Discussion Paper

Mega External Preferential Trade Agreements and their Impacts on the Indian Economy

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Abstract

This Discussion Paper analyses the impacts on India of three mega preferential trade agreements (TPP, TTIP and EU-ASEAN) from which India is excluded. We have used the Global Trade Analysis Project (GTAP) model combined with POVCAL poverty analysis tool. The simulation results show that each of these PTAs cause considerable trade diversion.

However, the impacts on India's trade flows, domestic output, returns to factors, aggregate welfare, inequality and poverty levels are rather small.

In contrast, multilateral trade liberalisation has significantly large and favourable impacts on all these variables. In particular, welfare improves by 1.7 per cent of gross domestic product (GDP), inequality falls by over half percentage point and poverty head count is lower by 12.3 per cent over base levels under a multilateral free trade scenario.

These results suggest that the country should continue with its efforts for achieving multilateral trade agreements under the World Trade Organisation.

At the same time, the country should hedge against the possibility that the WTO does not advance as we would like it to. One way to protect the country's interest is to aggressively pursue preferential trading arrangements in parallel with key members of these three mega PTAs.

This is likely to ensure that the country does not lose market share due to preference erosion, as suggested by the results for the non-member Southeast Asian countries under the TPP (Trans-Pacific Partnership) scenario.

Introduction

Globally, the last two decades have seen an exponential rise in the number of Preferential Trade Agreements (PTAs) and Regional Trade Agreements (RTAs) between countries, from around 70 in 1990 to nearly 400 in 2013. Several reasons have been attributed for this sharp rise in the PTAs. These include:

- the snail-paced progress in the Doha Round of multilateral trade negotiations that began in November 2001;
- the desire for deepening market access and widening trade rules relating to issues, such as trade standards, labour standards, property rights, investments, services, etc., beyond the provisions of the multilateral trade regime under the World Trade Organisation (WTO); and
- the relative ease of negotiations amongst a smaller group of countries.

India, too, has been engaged in pursuing PTAs/RTAs with her South Asian neighbours, the Southeast Asian countries that form the Association of Southeast Asian Nations (ASEAN) group, with the European Union (EU), etc. The country is already a partner in 19 PTAs/RTAs currently and is in engaged in 19 other trade negotiations (Ministry of Commerce, 2014). In general, the scope of the PTAs involving India has been narrow, and the country has not displayed adequate vigour, nimbleness and speed in pursuing PTAs involving major trading nations.

Thus, for instance, India does not find place in some of the major PTA initiatives currently under negotiations, even though they may have significant impacts on the country. Three such external mega PTAs that are currently under negotiation in which India does not find a place are the Trans-Pacific Partnership (TPP), the Trans-Atlantic Trade and Investment Partnership (TTIP) and the EU-ASEAN Free Trade agreement.

What are the likely impacts of India's exclusion from these mega PTAs that are currently under negotiation? This study attempts to address this question using the GTAP model, a global computable general equilibrium (CGE) model combined with POVCAL poverty analysis tool developed at the World Bank.

Theoretical literature on PTAs/RTAs has focused mainly on two questions, viz., their impacts on: (a) member countries; and (b) the world trading system as a whole. The general conclusion is that the impacts depend upon whether the specific PTA/RTA is "net trade-creating" in which case it is a "building bloc" or "net trade-diverting" that makes it a "stumbling bloc" for multilateral trade liberalisation (Bhagwati and Panagariya 1996; Panagariya 1996, 1998; Robinson and Thierfelder 1999).

Thus, an excluded country could face adverse impacts if its exports to a particular member country in a PTA get displaced by exports from other members of the PTA because of the import preferences that members of the PTA enjoy. A similar trade diverting outcome on the excluded country's exports can arise due to preference erosion when its preferential trade partner becomes member of another PTA. Whether this happens or not "is essentially an empirical issue that must be settled by analysis of data" (Lewis et al. 2001).

Empirical assessments of PTAs on an excluded country have typically focused on diversion of its exports. A sharp reduction in exports would affect the total demand faced by domestic producers, and this in turn could affect sectoral and aggregate output, income, consumption and ultimately household welfare. Besides, significant loss in export revenue can have serious repercussions on the balance of payments with attendant consequences for the exchange rate and overall macro-economic balance.

Trade diversion, however, need not be the only impact that a non-member country can suffer due to a PTA. PTAs can also affect the imports of a non-member country when members of a PTA reduce their exports to the excluded country if they do not find it as profitable as exporting to other PTA members. If for some commodities the excluded country is dependent on imports from PTA members, then the only way it can import sufficient quantities to meet its requirements is by paying a higher import price. The rise in import price can cause the domestic price of such commodities to rise sharply, which in turn would have adverse impacts on welfare.

To assess these overall trade effects of a PTA on non-member countries, the analytical framework should encompass both exports and imports. Further, it must cover not just goods trade but also services trade. The model should capture the linkages between trade flows, domestic production, income, and household consumption. Moreover it must also be capable of tracking the macroeconomic impacts that changes in trade flows can bring about via their impacts on the balance of payments. Finally, the model should be capable of capturing the welfare impacts on households also. An analytical framework that is naturally suited for studying these impacts in a consistent manner is the computable general equilibrium (CGE) models.

The GTAP model (Hertel 1996) is a global CGE model that is particularly suited for studying the impacts of PTAs on an excluded country since it covers all the economies of the world, and endogenises the trade flows amongst them in a theoretically consistent manner. As is the case with all CGE models, the GTAP model captures the linkages between domestic production, trade flows, income generation and distribution, and consumption and savings decisions of all agents in the economy, and endogenously solves for the market clearing prices.

This study makes use of the GTAP model to study the impacts of the three mega PTAs currently under negotiation on India. In particular, the impacts on sectoral trade flows, outputs, prices, macro-economic aggregates and aggregate welfare are examined using the GTAP model.

While the GTAP is capable of assessing the aggregate welfare impacts on all countries due to changes in trade (or any other) policy in any part of the world, the model is not directly amenable for analysing the impacts on income distribution and poverty. Hence, the outcomes of the GTAP model are carried into the POVCAL poverty analysis tool developed at the World Bank to assess the poverty impacts for India due to the mega PTAs.

The rest of the Paper is organised as follows. The next section briefly describes the GTAP model and describes in detail the simulations that have been carried out here. Further, it also describes briefly the POVCAL tool and the procedure adopted in this study to use this tool along with the GTAP model to assess the distributional impacts. Section 3 reports the simulation results, while section 4 provides some concluding remarks.

Analytical Framework and Experiment Design

The GTAP Model

The GTAP model is a comparative-static multi-region multi-sector CGE model that has been used by several researchers around the world for assessing various trade policy issues on individual countries and on the global economy as a whole. The model assumes perfect competition, constant returns to scale, and determines bilateral trade via the Armington assumption.

It incorporates the necessary links between different agents in each country/region. The model is based on the prevailing inter-sectoral input-output linkage structure of each country. Further, all countries are linked through international trade flows to form a general equilibrium model in which prices and quantities supplied/demanded are determined simultaneously in all primary factor markets and domestic and international commodity markets.

Thus, the model reflects the fact that all parts of the world economy hinge together in a network of direct and indirect linkages. This means that any change in any part of the system will in principle affect the entire world and hence welfare in each country. The model is capable of capturing these impacts in a theoretically consistent manner.

In the model, each country is represented by a regional household, which receives income from selling factor endowments to firms and from government revenue/subsidy. The regional household then spends the income according to a Cobb-Douglas utility function specified over composite private consumption, government purchases and savings. Firms in a country receive revenue from domestic sales and exports, which is used to pay primary factors, domestic inputs, imported inputs and taxes.

Production technology is captured through nested production function involving primary factors that generate value added and inputs. Household commodity-demands are based on constant difference in elasticity demand system. Armington functions determine the use of domestically produced and imported commodities by firms, households and government for meeting their input/consumption requirements. Domestic taxes, import tariffs and export subsidies provide wedges between domestic, import and export prices in any region.

Here it must be noted that even though the GTAP model covers the services sector, including services trade, nevertheless trade in services is modelled only in a rudimentary way. Specifically, it treats services trade similar to merchandise trade. Further, the underlying GTAP database does not report any protection data (tariffs/export subsidies) for services.

Thus, in the simulations carried out here all that the GTAP model captures is the indirect impact on services trade and hence aggregate income and welfare due to changes elsewhere in the system. This indirect impact arises due to inter-sectoral linkages affecting output and demand, and also via the balance of trade channel. Though a limitation, the general equilibrium analysis is still better than partial equilibrium analysis that focuses purely on goods trade.

Various countries together form the global economy. The model assumes a single currency is used by all countries. The economies of the world are linked through international trade and investment flows. International trade and transport margins that cause a wedge between the export price and import price of a commodity between the exporting and importing regions are treated explicitly in the model. At equilibrium, for each region the difference between its saving and net investment would equal its trade balance. The world economy would be at equilibrium, when the global saving equals global net investment, and total exports of all countries equal total imports of all countries.

Another important feature of the model is that it tracks exports of each commodity from source country to destination country. This feature is particularly suitable for assessing trade creation/diversion effects of PTAs. Further, it also permits an assessment of the impacts on a non-member country's imports from PTA members. For further details on the GTAP model, see Hertel (1996).

The GTAP model uses the GTAP data base. The latest version of the GTAP database is Version 8.1 with dual base corresponding to years 2004 and 2007. The database distinguishes 129 regions, 57 commodities and 5 factors of production. For the present analysis the Version 8.1 database with base 2007 has been aggregated to 13 regions (Table 1) and 10 commodities (Table 2). The 5 factors of production in the GTAP database, viz., Land, Unskilled Labour, Skilled Labour, Capital and Natural Resources, are retained as such here.

It is to be noted that while aggregating the regions to the desired level a distinction is made amongst the Southeast Asian and Latin American countries between those participating in TPP and those that are not participating in this PTA.

To reflect the fact that the ASEAN grouping include both sets of Southeast Asian countries, the bilateral tariffs and export subsidies between SEASIA (countries not in TPP) and TPPSEASIA (countries in TPP) are set to zero in all the simulations carried out here. Similarly, the bilateral tariffs and exports subsidies between US and America are also set to zero to reflect the North American Free Trade Area (NAFTA) agreement.

