Economic impact for Central America, Panama and the Dominican Republic (CAPDR) of changes in US trade policy, increased regional integration and new trade agreements

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Abstract

We quantify the economic impact for the CAPDR region (Central America, Panama and Dominican Republic) of potential scenarios that include drastic changes to current US trade policies. We also quantify the economic potential of alternative trade policy measures by the CAPDR region, such as deeper regional integration and the negotiation of new preferential trade agreements (PTAs) with other regions. We employ a dynamic CGE model variation of the standard CGE GTAP model, which includes imperfect competition and "online" capital accumulation based on Francois et al. (2005). An important innovation of our CGE model is that we also calibrate international capital flows to reflect the estimated impact of the depth of PTAs on bilateral FDI inflows, which is taken from a separate study (Kox and Rojas-Romagosa, 2017). Our main results are that, as expected, the revocation of the US-CAPDR PTAs will have a large and significant negative economic impact on the CAPDR region, with substantial GDP and potential job losses. These losses will be larger if the region also retaliates by rising trade costs with the US. The best trade policy alternative for CAPDR will be to deepen regional integration, in particular within the CAPDR region and with the Pacific Alliance countries (Mexico, Chile, Colombia and Peru). On the other hand, signing PTAs with the Mercosur block and East and Southeast countries, will bring positive effects, but of a smaller magnitude than pursuing deeper regional integration.

Keywords: Trade policy, preferential trade agreements, macroeconomic impacts of trade and FDI, CGE models
JEL codes: F13, F14, F17, F62, C68

1 Introduction

The United States is the world's largest economy and the most important trade partner for Central American countries (Costa Rica, El Salvador, Guatemala, Honduras,

and Nicaragua), Panama and the Dominican Republic (henceforth, CAPDR). Trade and economic relationships between these countries have been growing steadily over the last decades –with many interlinked industries, jobs, and investments being created and reinforced. It is because of economic importance of the US for the region that voices of alert have raised after the new administration stated its new approach governing economic relationships with its trade partners (USTR, 2017). Mainly, the Trump Administration pledged a new approach to trade policy based on the "America first" slogan that can be directly related to a new protectionist stance by the US government. Among the steps outlined for achieving these goals are the revision of bilateral trade agreements and withdrawal or renegotiation of those agreements where the United States has not achieved expected results, even unilaterally and without Congressional approval. These policy objectives could be translated into seriously disruptive trade policy measures, such as rises in tariffs and import restrictions which, if implemented, undoubtedly will negatively and severely impact all countries in the CAPDR region. Even though the economic logic and consistency of these new policies is highly questionable[1], there is still a positive chance that these protectionist policies will be implemented in the future due to political or other circumstantial reasons.

Under these circumstances, this study takes a worst-case scenario approach were we assume that the US will unilaterally repeal its preferential trade agreements (PTAs) with the region. By taken this pessimistic stance, we can evaluate the worst expected economic outcomes from future US trade policy and compare it with alternative trade policy scenarios. However, since one of the main targets of the current US governments has been its bilateral trade relations with Mexico, we also analyze the potential impact of a US withdrawal from NAFTA.[2] Thus, the first objective of this paper is to explore and quantify the economic consequences of reduced trade and investments between the CAPDR countries and the US, which are expected from the revocation of the existing bilateral PTAs.

As a compensatory policy to these anticipated negative effects of a new protectionist trade policy by the US, the CAPDR region can seek deeper inter-regional trade integration with its neighbors. In particular, the region has already an extensive net of bilateral and multilateral trade deals within the CAPDR countries and with the Pacific Alliance block of Chile, Colombia, Mexico and Peru. These trade agreements can be completed to cover all the countries in the region and further economic integration measures can be taken to increase trade and FDI flows. In addition, the region can also explore the option to start trade negotiations with the Mercosur block (Argentina, Brazil, Paraguay and Uruguay) and with developed and emerging countries in East and Southeast Asia, with whom there are already significant trade ties and a a relatively small buy growing flow of foreign direct in-

[1] See for example Nordhaus (2017) for a summary of the main criticisms and fallacies involved in these trade policy options.

[2] On August 16th 2017 the NAFTA renegotiation talks started between Canada, Mexico and the US. Although the objective is to revamp the agreement (see The Economist, 2017), the threat of unilateral US action is still a possibility.

vestments (FDI). With these trade policy options in mind, the second objective of this paper is to analyze and systemically quantify the economic impact of a deeper regional integration and the signing new trade agreements. Moreover, we will also compare these policy scenarios against the initial scenarios related to changes in the US trade policy towards the region. Mixing both set of scenarios will provide information on the economic viability of using alternative trade policies to compensate for the negative effects of a US trade policy change.

Although the expected sign and general direction of some of these trade policies scenarios can be easily inferred –e.g. it is broadly expected that any drastic US unilateral policy change with the region will have a very negative impact for the region– the contribution of this study is that we systematically quantify these effects. This also allows use to comprehensively analyze the potential compensatory effect of diverting this negative shock by pursuing a deeper regional integration strategy and negotiating new PTAs. To this purpose, our methodological strategy is to a computable general equilibrium model (CGE) which is complemented with gravity estimations of the effects of PTAs on FDI inward stocks. This approach allows us to account for the macroeconomic, trade, investment and labour effects associated with the large structural changes generated by these trade policy changes. Specifically, we provide results on real GDP level and growth changes, effects on exports, imports and total trade –by specific regions and sectors, expected changes in FDI inflows and the impact on the labor market.

Finally, by providing numerical results to these trade policies, we can also rank each scenario by its expected economic impact. This information can be valuable for policy makers to decide in which trade agreements or other integration and cooperation policies to center their efforts, limited institutional resources and negotiation teams.

This paper is organized as follows. Section 2 provides an overview of the current trade and FDI flows between the CAPDR countries and its main trading and investment partners. In Section 3 details our methodological framework, including an extensive description of the CGE model and the gravity estimations. Section 4 reports the current trade costs between the CAPDR region and its main trading partners, and how these can be changed under different policy scenarios. The particular trade scenarios used are then described in Section 5, while Sections 6, 7 and 8 present and analyze the results of all our scenarios. We summarize these results and conclude in Section 9.

2 Initial trade and FDI flows in the region

In this section we present the initial trade and FDI conditions in the region. We aim at identifying the main trading partners and the countries that invest the most in the region. This provides value information that can already indicate the magnitude of the economic impacts in our different scenarios.

2.1 Trade

In Table 1 we present the total trade for each CAPDR country with its main trading partners and the relative importance of each partner. We clearly observe that the US is the main trading partner of the region with a share of around 40% of total trade. For the region as a whole, the EU is the second trading partner in importance, followed by within-CAPDR trade. However, for specific countries, the ranking is different. For the northern Central American countries (Guatemala, Honduras, Nicaragua and El Salvador) intra-CAPDR is more important than trade with the EU, while for Panama trade with Asia is more important than with the EU. Regarding other regional partners, CAPDR trades relatively little with Mexico, the rest of PA countries (Colombia, Chile and Peru) and with Mercosur (Argentina, Brazil, Paraguay and Uruguay). In this regard, given the relatively short distances with this regional partners, it seems that there are potential trade opportunities to be exploited. On the other hand, trade between the region and East and Southeast Asia is relatively high, given the distance factor. While Panama, as mentioned before has strong trade flows with Asia.

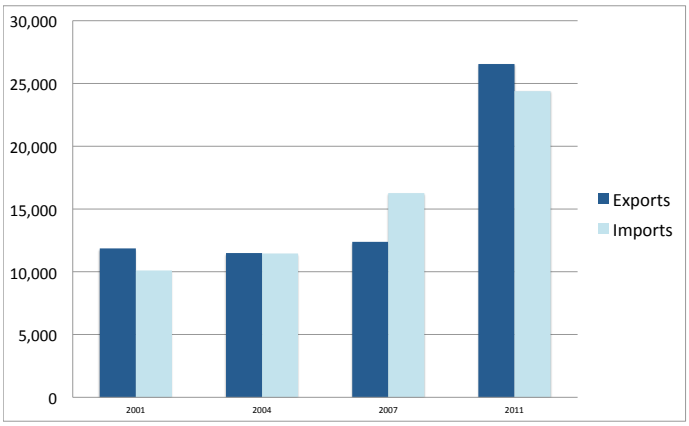
Table 1: Total trade for each CAPDR country and its main trading partners in 2011, US$ million

	CRI	**DOM**	**SLV**	**GTM**	**HND**	**NIC**	**PAN**	**CAPDR**
Total Trade	41,011	30,424	16,646	29,456	18,548	11,113	52,938	200,137
Trade with:								
USA	19,127	13,477	6,686	12,010	9,135	3,972	12,993	77,400
CAPDR	3,712	858	3,940	4,835	2,801	1,940	2,406	20,493
Mexico	1,406	1,030	781	2,307	810	508	1,030	7,873
Rest of PA	1,046	744	282	919	363	79	1,440	4,873
Mercosur	586	818	259	524	200	196	1,004	3,587
EU28	5,727	4,679	1,768	2,910	2,171	990	7,726	25,971
China	1,681	1,737	634	1,428	671	522	9,013	15,684
E-SE Asia	4,192	1,605	825	1,757	829	648	9,724	19,580
Other regions	3,533	5,475	1,471	2,766	1,568	2,258	7,604	24,676
Shares:								
USA	46.6%	44.3%	40.2%	40.8%	49.3%	35.7%	24.5%	38.7%
CAPDR	9.1%	2.8%	23.7%	16.4%	15.1%	17.5%	4.5%	10.2%
Mexico	3.4%	3.4%	4.7%	7.8%	4.4%	4.6%	1.9%	3.9%
Rest of PA	2.6%	2.4%	1.7%	3.1%	2.0%	0.7%	2.7%	2.4%
Mercosur	1.4%	2.7%	1.6%	1.8%	1.1%	1.8%	1.9%	1.8%
EU28	14.0%	15.4%	10.6%	9.9%	11.7%	8.9%	14.6%	13.0%
China	4.1%	5.7%	3.8%	4.8%	3.6%	4.7%	17.0%	7.8%
E-SE Asia	10.2%	5.3%	5.0%	6.0%	4.5%	5.8%	18.4%	9.8%
Other regions	8.6%	18.0%	8.8%	9.4%	8.5%	20.3%	14.4%	12.3%

Source: GTAP-9 database.

Nevertheless, the main message from Table 1 is that the US the key trading partner for the region, and as such, changes in US trade policy can create serious economic disruptions in the region. Moreover, trade between CAPDR and the US has been growing since the implementation of DR-CAFTA. Using the GTAP-9 database, which has comparable data for four different years (2001, 2004, 2007 and 2011) we observe a staggering increase in trade between CAPDR and the USA of around 250% (see Figure 1). Although a large share of this trade growth has been concentrated in Panama and Costa Rica, all countries of the region have experienced very significant increases.

Figure 1: Trade from CAPDR (aggregated as a region) to the United States, US$ millions



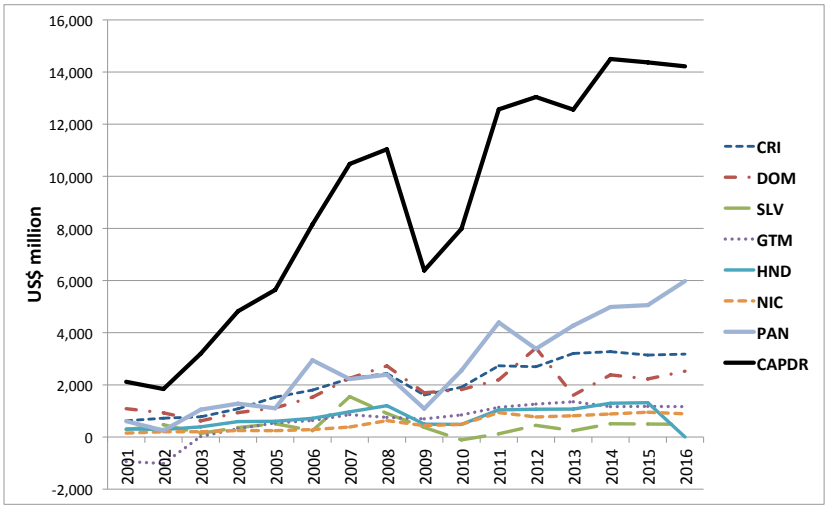
Source: GTAP databases (versions 6, 7, 8 and 9).

2.2 FDI flows

Total FDI inflows in the CAPDR region have been steadily increasing over time (see Figure 2). Most countries have experienced rising FDI inflows, with the exception of El Salvador and Honduras, where there has been more yearly volatility but in average not significant changes. However, there are stark differences in FDI levels, with Panama receiving more than one-third of the total FDI inflows in 2015 (35%), followed by Costa Rica (22%) and Dominican Republic (16%). The rest of Central American countries do not receive more than 10% of the total regional inflows each, while together they represent the remaining 27% of total inflows.

Using the UNCTAD's Bilateral FDI Statistics (UNCTAD, 2014), in Table 2 we present the main countries of origin of FDI to CAPDR and their relative importance. As with trade, the US is the most important FDI source for the region (34%), followed by the EU (23%). However, Mexico is an important FDI source for the region as a whole (11%), but is the main FDI source for the Dominican Republic

Figure 2: CAPDR, foreign direct investment, net inflows in US$ million



Source: World Bank's World Development Indicators.

and Nicaragua, and also a significant source in Guatemala and Honduras. On the other hand intra-CAPDR FDI flows are relatively small, with the exception of El Salvador where they represent more than one-third of total inward FDI stock (35%). The other regions that we will analyze in our scenarios (rest of PA, Mercosur, China and East and Southeast Asia), on the contrary, have relatively low FDI presence in the region, with the exception of Panama, which has relatively high FDI stocks from the rest of the Pacific Alliance and Asia. Finally, Nicaragua has been the recipient of FDI from the rest of Asia, with 19% of its total inward FDI stocks (mainly from Taiwan, and to a lesser extent South Korea).

