



AUSTRALIA-WORLD BANK GROUP STRATEGIC PARTNERSHIP IN VIETNAM
Vietnam Trade and Competitiveness Programatic Approach

Economic and Distributional Impacts of Comprehensive and Progressive Agreement for Trans-Pacific Partnership: The case of Vietnam

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**Economic and Distributional Impacts
of Comprehensive and Progressive
Agreement for Trans-Pacific Partnership:**
The case of Vietnam

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ABBREVIATIONS

ABP-2	Australia - World Bank Group Strategic Partnership in Vietnam, phase 2
AFTA	ASEAN Free Trade Area
ASEAN	Association of Southeast Asian Nations
CES	Constant Elasticity of Substitution
CGE	Computable General Equilibrium Model
CPTPP/TPP-11	Comprehensive and Progressive Agreement for Trans-Pacific Partnership
FDI	Foreign Direct Investment
FTA	Free Trade Agreements
GDP	Gross Domestic Product
GEP	Global Economic Prospects
GIDD	Global Income Distribution Dynamics
ITC	International Trade Center
NAFTA	North American Free Trade Agreement
RCEP	Regional Comprehensive Economic Partnership
TPP-12	Trans Pacific Partnership Agreement
WTO	World Trade Organization

PREFACE AND ACKNOWLEDGMENTS

This report was prepared by Maryla Maliszewska, Zoryana Olekseyuk, and Israel Osorio-Rodarte under the guidance of Jose G. Reis and Deepak Mishra. The report is provided as a part of a technical assistance program to support Vietnam's trade and competitiveness funded by the Second Australia-World Bank Partnership (ABP-2) - an Australian Trust Fund, administered by the World Bank. The authors are grateful to Michael Ferrantino, Sebastian Eckardt, Duc Minh Pham, Brian Mtonya and Marcus Bartley Johns for their valuable comments and suggestions. We also acknowledge receiving valuable feedback from the participants from Ministry of Planning and Investment, Ministry of Industry and Trade, Ministry of Finance, Ministry of Labor - Invalids and Social Affairs, and State Bank of Vietnam to the video conference presentations held in collaboration with the National Center of Information and Forecast of the Ministry of Planning and Investment.

SUMMARY

This paper assesses economic and distributional impacts of Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP, sometimes referred to as TPP-11). The potential impacts of CPTPP are compared to those of Regional Comprehensive Economic Partnership (RCEP) and the original Trans Pacific Partnership (TPP-12) on Vietnam. Our simulation results suggest some of the following key impacts from CPTPP:

- **Output:** By 2030, under conservative assumptions Vietnamese GDP is estimated to be 1.1% higher, compared with 0.4% higher under RCEP, and 3.6% higher under TPP-12 with respect to baseline economic conditions. Assuming a modest boost to productivity, the estimated increase of GDP would amount to 3.5% from CPTPP, compared with 6.6% for TPP12 and 1% from RCEP.
- **Exports and imports:** under CPTPP, exports are projected to grow by 4.2%, and imports by 5.3%; with larger increases of 6.9% and 7.6% respectively assuming productivity gains.
- **Tariffs:** In the case of tariffs faced by Vietnam, under CPTPP average trade weighted tariffs faced by Vietnamese exporters to CPTPP markets will fall from 1.7% to 0.2%.
- **Non-tariff measures:** NTMs faced by Vietnam in CPTPP markets are expected to decline, on average, 3.6 percentage points in ad-valorem tariff-equivalent terms.
- **Sectoral impacts:** for CPTPP, the largest growth in output is estimated to be in food, beverages and tobacco; clothing and leather; textiles; along with more modest growth in several manufacturing sub-sectors, as well as services. Export growth is expected to be strongest in food, beverages and tobacco; clothing and leather; chemical, leather and plastic products; transport equipment; and machinery and other equipment. Imports are expected to grow in all sectors.
- **Distributional impacts:** CPTPP is projected to reduce poverty by 0.6 millions at poverty line \$5.50 a day relative to baseline conditions in 2030. Although all income groups are expected to benefit, the benefits

will be higher for higher-skilled workers in the top 60% of the income distribution. This underlines the importance of investments in human capital for benefiting fully from the agreement.

There is high uncertainty regarding provisions to be included in RCEP and regarding how CPTPP or RCEP provisions would translate into improvements in market access or reductions of NTMs. Our analysis uses best available assumptions, but the impacts of FTAs will ultimately depend on the specific commitments and their implementation. Simulation results presented in this paper are a lower-bound estimate for the gains from trade openness, as many features of the FTAs are not captured by the model e.g. impact on foreign direct investment, endogenous productivity gains or development of new export products. Furthermore, the model does not capture the impact of measures such as harmonization of labor or environmental standards, intellectual property rights provisions, state-owned enterprises, investor-state dispute settlement or government procurement.



INTRODUCTION

Vietnam is evaluating the economic gains from deepening regional trade integration under free trade agreements. The two major new agreements include Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) to be signed in March 2018 following the US departure from the Trans-Pacific Partnership (TPP) in January 2017 and the Regional Comprehensive Economic Partnership (RCEP) in its 21st round of negotiations.

At the cross-roads, this paper contributes to the ongoing discussion on further trade integration of Vietnam by evaluating the economy-wide and distributional implications supporting the continuation of CPTPP despite the US departure and following up with RCEP. The innovative use of a global dynamic computable general equilibrium model (CGE) linked with a top-down microsimulation model allow us to assess winners and losers within the country. It is well understood that the gains from trade are not equally shared by all segments of the population. In such circumstances, analyzing the distributional consequences of each FTAs opens the discussion towards the implementation of policies to ameliorate the negative consequences of FTAs.

This paper is organized as follows. Section II covers the main methodological aspects behind the simulations. This section describes the main assumptions of the CGE model and the top-down microsimulation model; defines broadly interventions in each scenario, and quantifies expected sectoral reductions in tariffs and non-tariff measures (NTMs) in Vietnam and other FTA signatory countries. Section III presents economy-wide simulations results, trade diversion and creation effects and distributional impacts associated with each FTA. Section IV concludes.



METHODOLOGY

Scenario analysis in a general equilibrium setting

A global dynamic computable general equilibrium (CGE) model LINKAGE linked to a microsimulation model are applied to study the impacts of potential free trade agreements on the Vietnamese economy. The impact of trade agreements is differentiated across types of households and workers. Such heterogeneity is key in determining the poverty and distributional impacts of any trade agreement. To model these distributional consequences, we use the Global Income Distribution Dynamics (GIDD) modeling framework. The GIDD, a top-down macro-micro simulation framework, will distribute the macroeconomic results of the CGE model to households in line with the Vietnam's Household Living Standard Survey (VHLSS 2012). The microeconomic model distributes the effects while keeping consistency with the aggregate behavior observed in the macro model. The two models are connected mainly through changes in labor supply, skill formation, and real earnings. In terms of supply of labor, the macro and micro models incorporate projections of the availability of skilled and unskilled workers over time. These projections are based on standard population projections and educational trends. The GIDD framework accounts too for reallocation of labor across sectors in a dynamic setting. The labor migration simulation module selects and reallocates workers from the agricultural to the non-agricultural sector following general equilibrium changes in labor demand. Lastly, on the side of earnings, the GIDD incorporates the CGE-based simulated changes in skilled wage premia, income growth, and changes in relative prices for food and non-food items.¹

The effects of trade agreements are estimated by constructing one baseline and three alternative scenarios that simulate reductions of multilateral tariffs

1 See Annex 1 for a more detailed description of the macro and micro modelling frameworks.

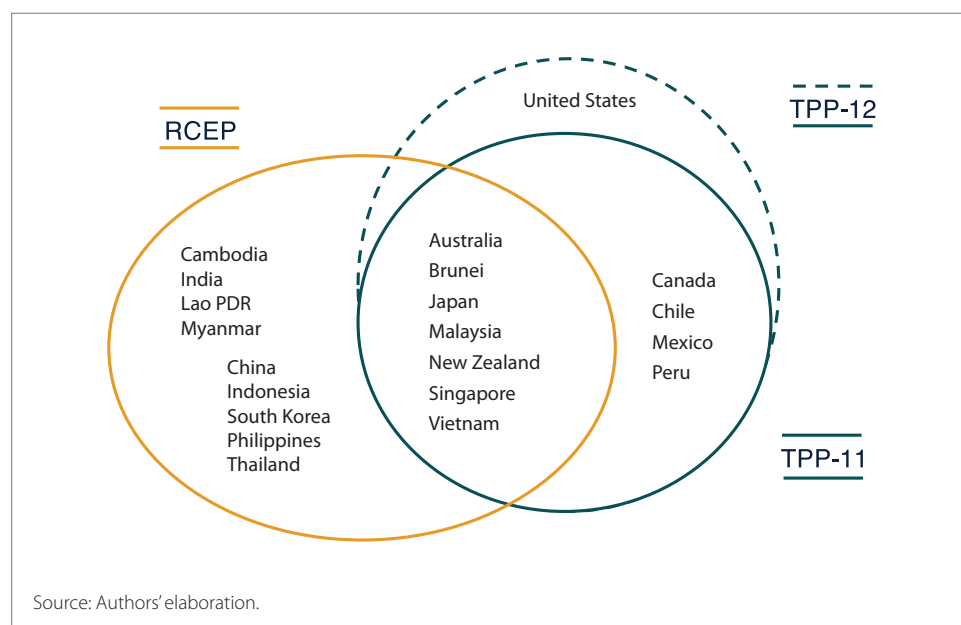
and NTMs under CPTPP, TPP and RCEP. The baseline simulation depicts a continuation of business as usual conditions – without signing new agreements. Furthermore, in our model, demographic and educational projections are part of the baseline scenario and play an important role in altering the relative supply of skilled versus unskilled labor, by country. Factor endowments are a strong determinant of comparative advantage across countries. In our baseline scenario the existing commitments on tariff reductions are implemented. Hence, there are two key aspects that differentiate alternative scenarios with respect to baseline: a) the number of signatory countries under each agreement; and b) the net effect of reduction in tariffs and non-tariffs barriers. Simulation results presented in this paper are a lower-bound estimate for the gains from trade openness, as many features of the FTAs are not captured by the model e.g. impact on foreign direct investment, endogenous productivity gains, development of new products. The modeling framework also does not cover the impacts of measures such as government procurement, harmonization of labor or environmental standards, which tend to have important impacts on productivity and welfare gains.

Signatory countries under each agreement

The TPP was originally negotiated with 12 economies in America, Asia, and the Australian continent. In the Americas, it included the NAFTA signatories (United States, Canada, and Mexico) plus Peru and Chile. The TPP's largest economy in Asia is Japan, followed by Malaysia, Vietnam, Singapore, and Brunei. Early in 2017, the United States, the largest economy in the TPP block, formally withdrew its participation. The remaining countries reopened the negotiations of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) trying to maintain the degree of ambition of the original TPP12.