In all, six scenarios are carried out here to capture the impacts of the three mega PTAs as follows:

- **BASE**: This is a business-as-usual scenario wherein none of the three mega PTAs is in place. It is primarily meant to replicate the world economy as reflected in the GTAP database. The outcomes of all other scenarios are compared with the BASE scenario.
- **TPP**: In this scenario, the existing bilateral tariffs and export subsidies between the participating members of the TPP are removed (i.e., set to zero). The GTAP countries/regions covered in this scenario are USA, Oceania, TPPSEASIA, and TPPLATIN. Thus, in this scenario there is complete free-trade between these set of countries.
- **TTIP**: Here the tariffs and export subsidies between USA and EU_28, the two participating members in this PTA, are completely eliminated. It must be noted that this scenario does not fully capture the scope of this PTA, which relates primarily with investment flows between these two regions. This is because the GTAP model is not particularly suited to capture bilateral investment flows as well as it can the trade flows.

- **EU-ASEAN FTA**: Similar to the above two scenarios the bilateral tariffs and exports subsidies between the EU-28 and ASEAN countries are eliminated here. As mentioned earlier, the South-East Asian countries are distinguished into those participating in TPP (TPPSEASIA) and those that do not (SEASIA), and hence the shocks are applied on both these two sets of South-East Asian countries.
- **ALL3PTAs (TPP + TTIP + EU-ASEAN)**: This simulation is a combination of the above three scenarios wherein all the 3 PTAs are in force.
- **MLTL (Multilateral Trade Liberalisation)**: As opposed to the above PTA scenarios, there is complete global free trade in this scenario. That is, the bilateral tariffs and export subsidies between all the 13 regions are eliminated here. This scenario is included to capture the trade diversion/creation effects, if any, of the above PTAs.

The above six scenarios are carried out under the default closure for factor markets in all countries in the GTAP model, viz., there is full employment of all factors, both types of labour and capital are fully mobile across sectors while land and natural resources show some sluggishness. For India, this assumption is considered adequate for the objectives of this study as it helps isolate effects emanating from the external economy.[1]

Comparing the model outcomes for each scenario with those for the BASE scenario would help understand the impact of the PTAs on the Indian economy. The variables of interest here are India's sectoral output, domestic market prices, exports and imports, aggregate GDP and aggregate welfare.

As mentioned earlier, the GTAP model does not distinguish various household categories and hence cannot help quantify the distributional impacts of trade policy changes. Hence, to understand the impacts of the PTAs on inequality and poverty in the country the results from the GTAP model for each scenario is combined with the World Bank's POVCAL poverty analysis tool.

Specifically, the scenario-wise GTAP results on returns to factors of production, along with the data on distribution of household consumption expenditure from the National Sample Survey Office (NSSO), are used for the poverty analysis using POVCAL.

POVCAL Poverty Analysis Tool

POVCAL is a computational tool for poverty analysis developed at the World Bank. To assess poverty and inequality, the tool uses parametric specifications for the underlying Lorenz curve. In particular, it allows the functional form of the Lorenz curve to be either the general quadratic Lorenz curve or the beta Lorenz curve. For a given poverty line, the tool uses grouped data on distribution of income/consumption (as may be available from households surveys) to select the appropriate Lorenz curve. For the chosen Lorenz curve the tool then estimates various poverty and inequality measures, such as the head count ratio, poverty gap, Gini coefficient, etc.

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[1] All these scenarios were simulated under an alternative closure for factor markets, wherein un-employment was allowed in unskilled-labour in India only though it remains fully mobile across sectors. Further, it was assumed that the other four factors of production would be fully employed even though some sluggishness was introduced in all of them. Results of these simulations were qualitatively not different from the full employment simulations though the magnitude of change in the variables of interest was somewhat large. Hence the simulations under the alternative scenario are not reported here.

Theoretical details on the functional forms of the Lorenz curves, the associated poverty and inequality measures, the estimation methods used, etc. are available in Datt (1998) and other publications mentioned in the World Bank's website.[2]

To use POVCAL in the Indian context, data on the distribution of consumption across households as provided by the NSSO can be used. For the present study, considering that the GTAP database corresponds to 2007, the NSS 66th Round data on consumer expenditure during 2009-10 is used to derive a set of poverty estimates corresponding to the BASE scenario. The NSS data on consumption across deciles are used for this purpose.

To obtain the poverty estimates for the scenarios, the distribution of consumption across the deciles in scenarios has to be provided to POVCAL. One simple way is to assume that the change in consumption expenditure across deciles is the same as that projected by GTAP model, which is over all households. This, however, is a very strong assumption as it implies that the distribution of consumption is neutral to the trade policy changes.

To allow for distributional impacts in the scenarios, the changes in payments to factors of production is mapped on to decile-wise income and consumption using information contained in the Social Accounting Matrix (SAM) developed by Ganesh-Kumar and Panda (2012) for the year 2006-07. The SAM by Ganesh-Kumar and Panda (2012) distinguishes 4 types of factors of production, viz., unskilled labour, skilled labour, capital and land. From their SAM, the shares of households in different deciles in the total payments received by each factor of production can be obtained. These shares are used here to distribute the scenario-wise value added as projected by GTAP model.

Since the GTAP model distinguishes natural-resources as a separate factor, the share of households in payments to land is used for distributing the value added by natural-resources projected by the GTAP model. To the extent the value added by each factor type varies in a scenario, and to the extent that the shares of households in different deciles vary by factor type in the SAM by Ganesh-Kumar and Panda (2012), this procedure would ensure that the distribution of income across the deciles differs from one scenario to another.

Once the value added by each of the five factors of production in the GTAP model is distributed across households in different deciles, their total income and hence the percentage change in their income over BASE levels can be worked out. Assuming that the consumption-savings behaviour of households does not change across scenarios, one can then derive the distribution of consumption across deciles in each scenario. This information is then supplied to POVCAL to derive the inequality and poverty estimates for each scenario.

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[2] The World Bank's website http://iresearch.worldbank.org/PovcalNet/index.htm provide details on the methodological details behind the POVCAL tool as well as access to the software.

Results

Before examining the simulation results it would be useful to understand the structure of India's trade patterns with other countries in each of the 10 commodities considered here. Tables 3 and 4 present sources and destination of India's imports and exports of each commodity as reported in the GTAP database for 2007. At an aggregate level (total over all commodities), 82 per cent of India's imports come from four country/regions, viz., REST OF WORLD (35%), EU-28 (21.2%), EASTASIA (16.1 per cent) and USA (9.6 per cent).[3] These four country/regions are also the most important markets accounting for about 83 per cent of India's exports.

From the perspective of the trade partner, however, India is neither a major source of imports nor a major market for the partner's exports (Table 5).[4] There is not a single commodity in which India accounts for at least 10 per cent of total imports of any of the trade partners. Similarly, India does not account for 10 per cent or more of total exports of the trade partner in any commodity, the only exception being exports of extraction sector by TPPSEASIA. This aspect of the relative (un)importance of India from the trade partner's perspective has to be borne in mind while interpreting the results of the PTA scenarios.

The simulation results on the: (i) bilateral imports of the PTA member countries; (ii) bilateral exports of the PTA member countries; (iii) India's exports; (iv) India's imports; (v) India's domestic output; (vi) domestic prices in the country; and (vi) welfare impacts on India, under the alternative scenarios are presented in Tables 6 through 16.

PTAs and Trade Diversion

Looking first at the bilateral trade flows of the PTA member countries, it is seen that the theoretical prediction that PTAs lead to trade diversion holds true for all the three PTAs (Tables 6 through 11). In all the cases trade amongst member countries displaces the trade with non-member countries resulting in loss of market share for the latter. In the case of TPP scenario for instance, the TPPSEASIA countries import significantly more from other TPP members, viz., Oceania, USA and TPPLATIN countries (Table 6), than from non-member countries, except SEASIA, resulting in a loss of market share for non-members.

However, at the level of individual commodities, it is not always the case that imports from TPP member countries rises but that from non-members falls. For example, in the case of Textiles and wearing apparels TPPSEASIA's imports from all countries are higher than under BASE scenario, but imports from member countries rise much more than imports from non-members. The percentage rise/fall in imports vary across commodities and across member/non-member countries. Similarly, Oceania, USA and TPPLATIN also increase their imports from TPP member countries resulting in a loss of market share of the non-member countries.

As mentioned earlier, one possible impact of the PTAs on a non-member country is the loss in market shares due to its preference erosion when a preferential trading partner joins another PTA. One such possible case is that of SESAIA countries that are not members in the TPP.

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[3] See Table 1 for member states of these 3 regions
[4] Data for only the participating members of the 3 PTAs are reported in Table 5.

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The results, however, show that the SEASIA countries do not suffer any such preference erosion. Indeed, intra-ASEAN trade preferences ensure that TPPSEASIA's imports from SEASIA rise. However, such preferences are not available for SEASIA *vis-à-vis* the other TPP member states, and consequently imports by Oceania, USA and TPPLATIN from SEASIA fall.

Similar patterns are seen in the case of bilateral exports of the TPP countries (Table 7) wherein exports to member states rise at the cost of exports to non-member states, which is likely to put some stress on domestic availability of various commodities in the non-member states.

The results reported in Tables 6 through 11 bring out one other possible, somewhat perverse, outcome of trade diversion, viz., the possible re-routing of exports from a non-member country to a PTA member country via another PTA member country. From Table 6 it is seen that exports of Textiles and wearing apparel to TPPSEASIA from India and other non-member countries rise in the TPP scenario while their exports to USA fall simultaneously.

For India the rise in Textiles and wearing apparel exports to TPPSEASIA is about 13.5 per cent albeit from a low base (Table 4) whereas exports to USA fall by about 3.3 per cent but from a very high base.