Table 2: CAPDR, inward FDI stocks by country of origin, 2010-2012 weighted averages in US$ million

	USA	Mexico	CAPDR	rest PA	Mercosur	EU	China	rest Asia	rest World	**Total**
Average inward FDI stocks for 2010-2012										
CRI	10,303	684	679	367	71	2,879	42	37	1,251	16,313
DOM	1,518	2,074	6	0	0	1,334	0	0	9	4,941
GTM	1,509	1,165	344	292	24	882	12	96	853	5,177
HND	1,408	1,245	731	198	0	1,736	0	64	360	5,742
NIC	298	362	75	0	0	41	0	178	0	954
PAN	4,180	796	680	2,584	403	6,966	21	2,105	5,314	23,048
SLV	2,672	791	2,678	53	12	850	0	172	443	7,671
CAPDR	21,889	7,116	5,193	3,495	510	14,687	75	2,652	8,229	63,846
Share of total inward FDI stocks										
	USA	Mexico	CAPDR	rest PA	Mercosur	EU	China	rest Asia	rest World	**Total**
CRI	63.2%	4.2%	4.2%	2.3%	0.4%	17.6%	0.3%	0.2%	7.7%	100.0%
DOM	30.7%	42.0%	0.1%	0.0%	0.0%	27.0%	0.0%	0.0%	0.2%	100.0%
GTM	29.1%	22.5%	6.6%	5.6%	0.5%	17.0%	0.2%	1.9%	16.5%	100.0%
HND	24.5%	21.7%	12.7%	3.5%	0.0%	30.2%	0.0%	1.1%	6.3%	100.0%
NIC	31.3%	37.9%	7.9%	0.0%	0.0%	4.3%	0.0%	18.7%	0.0%	100.0%
PAN	18.1%	3.5%	3.0%	11.2%	1.7%	30.2%	0.1%	9.1%	23.1%	100.0%
SLV	34.8%	10.3%	34.9%	0.7%	0.2%	11.1%	0.0%	2.2%	5.8%	100.0%
CAPDR	34.3%	11.1%	8.1%	5.5%	0.8%	23.0%	0.1%	4.2%	12.9%	100.0%

Notes: China includes Hong Kong. Rest of Asia are all the East and Southeast countries, except China and Hong Kong. Source: Own estimations using bilateral FDI database from UNCTAD (2014).

3 Methodological framework

To assess the economic impact of different trade scenarios we use a CGE model, which is a standard economic tool to analyze the economy-wide effects of changes in trade policy. We start with a general description of CGE models and then detail the main characteristics of the particular CGE model used for this study.

3.1 Standard CGE model specifications

The CGE modeling framework allows for economy-wide economic analysis. By employing a balanced and internally consistent global database, in tandem with an economic model that describes economic activity for a variety of sectors and agents in the global economy, any change in exogenous variables can be assessed to understand the effects on endogenous variables in the model. In particular, CGE models are computer-based simulations for what-if policy analysis. A CGE modeler typically adjusts the value of an exogenous variable (the experiment or policy shock) to simulate the economic effects of that shock into a baseline (business as usual case).

In our particular case, we link the infrastructure investments to changes in trade costs and productivity, which will become the exogenous shocks to the CGE model.

The key features of the CGE framework are the model that describes economic activity and behavior, the underlying database that accounts for initial equilibrium of the global economy, and a set of parameters that drive responses of agents to any given perturbation to the initial equilibrium. In clear contrast to partial equilibrium models, a CGE model considers the interactions between countries/regions, economic sectors and actors –typically households, firms and the government– through a Social Accounting Matrix (SAM). The model is first calibrated to mimic the observed data for a baseline which then is modified through policy variables of interest to generate simulated data that, once compared to the baseline, provides the economic impact of the policy change.

The particular model we use in this paper is a modified version of the standard GTAP-class CGE model.[3] The standard GTAP model describes the global economy as a whole and the interaction among economic agents. Macroeconomic factors are accounted for, including GDP, savings and investment, as well as wages and rents. Microeconomic factors are also described including supply-side factors, firms' production decisions; demand-side factors, including behavior by households and governments; factor market conditions governing labour and capital, as well as international trade. The model is employed in tandem with actual data from a given base year to quantify the effects of an economic shock that causes a movement from the initial equilibrium of the economy. In particular we use the global multi-regional input-output GTAP9 database with 2011 as its base year.[4] Additional features of the CGE model are specified in Appendix A.1.

The standard GTAP model provides an explicit and detailed treatment of international trade and transport margins. Bilateral trade is handled via CES (constant elasticity of substitution) preferences for intermediate and final goods, using the so-called Armington assumption, where the substitution of domestics and imports –as well as product differentiation– is driven by the region of origin (i.e. by import source). This assumption is generic to most CGE models as it is a simple device to account for "cross-hauling" of trade (i.e. the empirical observation that countries often simultaneously import and export goods in the same product category).[5] In addition, the model accounts for bilateral tariffs, export subsidies and other trade taxes and costs, including the possibility to model iceberg trade costs that are usually employed to include ad-valorem values of non-tariff measures. In this respect, we exploit this possibility and change the values of these iceberg trade costs to simulate changes in NTM values according to the specification of each scenario. Finally,

[3]The main characteristics and references to the standard GTAP model can be found in Rutherford and Paltsev (2000) and Hertel (2013), who provide a detailed discussion of the GTAP-class models. Here we provide a summary of this model.

[4]See Aguiar et al. (2016) for documentation on the GTAP-9 database and Hertel (2013) on the full database project.

[5]See Appendix A.1.4 for an overview of the limitations of this approach and other criticisms on CGE models.

we can directly change tariff levels based on the particular tariffs for each country in the CAPDR region, taken from the WITS database (see Section 4 for more details).

3.2 Particular CGE model features used in this study

For this study, we use an imperfect competition and capital accumulation variation of the standard GTAP model based on Francois et al. (2005).[6] The model is solved as an explicit non-linear system of equations that is implemented in GEMPACK –a software package designed for solving large applied general equilibrium models. The model is then calibrated to the GTAP-9 database (Aguiar et al., 2016), with 2011 as its base year, with a 45 sector and 15 region aggregation (see Tables 20 and 19 in Appendix A.1.3). This sectoral aggregation was constructed to use as many as GTAP sectors –of a total of 57– as possible. We only aggregate those sectors for which there is relatively small production values in CAPDR. The regional aggregation distinguishes all Central- and North-American countries, plus other important trading partners for the region.

3.2.1 Baseline rebalancing and projections

The first step we take is to substitute the original GTAP tariff data (for 2011) for the CAPDR region, with the most recent WITS tariff data available (see Sections A.3 in the Appendix). This will allow us to provide a more precise simulation of the tariff changes that is based on effectively applied tariff data. We then calibrate the model to rebalance the database (i.e. find the new general equilibrium with the modified tariffs).

To assess the medium- and long-term effects of our scenarios, the base year GTAP data from 2011 is projected to 2030 using the Shared Socioeconomic Pathways (SSP2) population and real GDP projections from the OECD (cf. OECD, 2012; Dellink et al., 2017). Using these projections we create a baseline scenario with values for 2030. In addition, we assume a gradual decrease in trade imbalances over the long run in the baseline. This baseline will constitute our business-as-usual (BaU) scenario where the current trade agreements remain in place between CAPDR and its trading partners. Our simulations with different trade policy scenarios will then be compared to this BaU scenario to assess the economic effects of the trade policy changes. At the end of Section 5 we explain in detail how to interpret the results from the CGE simulations.

3.2.2 Dynamic closure with capital and investment changes

For the particular simulations assessing the impact of different trade scenarios for Central America we use a dynamic closure of the model where changes in investment are linked to long-term capital accumulation, following Francois et al. (1996). In this

[6] Versions of this model have been employed for studies for the European Commission, various EU Member States, the Asian Development Bank, the World Trade Organization and others.

setting, changes in investment directly affect the capital stock used in production to mimic a long run approach where investment flows are translated into physical capital, and this process generates an endogenous capital accumulation mechanism in the model.[7]

Hence, the changes in investments flows from our simulations are applied to the long-run capital stock –i.e. the adjusted capital stock is used "online" and increases production capacity. In the case of decreases in investments with respect to the baseline, as is the case in our scenarios regarding US trade policy changes, this means that there is less overall investments and thus, a lower capital stock, which will reduce overall production capacity. In our results we compare these expected investments changes with respect to total yearly FDI inflows to provide a notion of how important these investment change are.

More specifically, for this study we calibrate the changes in future investments in each country to expected changes in FDI stocks that are associated with each trade policy scenario. For this purpose, we use gravity estimations to estimate the expected effects of different PTAs on the inward FDI stock. This will also provide information on the reverse effect, the expected reduction in FDI flows associated with the revocation of existing PTAS. These gravity estimations are explained in detail in the next section. Once we have estimated the FDI stock changes associated with the implementation (or revocation) of a PTA, we adjust the end-of-period capital stock accordingly and then let the yearly investments be simulated to attain this new capital stock level. This level will be higher with the implementation of PTAs –from expected increases in FDI stocks– and lower when PTAs are revoked.

3.2.3 Gravity estimation of FDI effects associated with PTAs

To estimate the potential effects of PTAs on FDI inward stock, we use a gravity model with FDI bilateral data, which controls for the endogeneity of PTAs. These estimates are based on recent advances in the gravity model literature (cf. Yotov et al., 2016). In particular, we follow the FDI implementation of the gravity model from Anderson et al. (2016, 2017).[8]

To provide unbiased estimation that are consistent with the theoretical foundations of the gravity model, we follow the best practices listed in Yotov et al. (2016). These include seven elements: i) we employ a Pseudo-Poisson maximum likelihood (PPML) estimator (Santos Silva and Tenreyro, 2006); ii) use country-pair-fixed effects to account for any unobservable time invariant trade cost components, and to control for the endogeneity of PTAs(cf. Egger et al., 2011; Anderson et al., 2016); iii) use exporter-time and importer-time fixed effects to properly account for multilateral resistance terms in panel data gravity estimations (Olivero and Yotov, 2012); iv) use panel data, which allows to employ the different set of fixed effects explained above; v) we use both foreign and domestic stocks to estimate the effects of non-

[7] We also ran simulations using a static closure where we assume that the capital stock is kept equal to the baseline levels. The results of these simulations are available upon request.

[8] For a similar application see Kox and Rojas-Romagosa (2018).

discriminatory trade policy Heid et al. (2015); vi) since FDI flows and stocks do not respond immediately to trade policy changes we use 3-year average FDI stocks; and vii) to account for the heterogeneity of PTAs regarding depth and provisions coverage we use the DESTA database (Dür et al., 2014), which provides a depth index of PTAs (from one to seven).

Based on the structural theoretical model from Anderson et al. (2016) and the applying the seven best practices explained above, we estimate the following panel data (with time t) econometric specification:

$$FDI_{ijt} = exp\left[\gamma_1 \mathbf{POL}_{ijt} + \mu_{it} + \mu_{jt} + \mu_{ij}\right] + \epsilon_{ijt} \tag{1}$$

where FDI_{ijt} is the inward FDI stock in country of destination i (the reporting country) from country of origin j (the partner country) in period t (the 3-year average in our base case). Moreover, $\mathbf{POL}_{ijt}$ is a time-variant vector of bilateral policy variables (in our case the DESTA depth index for PTAs), μ_{it} are time-varying source-country fixed effect (dummy variables) that control for the outward multilateral resistance terms and countries' output shares, μ_{jt} are time-varying destination-country fixed effects that account for the inward multilateral resistance terms and total expenditure, μ_{ij} are the set of country-pair fixed effects that will absorb all time-invariant gravity covariates from t_{ij} along with any other time-invariant determinants of trade costs that are not observable, and ϵ_{ijt} is a combined error term. Equation (1) will then be our main estimating equation.

We use UNCTAD's Bilateral FDI Statistics (UNCTAD, 2014), which provides systematic FDI data for 206 countries, covering inflows, outflows, inward stocks ("instock") and outward FDI stocks ("outstock"). These UNCTAD data is collected mainly from national sources when available, if not available it is complemented with data from partner countries (mirror data) as well as data from other international organizations. In addition, to expand the available data we use the outward stocks (from j to i) as inward stocks (from i to j) when there is no inward stock data. In this way, our compiled UNCTAD database consists of 217 countries, 12 years (2001 to 2012), 80071 total observations for 7923 total country-pairs.

The main results of these estimations is that the implementation of a deep PTA (such as DR-CAFTA) increases bilateral inward FDI stocks by 54.3%.[9] In the rest of this study we employ this value to increase FDI stocks when a PTA is implemented and to reduce the stocks when a PTA is revoked. Moreover, the FDI effects are assessed on a country-by-country basis, and thus, the particular effects on capital stocks induced by the increase in foreign (FDI) capital is calculated using the 2010-2012 average inward FDI stocks from Table 2. Therefore, the expected PTA effects on FDI and capital stocks are directly proportional to these initial FDI stocks. In other words, the FDI shocks will be high when bilateral PTAs apply to countries that are important source of FDI for the CAPDR region (such as the US and to a lesser extent Mexico), but will be less significant when these initial FDI stocks are relatively low (e.g. intra-CAPDR, rest of PA, Mercosur, China and rest of Asia).

[9]These gravity results were also subject to several robustness checks. The full set of gravity estimations and robustness tests is available upon request.

