.07	-0.07	-1.91	-0.81	-0.07	-0.07	-0.07	-1.77
9 USA	-0.01	0.02	0.02	0.02	-0.32	0.01	0.02	0.02	0.02	-0.27
10 Mexico	0.39	-0.38	-0.38	-0.38	-0.54	0.4	-0.38	-0.38	-0.38	-0.52
11 Brazil	2.18	-0.26	-0.26	-0.26	2.36	2.01	-0.26	-0.26	-0.26	2.07
12 UK	-0.12	-0.07	-0.07	-0.07	-0.62	-0.03	-0.07	-0.07	-0.07	-0.45
13 Russia	-3.33	-0.85	-0.85	-0.85	-7.4	-3.27	-0.85	-0.85	-0.85	-7.29
14 Turkiye	-1.45	-0.05	-0.05	-0.05	-2.35	-1.28	-0.05	-0.05	-0.05	-2.03
15 SouthAfrica	6.39	-1.35	-1.35	-1.35	4.66	6.05	-1.35	-1.35	-1.35	4.06
16 Oceania	-0.53	0.03	0.03	0.03	-1.51	-0.35	0.03	0.03	0.03	-1.2
17 RestofAsia	-1.87	0.11	0.11	0.11	-3.39	-1.58	0.11	0.11	0.11	-2.89
18 RestAmerica	-3.25	0.07	0.07	0.07	-5.76	-2.75	0.07	0.07	0.07	-4.89
19 RestEurope	-3.5	0.02	0.02	0.02	-6.33	-3.02	0.02	0.02	0.02	-5.5
20 MENA	-0.39	0.12	0.12	0.12	-0.9	-0.29	0.12	0.12	0.12	-0.73
21 SSA	-0.78	0.05	0.05	0.05	-1.97	-0.64	0.05	0.05	0.05	-1.71
22 RestofWorld	-1.14	0.09	0.09	0.09	-2.22	-0.91	0.09	0.09	0.09	-1.81

Table 14: GDP of countries in STA (milion USD)

qgdp	Perc. change	Pre	Post	Change
EU	0.24	14263226	14296827	33601
Australia	3.01	856910.81	882714.56	25803.75
China	0.37	3494058	3507152.5	13094.5
Japan	2.42	4377944.5	4484080	106135.5
SKorea	2.18	1049235.88	1072099.38	22863.5
Thailand	2.4	247109.92	253040.63	5930.7
India	0.23	1232816.63	1235636.88	2820.25
Canada	0.11	1424063.25	1425621.5	1558.25
USA	0.19	14061778	14089167	27389
Mexico	1.56	1025580.25	1041539.5	15959.25
Brazil	1.95	1365983.13	1392598	26614.88
UK	0.4	2799040	2810241	11201
Russia	1.66	1299707.75	1321338	21630.25
Turkiye	-0.28	647155.13	645327	-1828.13
SouthAfrica	8.5	286300.69	310648.09	24347.41
Oceania	0.47	170146.41	170952.7	806.3
RestofAsia	-0.01	1953233.75	1952972.38	-261.38
RestAmerica	-0.11	1459529.13	1457956	-1573.13
RestEurope	0.16	902573.25	904044.44	1471.19
MENA	0.16	582692.75	583634.69	941.94
SSA	0.46	592828.88	595581.25	2752.38
RestofWorld	0.17	1739424.5	1742398.88	2974.38

Table 15: Welfare for FTA Scenarios (million USD)