RCEP, on the other hand, is a proposed free trade agreement between the ten member states of the Association of Southeast Asian Nations (ASEAN) (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Vietnam) and the six states with which ASEAN has existing free trade agreements (Australia, China, India, Japan, South Korea and New Zealand). RCEP negotiations were formally launched in November 2012 and are in their 21st round of negotiations. Figure 1 shows in a schematic diagram the participant countries in each of the two agreements and the overlap among them.

FIGURE 1. Membership of the CPTPP, TPP-12, and RCEP



While gains from the scenarios described above will only capture the effect of international reallocation of production to the most cost-efficient sectors, they don't account for additional gains in productivity associated with trade liberalization and increased openness. To account for possible productivity gains from trade liberalization we follow the findings of Topalova & Khandelwal, (2011) assuming that a 10% decrease in trade protection leads to a 0.5 percentage points productivity gain. As such, each of the three FTA scenarios has an alternative version constituting a potential upper bound of welfare gains including higher productivity, or productivity kick, based on trade-weighted average reduction of multilateral tariffs and NTMs.

Assumptions for reductions in tariffs and NTMs

The net effect of tariff and non-tariff reduction intervention can be measured as deviations with respect to baseline scenario. Changes in tariff and NTMs assumptions for each scenario are outlined below.

- **Baseline scenario:** key macro indicators such as GDP, investment and current account follow projections from the World Bank (2016a) until 2018 and authors' simulations after 2018. The baseline incorporates

implementation of existing FTAs commitments by 2030 as in the ITC data base (International Trade Centre, 2015).

- **CPTPP and TPP-12:** implementation of the TPP agreement among its members with and without the USA begins in 2018². The scenario entails the reduction of tariffs as per the TPP tariff commitment schedules compiled by International Trade Centre (2016) and a reduction of non-tariff measures in goods and services as in Petri et al., (2016). As such, the CPTPP scenario assumes the same level of ambition as the original TPP12, simply excluding the US.
- **RCEP:** implementation of the RCEP agreement among its 16 members begins in 2018. Reduction of barriers follows Petri, Plummer, & Zhai (2011) and the International Trade Centre (2016).

The baseline includes the future reduction of tariffs as a result of existing FTA commitments up to 2030 following the data base of the International Trade Centre (2016). Tariffs and NTBs are calculated for each FTA using current and projected trade flows between Vietnam and its trading partners. Multilateral tariffs are projected to decline to minimum levels under CPTPP and TPP-12 with more moderate reductions in RCEP. Tariff reductions in CPTPP and TPP-12 follow estimates from Petri et al. (2016) based on actual TPP tariff commitments, while tariff reductions in RCEP follow Petri et al., (2011). Reductions in actionable non-tariff measures (NTMs) are assumed to be similar to the agreement between Korea and the US including some modifications based on analysis within the TPP and RCEP contexts. NTMs for goods are based on estimates by Kee, Nicita, & Olarreaga (2008) updated in 2012 and the services barriers are based on estimates by Fontagné, Mitaritonna, & Signoret (2016). Only 3/4s of measured barriers are considered as actual trade barriers, the rest is assumed to represent quality-increasing regulations (e.g., product safety standards), meanwhile only 3/4 of the remaining NTMs in the case of goods and 1/2 in the case of services are assumed to be actionable (i.e., politically feasible in a trade agreement). The rest of NTMs are assumed to be beyond the reach of politically viable trade policies.

2 2018 is not a realistic date for the start of implementation of commitments of FTAs, but the results would not be much affected if we selected date 2-3 years in the future due to long period of implementation, backloading of commitments and assuming that the economy would not undergo dramatic changes over the next few years. As such the results in 2030 should be interpreted as the impacts 12 years after the beginning of implementation period.

Table 1 summarizes changes in market access based on tariffs and NTBs. Tariffs faced-by and imposed-on Vietnam are projected to be pulled-down to minimal levels in CPTPP and TPP-12 scenarios; but the extent of the decline varies among them. For instance, in the case of tariffs faced by Vietnam, there will be a projected decline in average trade weighted tariff faced in exporting to CPTPP economies from 1.7% to 0.2%. In the case of TPP-12, this would be larger (from 4.2% to 0.1%) mainly due to the larger export volumes directed to the US as well as higher existing tariffs in the US on Vietnamese exports. Considering trade weighted average tariffs imposed by Vietnam on other parties, for CPTPP the reduction is assumed to be from 2.9% to 0.1%, and for TPP-12 it would be from 3.2% to 0.1. In contrast, multilateral tariffs would remain higher in the less ambitious RCEP.

Despite large reductions in tariffs, NTMs are projected to play a definitive role in market access. CPTPP and TPP-12, as noted above, are more ambitious in terms of trade openness than RCEP. NTMs faced by Vietnam on foreign markets are expected to decline, on average, 3.6 percentage points (in ad-valorem equivalent terms) under CPTPP, 5.1 under TPP-12, and only 2.0 for RCEP. Vietnam's imposed NTMs on foreign goods would decrease 2.9 percentage points, 5.3, and 1.4 for CPTPP, TPP-12, and RCEP, respectively.

The sectoral composition of improved market access is responsible for the distribution of benefits across sectors and households. Figure 2 to Figure 7 below show the sectoral breakdown of tariffs and NTMs in 2015 and the projected level by 2030. Under CPTPP and TPP-12 tariffs are reduced to minimum levels and NTMs are reduced significantly across all sectors, particularly in food, beverages, and tobacco; agriculture; and all services exports. In contrast, Vietnam is estimated to still impose considerable tariffs under RCEP, especially in wearing apparel and leather; transport equipment; textiles; food, beverages and tobacco. But the largest restrictions under RCEP would come from NTMs, on which Vietnam imposes protection on merchandise trade goods (food, beverages, and tobacco, and agriculture) and across the board in trade services.

TABLE 1. Vietnamese and foreign tariffs and NTMs ad valorem equivalents (trade-weighted) before and after trade liberalization, for markets included in each FTA, %

	CPTPP		TPP12		RCEP	
	2017	2030	2017	2030	2017	2030
Tariffs faced by Vietnam on FTA markets	1.7	0.2	4.2	0.1	0.7	0.3
Tariffs imposed by Vietnam on FTA members	2.9	0.1	3.2	0.1	1.3	0.1
NTB faced by Vietnam on FTA markets	9.4	5.8	9.4	4.3	9.3	7.3
NTB imposed by Vietnam on FTA members	7.9	5.0	10.3	5.0	6.8	5.4

Source: Authors' estimates.