Note that inward FDI stocks of CAPDR countries to the US are almost non-existent, with the share of CAPDR outward FDI in the US with respect to total US FDI stocks being well below 0.01%. Panama has the highest share with 0.05%, which is still relatively small and economically insignificant. Mexico, on the other hand, has higher FDI stocks in the US, but they still only represent 0.5% of total US inward FDI stocks. Hence, we do not calibrate any changes in US inward FDI stock changes associated with the repeal by Mexico and CAPDR of their bilateral PTAs with the US. In addition, CAPDR is also not a significant source of FDI for the other regions we analyze, and therefore, we do not model changes in outward FDI flows from CAPDR.

To evaluate the impact of these expected FDI effects, the changes in yearly investment are calculated using the baseline capital levels and the new capital levels –after estimated the impact on FDI stocks– in 2030. Using a depreciation level of 4% (which is the value in the original GTAP database), we obtain the changes in yearly investment or gross fixed capital formation (GFCF) necessary to get to these new capital levels in 2030. These percentage changes in investment levels are then compared to current yearly GFCF and FDI inflows levels and reported in our results.[10] Current GFCF and FDI inflows are taken from the WDI and presented in Table 21 in Appendix A.1.5.[11]

3.2.4 Labour market conditions

Finally, we assume that there is enough slack in the unskilled-labour markets of the CA countries, such that changes in labour demand can be met by an changes in employment, while keeping nominal wages fixed. This is based on the fact that there is large sub-employment, youth unemployment and informal employment, as well as a relatively low labour participation rates in these countries. On the other hand, the skilled-labour market does not have this slack and we assume that increased skilled-labour demand can only be met by an increase in nominal wages.

We use ILO data on employment across skill levels, based on occupation for 2015.[12] The ILO aggregates categories from the International Standard Classification of Occupation (ISCO), which provide a very similar match to the GTAP skill classification that is also based on occupations.[13] Note that in previous simulations we divided total employment on skills base on education levels, which give much higher high-skill shares in the CAPDR region.

[10] We use the average GFCF and FDI inflows in the last three years: 2013 to 2015.

[11] Note that there is no one-to-one relation between FDI and GFCF. Even though FDI is usually used to finance fixed capital formation, it can also be used for other purposes (i.e. to pay off a loan or cover temporary losses in a subsidiary). Hence, FDI inflows are not always included in GFCF.

[12] From ILOSTAT, employment by occupation, November 2016.

[13] In particular, the skill level 3 and 4 (high) from the ILO (managers, professionals, and technicians), matches with the GTAP high skill categories (officials and managers, and technicians/associated professionals). For low skill workers, we group together the GTAP labour categories of clerks, service/shop workers, agricultural and unskilled, which match with the medium skill group 2 from ILO (clerical, services, sales skilled agricultural, plant and machine operators) and the skill group 1 (elementary occupations).

It is important to keep in mind that the results we present on employment are the potential job changes associated with the simulations. As such, they are an upper (lower) limit of potential job creation (destruction), but it does not mean that these changes in employment will be effectively generated. In particular, these results are conditional on changes in the labour demand for unskilled-labor –as a result of the simulation experiments and their effect on production and factor demands– to be met by changes in the intensive (hours worked) and extensive (participation rates) margins of the labour supply. The negative changes associated with our scenarios assume that wages for unskilled-workers are sticky and will not adjust downwards –i.e. nominal wages remained unchanged– and as such, lower unskilled labour demand will be met by less employed low-skill workers.

4 Trade policy shocks and current trade costs in the CAPDR

In this section we explain the policy shocks that will be associated with each of our trade policy scenarios. Specifically, we assume that these trade policy shocks –i.e. the repeal or implementation of PTAs– are mainly captured by two variables: tariffs and non-tariff barriers. We refer to these two variables as trade costs and in what follows we explain how we estimate the impact of the trade scenarios on each of these variables. Therefore, we also present the current trade costs between the CAPDR region and its main trading partners.

4.1 Trade costs between the US and the CAPDR

The US has two trade agreements with the CAPDR region. First, DR-CAFTA was signed between the US and all Central American countries (except Belize and Panama) in August-2004, and implemented in different years, as follows: United States in August 2005, El Salvador in March 2006, Honduras and Nicaragua in April 2006, Guatemala in July 2006, Dominican Republic in March 2007 and Costa Rica in January 2009. Second, the Panama-United States Trade Promotion Agreement, which is in effect since October 2012.

For our scenarios involving changes in US trade policy, we assume that the repeal of the trade agreements of the US with CAPDR will imply that current tariffs will move to the WTO's Most-favored Nation (MFN) level and that NTBs will increase to reflect increase in trade costs associated with border and customs regulations, sanitary and phytosanitary controls, and other behind-the-border trade costs that were reduced with the implementation of the agreements. We obtain the applied tariff and the MFN tariffs from the World Bank-UNCTAD WITS database. This database provides the effectively applied and MFN tariffs for 2004 –before the implementation of DR-CAFTA– and 2014, which is the latest available year.[14]

[14]See Appendix A.2 for further details.

However, the variable of interest for trade policy analysis is the difference or tariff margin between the MFN and the applied tariff. For instance, in the presence of PTA agreement, this will result in bilateral applied tariffs below the MFN tariff (a positive tariff margin) that reflect the preferential tariffs from the agreement. Table 3 shows the tariff margins for CAPDR exports to the US and we observe that all CAPDR countries have implicit preferential tariffs associated with DR-CAFTA and the US-Panama PTA.[15] In the case of a US repeal of its agreements with CAPDR then this will be the tariff increase that the CAPDR exporters will face, and these tariff changes are directly used in our CGE model simulations.

[15]Using the same approach we also calculate the trade margins for US exports into CAPDR. This table is not shown but is available upon request.

Table 3: United States, tariff margins for imports from CAPDR countries in 2014, in percentages

sector	GTAP sector	**CRI**	**DOM**	**SLV**	**GTM**	**HND**	**NIC**	**PAN**
1	Grains	0.00	4.95	0.00	0.00	0.01	0.00	0.00
2	Vegetables & fruits	2.19	0.00	1.35	8.18	7.25	4.38	1.73
3	Oil seeds	0.00	0.00	0.00	0.00	0.58	0.00	0.00
4	Sugar cane	0.00	3.94	0.00	0.00	0.00	0.00	0.00
5	Other crops	0.69	0.00	0.90	2.61	0.19	0.26	0.01
6	Cattle	0.00	0.61	0.00	0.00	0.00	0.00	0.00
7	Other animal prod.	0.76	0.61	0.03	0.63	2.34	0.53	0.00
8	Raw milk	0.00	0.61	0.00	0.00	0.00	0.00	0.00
9	Forestry	0.50	0.00	0.65	0.38	0.03	0.00	0.00
10	Fishing	0.00	0.30	0.00	0.00	0.00	0.00	0.00
11	Mining	0.00	0.00	0.00	0.09	0.00	0.00	0.11
12	Bovine meat prod.	6.40	0.00	0.00	0.00	6.43	6.35	0.00
13	Other meat prod.	0.00	5.92	0.00	0.00	0.00	0.00	0.00
14	Vegetable oils	0.00	18.39	0.00	1.38	9.13	6.52	0.00
15	Dairy products	19.88	0.34	17.85	17.52	16.80	18.50	0.00
16	Sugar	6.55	6.34	2.92	8.33	1.08	0.32	8.12
17	Other food prod.	7.98	7.99	4.81	5.83	2.32	0.88	7.68
18	Beverages & tob.	4.33	12.19	8.49	10.00	6.48	6.73	9.17
19	Textiles	11.12	11.07	14.51	13.14	14.02	13.91	4.35
20	Clothing	9.01	1.28	13.40	13.44	13.07	12.42	9.36
21	Wood products	0.10	0.00	0.74	2.93	0.94	0.15	0.73
22	Paper prod. & publ.	0.00	2.48	0.00	0.00	0.00	0.00	0.00
23	Petrochemicals	3.39	4.93	3.05	1.22	3.15	1.23	0.92
24	Other mineral prod.	3.20	1.89	0.01	4.98	3.80	5.70	2.72
25	Metals	1.26	1.28	0.32	1.68	1.61	1.76	1.10
26	Motor vehicles	0.82	0.08	1.52	0.18	1.80	0.98	1.07
27	Other transp. equip.	0.93	0.05	0.04	0.89	2.50	0.00	0.00
28	Electronics	0.00	0.82	0.00	0.00	0.12	0.23	0.45
29	Other machinery	0.29	5.45	2.44	0.14	2.49	2.48	1.34
30	Other manufactures	5.73	0.00	2.82	2.79	0.98	4.15	1.19
31	Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	Gas manuf. & distr.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	simple average	2.7	2.9	2.4	3.0	3.0	2.7	1.6

Notes: Tariff margins are defined as the difference between the MFN and the applied tariff.
Source: WB-UNCTAD WITS using the WTO-IDB database.

4.1.1 NTBs

To estimate the effect of PTAs on NTB values, we follow the NTB ad-valorem equivalent (AVE) estimations from Egger et al. (2015), which assess the impact of deep PTAs (as DR-CAFTA is classified within the DESTA database) on NTB cuts. We adjust the sectoral aggregation in Egger et al. (2015) to map their NTB AVEs associated with Deep PTAs to our 45 GTAP sectoral aggregation. Table 4 shows the resulting NTB AVEs associated with DR-CAFTA and the US-Panama PTA.

Table 4: NTB ad-valorem equivalents (AVE) reductions associated with the implementation of deep PTAs

sector	code	GTAP sector	NTB AVE	sector	code	GTAP sector	NTB AVE
1	GRA	Grains	15.8	24	NMM	Other mineral prod.	3.6
2	V_F	Vegetables & fruits	15.8	25	MET	Metals	16.7
3	OSD	Oil seeds	15.8	26	MVH	Motor vehicles	19.3
4	C_B	Sugar cane	15.8	27	OTN	Other transp. equip.	6.2
5	CRO	Other crops	15.8	28	ELE	Electronics	1.8
6	CTL	Cattle	15.8	29	OME	Other machinery	6.2
7	APO	Other animal prod.	15.8	30	OMF	Other manufactures	3.6
8	RMK	Raw milk	15.8	31	ELY	Electricity	0.0
9	FRS	Forestry	15.8	32	GDT	Gas manuf. & distr.	0.0
10	FSH	Fishing	15.8	33	WTR	Water	0.0
11	MIN	Mining	16.1	34	CNS	Construction	2.5
12	CMT	Bovine meat prod.	33.8	35	TRD	Trade	0.0
13	OMT	Meat products nec	33.8	36	OTP	Transport nec	0.0
14	VOL	Vegetable oils	33.8	37	WTP	Water transport	6.5
15	MIL	Dairy products	33.8	38	ATP	Air transport	5.5
16	SGR	Sugar	33.8	39	CMN	Communication	1.8
17	OFP	Other food prod.	33.8	40	OFI	Other financial serv.	0.0
18	B_T	Beverages & tob.	42.0	41	ISR	Insurance	0.0
19	TEX	Textiles	3.6	42	OBS	Other business serv.	21.0
20	CLO	Clothing	3.6	43	ROS	Recreational serv.	2.5
21	LUM	Wood products	3.6	44	OSG	Public services	0.0
22	PPP	Paper prod. & publ.	3.6	45	DWE	Dwellings	0.0
23	PCP	Petrochemicals	24.2				

Source: Own calculations based on Egger et al. (2015).

As shown in Table 4 these NTB values can be significant, and much higher than existing tariff levels. NTB reductions are particularly important for agricultural and food products, which reflects the importance of trading times (the time that takes from the origin country to its final destination), which requires speedy border and customs procedures. In addition, these products are also subject to more intensive and detailed sanitary and phytosanitary controls, besides other quality controls and regulations that must be complied to be certified for internal consumption in the importing country. In this regard, PTAs can facilitate and/or reduce the bureaucratic burden of these procedures by the implementation of trade facilitation mechanisms –to reduce trading times and by the harmonization or mutual recognition of controls and regulations.

On the other hand, we assume that if a PTA is revoked, then the opposite effect will occur: NTBs will now increase –by the values specified in Table 4– to reflect the recision of previously implemented trade facilitation mechanisms, regulatory harmonization and other behind-the-border actions that were taken when the PTA was initially signed.

In addition, we apply the values in Table 4 for all our trade policy scenarios, depending on the nature of the policy shock: PTA revocation, more regional integration after a PTA has been implemented and the negotiation of new PTAs.

4.2 Remaining trade costs within CAPDR

Even though the CAPDR countries have several PTAs to each other that were implemented before 2011 (see Table 5), there are still some tariffs that remain, and in some cases these are relatively high. We report the remaining effectively applied tariffs (taken from the WITS database) in Appendix A.3. The tables there show that even though most tariffs are set at zero within the CAPDR region, there are still some sector-specific positive and sometimes high tariffs within the region. In particular, processed food sectors (sugar, diary products, meat products) still have significant tariffs for some bilateral trade pairs in the region. Specifically, there are several positive tariffs still remaining between the Central American countries and the Dominican Republic and Panama.

Table 5: Bilateral treaties within the CAPDR region

	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama	Dominican Rep.
Costa Rica	–	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	4	2,3
El Salvador	1, 2, 3	–	1, 2, 3	1, 2, 3	1, 2, 3	4	2,3
Guatemala	1, 2, 3	1, 2, 3	–	1, 2, 3	1, 2, 3	4	2,3
Honduras	1, 2, 3	1, 2, 3	1, 2, 3	–	1, 2, 3	4	2,3
Nicaragua	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	–	4	2,3
Panama	4	4	4	4	4	–	none
Dominican Rep.	2,3	2,3	2,3	2,3	2,3	none	–

Notes: 1. 'Protocolo de Guatemala', 1994 (signed in October 1993 as part of the 'Tratado General de Integración Económica Centroamericana'). 2. Central America-Dominican Republic free trade agreement, 2002. 3. DR-CAFTA, 2009 (signed in 2004, which also includes reduction of tariffs within the Dominican Republic and Central America) 4. Central America-Panama free trade agreement, 2003. Source: DESTA database and CAPDR government websites.