WELFARE	FTA_25 Scenario					FTA_50 Scenario				
	Alloc_effic	Endwmnt	ToT	IS	Total	Alloc_effic	Endwmnt	ToT	IS	Total
1 EU	30327.38	36939.4	881.43	-104.16	68044.06	35134.97	42330.98	1309.5	-65.15	78710.31
2 Australia	209.44	374.24	27.01	-7.47	603.23	128.04	243.02	7.03	-4.48	373.62
3 China	-61.55	-1094.6	185.43	-219.95	-1190.67	-103.78	-1321.68	115.01	-149.85	-1460.3
4 Japan	5729.46	12451.57	55.79	-26.78	18210.04	8175.17	17702.87	85.77	-11.08	25952.73
5 SKorea	3803.77	8532.95	-9.26	19.32	12346.78	5239.13	11890.08	-172.31	42.64	16999.54
6 Thailand	413.58	1668.8	109.67	13.56	2205.61	523.15	2270.94	127.86	21.39	2943.34
7 India	6174.19	13320.85	-1655.7	439.56	18278.91	8078.16	19164.74	-2111.94	199.48	25330.44
8 Canada	51.68	71.93	17.99	-16.98	124.62	-49.35	-77.73	23.02	-11.81	-115.88
9 USA	-430.94	-803.61	-332.7	341.84	-1225.41	-1160.78	-2256.15	-293.52	322.76	-3387.68
10 Mexico	-21.89	-170.22	33.71	-20.41	-178.81	-31.71	-262.43	32.52	-15.77	-277.39
11 Brazil	-290.83	-709.29	11.51	-24.35	-1012.96	-330.07	-804.24	15.67	-21.05	-1139.68
12 UK	6046.13	8757.76	274.96	-50.17	15028.68	6900.81	9935.46	488.71	-23.06	17301.92
13 Russia	84.92	271.63	-32.03	-30.77	293.76	98.49	217.86	60.83	-33	344.19
14 Turkiye	57.93	200.29	7.25	8.6	274.06	24.1	84.23	6.59	10.84	125.76
15 SouthAfrica	-26.97	-62.09	2.98	0.22	-85.86	-87.52	-207.23	4.89	0.56	-289.3
16 Oceania	61.49	122.64	10.4	-1.61	192.93	67.5	134.53	9.14	-1.03	210.13
17 RestofAsia	-206.8	-586.76	230.67	-132.59	-695.49	-168.17	-393.5	162.66	-99.19	-498.2
18 RestAmerica	110.47	367.38	78.74	-23.25	533.34	133.75	430.87	83.09	-17.63	630.07
19 RestEurope	533.59	853.45	-43.6	-13.71	1329.73	388.15	629.73	10.63	-18.58	1009.94
20 MENA	-8.44	39.25	50.88	-21.83	59.86	-20.55	14.22	44.24	-19.31	18.6
21 SSA	-64.73	-149.63	64.36	-17.52	-167.53	-79.57	-197.93	45.64	-14.76	-246.62
22 RestofWorld	-77.41	-161.81	40.85	-114.23	-312.6	-185.61	-440.7	-43.57	-92.93	-762.81
Total	52414.47	80234.12	10.35	-2.69	132656.3	62674.3	99087.96	11.47	-1	161772.7

Table 16: Welfare for STA and GMA Scenarios (million USD)