FIGURE 2. Trade barriers Vietnam faces on CPTPP markets, %

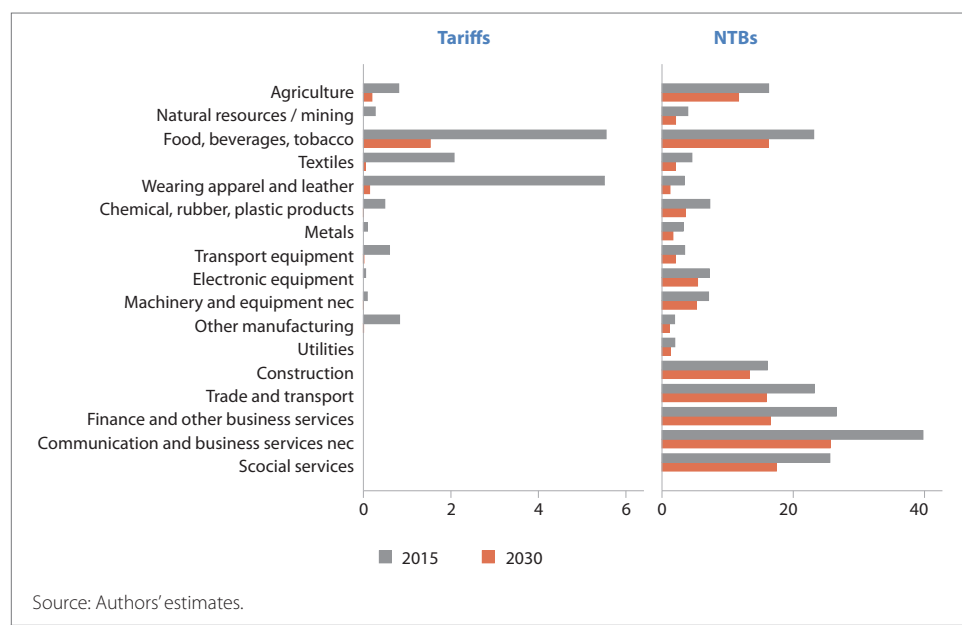


FIGURE 3. Trade restrictions Vietnam faces on TPP-12 markets, %

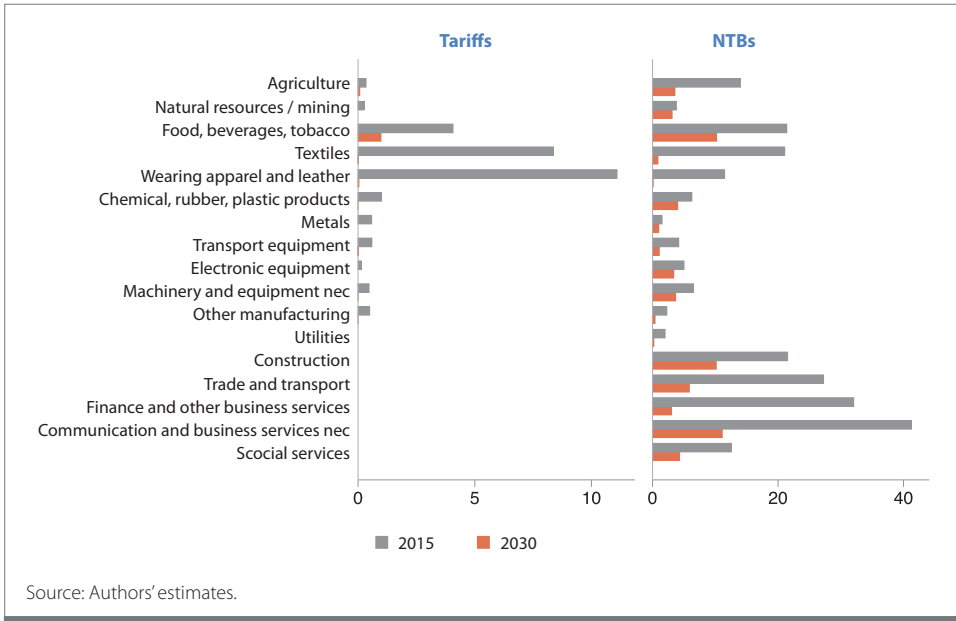


FIGURE 4. Trade restrictions Vietnam faces on RCEP markets, %

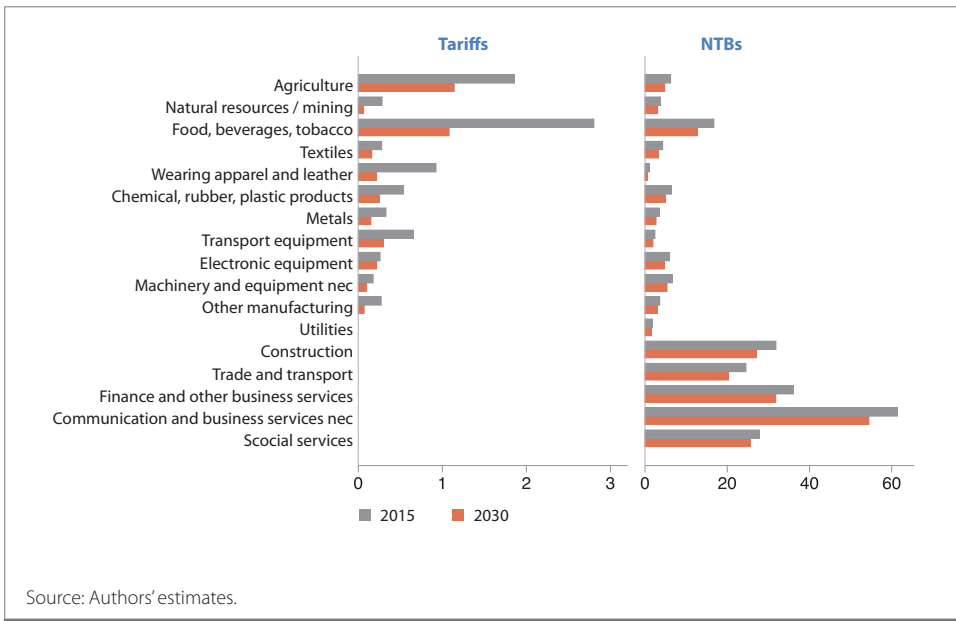


FIGURE 5. Trade restrictions Vietnam imposes on CPTPP markets, %

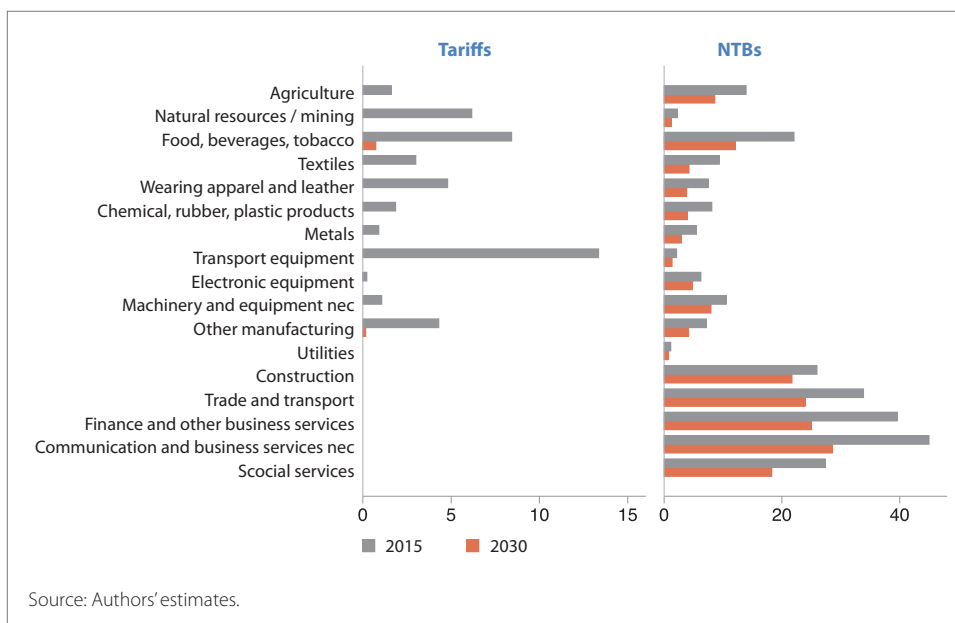


FIGURE 6. Trade restrictions Vietnam imposes on TPP-12 markets, %

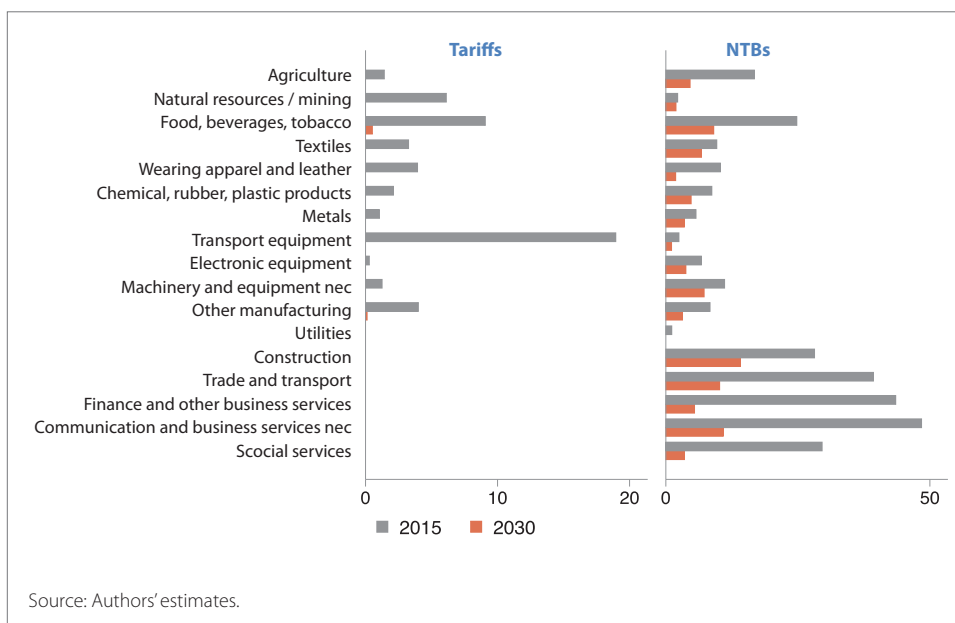
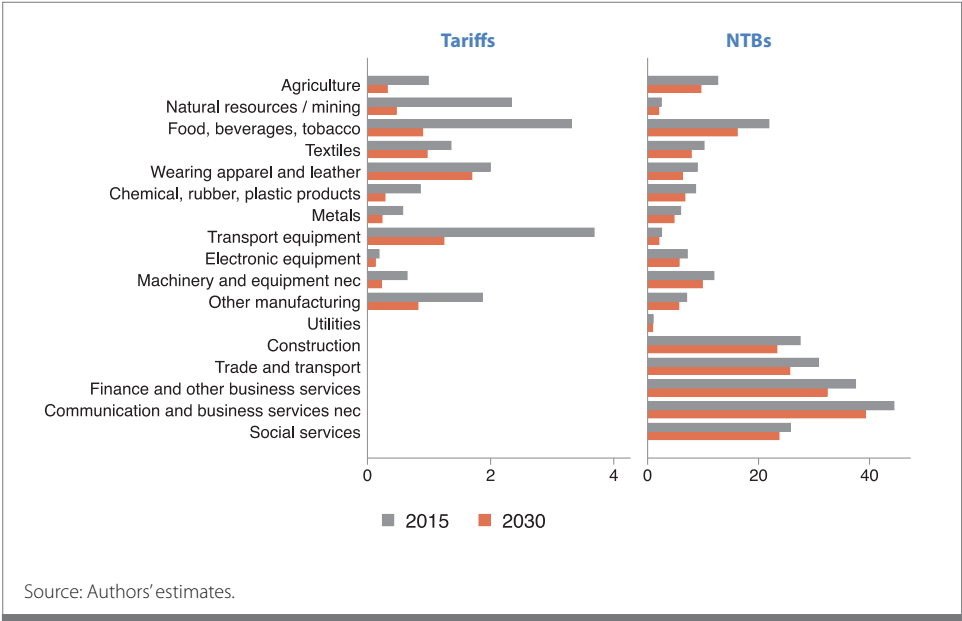
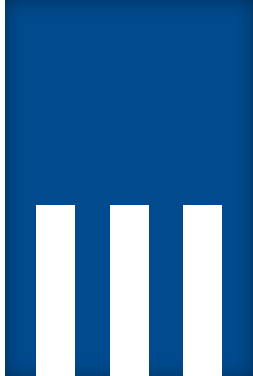


FIGURE 7. Trade restrictions Vietnam imposes on RCEP markets, %





SIMULATION RESULTS

Economy-wide and sectoral impacts

Changes in signatory countries and the application of differentiated tariff and NTMs are the key aspects that differentiate each scenario in the general equilibrium setting. As illustrated in Figure 8 and Table 2, Vietnam macroeconomic gains from integration would have been the highest in the case of TPP-12. The estimated gains by 2030 would be a GDP increase of 3.6% compared to 1.1% and 0.4% for the cases of CPTPP and RCEP, respectively.³ The high impact of the TPP-12 is mainly driven by the high share of international trade between partners, as the USA accounts for 19% of total exports of Vietnam in 2017 and is responsible for the highest reduction in trade barriers (see e.g. Table 2 for NTMs).

FIGURE 8. Macroeconomic impact of potential FTAs on Vietnamese economy by 2030 (percent deviations from the baseline)

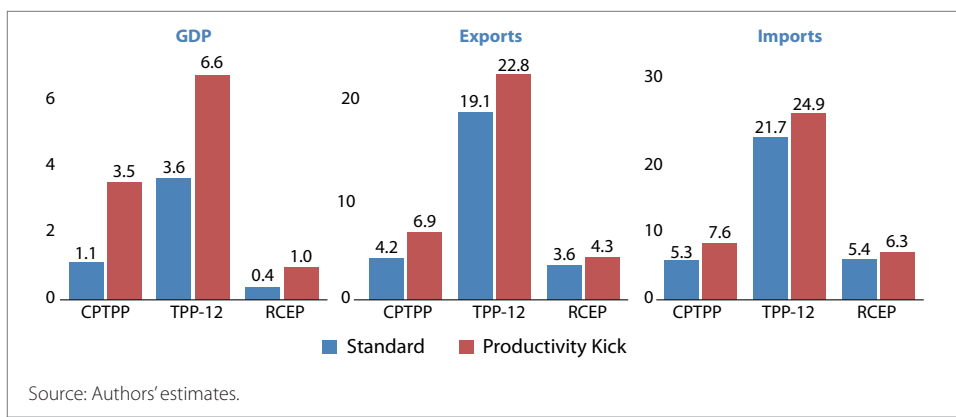


TABLE 2. **Impact of potential FTAs on Vietnamese economy by 2030** (percent deviations from the baseline)

	Standard simulations			Simulations with productivity kick		
	CPTPP	TPP12	RCEP	CPTPP	TPP12	RCEP
GDP	1.1	3.6	0.4	3.5	6.6	1.0
Exports	4.2	19.1	3.6	6.9	22.8	4.3
Imports	5.3	21.7	5.4	7.6	24.9	6,3

Source: Authors' estimates.