Alongside, exports of Textiles and wearing apparel by TPPSEASIA to USA rise by a whopping 77 per cent. Thus, there is clear evidence that along with trade diversion, there is also a re-routing of exports to USA from various countries mostly via TPPSEASIA. A similar re-routing of exports of Meat and livestock products to the EU via SEASIA and TPPSEASIA is seen in the EU-ASEAN scenario also.

It is possible that much of this re-routing actually reflects a change in the commodity composition, wherein more unfinished/semi-finished products within these broad commodity categories move from non-members, such as India to TPPSEASIA while more of finished products move from TPPSEASIA to USA. This, however, cannot be verified given the high level of commodity aggregation used in the present analysis.

Impacts on India

The net-effect of such trade diversion on India's exports and imports of various commodities across the scenarios are shown in Tables 12 and 13, respectively. These impacts vary across commodities and scenarios both in terms of the magnitude and direction of change. Looking first at India's exports (Table 12), in the case of TPP the country witnesses a fall in exports of agricultural commodities, processed food, textiles & wearing apparel, and heavy manufacturing ranging between -0.1 and -0.9 per cent over BASE levels.

In contrast, exports of other commodities rise in this scenario from 0.02% in the case of light manufacturing to about 0.3 per cent in the case of transport, communication and other services. These aggregate results, however, mask substantially the differences in the impacts across the bilateral trading partners for each commodity as was pointed above in the case of textiles and wearing apparel. In general, the impact on exports is largest when all the 3 external mega PTAs are in force as in ALL3PTAs scenario.

The impact of the PTAs on India's imports (Table 13), however, is different from that on exports. Unlike in the case of exports, imports of all commodities are lower under all the 3 PTAs, with the effect being the largest for each commodity in the combined scenario ALL3PTAs. In the ALL3PTAs scenario, the reduction in imports ranges between -0.1 per cent in extraction sector and -1 per cent in the case of grains & crops sector.

The contrasting impacts on India's trade flows of the PTAs and multilateral trade liberalization is quite stark. The magnitude of the impact for both exports and imports is significantly large under MLTL than under any of the PTA scenarios. India's exports (Table 13) of grains & crops, extraction sector, processed food, light manufacturing and heavy manufacturing rise under MLTL, ranging between 5.6 per cent and 100.4 per cent, while the exports of meat & livestock sector, textiles & wearing apparel, utilities & construction, transport & communication and other services decline.

On the import side (Table 13), under MLTL the country witnesses a sharp rise in all commodities ranging between 7.1 per cent in the case of utilities & construction and 88.2 per cent in processed food.

The above changes in the country's exports under different scenarios affect demand for domestic producers with attendant consequences for output, product prices, factor prices, factor returns and income generation, which in turn trigger second round impacts on domestic demand, output and prices. Similarly, changes in imports affect domestic availability, domestic prices and hence demand for various goods.

The model captures all these general equilibrium effects and quantifies the final impact on sectoral domestic output (Table 14), domestic commodity and factor prices (Table 15), and aggregate welfare impacts (Table 16). The impacts on various indicators of inequality and poverty as estimated using POVCAL are also reported in Table 16.

The simulation results show that the final impacts on sectoral output under the PTAs are rather small whereas MLTL has a much larger impact on the output of several sectors. The largest output change under any of the PTA scenarios is just -0.6 per cent in the case of textiles & wearing apparel under ALL3PTAs.

In contrast, under MLTL the range of output loss compared to BASE levels is -2.7 per cent (grains & crops and other services) to -10 per cent (textiles & wearing apparel), and the range of output gain is 1 per cent (light manufacturing) to 10.9 per cent (heavy manufacturing). Commensurate with these changes in sectoral output, aggregate output in the country (GDP quantity index) hardly changes under the PTA scenarios, while under MLTL aggregate output in the country expands by about 2.4 per cent over BASE levels.

The impacts on sectoral prices in domestic market (Table 15) show somewhat smaller change compared to output changes under the different scenarios. However, the direction of change in sectoral output and price is not always the same as domestic prices depend upon the level and price of imports also.

Table 15 also reports the changes in factor prices. Here too, the contrast between the PTA scenarios and MLTL is clear. Price of all factors except natural resources fall under the PTA scenarios, while under MLTL price of land and natural resources fall while that of labour (both skilled and unskilled) and capital rise compared to BASE levels.

Moreover, the magnitude of change is also significantly large under MLTL than in the PTA scenarios. Given the full employment specification in all these scenarios, the changes in factor prices also capture the changes in payments to the various factors (i.e. value added by each factor).

The welfare impacts on India of all these changes are reported in Table 16. Aggregate welfare in the country is lower in all the PTA scenarios, with the loss being highest in the TTIP scenario on an individual basis. When all the 3 PTAs are in force aggregate welfare is lower by US$757mn or just about 0.06 per cent of GDP. In contrast to the PTA scenarios, under MLTL welfare in the country is higher than base by over US$21bn or 1.7 per cent of the GDP.

Table 16 also reports the impact on inequality and poverty as assessed using the GTAP results in combination with POVCAL tool as described earlier.[5] The results show that the impact on inequality and poverty is very much in line with the above changes in aggregate welfare.

The Gini index of inequality is slightly higher than BASE level in the PTA scenarios but is more than half a percentage point lower in the MLTL scenario. Poverty head count too is slightly higher in the PTA scenarios, while in the MLTL scenario it is significantly lower by 12.3 per cent over BASE levels. Similar changes across scenarios are seen in the poverty gap and poverty FGT index.

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[5] As described earlier, POVCAL chooses the appropriate functional specification of the underlying Lorenz curve. This turned out to be the beta Lorenz form.

Conclusions & Recommendations

Swimming with the tide, India too has entered into 19 PTAs/RTAs with South Asian neighbours, the countries of the ASEAN bloc, with the European Union (EU), etc. Though engaged in 19 other trade negotiations, in general the country has not displayed adequate vigour, nimbleness and speed in pursuing PTAs involving major trading nations. India does not find place in some of the major PTA initiatives currently under negotiations such as the TPP, the TTIP and the EU-ASEAN FTA.

This Paper examines the impacts of these 3 mega external PTAs on the Indian economy. It uses the GTAP global CGE model in combination with the POVCAL poverty analysis tool. In all six scenarios are developed here, viz., a BASE or business-as-usual scenario; four PTA scenarios – three corresponding to the three mega PTAs on an individual basis wherein all trade barriers amongst the member countries are eliminated, and the 4th that combines all the 3 PTAs; and 1 multi-lateral trade liberalisation scenario wherein there is complete global free trade.

The simulation results confirm the theoretical prediction that PTAs lead to trade diversion holds true for all the 3 PTAs. In all the cases trade amongst member countries displaces the trade with non-member countries. The results also show that the trade diversionary impacts of PTAs vary across the non-members and across commodities.

Interestingly, there is not much evidence of preference erosion for a non-member country (SEASIA) that already enjoys a preferential trade regime with one of the PTA member state when the latter joins another PTA (TPP). Apart from trade diversion, there are also some instances of a re-routing of non-member exports to a PTA member via another PTA member. The case of Textiles and wearing exports to USA via TPPSEASIA in the TPP scenario and Meat and livestock products exports to the EU via SEASIA and TPPSEASIA in the EU-ASEAN scenario are two cases in point here.

The effect of trade diversion under the external PTAs on India's exports and imports of various commodities varies in magnitude and direction of change. In general, the impact on exports is largest when all the 3 external mega PTAs are in force. In the combined scenarios, exports decline in the case of grains & crops (-0.2 per cent), processed food (-1.6 per cent), textiles & wearing apparel (-1.7 per cent), light manufacturing (-0.2 per cent) and heavy manufacturing (-0.2 per cent) over their BASE levels. At the same time, the exports of extraction (0.3 per cent), utility & construction (0.4 per cent), transport & communication (0.7 per cent) and other services (0.9 per cent) are higher compared to BASE.

Unlike exports, India's imports of all commodities are lower in all the PTA scenarios with the effect being the largest for each commodity in the combined scenario. The reduction in imports ranges between -0.1 per cent in extraction sector and 1 per cent in the case of grains & crops sector.

The contrasting impacts on India's trade flows of the PTAs and multilateral trade liberalization is quite stark. The magnitude of the impact for both exports and imports is significantly large under MLTL than under any of the PTA scenarios. The impacts on commodity exports are not uniform across commodities – grains & crops, extraction sector, processed food, light manufacturing and heavy manufacturing witness a rise in exports while the rest of the commodities witness a decline.

In contrast, there is a sharp rise in imports in all commodities ranging between 7.1 per cent in the case of utilities & construction and 88.2 per cent in processed food.

These changes in the country's exports under different scenarios affect demand for domestic producers with attendant consequences for output, product prices, factor prices, factor returns and income generation, which in turn trigger second round impacts on domestic demand, output and prices.

Similarly, changes in imports affect domestic availability, domestic prices and hence demand for various goods. Taking into account these general equilibrium effects, the final impacts on sectoral output under the PTAs are rather small – the highest being just -0.6 per cent in the case of textiles & wearing apparel when all 3 PTAs are in force - whereas MLTL has a much larger impact on the output of several sectors.

Under MLTL the range of output loss compared to BASE levels is -2.7 per cent (grains & crops and other services) to -10 per cent (textiles & wearing apparel), and the range of output gain is 1 per cent (light manufacturing) to 10.9 per cent (heavy manufacturing). Aggregate output in the country hardly changes under the PTA scenarios, while under MLTL aggregate output in the country expands by about 2.4 per cent over BASE levels.

Price of all factors except natural resources fall under the PTA scenarios, while under MLTL price of land and natural resources fall while that of labour (both skilled and unskilled) and capital rise compared to BASE levels. Moreover, the magnitude of change is also significantly large under MLTL than in the PTA scenarios.

Aggregate welfare in the country is lower in all the PTA scenarios, but the welfare loss even when all three PTAs are in force is only US$757mn or just about 0.06 per cent of GDP. In contrast, under MLTL aggregate welfare is significantly higher by over US$21bn or 1.7 per cent of the GDP.

The impact on inequality and poverty is very much in line with these changes in aggregate welfare. Both Gini index and the various measures of poverty (head count, poverty gap and FGT index) are only slightly higher under the PTA scenarios, but significantly lower under MLTL – Gini is lower by over half percentage point, while poverty head count is lower by 12.3 per cent over BASE levels.