WELFARE	STA Scenario					GMA Scenario				
	Alloc_effic	Endwmnt	ToT	IS	Total	Alloc_effic	Endwmnt	ToT	IS	Total
1 EU	13462.38	15930.55	-2624.41	-200.28	26568.25	128595.7	153066	-4703.53	-2418.37	274539.8
2 Australia	8719.62	14343.34	-259.31	-106.17	22697.48	30950.31	52300.52	5290.74	-310.25	88231.33
3 China	2611.83	9324.87	-1942.68	359.6	10353.61	35828.39	208354.4	5579.02	-2137.78	247624.1
4 Japan	28676.71	62462.57	1111.63	-224.44	92026.47	187452.1	406529.5	-10680	-263.3	583038.3
5 SKorea	5993.58	14253.92	-45.12	-50.85	20151.53	79398.88	193989.5	-15440.2	531.97	258480.1
6 Thailand	939.96	4143.81	-998.13	214.04	4299.68	5779.86	28313.36	-1635.44	673.56	33131.34
7 India	1500.81	1171.32	-504.34	-129.83	2037.96	41473.06	148543.8	-14076.2	-4338.35	171602.2
8 Canada	608.53	783.06	-33.44	-16.31	1341.86	23122.15	32934.5	-162.14	-208.35	55686.16
9 USA	8376.12	16473.97	808.68	-324.99	25333.78	126218.6	243833.6	2552.93	-4774.64	367830.5
10 Mexico	2730.47	11421.71	-934.39	89.14	13306.92	12431.42	47334.27	-2725.04	350.67	57391.32
11 Brazil	6983.58	16592.05	-873.11	103.9	22806.42	31089.46	77570.88	1818.28	271.36	110750
12 UK	4154.19	5883.38	165.32	-148.08	10054.81	34320.84	48779.72	2291.39	-898.44	84493.52
13 Russia	7056.37	13471	116.47	994.28	21638.12	47709.23	85884.26	8157.18	3986.37	145737
14 Turkiye	-443.91	-1182.65	-36.23	-45.82	-1708.61	8119.84	22340.76	-1187.23	-448.49	28824.88
15 SouthAfrica	6499.56	14502.49	-1034.8	-92.12	19875.13	15286.56	34242.74	-2038.9	-224.26	47266.14
16 Oceania	241.6	476.88	79.25	-2.68	795.05	7860.91	15475.42	695.93	-35.62	23996.65
17 RestofAsia	-68.14	-193.33	849.27	-184.53	403.27	40977.16	172889.3	-3179.53	1724.45	212411.4
18 RestAmerica	-372.68	-1073.73	833.94	-25.1	-637.57	27819.23	99751.63	-692.4	538.75	127417.2
19 RestEurope	451.87	783.74	470.44	-10.98	1695.07	35202.14	55271.88	-3103.7	1256.26	88626.57
20 MENA	223.79	572.58	779.35	-33.71	1542.02	15751.22	42304.75	2622.48	1395.55	62073.99
21 SSA	575.41	1828.35	886.46	0.58	3290.8	18428.71	58093.22	3091.92	1123.63	80737.48
22 RestofWorld	692.46	1936.69	3165.93	-161.27	5633.81	40033.17	108380	27658.4	4360.34	180431.9
Total	99614.13	203906.6	-19.21	4.39	303505.9	993848.9	2336184	133.88	155.08	3330322

Table 17: Welfare for Composite Scenarios (million USD)

WELFARE	Composite_25 Scenario					Composite_50 Scenario				
	Alloc_effic	Endwmnt	ToT	IS	Total	Alloc_effic	Endwmnt	ToT	IS	Total
1 EU	42223.66	50983.52	-1804.71	-337.96	91064.5	46930.17	56255.3	-1370.43	-299.69	101515.4
2 Australia	8946.2	14754.18	-244.84	-116.66	23338.88	8864.91	14621.88	-265.96	-113.74	23107.09
3 China	2582.75	8551.99	-1747.06	115.81	9503.49	2539.48	8307.05	-1819.69	185.77	9212.61
4 Japan	33886.45	73786.87	1143.08	-257.31	108559.1	36328.64	79032.4	1173.91	-241.71	116293.3
5 SKorea	9779.24	22751.99	-53.45	-36.54	32441.24	11225.88	26140.78	-218.22	-13.21	37135.23
6 Thailand	1328.6	5738.33	-877.35	223.37	6412.96	1439.38	6341.6	-857.48	230.55	7154.06
7 India	6355.03	12673.86	-1794.67	444.46	17678.68	8252.02	18510.07	-2244.45	208.95	24726.59
8 Canada	724.88	951.43	-23.97	-37.38	1614.96	621.91	798.85	-19.24	-32.28	1369.23
9 USA	8627.47	17013.71	495.51	-15.97	26120.72	7873.1	15512.91	535.91	-37.38	23884.54
10 Mexico	2714.74	11321.67	-903.06	66.2	13199.54	2710.07	11256.01	-905.22	71.11	13131.96
11 Brazil	6747.94	16022.2	-866.59	78.04	21981.58	6704.28	15915.91	-862.72	81.42	21838.88
12 UK	9783.71	14046.17	404.96	-195.77	24039.07	10614	15189.91	619.94	-168.52	26255.33
13 Russia	7137.68	13759.88	43.53	959.55	21900.64	7143.28	13689.38	136.91	957.3	21926.87
14 Turkiye	-333.1	-830.12	-28.8	-38.28	-1230.3	-369.23	-952.02	-29.5	-36.22	-1386.96
15 SouthAfrica	6460.49	14413.63	-1036.04	-91.89	19746.2	6397.5	14260.55	-1033.51	-91.53	19533.02
16 Oceania	302.78	599.16	88.26	-4.76	985.44	308.68	610.86	86.88	-4.2	1002.23
17 RestofAsia	-252.72	-684.57	1052.5	-320.19	-204.99	-213.67	-489.45	983.16	-287	-6.96
18 RestAmerica	-260.27	-693.73	894.84	-51.99	-111.16	-237.5	-631.5	898.17	-46.44	-17.26
19 RestEurope	952.82	1583.57	408.73	-28.01	2917.11	805.14	1356.08	462.76	-33.01	2590.97
20 MENA	206.05	588.43	803.74	-56.83	1541.39	193.34	561.91	795.79	-54.35	1496.7
21 SSA	498.2	1642.65	930.24	-18	3053.09	482.4	1591.58	910.26	-15.27	2968.97
22 RestofWorld	587.27	1704.9	3107.3	-278.89	5120.58	477.78	1422.8	3017.14	-257.73	4659.99
Total	148999.9	280679.7	-7.87	0.99	429672.7	159091.6	299302.9	-5.56	2.82	458391.7