FIGURE 9. **Sectoral changes in TPP12 w.r.t. baseline** (billions)

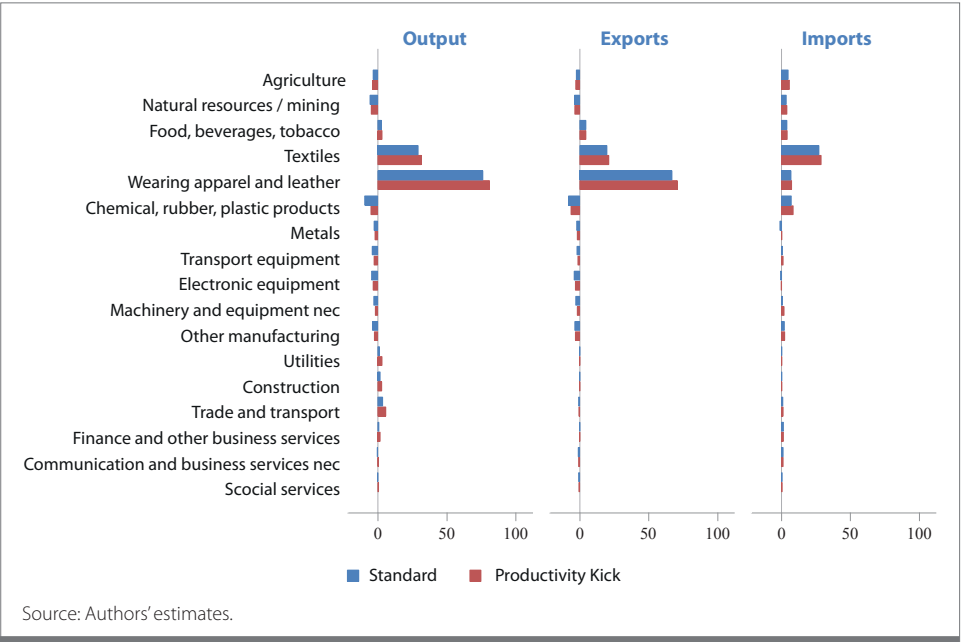


FIGURE 10. Sectoral changes in CPTPP w.r.t. baseline (billions)

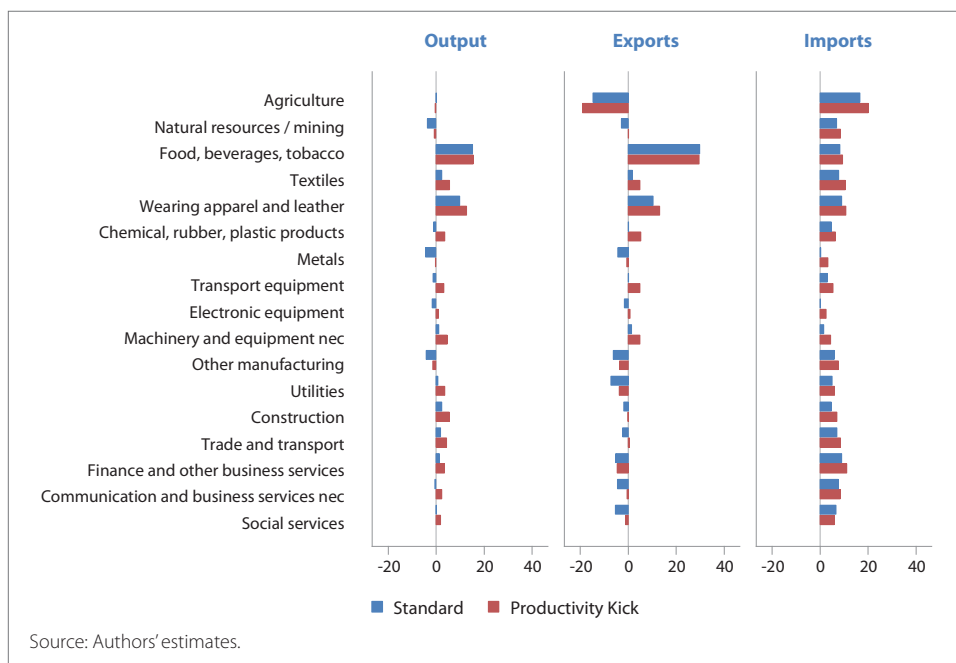
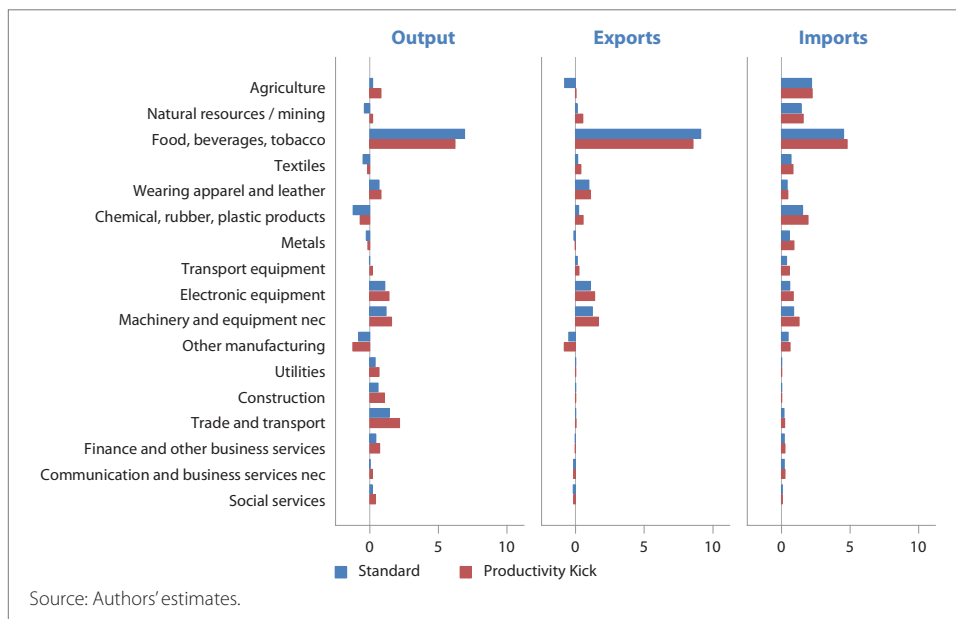


FIGURE 11. Sectoral changes in RCEP w.r.t. baseline (billions)



Figures 9 to Figure 11 show sectoral absolute changes with respect to baseline conditions for output, exports, and imports for each one of the simulated FTAs. Under TPP-12, the sectors that concentrate most of the gains are i) wearing apparel and leather and ii) textiles; - mostly directed to the US market. For instance, exports and production for these two sectors would be close to US\$100 million higher by 2030 with respect to baseline conditions. As expected, under CPTPP and RCEP smaller output and exports are observed. The sectors that benefit the most under CPTPP are i) food, beverages, and tobacco; ii) wearing apparel and leather, and iii) textiles; while i) food beverages and tobacco benefit the most under RCEP. Under CPTPP output of several services sectors expands. The increased demand is driven by faster economic growth and income gains, as well as higher demand for trade-related services such as transport, finance and other business services.

Trade diversion and creation

Under baseline conditions, it is expected that Vietnam's exports would grow 4.32% on annual basis with a well-diversified portfolio of export destinations. Total exports will reach US\$311.1 billion by 2030 compared with US\$179.5 predicted by the simulation in 2017. Individual countries that will receive the largest proportion of Vietnamese exports by 2030 are the United States with 17.4% of total exports, followed by China with 13.2%. As a block, countries grouped in other RCEP members would concentrate 21.9%,⁴ the European Union would receive 16.7% and "TPP-RCEP joint members" 14.8%.⁵ The simulated FTAs would increase the size of exports. For instance, in the case of CPTPP and by 2030, Vietnam's export flows would be higher in US\$13.1 billion with respect to baseline. Similarly, TPP and RCEP would increase exports in US\$59.2 and US\$11.2 billion, respectively.

FTAs tend to increase export flows toward signatory countries. For instance, under CPTPP exports to signatory countries would increase from US\$54 to US\$80 billion by 2030 reaching 25% of total exports. Exports directed to CPTPP members would increase in "Food, Beverages, and Tobacco" and "Wearing apparel and leather" and "Textiles" and overall these sectors would see an increase in exports of US\$10.1, US\$6.9 and US\$0.5 billion, respectively. In contrast, exporting sectors that would observe the largest net decline are "Agriculture" (-US\$1.6b), "Other manufacturing" (-US\$1.2b), "Electronic

4 South Korea: 5%, India: 4.6%, Philippines: 4.3%, Thailand: 3%; India: 2.9%, Cambodia: 2%, and Lao's PDR: 0.3%

5 Japan: 8.1%, Malaysia: 3.3%, Australia: 1.7%, Singapore: 1.5%, and New Zealand 0.2%

equipment” (-US\$0.5b), and “Metals” (-US\$0.4b) that are directed mostly to the group “Other RCEP” members and China. Simulation results indicate that under CTPPP the export portfolio across sectors will concentrate favoring the “Wearing apparel and leather” and “Food, beverages, and tobacco” sectors that would increase their export share to 22.6% and 13.6% or 1.3 and 2.8 percentage points respectively.

Under TPP-12 the United States would double its share in Vietnam’s exports reaching 37% with an absolute increase in of US\$83 billion by 2030. Similarly, Vietnam would increase their exports to “other countries in TPP-12 in North and South America” by US\$11 billion with respect to baseline. In contrast, exports would decline for China (-US\$8 billion), “other RCEP members” (-US\$13 billion), the EU (-US\$8), and “rest of the World” (-US\$7). Simulations results suggest that under TPP-12 the export portfolio across sectors will concentrate favoring the “Wearing apparel and leather” sector that will see an increase in the share of total exports of 14.7 percentage points, climbing from 21.3 to 36 of total exports. This increase in export share would be equivalent to an increase of US\$54.4 billion in exports by 2030 for the “Wearing apparel and leather” sector. To a lesser extent, Textiles would account for 11.9 percent of total exports, from 7.9 in the baseline scenario. Under TPP-12, the textiles sector will experience an increase of US\$15 billion with respect to the baseline in 2030.