Therefore, there is still scope for further trade integration within the CAPDR region. This can be done by eliminating the remaining tariffs and furthermore, by deepening trade facilitation mechanisms: improving trade infrastructure (ports, airports and land border crossings), upgrading customs efficiencies to lower trading times and by the mutual recognition or harmonization of standards and regulations, all of which are associated with NTB reductions.

4.3 Trade costs between CAPDR and regional trading partners

CAPDR has several trade agreements with other countries in Latin America and beyond. Table 6 shows the agreements already in place between CAPDR with regional and extra-regional partners.

Table 6: Bilateral treaties between the CAPDR region and selected partners

	USA	Mexico	Chile	Colombia	Peru	Mercosur	China	SE Asia
Costa Rica	2007	1995	2002	2016	2013	none	2011	2013/1
El Salvador	2004	2001	2002	2009	none	none	none	none
Guatemala	2005	2001	2002	2009	none	none	none	none
Honduras	2005	2001	2002	2009	none	none	none	none
Nicaragua	2006	1998	none	none	none	none	none	none
Panama	2007	none	2008	none	2012	none	none	none
Rep. Dominicana	2006	none	none	none	none	none	none	none

Notes: 1. PTA between Costa Rica and Singapore. Source: DESTA database.

In Appendix A.3 we present the CAPDR country- and sector-specific import tariffs for the Pacific Alliance members. There we find that the remaining tariffs, even after the implementation of some bilateral PTAs, are positive for several sectors and in some cases relatively high.[16] This may reflect the fact that some agreements are relatively recent –e.g. Costa Rica and Colombia– and are still not reflected in the WITS database. In any case, eliminating tariffs between the CAPDR region and the Pacific Alliance, can still generate significant trade increases between the regions. In addition, given the that there are several country-pairs that have yet to sign PTAs, this provides increases room for tariff reductions and/or elimination. Accordingly, there is also room to implement trade facilitation improvements and other behind-the-border mechanisms that can reduce NTBs.

Note, however, that both the further regional integration within the CAPDR region and between CAPDR and the PA, will require substantial political and diplomatic efforts between the different countries to agree to eliminate existing tariffs –which are present as a result of the particular political pressure from industry lobbyists and other interest groups– and to agree to deepen economic integration through increased cooperation on customs and border crossing, on mutual recognition or harmonization of regulations on health, safety, labor and environmental issues, deeper integration of services markets, and the fostering of FDI flows. All together, these comprehensive set of bilateral policy measures can effectively reduce existing NTBs and further increase both trade and FDI flows. Even though these efforts can be burdensome and take time to materialize, we assume that the threat of increased protectionism from the Trump Administration may spur the region to accelerate and smooth this integration process. In this sense, given that CAPDR has recently signed a PTA with the European Union, and the CAPDR is not an im-

[16] We also calculated the import tariffs into PA countries for CAPDR exports. These tables are not presented but available upon request.

portant trading partner for the EU, it is not deemed realistic that further bilateral trade cost reductions are possible to negotiate in the short and medium term with this regional block, and thus, we do not include a scenario of further integration between CAPDR and the EU.

Finally, CAPDR has no trade agreements with Mercosur, and almost none with China and Southeast Asia –with the exception of the PTAs that Costa Rica signed with China and Singapore. Therefore, the region has the possibility to negotiate and sign new PTAs with these regions that can significantly reduce both current tariff levels and reduce NTBs to the levels associated with Table 4. Although these new negotiations are not scheduled, we include simulations to estimate the economic effects related to these potential treaties to provide information on the the economic desirability of engaging in trade negotiations with these blocks.

5 Specification of the simulation scenarios

In this section we detail and explain the different trade policy scenarios that are simulated with our CGE model using as inputs the information on trade costs from the previous section.

In order to evaluate the possible economic impact of a drastic change in the US trade policy, we simulate four scenarios. First, given the hard rhetoric of the Trump Administration regarding NAFTA and in particular, the US-Mexico trade relations, we simulate an unilateral repeal of NAFTA by the US.[17] Second we simulate a scenario where the US repeals only its PTAS with CAPDR (i.e. DR-CAFTA and the US-Panama PTA), even though this scenario is unlikely to happen before any changes to NAFTA, we want to analyze the isolated impact to CAPDR of such a policy. In accordance, our third scenarios we simulate simultaneously a a unilateral revocation of NAFTA, DR-CAFTA and the US-Panama PTA. Finally, in our fourth scenario we assume that the CAPDR region will retaliate to the protectionist US trade policy by also repealing its trade agreements with the US. Although this is possibly a counterproductive economic action for CAPDR, it is the more realistic option from a political point of view, since there will be increased political and industry-specific pressure to react to any negative US policy actions against the region.

To model these scenarios, we change the tariffs and NTBs according to the data compiled in Section 4. In particular, for each scenario, we assume that current US tariffs for CAPDR exports are increased to the WTO-MFN levels. In practical terms, this means that tariffs will increase by the tariff margins that where presented in Table 3.[18] In addition, we assume that the US NTBs to CAPDR exports increase by the values given in Table 4. For our fourth scenario, with a bilateral repeal of the

[17] However, we assume that only the bilateral trade costs between the US and Mexico are affected, but not those between the US and Canada or Mexico and Canada.

[18] Although the US import tariff margins for Mexican imports where not presented in that table, we estimated them using the same approach.

PTAs, we add the increase in import tariffs by the CAPDR countries to US exports and we also assume that CAPDR NTBs for US exports increase by the values also given by Table 4.

In a second set of scenarios, we simulate deeper CAPDR regional integration with four additional scenarios. The first scenario simulates increased regional integration within the CAPDR region. The next two scenarios simulate deeper integration between CAPDR and the Pacific Alliance. However, given the special importance of Mexico as a trading partner and as a source of FDI flows to the region, we simulate separately in the second scenario more integration between CAPDR and Mexico, while the third scenario is done with the rest of PA members (Chile, Colombia and Peru). The fourth scenario is a mix between deeper integration both within CAPDR and between CAPDR and PA, plus the bilateral revocation of the PTAs between CAPDR and the US. The aim of this last scenario is to quantify if deeper regional integration can compensate or not for an increase in US protectionism.

To simulate deeper within-CAPDR integration we eliminate all remaining tariffs and assume an across the board 6% reduction in NTBs –assuming that there is a further regional effort to closer trade and economic cooperation.[19] By assuming an equal NTB reduction for all sectors, we are implicitly implying a relative deeper integration in services trade and inter-regional investments. Finally, we apply the larger NTB reductions associated with a deep PTA between Panama and the Dominican Republic. In the case of Panama and the Dominican Republic, which do not have a current PTA we also assume the full elimination of bilateral tariffs, plus the larger NTB reductions associated with the implementation of a deep PTA (taken from Table 4). There are already some bilateral PTAs in place between CAPDR and PA countries, but in all cases we eliminate all remaining bilateral tariffs between both regions. In the case where there is no bilateral PTA we also decrease NTBs to the levels associated with a deep PTA. If there is already a PTA in place then we assume a single 6% NTB decrease.

In a third and final set of scenarios, we simulate the economic impact of CAPDR negotiating and signing new PTAs. The first scenario simulates a new PTA between CAPDR and Mercosur, the second between CAPDR and China, and the third will be between CAPDR and East Asia (Japan, Korea and Taiwan) together with Southeast Asia (Brunei, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand and Vietnam). For the first two scenarios we assume a full tariff elimination and the NTB reductions associated with deep PTAs (cf. Table 4). For the last scenario, since it involves a large group of countries and negotiations are even more complicated, then we assume a 75% reduction of current tariffs plus a 50% NTB reductions from the levels associated with a deep PTA.

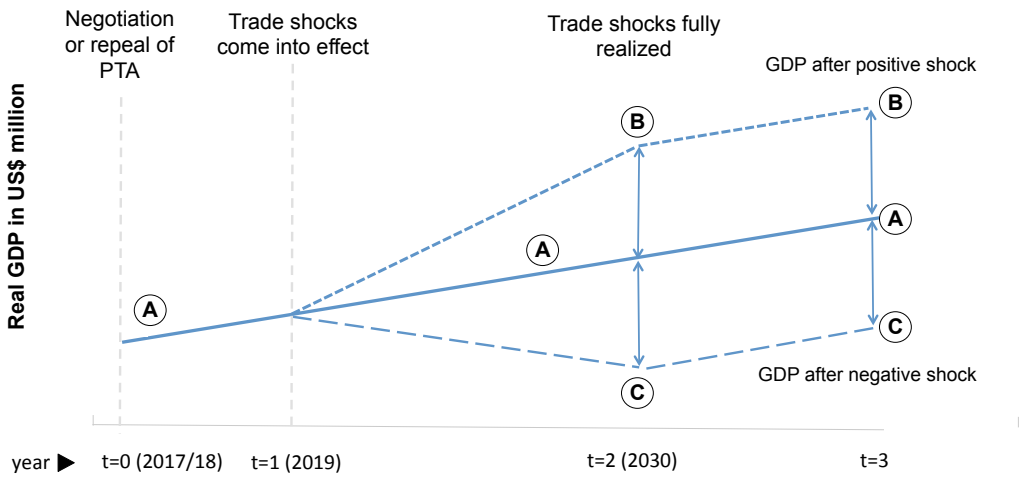
In total, we have 12 trade policy scenarios to be simulated. In the following sections we present the results of each scenarios and the policy implications of these results. Recall, however, that our CGE model generates long-term economic impacts

[19]This single 6% average decrease in NTBs is about half the NTBs associated with having a deep PTA, where the aggregate average from Egger et al. (2015) is 12.6% (see Table 4)

that assume that enough time has passed between the initial structural shocks associated with substantial trade policy, for the full macroeconomic adjustments in all markets –the product, labour and capital markets– to have been fully assimilated.

In this regard, our results are evaluated with respect to our business as usual baseline for 2030. To illustrate how the results must be interpreted, Figure 3 shows how the simulation results compare with the baseline values. In this figure, the A line represents the baseline (business as usual scenarios with no trade policy changes). The line B represents the evolution of GDP under a trade shocks with positive effects (i.e. a new PTA) and line C is a trade shock with negative GDP effects (e.g. the repeal of an existing PTA). In our results we report the difference between B or C (depending on the shock) with respect to A in 2030 ($t = 2$). We then calculate the implicit increase in average yearly growth rates that are required for GDP to move from A in $t = 1$ to B or C in $t = 2$.[20] Hence, the economic gains (losses) represent a permanent level effect of GDP, but only a transitional increase in GDP growth as Figure 3 illustrates: after $t = 2$ GDP continues growing at the same baseline levels and the final impact of the trade shock is to permanently increase (decrease) the GDP levels.

Figure 3: Changes in GDP levels related to different trade policy shocks



[20]Note that although the revocation of a PTA could be done relatively fast (i.e in one year) the negotiation and enforcement of a PTA can take much longer (e.g. 5 to 10 years). In our simulation however, it is assumed that by 2030 the full trade effects of the PTA will be fully realized.

6 Results for the CAPDR region of US trade policy changes

In this section we present the four scenarios involving drastic changes in US trade policy towards the region.

6.1 Only NAFTA repealed unilaterally by the US

We assume in this scenario that only the Mexican access to the US market is affected by increases in tariffs and NTBs of Mexican exports to the US. Mexico does not reciprocate nor are the US-Canadian trade relations changed. This follows from the confrontational stance that the Trump administration has had with regard to Mexican imports into the US.

This is bound to be a very disruptive and prejudicial scenario for Mexico, since it has very strong economic links with the US. Mexico exports around three-quarters of its total exports to the US (73%), while the US is the main foreign investor in Mexico, with US inward FDI stocks representing almost 60% of total FDI stocks (UNCTAD, 2014). The results for this simulations are presented in Table 7.

As expected, this scenario results in very negative and significant economic effect for Mexico. Real GDP by 2030 will decrease by almost 8% with respect to our business as usual baseline, this is translated in an average yearly decline in growth rate of 0.7 percentage points. Trade between Mexico and the US is reduced by around 40%, which is not compensated by the increase in trade between Mexico and other regions, and total Mexican trade is reduced in 22%. Moreover, FDI flows are also drastically reduced, representing an expected decrease of almost 85% of the current annual FDI inflows into Mexico. The combination of a collapsing trading sector and significant lower FDI inflows generates the decrease in GDP values. In addition, this sharp decrease in trade and overall economic activity is translated into a much lower demand for labour, which in our model specification is met by a very large decrease in total employment (by almost 6 million jobs), unless workers are willing to remain employed at lower salaries.

On the other hand, the CAPDR regional benefits marginally from this scenarios and experience a relative small increase in yearly growth rates of 0.05 percentage points, while there is a significant increase in trade with Mexico that is reflected in a total trade increase of around 0.6%. The country that benefits the most is the Dominican Republic, which sees a substantial increase in FDI inflows and has the largest real GDP increase (1.3%), followed by Costa Rica (0.8%), while Panama is the only country that loses out, although also marginally.