It must be noted here that these results are based on a static CGE model wherein the dynamic effects of any trade policy change, whether in India or external to the country, are not accounted for. Further, the simulations here capture the effect of only tariff and export subsidy elimination in merchandise trade.

They do not capture non-tariff measures, which may have a far larger impact on trade flows and the economy in general. Further, services trade in the present analysis is modelled in a rudimentary way akin to merchandise trade, but without any tariffs or export subsidies.

Finally, not all aspects of the PTAs have been simulated here. For instance, a major focus of the TTIP relates to investment flows between the USA and the EU. This is beyond the scope of the analytical tools used in this study.

Subject to these caveats, the results clearly point out that the India is much better off when there is multilateral free trade in the world, although it does not suffer much under the any of the three mega PTAs. From a policy perspective, this suggests that the country should continue with its efforts for achieving a multilateral trade agreement. This would mean that India has to assume a greater role and show leadership in bringing the Doha Round of negotiations to a logical conclusion.

At present there is a stalemate over two key issues, viz., trade facilitation that the developed countries are looking for and food security and agricultural subsidies that India sees as essential elements of its development strategy. Somewhat disconcertingly, this stalemate threatens to bring the whole negotiations and whatever progress made so far to a complete nought.

While India does have legitimate developmental concerns on food security and agricultural subsidies, the issues involved are not fundamentally complex and irresolvable within a reasonable period. In this regard, India must realise that a multilateral agreement can bring benefits to many sectors and would actually promote economic development within the country. Equally, the developed countries too should recognise that food security is not just a problem faced by India, but is one of the Millennium Development Goals.

Hence, there is a greater good to be achieved in addressing India's and perhaps other developing countries concerns in this regard that goes beyond just a trade agreement.

Even as India exerts to achieve a multilateral trade agreement, the country should nevertheless hedge against the possibility that a global trade agreement does not materialise within a reasonable time in future. One way to protect the country's interest is to aggressively pursue PTAs in parallel with key members of these three mega PTAs, as suggested by the results for the non-member Southeast Asian countries under the TPP scenario.

No doubt these are second best alternatives, but they are better than being in a situation where the country is left in lurch without any major trade agreement – multilateral or otherwise.

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Table 1: GTAP Region Aggregation

Code	Region description	Constituent countries / regions
1) INDIA	India	India
2) SOUTHASIA	South Asia	Bangladesh, Nepal, Pakistan, Sri Lanka, Rest of South Asia
3) SEASIA	South East Asia not in TPP	Cambodia, Indonesia, Lao People's Democratic Republ, Philippines, Thailand
4) TPPSEASIA	South East Asia in TPP	Malaysia, Singapore, Viet Nam, Rest of Southeast Asia
5) EASTASIA	East Asia	China, Hong Kong, Japan, Korea, Mongolia, Taiwan, Rest of East Asia
6) OCEANIA	Australia, New Zealand	Australia, New Zealand
7) ROOCEANIA	rest of oceania	Rest of Oceania
8) USA	United States of America	United States of America
9) NAMERICA	North America	Canada, Mexico, Rest of North America
10) LATINAMER	Latin America(other)	Argentina, Bolivia, Brazil, Colombia, Ecuador, Paraguay, Uruguay, Venezuela, Rest of South America, Costa Rica, Guatemala, Honduras, Nicaragua, Panama, El Salvador, Rest of Central America, Caribbean
11) TPPLATIN	Latin American countries in TPP	Chile, Peru
12) EU_28	European Union 25	Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, United Kingdom, Bulgaria, Croatia, Romania
13) RESTOFWORLD	Rest of World	Switzerland, Norway, Rest of EFTA, Albania, Belarus, Russian Federation, 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, Turkey, United Arab Emirates, Rest of Western Asia, Egypt, Morocco, Tunisia, Rest of North 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, South Africa, Rest of South African Customs, Rest of the World

Source: Authors

Table 2: GTAP Commodity Aggregation

Code	Commodity description	Constituent commodities
1) GRAINSCROPS	Grains and Crops	Paddy rice, Wheat, Cereal grains nec, Vegetables, fruit, nuts, Oil seeds, Sugar cane, sugar beet, Plant-based fibers, Crops nec, Processed rice,
2) MEATLSTK	Livestock and Meat Products	Cattle,sheep,goats,horses, Animal products nec, Raw milk, Wool, silk-worm cocoons, Meat: cattle,sheep,goats,horse, Meat products nec,
3) EXTRACTION	Mining and Extraction	Forestry, Fishing, Coal, Oil, Gas, Minerals nec,
4) PROCFOOD	Processed Food	Vegetable oils and fats, Dairy products, Sugar, Food products nec, Beverages and tobacco products,
5) TEXTWAPP	Textiles and Clothing	Textiles, Wearing apparel,
6) LIGHTMNFC	Light Manufacturing	Leather products, Wood products, Paper products, publishing, Metal products, Motor vehicles and parts, Transport equipment nec, Manufactures nec,
7) HEAVYMNFC	Heavy Manufacturing	Petroleum, coal products, Chemical,rubber,plastic prods, Mineral products nec, Ferrous metals, Metals nec, Electronic equipment, Machinery and equipment nec,
8) UTIL_CONS	Utilities and Construction	Electricity, Gas manufacture, distribution, Water, Construction,
9) TRANSCOMM	Transport and Communication	Trade, Transport nec, Sea transport, Air transport, Communication,
10) OTHSERVICES	Other Services	Financial services nec, Insurance, Business services nec, Recreation and other services, PubAdmin/Defence/Health/Educat, Dwellings,

Source: Authors

Table 3: Source of India's Imports (% in total imports in 2007)

	SOUTH ASIA	SEASIA	TPPSE ASIA	EASTA SIA	OCEAN IA	ROOCE ANIA	USA	NAME RICA	LATIN AMER	TPPLA TIN	EU_28	RESTOF WORLD	Total
1. GRAINSCROPS	7.6	4.7	14.8	2.1	3.6	0.0	12.5	17.1	2.3	0.3	2.5	32.4	100.0
2. MEATLSTK	1.1	0.9	0.6	4.5	41.6	0.0	5.9	0.2	4.3	0.2	17.2	23.5	100.0
3. EXTRACTION	0.1	1.7	4.5	0.2	4.1	0.2	0.1	1.4	1.4	3.0	9.5	73.6	100.0
4. PROCFOOD	7.9	54.4	6.3	1.8	0.7	0.0	2.3	0.1	17.3	0.2	5.5	3.4	100.0
5. TEXTWAPP	7.6	6.5	2.0	61.3	2.6	0.0	3.5	0.1	0.6	0.0	10.1	5.6	100.0
6. LIGHTMNFC	0.5	2.9	2.6	18.2	0.6	0.0	30.1	1.5	0.7	0.0	27.8	15.1	100.0
7. HEAVYMNFC	0.7	2.7	7.6	29.3	4.1	0.0	7.9	0.8	0.6	0.0	20.9	25.4	100.0
8. UTIL_CONS	8.2	1.0	2.3	16.2	0.7	0.7	11.2	1.0	1.4	0.0	35.9	21.4	100.0
9. TRANSCOMM	0.3	2.1	6.0	16.7	4.2	0.1	17.4	1.5	3.2	0.7	37.1	10.6	100.0
10. OTHSERVICES	0.2	0.7	12.6	9.7	2.2	0.1	19.5	2.8	2.2	0.2	41.9	7.9	100.0
TOTAL	0.7	3.0	6.7	16.1	3.5	0.1	9.6	1.5	1.5	1.0	21.2	35.0	100.0

Source: GTAP 8.1 Database

Table 4: Destination of India's Exports (% in total exports in 2007)

	SOUTH ASIA	SEASIA	TPPSE ASIA	EASTA SIA	OCEAN IA	ROOCE ANIA	USA	NAME RICA	LATIN AMER	TPPLA TIN	EU_28	RESTOF WORLD	Total
1. GRAINSCROPS	16.3	5.0	4.7	13.8	1.2	0.0	7.3	0.9	0.4	0.0	15.8	34.4	100.0
2. MEATLSTK	4.3	6.2	14.0	2.3	0.5	0.0	3.7	0.1	0.3	0.0	7.1	61.5	100.0
3. EXTRACTION	1.7	0.3	0.4	84.6	0.3	0.0	1.1	0.2	0.2	0.0	6.8	4.4	100.0
4. PROCFOOD	10.1	7.0	9.0	17.8	1.2	0.0	11.3	1.8	0.5	0.0	19.3	21.9	100.0
5. TEXTWAPP	3.5	0.7	1.0	4.1	1.0	0.1	25.7	2.7	2.4	0.6	39.4	18.9	100.0
6. LIGHTMNFC	2.7	2.3	2.3	9.4	1.2	0.0	24.0	1.5	1.3	0.2	25.9	29.0	100.0
7. HEAVYMNFC	6.6	3.7	4.5	13.6	0.8	0.0	11.9	1.4	4.4	0.2	20.4	32.4	100.0
8. UTIL_CONS	0.4	1.8	2.5	35.3	0.2	0.4	1.6	0.2	1.2	0.2	21.1	35.2	100.0
9. TRANSCOMM	0.3	1.5	3.3	10.8	2.2	0.1	19.4	1.3	2.9	0.6	43.4	14.2	100.0
10. OTHSERVICES	0.3	1.2	3.9	8.7	0.9	0.1	25.2	3.8	4.7	0.2	43.2	7.7	100.0
TOTAL	4.0	2.4	3.6	14.3	1.0	0.1	18.0	2.1	3.2	0.3	29.3	21.8	100.0

Source: GTAP 8.1 Database

Table 5: India's Share in Trade Partner's Imports and Exports (% in 2007)