FIGURE 12. Exports by destination, baseline conditions (US\$, billions)

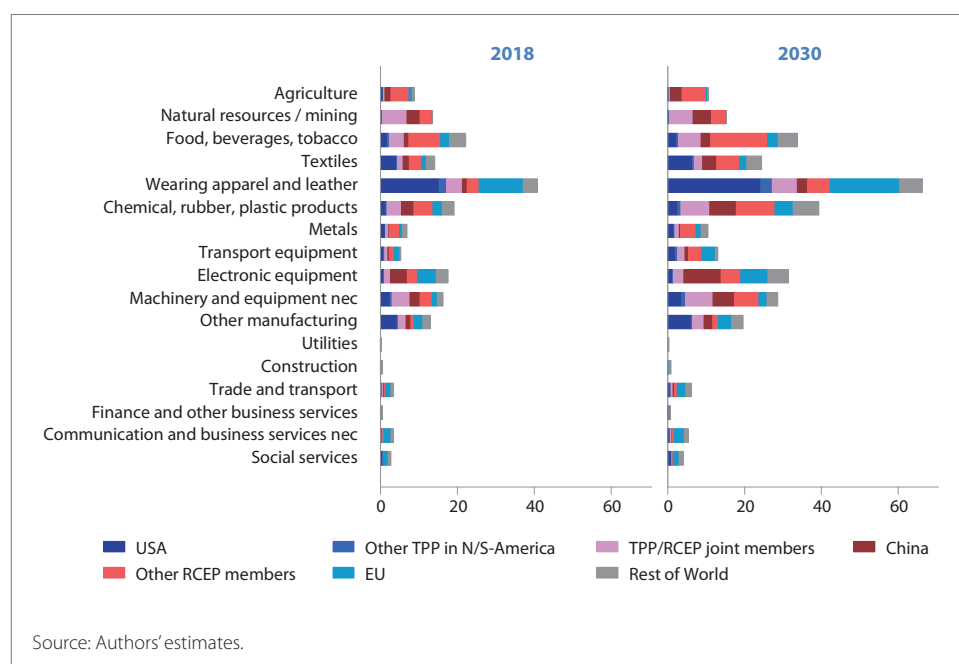


FIGURE 13. **Export destinations under each FTA, by 2030**

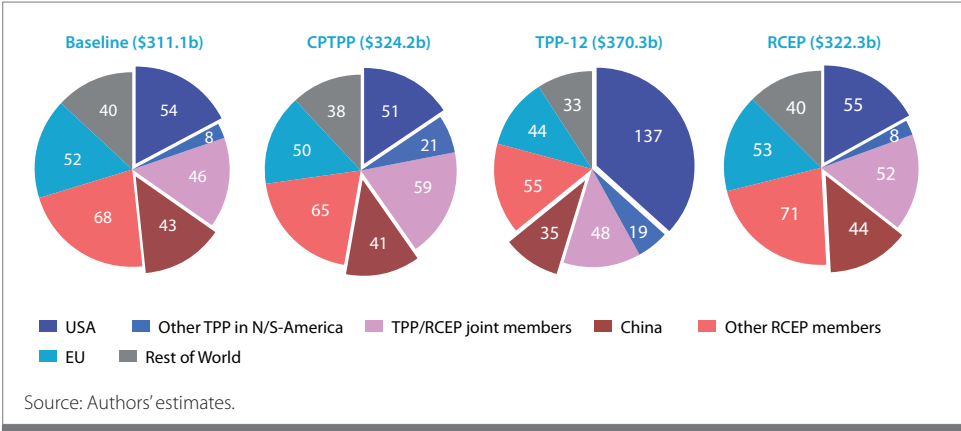


FIGURE 14. **Change in export destinations and sectors, CPTPP and TPP-12 (billions)**

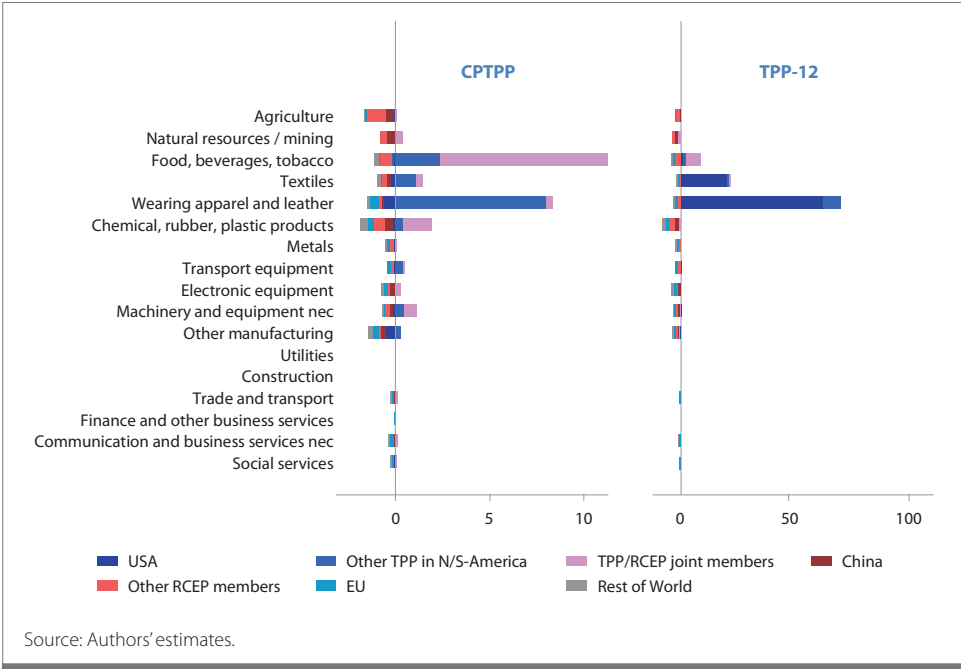


FIGURE 15. Change in export destinations and sectors, CPTPP and RCEP (billions)

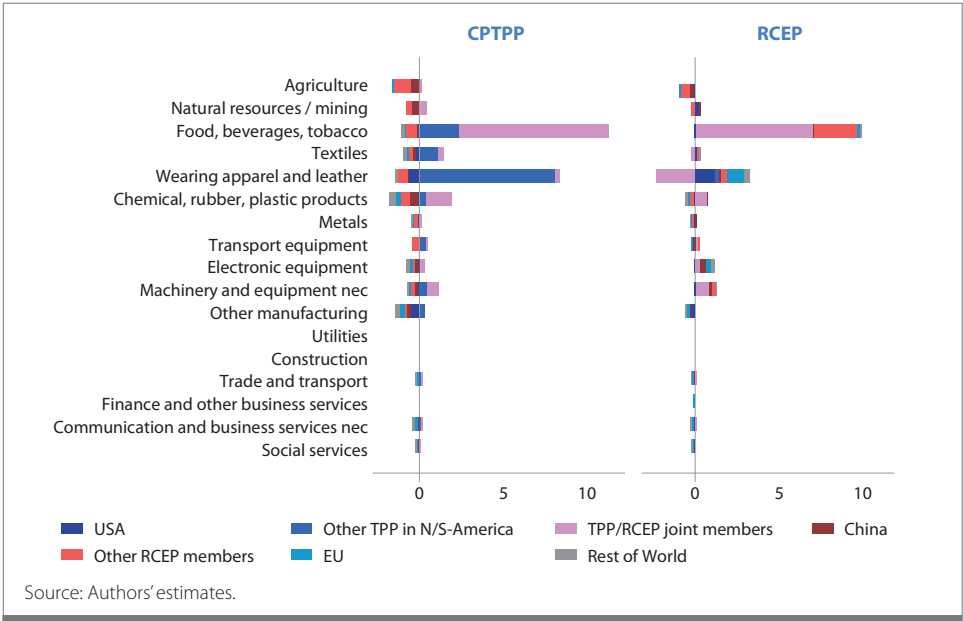


FIGURE 16. Export concentration in Vietnam in the baseline in 2015, Herfindahl index

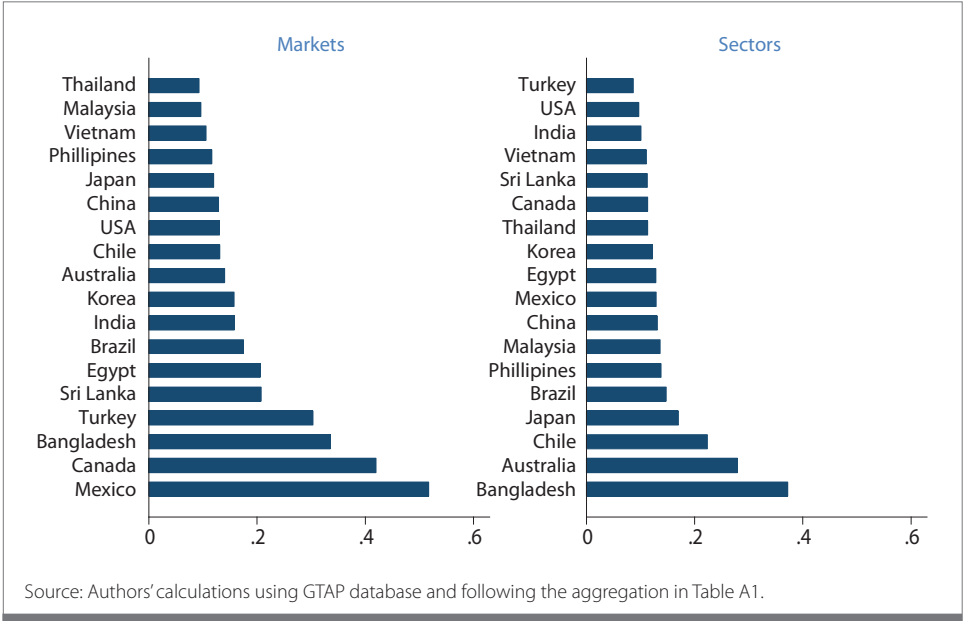
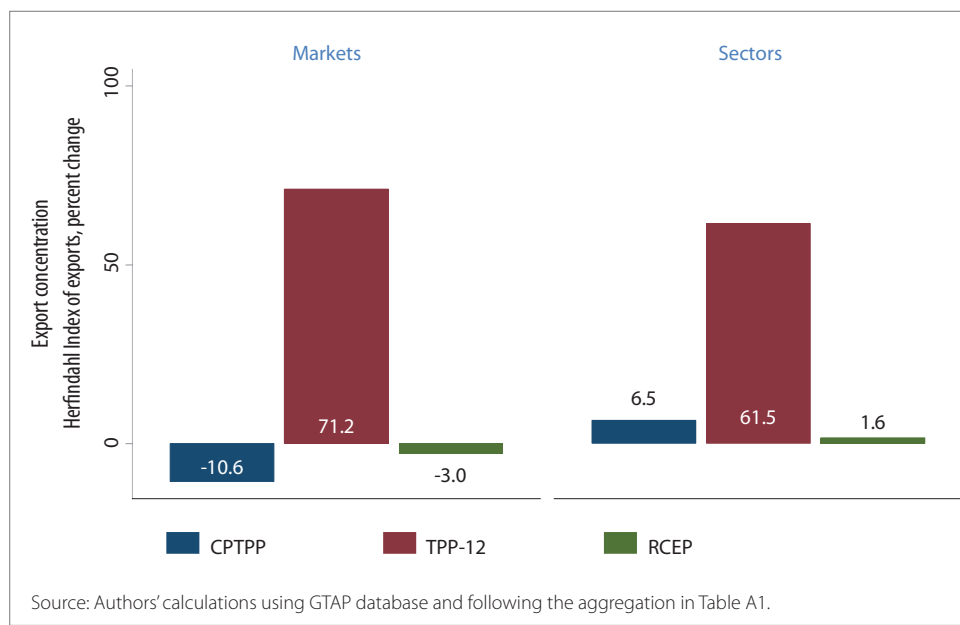