6.2 Only DR-CAFTA and US-Panama PTA repealed by the US

In this scenario we isolate the potential economic impact of a harmful US trade policy towards the CAPDR region. The results are presented in Table 8. As expected from the importance of the US as both the largest trading partner and source of

Table 7: Main economic outcomes, only NAFTA repealed unilaterally by the US, percentage changes with respect to baseline in 2030

	CRI	DOM	SLV	GTM	HND	NIC	PAN	CAPDR /3	MEX	USA
% changes by 2030 /1:										
Real GDP	0.81	1.32	0.09	0.35	0.48	0.56	-0.13	0.59	-7.59	-0.09
Total trade	0.95	1.44	0.67	0.64	0.84	0.95	0.04	0.61	-21.59	-2.62
Total exports	0.98	1.38	0.96	0.75	0.87	0.98	0.20	0.78	-21.25	-3.40
Total imports	0.91	1.48	0.51	0.57	0.82	0.92	-0.02	0.51	-22.00	-2.10
Trade with USA	1.02	1.25	-0.16	0.10	1.64	1.77	-1.15	0.52	-40.95	–
Trade with CAPDR	-0.16	1.39	-0.62	-0.75	0.24	-0.21	-0.87	-0.35	19.96	0.52
Trade with Mexico	20.91	21.95	17.74	14.40	-0.04	11.71	32.66	19.96	–	-40.95
Trade with rest of LAC	-0.11	-3.06	-3.88	-12.92	-9.79	-13.03	-8.87	-1.24	21.29	0.61
Trade with EU28	-0.43	0.48	-0.58	-0.53	-0.11	-0.21	-0.38	-0.24	10.71	0.74
Trade with other regions	-0.43	-0.21	-1.14	-1.15	0.31	-0.24	-1.23	-0.86	5.07	1.63
Yearly-average % change /1:										
Economic growth	0.07	0.12	0.01	0.03	0.04	0.05	-0.01	0.05	-0.72	-0.01
Export growth	0.09	0.12	0.09	0.07	0.08	0.09	0.02	0.08	-2.15	-0.31
Import growth	0.08	0.13	0.05	0.05	0.07	0.08	0.00	0.07	-2.23	-0.19
Potential job changes by 2030 /2:	17,226	38,524	2,976	17,952	17,888	14,554	-1,347	107,773	-5,853,245	239,909
Expected changes in yearly investments:										
in US$ millions	208	314	11	60	36	36	-26	639	-29,840	
as % of annual FDI inflows /4	6.8%	15.1%	2.7%	4.8%	2.9%	4.3%	-0.5%	4.6%	-84.5%	

Notes: Only includes the Mexico-US deals under NAFTA. Dynamic closure with capital and investment changes associated with FDI effects. \1 These are additional changes with respect to the baseline growth levels. \2 These values are conditional on the increased labour demand being provided by changes in the intensive (hours worked) and extensive (participation) margins. \3 The CAPDR region consists of the the six Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama) plus the Dominican Republic. \4 As percentage of annual FDI inflows in 2015. Source: Own estimations using CGE model and GTAP database.

FDI inflows, the disruption of commercial and investment ties will greatly affect the CAPDR region. We estimate a 6% decrease in real GDP with respect to the baseline value, which is translated into almost half percentage point less of yearly GDP growth. These large GDP losses are generated by the decrease in total trade by 13% and the sharp drop in FDI inflows (by half the current annual FDI inflows into the region). Trade with the US is reduced by almost one-third (31%), which is compiled by a decrease in trade with other regions –even though this is not a homogeneous result among all CAPDR countries.

This drastic decrease in overall economic activity is translated into a substantial decrease in the demand for labour that in our model specification generates very large reductions in employment levels, with a potential loss of almost 1.8 million jobs in the region. Even though all the CAPDR countries have a negative shock, Panama and Costa Rica experience the largest negative impacts, given their stronger trade and investment ties with the US. Finally, the US and Mexico are barely affected in

Table 8: Main economic outcomes, DR-CAFTA and Panama-US repealed only by the US, percentage changes with respect to baseline in 2030

	CRI	DOM	SLV	GTM	HND	NIC	PAN	CAPDR /3	MEX	USA
% changes by 2030 /1:										
Real GDP	-7.05	-4.66	-4.92	-4.24	-6.55	-5.88	-10.40	-6.08	0.04	-0.04
Total trade	-10.08	-12.38	-13.80	-12.18	-22.97	-12.95	-11.80	-13.42	0.04	-0.36
Total exports	-9.91	-14.29	-16.45	-13.43	-24.24	-13.63	-10.48	-14.59	0.04	-0.45
Total imports	-10.32	-11.18	-12.28	-11.24	-21.81	-12.30	-12.28	-12.75	0.04	-0.30
Trade with USA	-25.06	-27.53	-33.92	-29.57	-46.21	-44.16	-30.83	-31.25	0.24	–
Trade with CAPDR	-5.25	-3.98	-4.73	-1.55	-8.42	-3.95	0.56	-3.80	-7.58	-31.25
Trade with Mexico	-7.81	-5.16	-8.64	-7.99	2.32	-3.44	-12.27	-7.58	–	0.24
Trade with rest of LAC	-5.47	-4.26	-6.74	-15.29	-21.13	-15.91	-2.94	-1.66	-0.18	0.17
Trade with EU28	4.71	0.90	3.03	0.21	5.55	3.02	-6.78	-0.20	0.02	0.08
Trade with other regions	4.99	-1.84	-6.60	-4.52	-6.23	7.26	-9.38	-4.70	0.08	0.21
Yearly-average % change /1:										
Economic growth	-0.66	-0.43	-0.46	-0.39	-0.61	-0.55	-0.99	-0.57	0.00	0.00
Export growth	-0.94	-1.39	-1.62	-1.30	-2.49	-1.32	-1.00	-1.34	0.00	-0.04
Import growth	-0.99	-1.07	-1.18	-1.08	-2.21	-1.19	-1.18	-1.18	0.00	-0.03
Potential job changes by 2030 /2:	-153,239	-178,795	-303,688	-395,204	-357,042	-237,594	-179,997	-1,805,559	23,829	-24,488
Expected changes in yearly investments:										
in US$ millions	-1,856	-841	-213	-485	-353	-194	-2,966	-6,909	184	
as % of annual FDI inflows /4	-60.7%	-40.5%	-50.3%	-39.4%	-28.8%	-23.0%	-59.8%	-50.0%	0.5%	

Notes: The PTAs involved are DR-CAFTA and the Panama-United States Trade Promotion Agreement. Dynamic closure with capital and investment changes associated with FDI effects.\1 These are additional changes with respect to the baseline growth levels. \2 These values are conditional on the increased labour demand being provided by changes in the intensive (hours worked) and extensive (participation) margins. \3 The CAPDR region consists of the the six Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama) plus the Dominican Republic. \4 As percentage of average annual FDI inflows in 2013-2015. Source: Own estimations using CGE model and GTAP database.

this scenario and the changes are economically insignificant compared to the size of these economies.

6.3 All regional PTAs unilaterally revoked by US

In this scenario we combine the previous two scenarios, and now all regional PTAs with the US are affected. These PTAs are DR-CAFTA, the US-Mexico component of NAFTA and the Panama-United States Trade Promotion Agreement. Table 9 shows the CGE simulation results.

In general, the results for both CAPDR and Mexico are very similar, and of the same economic magnitude as in the individual scenarios analyzed above. Both regions are thus, still severely affected by the radical change in US trade policy. In addition, this signals that there are no significant spillover effects related to the sequencing of the repeal of the agreements, since the joint or individual repeal of the US treaties with the region do not generate differentiated results.

Table 9: Main economic outcomes, all PTAs (DR-CAFTA, Panama-US, NAFTA) repealed only by the US, percentage changes with respect to baseline in 2030

	CRI	DOM	SLV	GTM	HND	NIC	PAN	CAPDR /3	MEX	USA
% changes by 2030 /1:										
Real GDP	-6.47	-3.84	-5.24	-4.20	-6.48	-5.63	-10.75	-5.83	-7.62	-0.14
Total trade	-9.47	-11.79	-13.84	-12.18	-23.03	-12.51	-12.00	-13.37	-21.67	-2.99
Total exports	-9.27	-13.83	-16.29	-13.37	-24.29	-13.17	-10.48	-14.44	-21.33	-3.86
Total imports	-9.75	-10.50	-12.44	-11.28	-21.87	-11.89	-12.56	-12.75	-22.09	-2.40
Trade with USA	-24.61	-27.65	-34.99	-30.29	-45.81	-43.57	-32.31	-31.55	-40.83	–
Trade with CAPDR	-5.66	-3.14	-5.64	-2.55	-8.87	-4.38	-0.47	-4.47	8.39	-31.55
Trade with Mexico	9.68	13.88	3.76	2.42	-2.31	3.93	16.14	8.39	–	-40.83
Trade with rest of LAC	-5.91	-7.02	-10.48	-15.98	-21.20	-16.19	-3.92	-3.06	21.10	0.82
Trade with EU28	4.45	1.24	2.94	-0.26	5.62	2.95	-7.23	-0.40	10.76	0.83
Trade with other regions	4.76	-2.27	-7.57	-5.64	-6.17	7.45	-10.64	-5.54	5.20	1.85
Yearly-average % change /1:										
Economic growth	-0.61	-0.36	-0.49	-0.39	-0.61	-0.53	-1.03	-0.55	-0.72	-0.01
Export growth	-0.88	-1.34	-1.60	-1.30	-2.50	-1.28	-1.00	-1.31	-2.16	-0.36
Import growth	-0.93	-1.00	-1.20	-1.08	-2.22	-1.14	-1.21	-1.16	-2.24	-0.22
Potential job changes by 2030 /2:	-141,279	-155,003	-318,665	-400,306	-355,778	-232,286	-185,234	-1,788,550	-5,870,107	217,728
Expected changes in yearly investments:										
in US$ millions	-1,709	-640	-224	-469	-347	-176	-3,058	-6,623	-29,943	
as % of annual FDI inflows /4	-56.0%	-30.8%	-53.0%	-38.1%	-28.3%	-20.9%	-61.7%	-47.9%	-84.8%	

Notes: The PTAs involved are DR-CAFTA, the Mexico-US deals under NAFTA and the Panama-United States Trade Promotion Agreement. Dynamic closure with capital and investment changes associated with FDI effects. \1 These are additional changes with respect to the baseline growth levels. \2 These values are conditional on the increased labour demand being provided by changes in the intensive (hours worked) and extensive (participation) margins. \3 The CAPDR region consists of the the six Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama) plus the Dominican Republic. \4 As percentage of average annual FDI inflows in 2013-2015. Source: Own estimations using CGE model and GTAP database.

6.4 All regional PTAs with the US bilaterally revoked by both parties

In this scenarios we assume that the CAPDR region reacts to the protectionist US policies by also revoking its trade commitments with the US. This implies that import tariffs and NTBs for US exports to the region will be affected, in addition to the US higher trade costs for CAPDR exports simulated in the previous scenarios. Table 10 shows that this scenario is the most economically damaging of all, where the negative impacts of the previous scenarios are now compounded. We observe that now real GDP has a very large decrease of 10% –which represents more than a monthly salary of yearly income– and almost a full percentage point less of yearly average growth.

Table 10: Main economic outcomes, all PTAs (DR-CAFTA, Panama-US, NAFTA) repealed by both parties, percentage changes with respect to baseline in 2030

	CRI	**DOM**	**SLV**	**GTM**	**HND**	**NIC**	**PAN**	**CAPDR /3**	**MEX**	**USA**
% changes by 2030 /1:										
Real GDP	-13.52	-8.11	-4.55	-4.69	-8.51	-8.50	-19.25	-9.72	-12.89	-0.55
Total trade	-15.95	-19.27	-13.91	-12.41	-27.24	-14.88	-19.31	-18.13	-35.85	-6.18
Total exports	-15.66	-23.38	-18.23	-14.27	-28.91	-15.71	-18.38	-19.71	-34.91	-7.68
Total imports	-16.37	-16.67	-11.43	-11.01	-25.70	-14.10	-19.65	-17.23	-36.98	-5.17
Trade with USA	-48.94	-65.04	-63.99	-59.32	-67.02	-62.74	-72.05	-61.67	-65.62	–
Trade with CAPDR	6.73	12.20	6.97	11.04	0.77	1.23	11.51	7.33	18.32	-61.67
Trade with Mexico	23.46	25.62	18.30	21.83	8.02	14.46	8.61	18.32	–	-65.62
Trade with rest of LAC	12.00	11.98	16.16	0.04	-1.58	-3.83	-5.52	9.34	12.08	0.48
Trade with EU28	5.40	5.95	3.76	7.54	4.93	4.65	-2.61	3.03	11.97	0.86
Trade with other regions	5.99	9.59	4.35	9.38	0.96	7.42	-9.17	-0.95	10.68	1.37
Yearly-average % change /1:										
Economic growth	-1.31	-0.77	-0.42	-0.44	-0.81	-0.80	-1.93	-0.94	-1.25	-0.05
Export growth	-1.54	-2.39	-1.81	-1.39	-3.05	-1.54	-1.83	-1.90	-3.83	-0.72
Import growth	-1.61	-1.64	-1.10	-1.05	-2.66	-1.37	-1.97	-1.58	-4.11	-0.48
Potential job changes by 2030 /2:	-243,666	-183,144	-179,342	-241,251	-369,211	-263,446	-276,622	-1,756,683	-7,554,457	-555,144
Expected changes in yearly investments:										
in US$ millions	-2,982	-1,290	-101	-378	-405	-283	-4,767	-10,205	-48,318	
as % of annual FDI inflows /4	-97.6%	-62.1%	-23.8%	-30.7%	-33.0%	-33.5%	-96.2%	-73.9%	-136.9%	

Notes: The PTAs involved are DR-CAFTA, the Mexico-US deals under NAFTA and the Panama-United States Trade Promotion Agreement. Dynamic closure with capital and investment changes associated with FDI effects. \1 These are additional changes with respect to the baseline growth levels. \2 These values are conditional on the increased labour demand being provided by changes in the intensive (hours worked) and extensive (participation) margins. \3 The CAPDR region consists of the the six Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama) plus the Dominican Republic. \4 As percentage of average annual FDI inflows in 2013-2015. Source: Own estimations using CGE model and GTAP database.