	India's share (%) in total imports of						India's share (%) in total exports of					
	SEASIA	TPPSE ASIA	OCEAN IA	USA	TPPLA TIN	EU_28	SEASIA	TPPSE ASIA	OCEAN IA	USA	TPPLA TIN	EU_28
1. GRAINSCROPS	5.0	7.3	7.7	2.7	0.1	1.3	1.7	8.0	2.6	0.8	0.2	0.1
2. MEATLSTK	5.7	9.6	0.7	0.5	0.1	0.1	0.2	0.4	1.1	0.1	0.1	0.1
3. EXTRACTION	0.1	0.1	0.3	0.0	0.0	0.2	3.9	10.9	6.3	0.6	8.8	10.4
4. PROCFOOD	3.9	5.3	1.0	1.4	0.1	0.5	8.9	1.4	0.2	0.3	0.1	0.1
5. TEXTWAPP	1.7	2.2	3.5	6.6	5.2	4.0	0.8	0.5	4.5	0.7	0.1	0.2
6. LIGHTMNFC	2.1	1.7	0.8	1.5	0.6	0.7	1.4	1.9	1.1	2.8	0.2	0.6
7. HEAVYMNFC	1.4	1.4	0.6	0.9	0.6	0.6	1.5	3.0	7.6	1.4	0.1	0.9
8. UTIL_CONS	0.6	0.4	0.2	0.2	0.4	0.2	0.9	0.8	2.1	1.7	1.3	0.7
9. TRANSCOMM	1.2	1.6	1.7	2.6	1.4	1.4	1.2	2.7	3.2	3.1	1.8	1.3
10. OTHSERVICES	2.7	4.8	2.5	6.4	2.6	3.1	1.8	9.0	3.7	2.6	1.8	1.9
TOTAL	1.6	2.0	1.1	1.8	0.9	1.1	2.2	4.0	4.8	1.9	2.7	1.0

Source: GTAP 8.1 Database

Table 6: Bilateral Imports by Member Countries in TPP (% change from BASE)

Importing country / Commodity	Exporting country												
	INDIA	SOUTH ASIA	SEASIA	TPPSE ASIA	EASTA SIA	OCEAN IA	ROOCE ANIA	USA	NAME RICA	LATINA MER	TPPLA TIN	EU_28	RESTOF WORLD
TPPSEASIA													
1 GrainsCrops	-4.30	-4.04	33.78	-11.36	-4.48	5.27	-3.54	33.55	-2.08	-4.20	56.45	-4.62	-4.62
2 MeatLstk	-2.97	-2.53	2.81	-9.67	-3.29	0.88	-2.80	58.22	3.00	-2.92	59.36	-3.55	-3.54
3 Extraction	1.43	2.19	12.44	-7.92	1.47	8.91	2.43	11.59	1.48	1.62	2.76	1.54	1.52
4 ProcFood	-4.19	-3.91	8.93	-6.45	-4.31	14.52	-4.25	35.46	-2.62	-4.10	40.88	-4.40	-4.41
5 TextWapp	13.48	14.01	26.40	12.06	13.41	59.69	13.43	72.74	14.09	13.71	42.65	13.25	13.24
6 LightMnfc	-2.22	-1.75	17.42	-4.42	-2.22	21.78	-2.19	15.11	-1.93	-1.99	2.90	-2.36	-2.38
7 HeavyMnfc	-1.91	-1.43	16.92	-4.12	-1.85	22.16	-1.71	8.04	-1.57	-1.62	-1.54	-1.93	-1.98
8 Util_Cons	2.09	2.48	1.09	-0.68	2.07	1.04	2.12	1.47	2.30	2.27	1.46	1.97	1.94
9 TransComm	1.04	1.40	-0.16	-1.63	1.02	0.08	1.04	0.47	1.30	1.18	0.63	0.90	0.89
10 OthServices	1.15	1.53	-0.38	-2.03	1.14	0.08	1.18	0.56	1.33	1.30	0.40	1.01	1.00
OCEANIA													
1 GrainsCrops	1.56	1.80	1.79	-6.08	1.40	0.12	2.26	-0.01	3.74	1.65	4.00	1.22	1.22
2 MeatLstk	1.06	1.52	0.20	-2.98	0.72	-1.57	1.17	1.45	7.23	1.07	1.63	0.46	0.46
3 Extraction	-4.39	-3.69	-4.69	8.27	-4.35	-4.68	-3.36	-4.03	-4.34	-4.20	-4.19	-4.27	-4.30
4 ProcFood	0.66	0.95	0.53	0.81	0.55	-0.45	0.61	2.81	2.21	0.76	5.61	0.46	0.45
5 TextWapp	-1.19	-0.66	-1.92	59.08	-1.25	-2.45	-1.26	47.05	-0.59	-0.96	41.29	-1.42	-1.43
6 LightMnfc	-0.86	-0.42	-1.61	19.13	-0.85	-1.95	-0.83	11.12	-0.57	-0.61	11.31	-0.99	-1.01
7 HeavyMnfc	-0.47	-0.01	-0.82	2.42	-0.41	-1.19	-0.25	4.49	-0.12	-0.18	5.31	-0.49	-0.54
8 Util_Cons	0.66	1.06	-0.34	-2.10	0.65	-0.38	0.70	0.05	0.88	0.85	0.04	0.55	0.52
9 TransComm	0.63	0.99	-0.57	-2.04	0.61	-0.33	0.62	0.06	0.89	0.76	0.22	0.48	0.47
10 OthServices	0.74	1.12	-0.80	-2.45	0.72	-0.34	0.77	0.14	0.92	0.88	-0.02	0.59	0.58
USA													
1 GrainsCrops	0.02	0.27	0.28	-6.93	-0.15	2.32	0.78		3.60	0.06	1.31	-0.34	-0.33
2 MeatLstk	-4.23	-3.77	-5.08	-2.83	-4.58	23.32	-4.05		1.82	-4.21	-4.59	-4.83	-4.83
3 Extraction	-0.15	0.60	-0.44	6.29	-0.11	1.32	0.73		-0.09	0.06	0.01	-0.02	-0.06
4 ProcFood	-1.96	-1.66	-2.09	1.98	-2.08	21.01	-2.04		9.26	-1.87	4.48	-2.17	-2.18
5 TextWapp	-3.28	-2.74	-4.02	77.12	-3.34	31.95	-3.35		-2.66	-3.06	91.43	-3.51	-3.53
6 LightMnfc	0.15	0.60	-0.61	16.00	0.15	2.94	0.20		0.42	0.37	-0.54	0.01	-0.01
7 HeavyMnfc	0.11	0.57	-0.25	0.77	0.18	3.39	0.33		0.46	0.39	2.34	0.09	0.04
8 Util_Cons	0.32	0.71	-0.68	-2.44	0.31	-0.73	0.35		0.54	0.51	-0.30	0.20	0.18
9 TransComm	0.37	0.73	-0.83	-2.30	0.35	-0.59	0.36		0.63	0.50	-0.04	0.22	0.21
10 OthServices	0.38	0.76	-1.15	-2.81	0.36	-0.69	0.41		0.56	0.53	-0.38	0.24	0.23
TPPLATIN													
1 GrainsCrops	-4.91	-4.66	-4.67	16.12	-5.10	-1.63	-4.18	20.91	-2.69	-4.86	-4.74	-5.27	-5.28
2 MeatLstk	-1.65	-1.21	-2.52	10.89	-2.01	43.11	-1.54	40.60	4.33	-1.65	-2.04	-2.28	-2.27
3 Extraction	-1.29	-0.48	-1.57	35.06	-1.25	54.35	-0.20	9.35	-1.24	-1.08	-1.15	-1.22	-1.20
4 ProcFood	-1.41	-1.12	-1.55	31.06	-1.54	57.73	-1.45	16.70	0.11	-1.33	-1.61	-1.62	-1.64
5 TextWapp	0.15	0.69	-0.58	62.02	0.09	39.70	0.09	63.22	0.66	0.37	-0.59	-0.08	-0.09
6 LightMnfc	-1.55	-1.11	-2.31	50.59	-1.54	31.01	-1.50	12.66	-1.28	-1.32	-2.26	-1.68	-1.70
7 HeavyMnfc	-4.09	-3.61	-4.42	31.09	-4.01	32.45	-3.87	12.79	-3.73	-3.79	-4.43	-4.10	-4.15
8 Util_Cons	0.44	0.83	-0.56	-2.29	0.43	-0.61	0.48	-0.17	0.66	0.63	-0.18	0.32	0.30
9 TransComm	0.32	0.68	-0.88	-2.35	0.30	-0.64	0.31	-0.25	0.58	0.46	-0.09	0.18	0.17
10 OthServices	0.51	0.89	-1.02	-2.68	0.49	-0.56	0.54	-0.08	0.69	0.66	-0.25	0.37	0.35

Source: Authors

Note: For aggregated regions such as TPPSESIA the GTAP model reports the intra-region trade as well. Changes in such intra-regional trade are reported in Tables 6 through 11.