FIGURE 17. Export concentration changes by scenario, Herfindahl index, percent change

Diversification in exports is usually calculated using the Herfindahl Index of exports at the sector and market level. The Herfindahl Index is a measure of concentration that ranges from the highest value of 1, that denotes absolute concentration, to an asymptotic lower-limit of 0 that signals the lowest level of concentration. Vietnam has a well-diversified export basket, both in terms of markets and exporting sectors as compared to its trading partners (see for instance Figure 16). For the case of CPTPP and with respect to baseline conditions, simulation results suggest that export diversification would be moderately affected with a 6.5 percent increase in sectoral concentration of exporting, accompanied by a 10.6 percent increase in diversification in export destinations. In contrast, the simulation results suggest that TPP-12 would increase export concentration in both, markets and sectors, in 71 and 61 percent, respectively. This marked increased in export concentration would be driven by exports of wearing apparel directed to the U.S. market.

Poverty and distributional impacts

At the sectoral level, reduction of trade barriers and increases in consumption, production and exports explain economic gains for each FTA. Sectoral expansion determines demand for labor and equilibrium wages. Among the options

analyzed in this paper, the distributional analysis shows that a more ambitious and wider reaching trade agenda (TPP-12), despite its larger gains, would tend to increase the skill wage premia and concentrate benefits on the more educated and wealthier segments of the population. By 2030 and under TPP-12, household incomes for the top decile would increase 8 percent with respect to baseline conditions: 5.8 percentage points above the growth observed by households in the poorest decile. This percent difference would be of 2 and 1 percentage point for CPTPP and RCEP, respectively. Therefore, CPTPP and RCEP are relatively more pro-poor, but the overall income gains are much smaller.

This section analyses the potential poverty impact of CPTPP, in comparison with TPP-12 and RCEP. It uses poverty lines of \$3.20/day and \$5.50/day, rather than the global extreme poverty line of \$1.90/day, as this is assessed to be more appropriate to Vietnam's circumstances as a country on track to upper middle-income country status. Extreme poverty has been typically measured using an absolute poverty line of PPP\$1.90/day. While this absolute poverty line is adequate for the majority of low-income countries, experience indicates that middle-income countries require more adequate definitions to measure the evolution of poverty. The literature finds that as countries reach higher levels of per capita income they either increase the minimum threshold level for poverty or adopt relative poverty lines (Ravallion & Chen, 2011). In line with this finding, the World Bank has released a set of additional poverty lines at PPP\$3.20 a day for lower-middle income and at PPP\$5.50 a day for upper-middle income countries. In the forward-looking context of this paper, and considering that Vietnam would reach upper-middle income status under business as usual conditions, we monitor the extent of poverty using these two alternative poverty lines.

Figure 18 below depicts the distribution of per capita income in Vietnam in 2015 and in 2030 under business as usual conditions. It can be seen that as income per capita grows, not only the distribution of income shifts to the right, but also it changes its shape due to simulated changes in demographic and educational attainment. The area below each distributional line and to the left of each poverty line represents the share of people that fall below poverty line.

According to estimates from the World Bank, the incidence of poverty in 2014 was 11.6 percent, as measured by the poverty headcount ratio using a line of PPP\$3.20/day. This figure is roughly in line with a headcount ratio of 13.5 percent using the Vietnamese national poverty line⁶. In contrast, using the higher poverty line for upper-middle income countries at PPP\$5.50 a day,

6 Data obtained from World Bank data. <https://data.worldbank.org/indicator/SI.POV.NAHC?locations=VN>.

the incidence of poverty would be 36.3 percent. As can be seen in Figure 19 below, over the next 15 years, business as usual conditions project a steady decline in poverty to levels of 4.5 using the \$3.20 a day line and 15.0 with a line of PPP\$5.50 a day. The poverty line that is closest to the peak of income distribution maximizes the growth elasticity of poverty reduction⁷, therefore we present poverty impacts for 2025 and 2030, the first being the point when the growth elasticity of poverty reduction is higher.

Impacts on poverty reduction, in millions of people lifted out from poverty by 2025 and 2030, under each FTAs are depicted in Figure 21 below using standard productivity assumptions. CPTPP, as well as the other two agreements studied, lead to positive outcomes for the poor at both the \$3.20/day and \$5.50/day poverty lines. In general trade agreements that create the most opportunities in the sectors in which the poor are currently employed will result in the strongest relative gains for the poor. In this context, CPTPP leads to positive, if modest, poverty reduction. CPTPP would have lifted from poverty (at PPP\$5.50 a day) 0.9 and 0.6 million of people in 2025 and 2030 respectively. This effect is slightly below of what can be accomplished with RCEP and half of the effect obtained with TPP-12. Not surprisingly, TPP-12 exhibits the largest effects on poverty reduction due to biggest boost to growth. By 2030, it would have lifted from poverty (at PPP\$5.50 a day) 1.4 million people in addition to baseline conditions. Using a poverty line of \$3.20 a day, it can be seen that differences in poverty impacts between scenarios are more moderate in comparison, and by 2025, RCEP has in fact equal gains in poverty reduction to those of CPTPP. These facts highlight the importance of looking beyond the impact on absolute poverty lines and addressing the impact across the income distribution.

In the absence of future gender-inclusive policies, the business-as-usual scenario projects a moderate increase in the gender gap⁸ that is generated by increases in the skill wage premium. Under baseline assumptions and by 2030, the more skilled households in the top-60% of the income distribution would benefit from larger increases in wages with respect to households in the less-skilled bottom-40% – an absolute difference of 4.3% by 2030. These gains would be tilted towards male workers, who tend to have higher initial wages than females (see Figure 22). The implementation of the CPTPP would impose additional but small negative effects on the gender gap, as depicted in Figure 23. By 2030, the gender gap in household consumption per capita would

7 For a broader discussion on the elasticity of growth and poverty reduction, see Osorio-Rodarte & Verbeek (2015).

8 Measured by relative per capita household consumption of males versus females, 15 to 64 years old.

increase for households in the bottom-40%, particularly for skilled workers with a 0.25 percentage points increase with respect to baseline conditions. In comparison, the gender effects that CPTPP would impose on the top-60% of the income distribution are negligible.

People at higher ends of the income distribution benefit proportionately more than the poor, because the agreement creates more economic opportunities for skilled workers. Figure 24 and Figure 25 below depicts the growth incidence curves with respect to baseline for each one of the FTAs. The curves show, for each percentile of the income distribution, the absolute gains in income per capita relative to baseline conditions. Figure 24 on the right shows the curves using standard productivity assumptions, at a much lower level than Figure 25 in the left, which shows growth incidence curves with productivity kick assumptions. Gains shown in the growth incidence curve result from applying the microsimulation on top of the Vietnamese Household Living Standards Survey (2012). The microsimulation recovers macroeconomic shocks for each FTA and simulates impacts on a) sectoral reallocation of labor, b) changes in relative wages, and c) changes in real household consumption.

While TPP-12 and CPTPP have larger positive effects than RCEP, on average, they result in relatively higher income gains for individuals in the top 60 percent of the population than in the bottom 40 percent. In contrast, RCEP is assumed to lead to expansion of sectors with a greater concentration of employment among the bottom 40 percent of the income distribution, including agriculture and food products. If the final outcome of RCEP is consistent with this, it would lead to relatively greater benefits for the poor than those that would result from CPTPP, or could have resulted from TPP.

The annex at the end of this note contains more details about the simulation process that gives shape to the incidence curves. More specifically, Figure 29 in the annex decomposes the incidence curve by each sequential microsimulation step. Overall, changes in relative wages exert the largest effect on the distribution of benefits. Across all scenarios, the effect of relative wages is regressive with respect to baseline conditions, meaning that increases in relative income would tend to benefit the more educated, and affluent, segments of the population. The extent of the increase in relative wages is positively correlated with the growth in household consumption and trade openness. In other words, the more ambitious trade agendas would tend to create faster growth but, as the economy expands, it would tend to increase the demand for skilled labor and increase income inequality. These results, while highly susceptible to assumptions about the formation of human capital, contribute to highlight the importance of using adjustment policies as instruments for

compensating those left behind and building domestic support towards more ambitious trade agendas, combined with efforts to invest in human capital, and ease mobility from sectors that are negatively- or slower-growing to those with greater economic opportunities.