These dramatic economic shocks are driven by the fall of bilateral trade with the US by almost two-thirds (62%) that is translated into almost one-fifth less of total exports and imports (18%), and by the collapse for FDI inflows, that decreases

by almost four-fifths (74%) with respect to the current yearly FDI inflows. Finally, even though the potential job losses remains steady at 1.8 million, it is still a very substantial negative shock to the labor market.

Moreover, the US is barely affected in this scenario, with a marginal loss of real GDP of just 0.1% that only translates into a 0.01 percentage point decrease in growth. Therefore, even though the trade retaliation by CAPDR is the most likely politically reaction to the US policy changes, it will hurt CAPDR disproportionally more than the US. For instance, Costa Rica and Panama have real GDP losses of 14 and 19% respectively, with yearly growth reductions of 1.3 and 1.9 percentage points and a total collapse in FDI inflows. The other CAPDR countries also have severe economic effects but of a lesser magnitude.

Finally, the CGE model also generates sectoral effects on output and export. In Appendix A.4 we present a summary of these results for each of the four scenarios simulated so far. Table 29 shows the changes in sectoral output for the CAPDR region aggregated, while 30 presents the sectoral changes in exports.[21] Analyzing these tables, we find that, as expected, there are significant changes in sectoral output for CAPDR when the regional PTAs with the US are revoked, where in general most sector are losing output, but the reduction is relatively more important (given the initial output levels) for textiles and clothing, the sector of petroleum, chemical and plastic products, and other machinery. Additionally, the overall reduction in economic activity indirectly affects local services sectors, such as construction, internal trade and public services. When CAPDR retaliates in our fourth scenario, the sectoral output reduction is deepened and besides the industries already mentioned before, now also the electronics sector goes from positive to negative changes (since this industry is highly integrated with the US and will be disrupted if tariffs on US imports are increased), while the transport sectors are also severely affected now (due to less import flows from the US). However, now the sector of petroleum, chemical and plastic products has an output increase, that could reflect less competition from US imports.

When we look at the sectoral exports results (Table 30), we observe that there is a close link between output changes (reported in Table 29) and the exports of these sectors. Again, there are large sectoral disruptions to CAPDR exports when its agreements with the US are repealed and these decreases are larger when CAPDR retaliates. Given the initial export values, the most significant export reductions (in other of importance) are: petroleum, chemical and plastic products, textiles, other machinery, clothing, metals and other food products. On the other hand, many agricultural exports are increasing significantly but only for sectors with very low initial export levels, while the two main agricultural export sectors: vegetables and fruits, and other crops, are decreasing.

[21] The country and sector-specific results for each scenario are also available but not included in this report.

7 Deeper regional trade integration scenarios

7.1 Further intra-CAPDR integration

Most CAPDR nations already have implemented PTAs with each other (see Table 5), only Panama and the Dominican Republic do not have a PTA in place with each other. Nevertheless, as explained in Section 4, there are still some relevant sector-specific tariffs (e.g. agriculture, sugar, diary products). Thus, there is still room for deeper integration and improvements in services trade.

Table 11 presents the results for this scenario and we observe that there are positive effects for the region, although limited. In particular, the initial low levels of intra-CAPDR FDI flows constraint the possibilities of significant FDI increases in the future, and this is reflected in the very low additional FDI inflows associated with this scenario.

Table 11: Main economic outcomes, deeper CAPDR integration, percentage changes with respect to baseline in 2030

	CRI	DOM	SLV	GTM	HND	NIC	PAN	CAPDR /3	MEX	USA
% changes by 2030 /1:										
Real GDP	1.08	0.13	1.81	1.12	2.02	1.80	2.39	1.22	-0.01	-0.01
Total trade	3.50	1.80	9.91	7.31	8.31	3.36	7.31	6.36	-0.03	-0.05
Total exports	3.41	2.43	13.64	8.73	8.96	3.81	11.52	8.27	-0.03	-0.05
Total imports	3.62	1.40	7.77	6.25	7.71	2.94	5.77	5.26	-0.03	-0.04
Trade with USA	-5.85	-1.35	-3.72	-3.50	-0.49	-2.44	-0.95	-2.81	0.02	–
Trade with CAPDR	55.71	85.06	40.28	46.59	45.76	31.00	110.28	56.11	-2.05	-2.81
Trade with Mexico	-1.78	-0.98	-5.15	-4.13	-1.68	-8.14	2.41	-2.05	–	0.02
Trade with rest of LAC	-1.60	-1.62	-0.23	-13.89	-13.71	-17.76	-10.35	-2.19	0.03	0.01
Trade with EU28	-2.25	-0.99	-1.73	-1.78	-1.40	-2.69	1.19	-0.81	0.00	0.00
Trade with other regions	-5.81	-2.12	-4.17	-2.95	-3.11	-4.16	2.36	-0.80	-0.02	0.00
Yearly-average % change /1:										
Economic growth	0.10	0.01	0.16	0.10	0.18	0.16	0.21	0.11	0.00	0.00
Export growth	0.31	0.22	1.17	0.76	0.78	0.34	1.00	0.61	0.00	0.00
Import growth	0.32	0.13	0.68	0.55	0.68	0.26	0.51	0.41	0.00	0.00
Potential job changes by 2030 /2:	30,619	-1,418	70,621	126,747	57,522	34,992	64,130	383,214	-8,697	-10,558
Expected changes in yearly investments:										
in US$ millions	46	14	52	29	60	12	217	431	-46	
as % of annual FDI inflows /4	1.5%	0.7%	12.4%	2.4%	4.9%	1.4%	4.4%	3.1%	-0.1%	

Notes: Includes complete within-CAPDR tariff elimination and 6% NTB reductions, plus deeper NTB reductions between Panama and the Dominican Republic. Dynamic closure with capital and investment changes associated with FDI effects. \1 These are additional changes with respect to the baseline growth levels. \2 These values are conditional on the increased labour demand being provided by changes in the intensive (hours worked) and extensive (participation) margins. \3 The CAPDR region consists of the the six Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama) plus the Dominican Republic. \4 As percentage of annual FDI inflows in 2015. Source: Own estimations using CGE model and GTAP database.

However, there is a very large increase in trade within the region (56%), specially in the cases of Panama and the Dominican Republic, who clearly benefit from signing new PTAs with the rest of the region. These larger trade flows yield a modest but positive 1.2% increase in real GDP for the region as a whole with a 0.1 percentage point increase in real growth. This is also generates an increase in labor demand that could potentially create almost 400 thousand more jobs, or on the contrary –if the labor market cannot absorb these new jobs– as significant increase in real wages.

7.2 Deeper trade integration between CAPDR and Mexico

As for the previous scenario, there are already PTAs between most Central American countries and Mexico (see Table 6), but there are still no PTAs between Mexico and Panama and the Dominican Republic. Table 12 shows the results for this scenario and we find that the economic impact is relatively large, given the low initial trade levels between CAPDR and Mexico (see Table 1). This is one reason why there is such a dramatic increase in the bilateral trade, which is more than doubling (122%) for the CAPDR region, and is almost doubled in the Dominican Republic and Panama. However, the initial high FDI inflows from Mexico are now translated, after further economic integration between both regions, into a significant rise in Mexican FDI inflow into CAPDR of US$ 3.6 thousand millions, that represents around a quarter of the current yearly FDI inflows into the region.

These large FDI inflows, and to a lesser extent the increased bilateral trade between both regions, yield a real GDP of 3.2% and an additional 0.3 percentage points in real growth rates. These positive GDP values can potentially generate half a million new jobs in the CAPDR region or if the labour markets are not flexible enough to accommodate this large increase, then real wage should increase.

Table 12: Main economic outcomes, deeper integration between CAPDR and Mexico, percentage changes with respect to baseline in 2030

	CRI	DOM	SLV	GTM	HND	NIC	PAN	CAPDR /3	MEX	USA
% changes by 2030 /1:										
Real GDP	1.15	4.60	1.38	3.03	5.24	3.45	3.80	3.21	0.76	0.00
Total trade	1.13	7.90	3.79	2.98	5.94	3.60	3.76	4.60	1.65	-0.03
Total exports	1.18	9.16	4.99	2.81	5.61	3.37	3.97	5.01	1.61	-0.04
Total imports	1.05	7.11	3.10	3.11	6.23	3.81	3.68	4.37	1.69	-0.03
Trade with USA	-1.26	-2.33	-1.75	-1.83	3.14	0.82	-3.76	-1.47	-0.41	–
Trade with CAPDR	-1.08	-0.35	-0.61	-0.10	2.27	0.96	-2.09	-0.25	121.65	-1.47
Trade with Mexico	76.39	204.03	67.72	55.85	127.95	66.29	196.67	121.65	–	-0.41
Trade with rest of LAC	-1.90	-9.37	-4.22	-13.12	-9.13	-12.76	-10.58	-3.57	-0.69	0.06
Trade with EU28	-0.39	-2.08	-1.27	-0.54	0.03	-0.94	-1.42	-1.06	-0.04	0.01
Trade with other regions	-2.60	-6.12	-3.24	-2.63	-0.55	0.49	-2.85	-2.91	-0.06	0.04
Yearly-average % change /1:										
Economic growth	0.10	0.41	0.12	0.27	0.47	0.31	0.34	0.29	0.07	0.00
Export growth	0.11	0.80	0.44	0.25	0.50	0.30	0.35	0.41	0.15	0.00
Import growth	0.10	0.63	0.28	0.28	0.55	0.34	0.33	0.36	0.15	0.00
Potential job changes by 2030 /2:	19,021	117,365	37,054	109,357	125,700	57,909	46,882	513,288	483,721	4,614
Expected changes in yearly investments:										
in US$ millions	218	882	73	496	490	261	1,177	3,597	3,246	
as % of annual FDI inflows /4	7.1%	42.5%	17.2%	40.3%	39.9%	30.9%	23.7%	26.0%	9.2%	

Notes: Includes complete tariff elimination and 6% NTB reductions between CA and Mexico, plus Mexico signing PTAs with Panama and the Dominican Republic. Dynamic closure with capital and investment changes associated with FDI effects. \1 These are additional changes with respect to the baseline growth levels. \2 These values are conditional on the increased labour demand being provided by changes in the intensive (hours worked) and extensive (participation) margins. \3 The CAPDR region consists of the the six Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama) plus the Dominican Republic. \4 As percentage of annual FDI inflows in 2015. Source: Own estimations using CGE model and GTAP database.

7.3 Further trade integration between CAPDR and the rest of the Pacific Alliance

Since we already estimated the economic effects of further integration between CAPDR and Mexico, we now only analyze the effects of integration with the other three countries in the PA: Chile, Colombia and Peru. Table 13 presents the results for this scenarios and we find positive but modest economic gains. This is again related to the relatively low FDI flows from these countries to CAPDR. The exception is Panama, which experiments a significant increase in FDI inflows of one-third of its current yearly values, and this is reflected in their GDP levels are increasing substantially more than for the rest of CAPDR countries.

Nevertheless, all countries experience positive real GDP and growth increases and significant increases in bilateral trade with these PA countries (although starting from a relatively low base as shown in Table 1).

7.4 Mixed scenario with bilateral revocation of US-CAPDR PTAs and increased trade integration by CAPDR with other regional partners

In this scenario we quantitatively analyze the combined effects of the change in US policy towards the CAPDR region and the deeper regional integration within CAPDR and with all the Pacific Alliance countries. The results are shown in Table 14 and the key message from this scenario is that most of the negative effects of a bilateral repeal of the PTAs between the US and CAPDR are compensated by the deeper regional integration efforts. We find that for the CAPDR region as a whole, real GDP levels are still decreasing but at a much lower value of 0.4%, which has a very limited impact on yearly real growth rates. Total trade is now unchanged since the large decrease in trade with the US is balanced out by more trade within CAPDR and with the PA countries.

However, these regional figures hide important differences in the results by each CAPDR country. Specifically, Costa Rica is still strongly affected, with a 4.3% decrease in real GDP, a 3.4% decrease in total trade, and more importantly, a decline in FDI inflows of about one-third of the current level. The rest of the CAPDR countries experience an increase in FDI inflows. In practical terms the economic ties between Costa Rica and the US are not completely substituted by more integration with the PA and other CAPDR countries. The case of Panama is similar, although with a lower GDP decreases (1.2%), but total trade and FDI inflows are increases, which is due in a large part by the strong trade and investment ties of this country with the PA block. On the other hand, the Dominican Republic has an increase in its real GDP level, even when its total trade is decreasing, but is compensated by a 30% increase in its FDI inflows.