Table 7: Bilateral Exports by Member Countries in TPP (% change from BASE)

Exporting country / Commodity	Importing country												
	INDIA	SOUTH ASIA	SEASIA	TPPSE ASIA	EASTAS IA	OCEAN IA	ROOCE ANIA	USA	NAME RICA	LATINA MER	TPPLAT IN	EU_28	RESTOF WORLD
TPPSEASIA													
1. GRAINSCROPS	-7.13	-7.82	84.28	-11.36	-6.76	-6.08	-7.03	-6.93	-16.53	-7.19	16.12	-7.61	-7.33
2. MEATLSTK	-5.97	-6.27	71.42	-9.67	-6.22	-2.98	-5.58	-2.83	-56.19	-6.90	10.89	-6.44	-6.20
3. EXTRACTION	-9.07	-8.59	30.47	-7.92	-9.01	8.27	-7.26	6.29	-8.51	-9.21	35.06	-8.88	-8.71
4. PROCFOOD	-2.06	-2.01	46.27	-6.45	-2.00	0.81	-1.88	1.98	-14.65	-2.33	31.06	-2.11	-2.02
5. TEXTWAPP	-1.42	-1.76	30.65	12.06	-1.33	59.08	-1.11	77.12	-1.63	-1.55	62.02	-1.26	-1.29
6. LIGHTMNFC	-2.01	-2.14	42.09	-4.42	-2.03	19.13	-1.95	16.00	-2.02	-2.26	50.59	-2.06	-2.06
7. HEAVYMNFC	-2.08	-2.16	11.66	-4.12	-2.13	2.42	-1.78	0.77	-2.03	-2.24	31.09	-2.18	-2.14
8. UTIL_CONS	-2.71	-2.87	-1.71	-0.68	-2.64	-2.10	-2.63	-2.44	-2.59	-2.84	-2.29	-2.62	-2.62
9. TRANSCOMM	-2.48	-2.74	-1.98	-1.63	-2.50	-2.04	-2.56	-2.30	-2.59	-2.59	-2.35	-2.45	-2.45
10. OTHSERVICES	-2.82	-3.21	-2.31	-2.03	-2.94	-2.45	-3.03	-2.81	-3.03	-3.07	-2.68	-2.98	-2.95
OCEANIA													
1. GRAINSCROPS	-1.13	-1.66	-11.11	5.27	-1.04	0.12	-1.12	2.32	-10.15	-1.40	-1.63	-1.13	-1.15
2. MEATLSTK	-1.81	-2.23	-2.67	0.88	-1.99	-1.57	-1.33	23.32	-51.83	-2.48	43.11	-2.05	-2.10
3. EXTRACTION	0.06	-0.21	-3.69	8.91	-0.07	-4.68	-0.50	1.32	-0.13	-0.34	54.35	-0.37	-0.38
4. PROCFOOD	-1.02	-0.90	-4.52	14.52	-0.85	-0.45	-0.75	21.01	-13.47	-1.18	57.73	-0.95	-0.88
5. TEXTWAPP	-1.28	-1.61	-2.67	59.69	-1.18	-2.45	-0.95	31.95	-1.48	-1.41	39.70	-1.11	-1.14
6. LIGHTMNFC	-0.92	-1.06	-3.10	21.78	-0.97	-1.95	-0.82	2.94	-0.96	-1.16	31.01	-0.99	-0.97
7. HEAVYMNFC	-0.61	-0.71	-2.32	22.16	-0.63	-1.19	-0.32	3.39	-0.53	-0.74	32.45	-0.68	-0.67
8. UTIL_CONS	-0.99	-1.16	0.00	1.04	-0.93	-0.38	-0.92	-0.73	-0.87	-1.12	-0.61	-0.91	-0.90
9. TRANSCOMM	-0.77	-1.03	-0.28	0.08	-0.79	-0.33	-0.85	-0.59	-0.88	-0.88	-0.64	-0.75	-0.74
10. OTHSERVICES	-0.71	-1.10	-0.20	0.08	-0.83	-0.34	-0.91	-0.69	-0.91	-0.96	-0.56	-0.87	-0.83
USA													
1. GRAINSCROPS	-1.24	-1.76	-11.15	33.55	-1.11	-0.01	-1.24		5.84	-1.45	20.91	-1.37	-1.25
2. MEATLSTK	-0.82	-1.37	-1.73	58.22	-1.02	1.45	-0.37		40.26	-1.50	40.60	-1.10	-1.15
3. EXTRACTION	0.23	0.00	-3.46	11.59	0.15	-4.03	-0.26		0.15	-0.13	9.35	-0.15	-0.17
4. PROCFOOD	-0.48	-0.37	-3.99	35.46	-0.32	2.81	-0.23		23.96	-0.64	16.70	-0.42	-0.34
5. TEXTWAPP	-0.46	-0.80	-1.85	72.74	-0.36	47.05	-0.15		-0.52	-0.58	63.22	-0.29	-0.32
6. LIGHTMNFC	-0.53	-0.68	-2.72	15.11	-0.57	11.12	-0.42		-0.21	-0.74	12.66	-0.58	-0.55
7. HEAVYMNFC	-0.47	-0.59	-2.20	8.04	-0.51	4.49	-0.20		-0.24	-0.62	12.79	-0.56	-0.54
8. UTIL_CONS	-0.56	-0.73	0.43	1.47	-0.50	0.05	-0.49		-0.44	-0.69	-0.17	-0.48	-0.47
9. TRANSCOMM	-0.38	-0.64	0.11	0.47	-0.40	0.06	-0.46		-0.49	-0.49	-0.25	-0.36	-0.35
10. OTHSERVICES	-0.23	-0.62	0.29	0.56	-0.35	0.14	-0.43		-0.43	-0.47	-0.08	-0.38	-0.35
TPPLATIN													
1. GRAINSCROPS	0.56	0.09	-9.41	56.45	0.61	4.00	0.49	1.31	-8.51	0.33	-4.74	0.48	0.53
2. MEATLSTK	0.49	-0.10	-0.48	59.36	0.28	1.63	0.94	-4.59	-49.58	-0.23	-2.04	0.22	0.14
3. EXTRACTION	0.36	0.21	-3.31	2.76	0.29	-4.19	-0.05	0.01	0.29	0.03	-1.15	0.01	0.00
4. PROCFOOD	-0.08	0.04	-3.59	40.88	0.08	5.61	0.17	4.48	-12.53	-0.24	-1.61	0.00	0.06
5. TEXTWAPP	-0.77	-1.09	-2.16	42.65	-0.66	41.29	-0.44	91.43	-0.95	-0.88	-0.59	-0.59	-0.62
6. LIGHTMNFC	-0.54	-0.70	-2.74	2.90	-0.59	11.31	-0.44	-0.54	-0.55	-0.76	-2.26	-0.59	-0.55
7. HEAVYMNFC	-0.23	-0.35	-1.96	-1.54	-0.27	5.31	0.04	2.34	-0.16	-0.38	-4.43	-0.31	-0.30
8. UTIL_CONS	-0.57	-0.74	0.43	1.46	-0.50	0.04	-0.50	-0.30	-0.45	-0.70	-0.18	-0.49	-0.48
9. TRANSCOMM	-0.23	-0.48	0.27	0.63	-0.24	0.22	-0.30	-0.04	-0.34	-0.34	-0.09	-0.20	-0.20
10. OTHSERVICES	-0.39	-0.78	0.12	0.40	-0.51	-0.02	-0.60	-0.38	-0.60	-0.64	-0.25	-0.55	-0.52

Source: Authors

Table 8: Bilateral Imports by Member Countries in TTIP (% change from BASE)

Importing country / Commodity	Exporting country												
	INDIA	SOUTH ASIA	SEASIA	TPPSE ASIA	EASTASIA	OCEANIA	ROOCEANIA	USA	NAMERICA	LATINAMER	TPPLATIN	EU_28	RESTOF WORLD
USA													
1 GrainsCrops	0.11	0.21	0.22	-7.97	0.01	0.59	1.10		3.54	0.20	0.52	24.54	-0.05
2 MeatLstk	-0.03	0.19	-0.93	-6.76	-0.18	0.57	0.62		5.96	0.11	0.51	5.09	-0.32
3 Extraction	0.38	0.91	0.01	-6.09	0.42	0.29	0.09		0.10	0.26	0.55	-9.01	0.45
4 ProcFood	-2.82	-2.66	-2.99	-5.11	-2.85	-2.54	-2.82		8.48	-2.70	-2.70	10.45	-2.90
5 TextWapp	-1.44	-1.12	-2.20	-2.26	-1.34	-1.02	-1.43		-0.77	-1.22	-1.21	53.82	-1.47
6 LightMnfc	0.14	0.40	-0.63	-1.07	0.28	0.49	0.15		0.39	0.37	0.33	7.04	0.14
7 HeavyMnfc	-0.23	0.06	-0.58	-1.37	-0.07	-0.05	-0.20		0.09	-0.01	-0.02	7.31	-0.18
8 Util_Cons	0.90	1.14	-0.12	-0.52	1.00	1.19	0.88		1.22	1.11	1.05	0.70	0.89
9 TransComm	0.85	1.06	-0.37	-0.55	0.94	1.09	0.83		1.27	1.04	0.92	0.64	0.84
10 OthServices	0.93	1.15	-0.63	-0.72	1.04	1.21	0.91		1.31	1.14	1.04	0.67	0.93
EU_28													
1 GrainsCrops	-0.34	-0.24	-0.23	-8.37	-0.43	0.13	0.68	14.75	1.82	-0.24	0.12	-0.54	-0.52
2 MeatLstk	-0.64	-0.41	-1.51	-7.70	-0.75	0.00	0.02	97.71	5.73	-0.48	-0.07	-1.01	-0.91
3 Extraction	-0.15	0.38	-0.50	-6.21	-0.10	-0.25	-0.44	4.32	-0.43	-0.29	-0.13	0.13	-0.08
4 ProcFood	-0.32	-0.17	-0.48	-2.59	-0.35	-0.04	-0.30	44.53	1.43	-0.19	-0.18	-0.51	-0.39
5 TextWapp	0.00	0.33	-0.75	-0.82	0.10	0.43	0.02	50.99	0.71	0.23	0.24	-0.26	-0.03
6 LightMnfc	-0.55	-0.27	-1.30	-1.77	-0.40	-0.18	-0.52	15.96	-0.26	-0.31	-0.33	-0.63	-0.54
7 HeavyMnfc	-0.55	-0.25	-0.90	-1.68	-0.39	-0.36	-0.51	12.21	-0.22	-0.33	-0.33	-0.59	-0.50
8 Util_Cons	0.19	0.43	-0.82	-1.23	0.29	0.48	0.18	-1.79	0.51	0.40	0.34	-0.01	0.18
9 TransComm	0.26	0.47	-0.96	-1.15	0.35	0.50	0.24	-1.47	0.68	0.44	0.32	0.05	0.25
10 OthServices	0.34	0.56	-1.22	-1.32	0.45	0.61	0.32	-1.46	0.72	0.55	0.45	0.08	0.33

Source: Authors

Table 9: Bilateral Exports by Member Countries in TTIP (% change from BASE)