FIGURE 18. Income distribution in Vietnam 2015 and 2030, baseline conditions

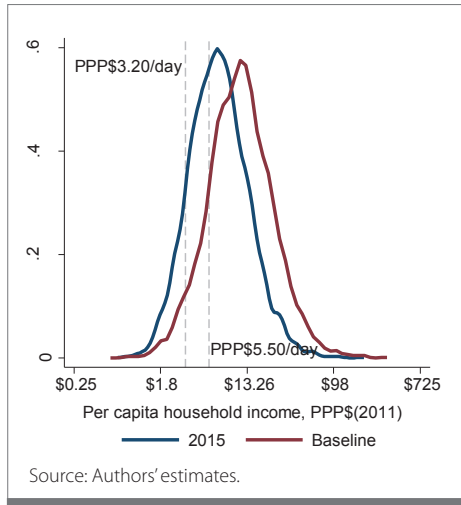


FIGURE 19. Poverty reduction in Vietnam, baseline conditions

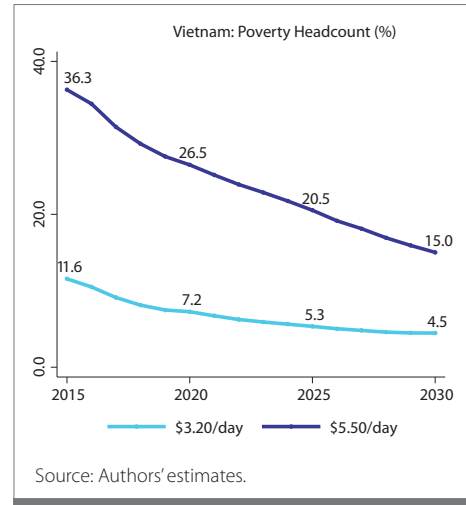


FIGURE 20. Income inequality in Vietnam, baseline conditions

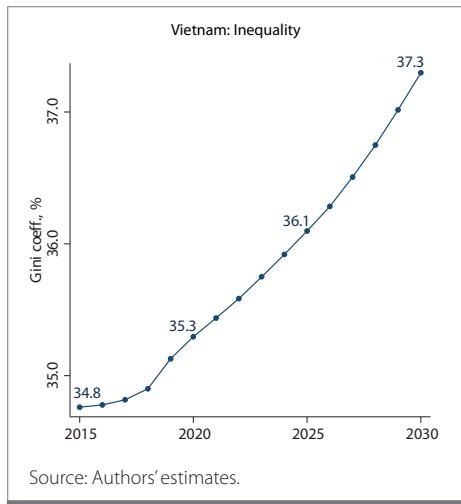


FIGURE 21. People lifted from poverty due to FTAs, standard productivity

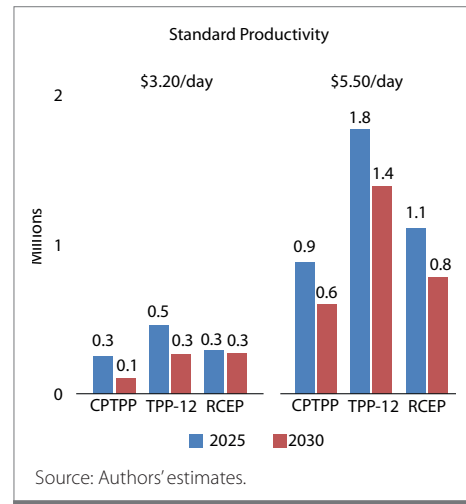


FIGURE 22. Gender-gap in 2017 and 2030, Household consumption per capita

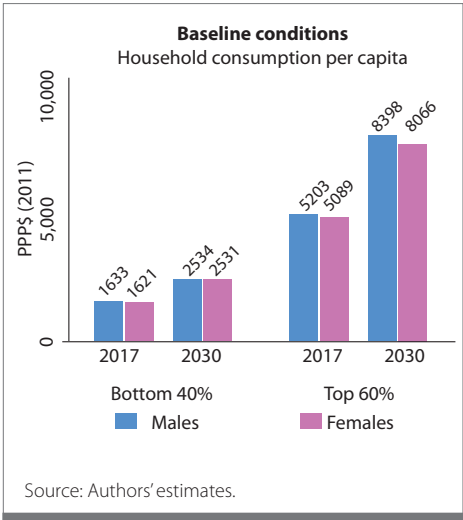


FIGURE 23. Gender-gap effects of CP-TPP, Deviations with respect to baseline

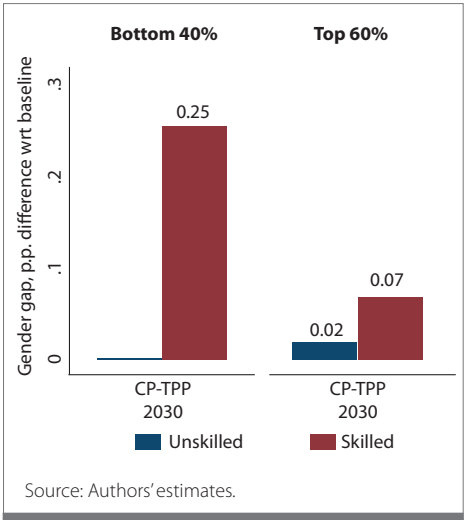


FIGURE 24. Growth Incidence curves of FTAs, standard productivity

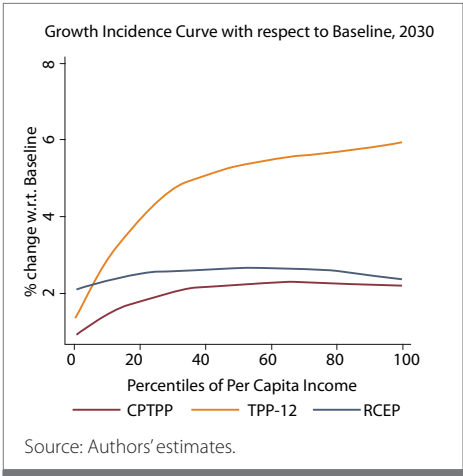
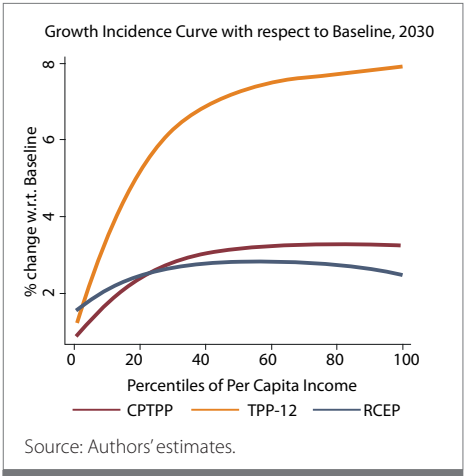


FIGURE 25. Growth Incidence curves of FTAs, productivity kick





CONCLUDING REMARKS

Multilateral trade agreements, including the recently concluded CPTPP and the prospective RECEP are expected to further boost Vietnam's investment and export driven growth model. The results of this paper indicate that the CPTPP would yield robust economic gains for Vietnam, albeit at a lower level than the original TPP12. Gains from CPTPP are expected to be concentrated in a handful of industries: *Wearing apparel* experiences the largest gains in all scenarios, Textiles gain relatively more under TPP, *Food, beverages, and tobacco* output and exports are highest under CPTPP. In terms of distribution of the gains, all income groups are expected to benefit under CPTPP, but the benefits will be higher for higher-skilled workers in the top 60% of the income distribution. In addition to the welfare gains simulated by our model, the CPTPP is likely to bring about increase in FDI, lead to further expansion of services sectors and boost productivity gains. In particular, CPTPP rules-of-origin may encourage investments in upstream industries and make exports less dependent on imported materials but more on domestic supply chains.⁹ This response in turn will boost domestic value added in exports, stimulate domestic private firms to integrate more proactively into global value chains and therefore promote the SME sector development.

The assessment also suggests that welfare gains from RCEP are significant although smaller than under the CPTPP and TPP12. It is important to underline that the comparison of RCEP with CPTPP and TPP12 depends in part on an assumed level of ambition of liberalization for RCEP, so the relatively lower welfare gains would be higher if the agreement reaches higher level of ambition.

Aside of the direct gains stemming from trade liberalization and improved market access, the CPTPP is expected to stimulate and accelerate domestic reforms in many areas, such as competition, services (including financial

⁹ Increased FDI in upstream industries, especially in the textile sector, however, entails environmental risks and Vietnam needs to have appropriate policies and regulations to encourage environmentally friendly technology and FDI.

services, telecommunications, and temporary entry of service providers), customs, e-commerce, environment, government procurement, intellectual property, investment, labor standards, legal issues, market access for goods, rules of origin, non-tariff measures (including SPS and TBT measures), trade remedies etc. Moreover, delivering commitments under the CPTPP will contribute to promote transparency and support the creation of modern institutions in Vietnam.

To reap the full benefits of further trade integration, implementation of CPTPP commitments should be accompanied by further steps to enhance competitiveness and trade facilitation. Behind-the-border issues matter. The challenges involve continued improvement in connectivity to enable integration into global value chains and keep trade costs low. Domestic private and foreign invested firms that participate in GVCs need to be able to move goods across borders cost-effectively and reliably. This requires both good physical and institutional infrastructure. Recent research outcomes show that most of the high compliance costs relate to non-tariff barriers. Despite the recent progress in Customs reform and the implementation of the National and ASEAN Single Window, the compliance costs in terms of time and money for goods clearance before and on border remain high in Vietnam. Addressing this critical bottleneck will help deliver the commitments not only under the CPTPP but also the WTO's Trade Facilitation Agreement.

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ANNEX 1. METHODOLOGY

Building on recent work of Petri et al. (2016), and the World Bank (2016a, 2016b) the backbone of the economic modelling is obtained by using a global dynamic computable general equilibrium model called LINKAGE (van der Mensbrugghe, 2011 and 2013). The analysis includes 17 production sectors and 35 countries/ regions (see Table A1) and simulates the impacts of policy changes up to 2030, including reduction of tariffs, Non-Tariff Measures (NTMs) in goods and services trade.

This modelling framework allows to incorporate the complex interactions of productivity differences at the country, sector or factor level, shifts in demand as income rises, as well changes in comparative advantage and trade flows following trade liberalization. The applied multi-regional dynamic CGE model accounts simultaneously for interactions among producers, households and governments in multiple product markets and across several countries and regions of the world. Although incorporating well-developed dynamic features such as accumulation of capital through changes in savings and investment, the model, however, lacks positive dynamic feedback loops concerning the accumulation of knowledge and the absorption of foreign technology through TPP-facilitated FDI, it also does not allow for modeling of extensive margins in exports. Therefore, the gains illustrated here may underestimate the eventual impact and represent the lower bound of potential benefits. In contrast, TPP-driven productivity increases in member countries could undermine the competitiveness of non-member countries and exacerbate the detrimental effects on non-member countries. Moreover, the intended harmonization of labor and environmental standards within the TPP has important implications for participating developing countries, but these processes are not explicitly incorporated in the model. While such harmonization has social and environmental benefits, it may also reduce competitiveness of firms that currently do not meet such standards, reducing the potential economic gains.

Linkage: Global Dynamic Computable General Equilibrium (CGE) model

The core specification of the model replicates largely a standard global dynamic CGE model. Production is specified as a series of nested constant

elasticity of substitution (CES) functions for the various inputs – unskilled and skilled labor, capital, land, natural resources (sector-specific), energy and other material inputs. LINKAGE uses a vintage structure of production that allows for putty-semi putty capital. In the labor market we assume fixed unemployment and labor participation rates.

Demand by each domestic agent is specified at the so-called Armington level, i.e., demand for a bundle of domestically produced and imported goods. Armington demand is aggregated across all agents and allocated at the national level between domestic production and imports by region of origin.

The standard scenario incorporates three closure rules. First, government expenditures are held constant as a share of GDP, fiscal balance is exogenous while direct taxes adjust to cover any changes in the revenues to keep the fiscal balance at the exogenous level. The second closure rule determines the investment-savings balance. Households save a portion of their income, with the average propensity to save influenced by elderly and youth dependency rates, as well as GDP per capita growth rates. The savings function specification follows Loayza, Schmidt-Hebbel, and Serven (2000) with different coefficients for developed and developing countries. In the case of China and Russia, we target projections of investment or savings rates up to 2030 from World Bank regional reports. Since government and foreign savings are exogenous, investment is savings driven. The last closure determines the external balance. We fix the foreign savings and therefore the trade balance, hence changes in trade flows result in shifts in the real exchange rate.