Table 13: Main economic outcomes, deeper integration between CAPDR and the Pacific Alliance (excluding Mexico), percentage changes with respect to baseline in 2030

	CRI	DOM	SLV	GTM	HND	NIC	PAN	CAPDR /3	MEX	USA
% changes by 2030 /1:										
Real GDP	1.36	0.90	0.28	1.00	0.62	0.28	5.94	1.64	-0.04	0.00
Total trade	1.82	2.44	0.20	5.59	1.02	0.22	8.31	4.69	-0.12	-0.05
Total exports	1.72	3.31	0.22	6.56	1.06	0.28	9.86	4.91	-0.12	-0.06
Total imports	1.97	1.89	0.19	4.86	0.99	0.17	7.74	4.56	-0.13	-0.04
Trade with USA	-3.61	-3.63	-0.67	-0.72	-0.15	-0.43	-0.35	-1.80	0.06	–
Trade with CAPDR	-1.58	-4.40	-2.41	-3.70	-1.06	-1.53	-1.43	-2.22	-8.11	-1.80
Trade with Mexico	-6.79	-14.11	-0.84	-0.84	-0.61	-1.31	-19.82	-8.11	–	0.06
Trade with rest of LAC	82.35	34.40	16.55	58.64	7.48	-6.97	59.14	54.65	-0.51	-0.11
Trade with EU28	-1.64	-1.22	-0.26	-0.67	-0.47	-0.47	1.91	-0.11	0.02	0.00
Trade with other regions	-4.75	-2.60	-0.19	-0.27	-0.49	-0.30	2.78	0.25	-0.02	-0.02
Yearly-average % change /1:										
Economic growth	0.12	0.08	0.03	0.09	0.06	0.03	0.53	0.15	0.00	0.00
Export growth	0.16	0.30	0.02	0.58	0.10	0.03	0.86	0.36	-0.01	-0.01
Import growth	0.18	0.17	0.02	0.43	0.09	0.02	0.68	0.27	-0.01	0.00
Potential job changes by 2030 /2:	21,828	19,273	4,980	128,764	17,122	4,228	103,039	299,234	-23,474	-6,566
Expected changes in yearly investments:										
in US$ millions	58	1	3	51	37	1	1,639	1,790	-178	
as % of annual FDI inflows /4	1.9%	0.0%	0.8%	4.1%	3.0%	0.1%	33.1%	13.0%	-0.5%	

Notes: Includes complete tariff elimination between CAPDR and the Pacific Alliance (excluding Mexico) plus NTB reductions conditional on the presence or not of current bilateral trade deals. Dynamic closure with capital and investment changes associated with FDI effects. \1 These are additional changes with respect to the baseline growth levels. \2 These values are conditional on the increased labour demand being provided by changes in the intensive (hours worked) and extensive (participation) margins. \3 The CAPDR region consists of the the six Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama) plus the Dominican Republic. \4 As percentage of annual FDI inflows in 2015. Source: Own estimations using CGE model and GTAP database.

Table 14: Main economic outcomes, CAPDR has deeper integration with regional partners (within CAPDR and all PA members) plus bilateral revocation of PTAs with the US, percentage changes with respect to baseline in 2030

	CRI	DOM	SLV	GTM	HND	NIC	PAN	CAPDR /3	MEX	USA
% changes by 2030 /1:										
Real GDP	-4.29	1.41	-0.96	1.11	0.90	-0.58	-1.21	-0.44	-7.68	-0.55
Total trade	-3.43	-3.22	0.81	3.78	-11.34	-5.29	3.85	0.01	-31.54	-6.12
Total exports	-3.50	-4.45	1.85	4.08	-12.90	-6.03	7.56	-0.15	-30.81	-7.62
Total imports	-3.34	-2.45	0.22	3.55	-9.90	-4.60	2.50	0.10	-32.42	-5.11
Trade with USA	-51.12	-65.45	-66.30	-62.13	-65.91	-62.81	-71.81	-62.67	-63.98	–
Trade with CAPDR	62.33	94.82	44.60	53.33	51.88	34.82	120.97	62.74	145.23	-62.67
Trade with Mexico	108.63	239.83	80.76	73.75	145.92	86.87	218.57	145.23	–	-63.98
Trade with rest of LAC	103.22	36.45	24.46	66.76	13.49	-3.93	50.60	57.00	15.55	0.43
Trade with EU28	2.29	1.75	-0.14	2.97	3.01	0.15	0.97	1.69	16.52	0.85
Trade with other regions	-4.27	-2.83	-4.51	1.36	-2.91	6.06	-2.91	-2.30	13.73	1.25
Yearly-average % change /1:										
Economic growth	-0.40	0.13	-0.09	0.10	0.08	-0.05	-0.11	-0.04	-0.72	-0.05
Export growth	-0.32	-0.41	0.17	0.36	-1.25	-0.56	0.66	-0.09	-3.29	-0.72
Import growth	-0.31	-0.23	0.02	0.32	-0.94	-0.43	0.22	-0.10	-3.50	-0.48
Potential job changes by 2030 /2:	-82,436	4,643	-71,100	138,597	-132,509	-124,744	20,678	-246,872	-5,235,603	-552,571
Expected changes in yearly investments:										
in US$ millions	-1,032	609	32	299	349	184	388	830	-22,479	
as % of annual FDI inflows /4	-33.8%	29.3%	7.6%	24.3%	28.5%	21.7%	7.8%	6.0%	-63.7%	

Notes: Includes the policy shocks from Table 10 and all the deeper integration scenarios: within CAPDR, with Mexico and with rest of Pacific Alliance. Dynamic closure with capital and investment changes associated with FDI effects. \1 These are additional changes with respect to the baseline growth levels. \2 These values are conditional on the increased labour demand being provided by changes in the intensive (hours worked) and extensive (participation) margins. \3 The CAPDR region consists of the the six Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama) plus the Dominican Republic. \4 As percentage of annual FDI inflows in 2015. Source: Own estimations using CGE model and GTAP database.

8 Results for scenarios with new PTAs

8.1 PTA between CAPDR and Mercosur

Currently the CAPDR region does not have any PTAs with the four active Mercosur countries: Argentina, Brazil, Paraguay and Uruguay. In this section we simulate a PTA between both regions by eliminating all existing tariffs and reducing NTBs to levels associated with a deep PTA.

We present the results for the main economic variables in Table 15. Not surprisingly, given the initial low levels of both trade and FDI flows between the two regions, the economic effects of a CAPDR-Mercosur PTA are limited. The CAPDR region has a GDP increase of just 0.7% which translates to less than 0.1 percentage points extra of yearly growth. Even when the intra-regional trade is increasing around 50%, FDI flows are barely changing, with the exception of Panama –which is the only country that has a significant real GDP increase (2.2%). However, this new PTA still generates positive economic impacts and an increase in potential employment of 115 thousand jobs.

8.2 PTA between CAPDR and China

As in the previous scenarios, we model this potential new trade agreement as being a deep PTA, and thus, we simulate a complete elimination of all current tariffs and reduce NTBs to the levels associated with a deep PTA.[22] The results reported in Table 16 show that this scenario has positive but moderate effects – a 1.2% increase in real GDP level, which is comparable to the scenarios of deeper intra-CAPDR integration and more integration with the PA countries when excluding Mexico. Since the changes in FDI inflows are almost zero, then all the economic gains are created by increased trade with China, which is increasing by around 40% and yields a 8% rise in total CAPDR trade. Recall that initial trade with China represented around 8% of the total CAPDR trade, which is almost equivalent to the joint trade of CAPDR with the PA and Mercosur (see Table Table 1).

Note, however, that for this scenario the potential effect in employment is negative, even when economic activity is increasing. This result can be explained by the effect of Chinese import competition on low-skilled intensive goods, which will generate pressure in this segment of the work force and generate either a decrease in low-skill jobs or a proportional reduction in real wages. These labour changes differ by CAPDR country and this can be related to the sector-specific in output and exports –e.g. countries with contracting low-skill intensive sectors will experience negative employment effects.

[22] By comparison, the recently negotiated PTA between China and Costa Rica, which came into entry in 2011, has a DESTA depth index of five out of seven.

Table 15: Main economic outcomes, PTA between CAPDR and Mercosur, percentage changes with respect to baseline in 2030

	CRI	DOM	SLV	GTM	HND	NIC	PAN	CAPDR /3	MEX	USA
% changes by 2030 /1:										
Real GDP	0.54	0.43	0.35	0.40	0.70	0.53	2.24	0.73	-0.02	-0.01
Total trade	1.22	3.15	1.52	1.93	4.62	1.33	6.25	3.97	-0.04	-0.04
Total exports	1.15	4.40	2.21	2.37	5.05	1.41	9.92	5.10	-0.04	-0.04
Total imports	1.31	2.35	1.13	1.61	4.23	1.26	4.91	3.33	-0.04	-0.03
Trade with USA	-1.98	-3.68	-1.04	-2.32	-0.77	-0.96	-1.28	-1.94	0.00	–
Trade with CAPDR	-2.65	-4.29	-1.81	-2.67	-1.10	-2.45	-3.75	-2.50	-2.68	-1.94
Trade with Mexico	-3.09	-2.84	-2.50	-3.12	-0.42	-2.92	-2.46	-2.68	–	0.00
Trade with rest of LAC	50.71	37.64	39.72	32.29	54.96	5.89	53.90	51.74	0.12	0.06
Trade with EU28	-0.83	-2.38	-1.44	-1.44	1.16	-0.23	0.97	-0.44	-0.01	0.00
Trade with other regions	-2.23	-4.01	-2.04	-3.03	-1.51	-1.53	-0.62	-1.65	-0.02	-0.01
Yearly-average % change /1:										
Economic growth	0.05	0.04	0.03	0.04	0.06	0.05	0.20	0.07	0.00	0.00
Export growth	0.10	0.39	0.20	0.21	0.45	0.13	0.86	0.35	0.00	0.00
Import growth	0.12	0.21	0.10	0.15	0.38	0.11	0.44	0.21	0.00	0.00
Potential job changes by 2030 /2:	13,116	194	-3,970	6,130	43,800	1,778	54,777	115,826	-15,043	-13,575
Expected changes in yearly investments:										
in US$ millions	17	-6	3	7	2	-2	276	297	-94	
as % of annual FDI inflows /4	0.6%	-0.3%	0.8%	0.6%	0.2%	-0.2%	5.6%	2.2%	-0.3%	

Notes: Includes complete tariff elimination between CAPDR and Mercosur (Argentina, Brazil, Paraguay and Uruguay) plus NTB reductions assuming a deep PTA. Dynamic closure with capital and investment changes associated with FDI effects. \1 These are additional changes with respect to the baseline growth levels. \2 These values are conditional on the increased labour demand being provided by changes in the intensive (hours worked) and extensive (participation) margins. \3 The CAPDR region consists of the the six Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama) plus the Dominican Republic. \4 As percentage of annual FDI inflows in 2015. Source: Own estimations using CGE model and GTAP database.

Table 16: Main economic outcomes, PTA between CAPDR and China (including Hong Kong), percentage changes with respect to baseline in 2030

	CRI	DOM	SLV	GTM	HND	NIC	PAN	CAPDR /3	MEX	USA
% changes by 2030 /1:										
Real GDP	1.26	1.47	0.35	0.17	0.58	1.53	3.05	1.22	-0.03	-0.02
Total trade	2.63	9.41	2.75	4.41	6.97	3.85	10.99	7.87	-0.22	-0.25
Total exports	2.65	13.23	4.90	6.13	7.92	4.40	24.77	12.60	-0.23	-0.33
Total imports	2.60	6.99	1.53	3.11	6.09	3.32	5.96	5.16	-0.21	-0.20
Trade with USA	-3.32	-10.78	-4.77	-8.82	-0.23	0.94	-16.31	-7.57	0.19	–
Trade with CAPDR	-9.86	-14.00	-5.59	-4.67	-6.39	-6.88	-0.37	-6.14	-19.15	-7.57
Trade with Mexico	-12.18	-8.62	-13.11	-14.35	-4.81	-13.44	-47.06	-19.15	–	0.19
Trade with rest of LAC	-16.92	-8.98	-7.51	-22.92	-18.89	-20.28	-1.32	-4.96	-0.19	-0.11
Trade with EU28	-2.18	-8.09	-3.04	-5.88	-2.40	-4.00	-6.52	-5.12	0.10	0.00
Trade with other regions	30.78	76.78	52.56	52.89	60.53	28.50	34.31	42.15	-0.11	-0.20
Yearly-average % change /1:										
Economic growth	0.11	0.13	0.03	0.02	0.05	0.14	0.27	0.11	0.00	0.00
Export growth	0.24	1.14	0.44	0.54	0.70	0.39	2.03	0.85	-0.02	-0.03
Import growth	0.23	0.62	0.14	0.28	0.54	0.30	0.53	0.40	-0.02	-0.02
Potential job changes by 2030 /2:	26,426	7,508	-64,121	-175,512	-22,382	22,964	17,614	-187,502	-57,686	-67,696
Expected changes in yearly investments:										
in US$ millions	8	0	0	4	0	0	15	27	0	
as % of annual FDI inflows /4	0.3%	0.0%	0.0%	0.3%	0.0%	0.0%	0.3%	0.2%	0.0%	

Notes: Includes complete tariff elimination between CAPDR and China (and Hong Kong) plus NTB reductions assuming a deep PTA. Dynamic closure with capital and investment changes associated with FDI effects. \1 These are additional changes with respect to the baseline growth levels. \2 These values are conditional on the increased labour demand being provided by changes in the intensive (hours worked) and extensive (participation) margins. \3 The CAPDR region consists of the the six Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama) plus the Dominican Republic. \4 As percentage of annual FDI inflows in 2015. Source: Own estimations using CGE model and GTAP database.

8.3 PTA between CAPDR and rest of East and Southeast Asia

Our last new PTA scenario explores a hypothetical trade agreement between the CAPDR region and the East and Southeast Asia region. Specifically, we include the following Asian countries: Japan, Korea, Taiwan, Brunei, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand and Vietnam.[23] Given the large number of countries involved, we assume a shallower PTA between CAPDR and the rest of Asian countries, as explained in Section 4.

Table 17 reports the results for this scenario, and we find very similar results than for the previous scenario: Real GDP is increasing by 1.3%. However, in this scenario this GDP increase is driven by both an increase in trade and FDI inflows. Intra-regional trade (around 22%) that brings a 5% increase in total trade since the initial trade with this region was even higher than that with China (almost 10% against 8%). Even though FDI inflows for the region as a whole are rising by 10%, these new FDI flows are almost exclusively concentrated in Panama, which as a result, has much larger economic gains (6.2%) than the rest of the region. In this scenario, we find again that increased GDP levels are associated with increased labor demand and a positive creation of new potential jobs.