Exporting country / Commodity	Importing country												
	INDIA	SOUTH ASIA	SEASIA	TPPSE ASIA	EASTASIA	OCEANIA	ROOCEANIA	USA	NAMERICA	LATINAMER	TPPLATIN	EU_28	RESTOF WORLD
USA													
1. GRAINSCROPS	-2.57	-3.00	-12.28	-4.50	-2.16	-2.75	-3.21		5.35	-2.51	-3.09	14.75	-2.61
2. MEATLSTK	-3.73	-3.46	-4.35	-0.81	-3.52	-4.37	-3.98		39.29	-3.35	-3.88	97.71	-3.45
3. EXTRACTION	-1.27	-1.42	-4.95	-0.06	-1.07	1.13	-1.16		-0.79	-1.19	-1.30	4.32	-1.54
4. PROCFOOD	-1.58	-1.45	-5.13	-2.52	-1.47	-1.72	-1.72		23.11	-1.71	-1.84	44.53	-1.54
5. TEXTWAPP	-2.51	-2.64	-3.85	-3.18	-2.54	-2.55	-2.45		-1.88	-2.18	-2.54	50.99	-2.44
6. LIGHTMNFC	-2.01	-2.28	-4.39	-3.09	-2.20	-2.30	-2.29		-1.14	-2.24	-2.24	15.96	-2.26
7. HEAVYMNFC	-2.11	-2.23	-3.95	-3.31	-2.15	-2.00	-2.10		-1.23	-1.93	-1.80	12.21	-2.17
8. UTIL_CONS	-1.88	-2.03	-0.97	-1.02	-1.94	-1.88	-1.78		-1.54	-2.10	-2.00	-1.79	-1.95
9. TRANSCOMM	-1.51	-1.70	-1.02	-1.10	-1.63	-1.65	-1.58		-1.58	-1.65	-1.59	-1.47	-1.57
10. OTHSERVICES	-1.42	-1.64	-0.83	-0.96	-1.49	-1.56	-1.52		-1.40	-1.61	-1.58	-1.46	-1.52
EU-28													
1. GRAINSCROPS	0.26	-0.19	-9.58	-1.85	0.46	-0.11	-0.52	24.54	-8.18	0.20	-0.31	-0.54	0.13
2. MEATLSTK	-0.35	-0.21	-1.16	2.53	-0.19	-0.98	-0.59	5.09	-48.51	-0.06	-0.68	-1.01	-0.11
3. EXTRACTION	0.46	0.29	-3.47	1.51	0.41	2.74	0.41	-9.01	0.78	0.40	0.20	0.13	0.14
4. PROCFOOD	-0.07	0.05	-3.65	-1.03	0.03	-0.21	-0.25	10.45	-12.29	-0.23	-0.36	-0.51	-0.04
5. TEXTWAPP	-0.29	-0.45	-1.66	-0.97	-0.34	-0.35	-0.24	53.82	0.14	-0.02	-0.37	-0.26	-0.22
6. LIGHTMNFC	0.29	-0.01	-2.15	-0.82	0.05	-0.07	-0.09	7.04	0.74	-0.03	-0.02	-0.63	0.00
7. HEAVYMNFC	0.02	-0.07	-1.79	-1.15	0.01	0.15	0.05	7.31	0.75	0.19	0.32	-0.59	-0.01
8. UTIL_CONS	-0.10	-0.24	0.81	0.76	-0.15	-0.09	0.00	0.70	0.24	-0.32	-0.22	-0.01	-0.16
9. TRANSCOMM	0.01	-0.18	0.49	0.42	-0.11	-0.13	-0.06	0.64	-0.06	-0.13	-0.07	0.05	-0.05
10. OTHSERVICES	0.12	-0.10	0.71	0.58	0.04	-0.03	0.02	0.67	0.14	-0.08	-0.04	0.08	0.02

Source: Authors

Table 10: Bilateral Imports by Member Countries in EU-ASEAN
(% change from BASE)

Importing country / Commodity	Exporting country												
	INDIA	SOUTH ASIA	SEASIA	TPPSE ASIA	EASTA SIA	OCEAN IA	ROOCE ANIA	USA	NAME RICA	LATINA MER	TPPLA TIN	EU_28	RESTOF WORLD
SEASIA													
1. GRAINSCROPS	-6.88	-6.76	-11.06	85.19	-6.93	-6.24	-6.04	-8.07	-4.77	-6.80	-6.41	32.54	-7.07
2. MEATLSTK	-0.72	-0.50	-8.51	68.77	-0.77	0.00	-0.08	-1.82	5.26	-0.63	-0.17	45.78	-1.06
3. EXTRACTION	-4.15	-3.58	-5.36	31.88	-4.12	-4.28	-4.46	-4.05	-4.15	-4.09	-4.09	13.21	-4.04
4. PROCFOOD	-6.02	-5.89	-8.30	43.24	-6.04	-5.71	-6.01	-6.33	-4.50	-5.93	-5.90	46.59	-6.15
5. TEXTWAPP	-0.94	-0.69	-3.86	32.83	-0.89	-0.52	-1.00	-1.44	-0.42	-0.82	-0.82	77.69	-1.09
6. LIGHTMNFC	-5.65	-5.43	-8.22	39.00	-5.58	-5.35	-5.72	-6.04	-5.47	-5.53	-5.58	42.86	-5.77
7. HEAVYMNFC	-3.13	-2.87	-5.42	10.23	-3.03	-2.98	-3.17	-3.42	-2.89	-2.96	-3.00	25.14	-3.17
8. UTIL_CONS	2.57	2.77	-0.46	-0.02	2.61	2.85	2.51	2.25	2.70	2.67	2.62	2.36	2.47
9. TRANSCOMM	1.82	2.00	-1.71	-0.76	1.86	2.05	1.77	1.51	2.00	1.88	1.81	1.60	1.71
10. OTHSERVICES	2.09	2.28	-2.03	-0.98	2.13	2.34	2.03	1.77	2.18	2.15	2.08	1.84	1.98
TPPSEASIA													
1. GRAINSCROPS	-0.90	-0.76	32.70	-9.65	-0.94	-0.30	-0.08	-2.05	1.18	-0.77	-0.38	73.65	-1.07
2. MEATLSTK	3.02	3.25	1.88	-5.71	2.97	3.77	3.67	1.90	8.92	3.12	3.57	22.39	2.69
3. EXTRACTION	1.27	1.82	11.12	-5.92	1.31	1.14	0.86	1.42	1.34	1.39	1.44	6.84	1.38
4. PROCFOOD	-4.59	-4.45	6.38	-7.28	-4.61	-4.28	-4.60	-4.90	-3.04	-4.51	-4.48	43.41	-4.71
5. TEXTWAPP	0.89	1.15	11.62	1.20	0.93	1.32	0.84	0.38	1.40	1.00	1.01	96.97	0.74
6. LIGHTMNFC	-3.83	-3.61	14.04	-5.48	-3.76	-3.51	-3.90	-4.22	-3.61	-3.71	-3.77	24.82	-3.94
7. HEAVYMNFC	-1.70	-1.44	15.17	-3.80	-1.60	-1.55	-1.74	-1.99	-1.46	-1.52	-1.57	10.08	-1.74
8. UTIL_CONS	1.80	2.00	-1.23	-0.79	1.84	2.08	1.74	1.48	1.93	1.90	1.85	1.60	1.70
9. TRANSCOMM	0.97	1.15	-2.56	-1.61	1.01	1.20	0.92	0.66	1.15	1.03	0.96	0.76	0.86
10. OTHSERVICES	1.06	1.25	-3.06	-2.01	1.10	1.31	1.01	0.74	1.15	1.12	1.05	0.81	0.95
EU-28													
1. GRAINSCROPS	-0.10	0.02	31.43	-7.22	-0.13	0.42	0.73	-1.35	2.12	-0.02	0.39	-0.28	-0.32
2. MEATLSTK	-0.52	-0.28	84.99	9.59	-0.57	0.24	0.15	-1.67	5.84	-0.43	0.03	-0.83	-0.86
3. EXTRACTION	-0.09	0.43	7.27	13.66	-0.07	-0.23	-0.40	0.06	-0.03	0.00	-0.04	-0.06	0.00
4. PROCFOOD	-0.41	-0.27	39.11	26.52	-0.43	-0.09	-0.42	-0.72	1.24	-0.32	-0.30	-0.56	-0.53
5. TEXTWAPP	-1.39	-1.12	45.38	58.61	-1.34	-0.96	-1.45	-1.90	-0.85	-1.27	-1.28	-1.41	-1.54
6. LIGHTMNFC	-0.16	0.05	26.19	25.70	-0.10	0.18	-0.22	-0.55	0.08	-0.04	-0.09	-0.35	-0.28
7. HEAVYMNFC	-0.01	0.25	9.42	5.56	0.10	0.16	-0.03	-0.29	0.26	0.17	0.13	-0.13	-0.04
8. UTIL_CONS	0.22	0.42	-2.82	-2.38	0.26	0.50	0.16	-0.10	0.35	0.32	0.27	0.01	0.12
9. TRANSCOMM	0.28	0.46	-3.25	-2.30	0.32	0.51	0.23	-0.03	0.46	0.34	0.27	0.06	0.17
10. OTHSERVICES	0.28	0.47	-3.84	-2.79	0.32	0.54	0.23	-0.04	0.37	0.34	0.28	0.03	0.17

Source: Authors

Table 11: Bilateral Exports by Member Countries in EU-ASEAN
(% change from BASE)