Table 18: Welfare for STA with input tariff removal

	WELFARE		
	STA	STAi	GMA
1 EU	26568.25	26656.55	274539.8
2 Australia	22697.48	23000.7	88231.33
3 China	10353.61	12356.37	247624.1
4 Japan	92026.47	96453.54	583038.3
5 SKorea	20151.53	22385.45	258480.1
6 Thailand	4299.68	4161.98	33131.34
7 India	2037.96	1917.31	171602.2
8 Canada	1341.86	1200.43	55686.16
9 USA	25333.78	28699.16	367830.5
10 Mexico	13306.92	13260.94	57391.32
11 Brazil	22806.42	22581.38	110750
12 UK	10054.81	10947.87	84493.52
13 Russia	21638.12	21681.31	145737
14 Turkiye	-1708.61	-1858.49	28824.88
15 SouthAfrica	19875.13	19303.75	47266.14
16 Oceania	795.05	824.87	23996.65
17 RestofAsia	403.27	128.09	212411.4
18 RestAmerica	-637.57	-556.14	127417.2
19 RestEurope	1695.07	1853.54	88626.57
20 MENA	1542.02	1613.57	62073.99
21 SSA	3290.8	3406.9	80737.48
22 RestofWorld	5633.81	6275.92	180431.9
Total	303505.9	316295	3330322

Table 19: Participation-wise Welfare gain and loss (million USD)

	FTA_25 Scenario		FTA_50 Scenario		STA Scenario		Composite_25 Scenario		Composite_50 Scenario	
	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss
Members	134,114.10	0.00	167,238.30	0.00	292,492.00	-1,708.61	417,601.60	-1,230.30	447,084.00	-1,386.96
Non-members	3,411.53	-4,869.33	2,712.31	-8,177.86	13,360.02	-637.57	13,617.61	-316.15	12,718.86	-24.22

Table 20: Output for India in all Scenarios (% change)

Output	STA	Comp_25	Comp_50	GMA
AgriFood	0.04	0.41	0.8	4.39
Extraction	0.36	7.64	8.44	17.85
Mnfctring	-0.04	0.07	1.48	26.57
TextLeather	-0.12	0.9	3.16	25.63
Services	0.23	1.67	2.43	18.23
ChmRubPlast	-0.07	1.78	2.19	15.54
NonmtlMNRL	0.17	2.46	3.05	17.74
IronSteel	0.09	2.88	2.32	14.15
NonfrsMetal	-0.53	2.88	3.61	18.39
FabMetalProd	0.16	4.34	4.69	19.37
MotorVhcles	1.22	6.43	6.17	15.26
Parts	0.4	5.48	5.29	15.34
ElecEqpmnts	0.1	0.54	1.78	27.53
MachineNec	0.13	0.98	0.07	13.89
Trade	0.13	1.45	2.08	16.79
TrnsprtRdRl	0.13	1.22	1.86	16.47
FinServices	0.13	1.37	2.06	20.2
BusnServics	0.03	-1.47	-0.89	20.54
GovtServcs	0.12	1.42	2.01	16.18
CGDS	0.36	2.3	3.25	19.38