We first generate the long-term baseline, then run a number of counterfactual scenarios. By comparing the two, we can isolate the impacts of various policy changes:

Baseline

The GTAP data base is benchmarked to 2011. We run the model to 2018, replicating the key macroeconomic aggregates from the World Bank's *Global Economic Prospects* (GEP 2016)¹⁰ report. Population growth is based on the medium fertility variant of the 2012 UN's population projections. Labor force growth follows the growth of the working age population – defined here as the demographic cohort between 15 and 64 years of age. The evolution of supply of

10 For China, we replicate the growth projections of World Bank (2014).

skilled and unskilled workers is consistent with the IIASA constant educational trends (CER) scenario, where growth rates of the supply of skilled workers exceed that of unskilled. Capital accumulation is equated to the previous period's (depreciated) capital stock plus investment. Productivity growth in the baseline is "calibrated" to achieve the growth rates for the baseline scenario (as in the GEP (2016)) up to 2018, then we fix the productivity growth for 2018-2030 to be consistent with historical trends. These productivity growth rates remain fixed in the counterfactual scenarios. The baseline scenario also incorporates tariff reductions in existing FTAs. These are based on the data set provided by International Trade Center, including all TPP members FTA commitments up to 2030 (ITC and MAcMap, 2015).

Alternative Scenarios

The results rest on planned tariff cuts in accordance with the provisions of FTAs among the members and on several key assumptions about the theoretically desirable and politically feasible ("actionable") cuts in NTMs and the actual cuts likely to follow from FTA implementation. Although agreements must be ratified by all member countries, executed simulations assume implementation will begin in 2017. Moreover, the effects of the FTAs are evaluated relative to the baseline scenario which includes pre-existing trade agreements among member countries (e.g., NAFTA, AFTA, the ASEAN-Japan FTA, the ASEAN-Australia-New Zealand FTA and the P4 Agreement among Brunei Darussalam, Chile, Singapore and New Zealand).

Tariff cuts as well as tariff commitments under the existing FTAs follow the published schedules under the agreements as documented in ITC and MAcMap (2015) and MAcMap (2016). The authors document tariff reductions due to the existing FTAs signed by members up to 2031 as well as commitments up to 2046 at the HS6 digit level. Reductions in actionable non-tariff measures (NTMs) follow the approach of Petri and Plummer (2016) and are assumed to be similar to the agreement between Korea and the US (KORUS), including some modifications based on analysis of the TPP and RCEP text. NTMs for goods are constructed from the 2012 update of estimates by Kee et al. (2009) and the services barriers are based on estimates by Fontagné, Mitaritonna, & Signoret (2016). Only three-quarters of measured barriers are considered as actual trade barriers, the rest is assumed to represent quality-increasing regulations (e.g., product safety standards). Further, only three-quarters of the remaining NTMs in the case of goods and one-half in the case of services are assumed to be actionable (i.e., politically feasible in a trade agreement), the rest is assumed to be

beyond the reach of politically viable trade policies.¹¹ NTMs are modelled as iceberg trade cost. These are non-revenue generating costs, which allow for trade to expand if these costs are reduced. For example, if iceberg trade costs are equal to 0.9 for some transport node, that means that if 100 units leave port r , the destination port, r' , receives only 90 units.

Global Income Distribution Dynamics

The impact of trade agreements is differentiated across different types of households and workers. Such heterogeneity is key in determining the poverty and distributional impacts of any trade agreement. In order to model these distributional consequences, we plan to use the Global Income Distribution Dynamics (GIDD)¹² modeling framework. The GIDD, a top-down macro-micro simulation framework, will distribute the macroeconomic results of the CGE model to households in the Vietnam's Household Living Standard Survey (VHLSS 2012). The microeconomic model distributes the effects while keeping consistency with the aggregate behavior observed in the macro model. The two models operate mainly through changes in labor supply, skill formation, and real earnings, as a result, they are linked through key specific variables that reflect these changes. (See the list of aggregate variables in the Box below).

The micro simulation framework is performed in 5 steps. Steps 1 to 4 change the distribution of benefits across individuals, keeping the national average intact; while step 5 applies a distributional-neutral growth for all individuals. Briefly explained, step 1 changes the demographic structure of the household survey according to exogenous population and education projections. The second step allows for the migration of labor from shrinking to expanding sectors in the economy while changes in skill and sectoral wage premia are modelled in step 3. Step 4 adjust for changes in the relative prices faced by consumers. Lastly, step 5 accounts for economy-wide changes in per capita household consumption growth.¹³

11 The fraction of actual NTM reductions is derived for 21 separate issues areas, based on a score from 0 to 100 with a higher score indicating larger reductions in trade barriers by TPP compared with existing FTAs. See World Bank (2016), p. 236 (Figure A.4.1.1).

12 GIDD was developed by the World Bank's Development Prospects Group and was inspired by previous efforts involving top-down simulation exercises. See François Bourguignon, Ferreira, and Leite (2008); Francois Bourguignon, Bussolo, and Pereira da Silva (2008); Davies (2009). Earlier versions of the GIDD can be found in François Bourguignon & Bussolo, (2013); and Bussolo, De Hoyos, & Medvedev, (2010). Recent modeling applications include distributional assessments of the effects of demographic change (Ahmed, Cruz, Go, Maliszewska, & Osorio Rodarte, 2014); Africa's resilience to climate, violence, and global economic stagnation (Devarajan et al., 2015), deeper regional trade integration in Western Africa (Balistreti et al. 2016), or the poverty and shared prosperity effects of China's economic slowdown and rebalancing (Lakatos, Maliszewska, Osorio-Rodarte, & Go, 2016).

13 For a detailed specification of the GIDD micro model see Osorio Rodarte (2016).

BOX: Global Income Distribution Dynamics - Aggregate variables used to link macro and micro economic models

1. **Geographical aggregation:** $c = \{\text{individual country or regional aggregation}\}$
2. **Time:** $t = \{0, 1, \dots, T\}$
3. **Demographics:** in a $\{m_{ct} \cdot g_{ct} \cdot S_{ct}\}$ structure with:
 - $m_{ct} = \{\text{age groups}\}$
 - $g_{ct} = \{\text{gender}\}$
 - $S_{ct} = \{\text{levels of education based on completed years of schooling}\}$
4. **Labor force status:** $f = \{\text{labor force participation status}\}$
5. **Employment:** labor supply l_{pqct} , labor incomes w_{pqct} , and non-labor incomes z_{pqct} in an economy with:
 - $p = \{\text{sectors}\}; \text{ and}$
 - $q = \{\text{types of workers}\}$
6. **Welfare aggregate:** aggregate income/consumption per capita $\bar{I}_{ct}$
7. **Price Index:** $\bar{P}_{bct}$ where
 - $b = \{\text{household consumption aggregates}\}$

Source: Osorio Rodarte (2016).

TABLE A1. Sectors and countries/regions included in the global CGE model

Sectors	Countries/Regions
Agriculture	Australia
Natural resources / mining	Brunei Darussalam
Food, beverages, tobacco	Canada
Textiles	Chile
Wearing apparel and leather	Japan
Chemical, rubber, plastic products	Malaysia
Metals	Mexico
Transport equipment	New Zealand
Electronic equipment	Peru
Machinery and equipment	Singapore
Other manufacturing	United States of America
Utilities	Viet Nam
Construction	Brazil
Trade and transport	Russian Federation
Finance and other business services	India
Communication and business services	China
Social services	South Africa
	EU28
	Egypt
	Colombia
	Turkey
	Thailand
	Korea
	Philippines
	Indonesia
	Bangladesh
	Cambodia
	Laos
	Kenya
	Ethiopia
	Sri Lanka
	Tanzania
	Southeast Asia
	Rest of South African Customs Union
	Rest of the world

ANNEX 2. MACRO MODEL DYNAMIC BEHAVIOR

Figure 26 to Figure 28 show percentage deviations with respect to baseline conditions for GDP, exports and imports for each one of the three scenarios: CPTPP, TPP-12, and RCEP. The horizontal-axis represents the number of years after implementation, from 0 to 14; while the vertical-axis represents deviations with respect to baseline. In line with results presented in the main text, the effect of TPP-12 is much larger than the effects derived from implementation of CPTPP or RCEP. The simulated spin-offs with increases in productivity are reflected on the level of GDP, rather than in the volume of exports or imports. More importantly is the fact that during the first year of implementation, the simulations show a sharp increase with respect to baseline, followed by more moderate year-on-year increments.

FIGURE 26. GDP under different FTAs (percentage change with respect to baseline)

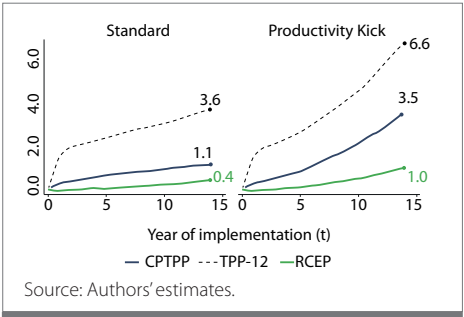


FIGURE 27. Exports under different FTAs (percentage change with respect to baseline)

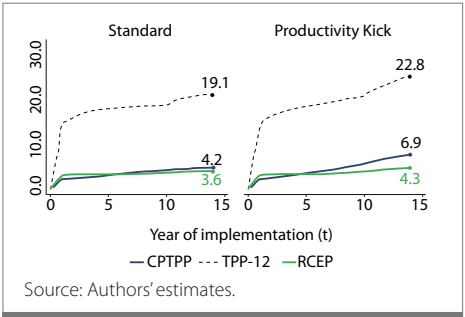
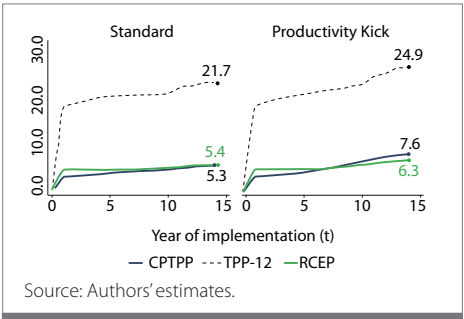


FIGURE 28. Imports under different FTAs (percentage change with respect to baseline)



ANNEX 3. DISTRIBUTIONAL DECOMPOSITION OF MICRO-ECONOMIC SIMULATION STEPS

Decomposition of the simulation steps results useful to understand the mechanisms behind changes in the distribution of income. Figure 29 shows that the initial level of income growth is strongly associated with the regressive effect of changes in relative wages. These simulations show that the large negative consequences that result from changes in wage premia under TPP-12, affect so drastically the poorest households that it makes them worse-off than under the less ambitious RCEP scenario.

FIGURE 29. Growth Incidence Curves for each FTA