Exporting country / Commodity	Importing country												
	INDIA	SOUTH ASIA	SEASIA	TPPSE ASIA	EASTAS IA	OCEAN IA	ROOCEA NIA	USA	NAME RICA	LATINA MER	TPPLAT IN	EU_28	RESTOFW ORLD
SEASIA													
1. GRAINSCROPS	-3.90	-4.51	-11.06	32.70	-3.60	-3.98	-4.28	-4.32	-13.00	-4.29	-4.72	31.43	-3.83
2. MEATLSTK	-7.98	-7.57	-8.51	1.88	-7.55	-8.88	-8.58	-8.96	-57.15	-8.25	-8.58	84.99	-7.84
3. EXTRACTION	-0.86	-1.40	-5.36	11.12	-1.17	1.34	-0.88	-1.65	-1.36	-1.58	-1.48	7.27	-1.45
4. PROCFOOD	-1.37	-1.68	-8.30	6.38	-2.04	-2.31	-2.36	-3.65	-14.75	-2.44	-2.45	39.11	-2.09
5. TEXTWAPP	-2.93	-3.03	-3.86	11.62	-2.97	-2.99	-2.77	-2.66	-2.80	-2.81	-2.97	45.38	-2.92
6. LIGHTMNFC	-2.40	-2.39	-8.22	14.04	-2.42	-2.48	-2.34	-2.39	-2.50	-2.56	-2.51	26.19	-2.39
7. HEAVYMNFC	-2.18	-2.10	-5.42	15.17	-2.20	-2.09	-1.94	-2.20	-2.24	-2.32	-2.18	9.42	-2.20
8. UTIL_CONS	-2.97	-3.04	-0.46	-1.23	-2.96	-3.00	-2.85	-2.83	-2.90	-3.05	-2.95	-2.82	-2.90
9. TRANSCOMM	-3.36	-3.49	-1.71	-2.56	-3.40	-3.45	-3.35	-3.25	-3.42	-3.40	-3.33	-3.25	-3.31
10. OTHSERVICES	-3.78	-4.06	-2.03	-3.06	-3.94	-4.05	-3.91	-3.84	-3.98	-3.97	-3.94	-3.84	-3.90
TPPSEASIA													
1. GRAINSCROPS	-8.76	-9.57	85.19	-9.65	-8.55	-9.59	-9.24	-9.88	-18.49	-9.01	-10.33	-7.22	-9.22
2. MEATLSTK	-8.88	-8.42	68.77	-5.71	-8.99	-10.13	-9.43	-9.65	-58.52	-9.22	-9.59	9.59	-8.53
3. EXTRACTION	-6.99	-6.64	31.88	-5.92	-6.89	-4.41	-5.11	-7.42	-6.62	-7.09	-7.47	13.66	-6.75
4. PROCFOOD	-1.76	-2.08	43.24	-7.28	-2.44	-2.69	-2.68	-4.05	-15.17	-2.82	-2.87	26.52	-2.50
5. TEXTWAPP	0.31	0.19	32.83	1.20	0.28	0.25	0.49	0.62	0.47	0.43	0.28	58.61	0.32
6. LIGHTMNFC	-1.51	-1.49	39.00	-5.48	-1.55	-1.57	-1.53	-1.48	-1.61	-1.68	-1.61	25.70	-1.53
7. HEAVYMNFC	-1.98	-1.97	10.23	-3.80	-1.98	-1.87	-1.74	-1.99	-2.02	-2.11	-2.06	5.56	-2.01
8. UTIL_CONS	-2.53	-2.60	-0.02	-0.79	-2.52	-2.56	-2.41	-2.39	-2.46	-2.61	-2.51	-2.38	-2.46
9. TRANSCOMM	-2.41	-2.54	-0.76	-1.61	-2.45	-2.50	-2.40	-2.30	-2.47	-2.45	-2.38	-2.30	-2.36
10. OTHSERVICES	-2.73	-3.01	-0.98	-2.01	-2.89	-3.00	-2.86	-2.79	-2.93	-2.92	-2.89	-2.79	-2.85
EU-28													
1. GRAINSCROPS	0.42	-0.18	32.54	73.65	0.22	0.01	-0.26	-0.17	-8.92	-0.08	-0.58	-0.28	0.16
2. MEATLSTK	-0.37	-0.30	45.78	22.39	-0.41	-1.27	-0.83	-1.31	-49.79	-0.38	-0.66	-0.83	-0.16
3. EXTRACTION	0.26	0.07	13.21	6.84	0.23	2.91	0.36	-0.13	0.10	-0.03	-0.05	-0.06	-0.08
4. PROCFOOD	0.66	0.43	46.59	43.41	0.11	-0.16	-0.17	-1.45	-12.57	-0.26	-0.33	-0.56	0.05
5. TEXTWAPP	-0.04	-0.16	77.69	96.97	-0.08	-0.10	0.14	0.27	0.11	0.07	-0.07	-1.41	-0.02
6. LIGHTMNFC	-0.05	-0.05	42.86	24.82	-0.11	-0.12	-0.05	-0.06	-0.16	-0.20	-0.15	-0.35	-0.05
7. HEAVYMNFC	-0.01	-0.04	25.14	10.08	0.01	0.08	0.20	0.01	-0.03	-0.14	-0.10	-0.13	-0.05
8. UTIL_CONS	-0.15	-0.22	2.36	1.60	-0.13	-0.17	-0.02	0.00	-0.08	-0.22	-0.13	0.01	-0.08
9. TRANSCOMM	-0.05	-0.18	1.60	0.76	-0.09	-0.14	-0.04	0.06	-0.11	-0.09	-0.02	0.06	0.00
10. OTHSERVICES	0.09	-0.19	1.84	0.81	-0.08	-0.18	-0.04	0.03	-0.12	-0.10	-0.07	0.03	-0.03

Source: Authors

Table 12: India's Exports (% change from BASE)

	TPP	TTIP	EU-ASEAN	ALL3PTAs	MLTL
1. GRAINSCROPS	-0.5	-0.5	-0.3	-0.2	8.1
2. MEATLSTK	-0.3	0.4	0.3	0.0	-14.7
3. EXTRACTION	0.1	0.1	0.2	0.3	32.6
4. PROCFOOD	-0.9	-0.8	-1.1	-1.6	5.6
5. TEXTWAPP	-0.7	-0.4	-0.5	-1.7	-19.4
6. LIGHTMNFC	0.0	-0.1	-0.2	-0.2	27.5
7. HEAVYMNFC	-0.1	-0.2	-0.1	-0.2	100.4
8. UTIL_CONS	0.2	0.1	0.2	0.4	-7.6
9. TRANSCOMM	0.3	0.3	0.3	0.7	-5.9
10. OTHSERVICES	0.3	0.5	0.3	0.9	-19.6

Source: Authors

Table 13: India's Imports (% change from BASE)

	TPP	TTIP	EU-ASEAN	ALL3PTAs	MLTL
1. GRAINSCROPS	-0.5	-0.6	-0.7	-1.0	78.2
2. MEATLSTK	-0.7	-0.1	0.0	-0.9	39.3
3. EXTRACTION	-0.1	-0.1	-0.1	-0.1	19.1
4. PROCFOOD	-0.1	-0.1	-0.7	-0.7	88.2
5. TEXTWAPP	-0.2	-0.1	-0.2	-0.3	58.9
6. LIGHTMNFC	-0.2	-0.3	-0.2	-0.5	36.8
7. HEAVYMNFC	-0.1	-0.1	-0.1	-0.3	32.5
8. UTIL_CONS	-0.1	-0.2	-0.1	-0.4	7.1
9. TRANSCOMM	-0.2	-0.2	-0.2	-0.5	7.8
10. OTHSERVICES	-0.3	-0.3	-0.2	-0.5	8.6

Source: Authors

Table 14: Sectoral Output in India (% change from BASE)

	TPP	TTIP	EU-ASEAN	ALL3PTAs	MLTL
1. GRAINSCROPS	0.0	0.0	0.0	0.0	-2.7
2. MEATLSTK	0.0	0.0	0.0	0.0	0.0
3. EXTRACTION	0.1	0.0	0.1	0.1	-5.2
4. PROCFOOD	-0.1	-0.1	0.0	-0.1	-5.9
5. TEXTWAPP	-0.2	-0.1	-0.2	-0.6	-10.0
6. LIGHTMNFC	0.0	0.0	0.0	0.0	1.0
7. HEAVYMNFC	0.0	-0.1	0.0	0.0	10.9
8. UTIL_CONS	0.0	-0.1	0.0	-0.1	4.0
9. TRANSCOMM	0.0	0.0	0.0	0.0	1.2
10. OTHSERVICES	0.0	0.1	0.0	0.1	-2.7
GDP quantity index	-0.01	-0.01	-0.01	-0.02	2.4

Source: Authors

Table 15: Domestic Market Price in India (% change from BASE)

	TPP	TTIP	EU-ASEAN	ALL3PTAs	MLTL
Commodities					
1. GRAINSCROPS	-0.1	-0.2	-0.1	-0.3	0.4
2. MEATLSTK	-0.1	-0.2	-0.1	-0.3	1.3
3. EXTRACTION	0.0	-0.1	0.0	-0.1	-2.2
4. PROCFOOD	-0.1	-0.2	-0.1	-0.2	0.6
5. TEXTWAPP	-0.1	-0.1	-0.1	-0.2	1.3
6. LIGHTMNFC	-0.1	-0.1	-0.1	-0.2	0.3
7. HEAVYMNFC	0.0	-0.1	0.0	-0.2	-2.1
8. UTIL_CONS	-0.1	-0.1	-0.1	-0.2	1.5
9. TRANSCOMM	-0.1	-0.1	-0.1	-0.2	3.2
10. OTHSERVICES	-0.1	-0.1	-0.1	-0.2	4.5
Factors of production					
1 LAND	-0.2	-0.3	-0.2	-0.4	-4.9
2 UNSKLAB	-0.1	-0.2	-0.1	-0.3	5.3
3 SKLAB	-0.1	-0.1	-0.1	-0.2	4.5
4 CAPITAL	-0.1	-0.2	-0.1	-0.3	5.7
5 NATRES	0.4	0.1	0.3	0.4	-28.6

Source: Authors

Table 16: Welfare Impacts for India (% change from BASE)

	TPP	TTIP	EU-ASEAN	ALL3PTAs	MLTL
Aggregate welfare (US$ millions)	-322	-408	-336	-757	21216
Welfare as % of GDP	-0.03	-0.03	-0.03	-0.06	1.68
GINI index	0.0036	0.0041	0.0029	0.0082	-0.0666
Poverty head count	0.3	0.5	0.2	0.8	-12.3
Poverty gap	0.5	0.5	0.5	1.2	-16.0
Poverty FGT index	0.8	0.8	0.8	1.6	-17.9

Source: Authors
Note: Aggregate welfare is reported in US$mn and as a per cent of GDP in the scenario. The inequality and poverty measures are percentage change from BASE levels.