8.4 Mixed scenario with bilateral revocation of US-CAPDR PTAs and new PTAs signed by CAPDR

Our final scenario combines all the new PTAs from this section with the bilateral repeal of the US-CAPDR trade agreements. In this case, the effort to negotiate and implement new PTAs does not compensate for the negative shock related to the adverse change in US trade policy. From Table 18 we find that real GDP levels experiment a less dramatic fall now (4.3% against 9.7%), which is mainly caused by a reversal in the total trade change (2% against -18%) and a less severe contraction in the expected yearly FDI flows (-36% against 74%). The potential employment effects, however, still remain a very high level with an expected 1.6 million job losses. Therefore, we can evaluate the implementation of these new PTAs as a half-way compensation of the bilateral revocation of the US-CAPDR treaties.

[23] In addition, we also include the residual GTAP regions of "rest of East Asia" and "rest of Southeast Asia".

Table 17: Main economic outcomes, PTA between CAPDR and East-Southeast Asia (excluding China and Hong Kong), percentage changes with respect to baseline in 2030

	CRI	DOM	SLV	GTM	HND	NIC	PAN	CAPDR /3	MEX	USA
% changes by 2030 /1:										
Real GDP	0.43	0.44	0.37	0.33	0.39	1.09	6.15	1.27	-0.05	-0.01
Total trade	0.81	2.17	2.19	1.49	2.16	1.79	10.36	5.08	-0.11	-0.07
Total exports	0.81	2.87	3.28	1.90	2.44	1.93	14.98	5.87	-0.10	-0.09
Total imports	0.81	1.72	1.56	1.18	1.91	1.66	8.67	4.63	-0.11	-0.06
Trade with USA	-3.02	-2.83	-1.09	-2.32	-0.63	0.07	-5.08	-2.74	0.04	–
Trade with CAPDR	-2.31	-0.99	-1.02	-2.04	-1.35	-1.27	-4.33	-2.03	-6.71	-2.74
Trade with Mexico	-3.16	-0.82	-2.65	-2.49	-0.99	-4.83	-23.17	-6.71	–	0.04
Trade with rest of LAC	-6.60	-1.65	-1.42	-16.34	-12.32	-13.51	-11.89	-3.32	-0.10	-0.03
Trade with EU28	-1.41	-1.99	-0.86	-2.03	-2.05	-1.14	2.34	-0.40	0.00	0.00
Trade with other regions	13.33	17.10	21.76	16.59	19.85	9.95	26.96	21.27	-0.06	-0.04
Yearly-average % change /1:										
Economic growth	0.04	0.04	0.03	0.03	0.04	0.10	0.54	0.11	0.00	0.00
Export growth	0.07	0.26	0.29	0.17	0.22	0.17	1.28	0.35	-0.01	-0.01
Import growth	0.07	0.16	0.14	0.11	0.17	0.15	0.76	0.22	-0.01	-0.01
Potential job changes by 2030 /2:	11,088	12,349	-12,787	-14,148	-2,758	11,743	78,162	83,649	-29,154	-15,172
Expected changes in yearly investments:										
in US$ millions	3	-3	8	15	9	53	1,316	1,402	-207	
as % of annual FDI inflows /4	0.1%	-0.1%	1.9%	1.2%	0.8%	6.3%	26.6%	10.1%	-0.6%	

Notes: Includes 75% tariff reductions between CAPDR and East-Southeast Asia plus 50% NTB reductions from levels associated with a deep PTA. Dynamic closure with capital and investment changes associated with FDI effects. \1 These are additional changes with respect to the baseline growth levels. \2 These values are conditional on the increased labour demand being provided by changes in the intensive (hours worked) and extensive (participation) margins. \3 The CAPDR region consists of the the six Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama) plus the Dominican Republic. \4 As percentage of annual FDI inflows in 2015. Source: Own estimations using CGE model and GTAP database.

Table 18: Main economic outcomes, CAPDR signs new PTAs (Mercosur, China and East and Southeast Asia) plus bilateral revocation of PTAs with the US, percentage changes with respect to baseline in 2030

	CRI	DOM	SLV	GTM	HND	NIC	PAN	CAPDR /3	MEX	USA
% changes by 2030 /1:										
Real GDP	-6.96	-3.34	-5.45	-4.15	-6.31	-4.34	-1.24	-4.34	-9.26	-0.58
Total trade	-6.92	-2.68	-9.20	-5.98	-15.01	-7.90	16.55	1.66	-33.86	-6.22
Total exports	-6.81	-1.19	-9.40	-5.44	-15.31	-8.24	39.27	5.63	-33.06	-7.73
Total imports	-7.07	-3.62	-9.09	-6.38	-14.73	-7.57	8.27	-0.62	-34.82	-5.21
Trade with USA	-49.09	-67.98	-66.52	-63.40	-66.95	-61.12	-76.17	-63.72	-63.74	–
Trade with CAPDR	-9.38	-11.93	-5.66	-3.44	-10.68	-8.88	-7.16	-7.35	-7.32	-63.72
Trade with Mexico	7.02	10.60	-3.14	-1.82	4.08	-0.32	-45.69	-7.32	–	-63.74
Trade with rest of LAC	38.04	28.59	41.60	19.22	51.61	1.73	68.55	50.79	16.55	0.37
Trade with EU28	2.14	-5.49	-0.05	-3.46	2.24	0.31	-3.57	-1.80	16.25	0.82
Trade with other regions	52.30	91.63	67.90	65.92	68.82	43.55	57.42	61.66	13.51	1.11
Yearly-average % change /1:										
Economic growth	-0.65	-0.31	-0.51	-0.38	-0.59	-0.40	-0.11	-0.40	-0.88	-0.05
Export growth	-0.64	-0.11	-0.89	-0.51	-1.50	-0.78	3.06	-0.03	-3.58	-0.73
Import growth	-0.66	-0.33	-0.86	-0.60	-1.44	-0.71	0.73	-0.45	-3.82	-0.48
Potential job changes by 2030 /2:	-124,977	-137,180	-325,509	-435,912	-326,940	-226,000	-6,425	-1,582,942	-6,128,985	-615,388
Expected changes in yearly investments:										
in US$ millions	-1,689	-653	-213	-443	-334	-121	-1,534	-4,987	-29,787	
as % of annual FDI inflows /4	-55.3%	-31.5%	-50.3%	-35.9%	-27.3%	-14.3%	-31.0%	-36.1%	-84.4%	

Notes: Includes the policy shocks from Table 10 and all the new PTAs scenarios: Mercosur, China, and East and Southeast Asia. Dynamic closure with capital and investment changes associated with FDI effects. \1 These are additional changes with respect to the baseline growth levels. \2 These values are conditional on the increased labour demand being provided by changes in the intensive (hours worked) and extensive (participation) margins. \3 The CAPDR region consists of the the six Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama) plus the Dominican Republic. \4 As percentage of annual FDI inflows in 2015. Source: Own estimations using CGE model and GTAP database.

9 Summary and conclusions

This study has quantitatively evaluated a series of trade policy scenarios to provide detailed economic information on the expected impacts of each of these policies. The first and main aim of these simulations is to quantitatively analyze and evaluate the expected negative effects of a potential disrupting change in US trade policy towards the CAPDR region. As anticipated, the unilateral repeal of the US trade agreements with the region will create severe negative economic effects on each of the CAPDR countries. Real GDP levels by 2030 are projected to be almost 6% lower than in our business as usual baseline where no trade shocks occur. This is translated into more than half a percentage point less of real GDP growth per year, while total trade shrinks by 13% and expected yearly FDI inflows are cut in half, with respect to current levels. More significantly, nearly 1.8 million jobs could be potentially lost, due to much reduced production and labor demand, or in the case that workers remain employed, then real wages are bound to decrease significantly. In the case when, as expected, the CAPDR retaliates to the new protectionist US policies by also repealing the treaties, then the economic losses will be even more pronounced. With a 10% fall in real GDP levels or almost one percentage point less of annual growth, and larger trade and FDI reductions.

With these anticipated dramatic economic effects on the background, it is clear that the governments of the region must actively engage in political and diplomatic efforts to avoid this negative turn in the US trade policy towards the region. However, governments in the region can pursue palliative measures to counteract these negative effects. We analyze two trade policy options. First, we quantify the economic effects of deeper regional integration, both within the CAPDR region and with the Pacific Alliance block. We find that these policies, separately, will generate positive economic outcomes, and when done in tandem can almost erase all the negative effects of the bilateral revocation of the PTAs between the US and CAPDR. Secondly, we quantify the economic impact of the CAPDR signing new trade agreements with Mercosur and a group of Asian countries. We find that these new PTAs also generate positive economic effects, but when they are implemented jointly can not fully compensate for the negative effects of the US trade policy changes.

In this sense, by systematically putting numbers into the expected losses and gains from each trade scenario, this study also provides information on the priorities regarding future trade negotiations for the CAPDR region. Besides avoiding the repeal of the PTAs with the US, the region has the most to gain by deepening its trade and investment relations with Mexico (3.2% increase in real GDP). The remaining policy scenarios yield less but still positive gains: with the rest of the PA block (1.6%), new PTA with East and Southeast Asia (1.3%), deeper intra-CAPDR integration (1.2%), new PTA with China (1.2%), and finally, a new PTA with Mercosur (0.7%). Note however, that at the individual country level, some policy scenarios bring different gains and losses values than for the aggregated CAPDR region, and thus, lacking a joint negotiating effort, some countries might have different trade negotiation priorities.

Finally, it is important to emphasize that these deeper integration processes and new trade negotiations will require a substantial political and diplomatic push by the region to eliminate sensible import tariffs, increase trade in services and incentivize foreign direct investments, improve trade facilitation mechanisms in the region, which will require investments in trade infrastructure (ports, airports, border controls, customs, and roads) and to seek larger international cooperation regarding mutual recognition and/or harmonization of regulations and bureaucratic procedures.

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A Appendix

A.1 Additional information on the CGE model

A.1.1 Standard specifications

The initial condition of any CGE model is that supply and demand are in balance at some equilibrium set of prices and quantities where workers are satisfied with their wages and employment, consumers are satisfied with their basket of goods, producers are satisfied with their input and output quantities and savings are fully expended on investments. Adjustment to a new equilibrium, governed by behavioral equations and parameters in the model, are largely driven by price equations that link all economic activity in the market. For any perturbation to the initial equilibrium, all endogenous variables (i.e. prices and quantities) adjust simultaneously until the economy reaches a new equilibrium. Constraints on the adjustment to a new equilibrium include a suit of accounting relationships that dictate that in aggregate, the supply of goods equals the demand for goods, total exports equals total imports, all (available) workers and capital stock is employed, and global savings equals global investment; unless adjustments to these assumptions are modified for a particular application. Economic behavior drives the adjustment of quantities and prices given that consumers maximize utility given the price of goods and consumers' budget constraints, and producers minimize costs, given input prices, the level of output and production technology.

From the consumption side, the model includes a Constant Difference of Elasticities (CDE) specification for household demand. Private consumption demands for composite commodities are modeled on a per capita basis, and each region is represented by a regional household. From the production side, supply is modeled as a nested structure of constant elasticities of substitution (CES) functions, where intermediate inputs and productions factors interact and substitute to maximize a representative firms profits subject to the technological constraints embedded in the nested CES functions. The substitution elasticities on the CDE and nested CES functions drive the demand and supply responses to economic shocks.[24]

A.1.2 Imperfect competition specifications

In our model, however, we employ a modified version of the standard GTAP model that allows for monopolistic competition and increasing returns to scale (Krugman, 1980; Francois et al., 2012).[25] In this specification there is a representative firm for each sector that produces a unique variety of the good and hence, behaves as a monopolist in their specific market.

[24]Note that these elasticities reflect behavioral responses, and as such are fixed parameters in the model that do not change over time and are not affected by the policy shocks.

[25]Moreover, this theoretical specification of the trade structure based on Krugman (1980), can be directly linked to a corresponding gravity equation.

This specification substitutes the commonly used Armington specification for import demands, by allowing the demand for differentiated intermediate products to be based on firms, or product variety, rather than over regions of origin. While firms behave as monopolists, the existence of free entry drives economic profits to zero, so that pricing is at average cost, as is the case in the standard GTAP model specification.

In particular, we use the love-of-variety –i.e. Spence-Dixit-Stiglitz (SDS)– preferences for intermediate and final goods for non-agricultural sectors. Within a representative firm, one can assume individual varieties are symmetrical in terms of selling at the same price and quantity, but that increases in the number of varieties yielding benefits because they are perceived to be different by intermediate and final demand agents. This approach can be nested within a basic CES demand system that includes both Armington- and SDS-type demand systems for individual sectors using Ethier and Krugman-type monopolistic competition models –i.e. differentiated intermediate and differentiated consumer goods.[26]

Economies of scale are then modeled using the concept of variety-scaled goods. We can define 'variety-scaled output', which refers to physical quantities, with a 'scaling' or quality coefficient that reflects the varieties embodied on total physical output. This variety-scaled output can be substituted directly into an Armington-type demand system. The precise modeling in the CGE-GTAP code is done by means of a closure swap that yields output level and variety scaling effects at the sectoral level. This implies that sectoral productivity is now endogenous in the model and it adjusts to capture the output scale and variety effects.

A.1.3 Regional and sectoral aggregations

The following tables present the particular sectoral and regional aggregation we use from the GTAP9 database.

A.1.4 CGE model limitations and main criticisms

One of the limitations of CGE models is that it assumes that after an exogenous shock (e.g. a trade cost change) the economy adjusts instantly. In practice, these adjustments may take time and the costs linked to these changes (for instance, shifting production and workers between sectors, changing consumption patterns, adjusting tax revenues between different sources) may be significant and CGE models are not designed to assess these adjustment costs. Nevertheless, the magnitude of the required changes implicit in the model simulations can provide a guide into assessing these short-term costs.

However, the CGE methodology in general, has some detractors (Costinot and Rodríguez-Clare, 2013; Caliendo and Parro, 2015). The main criticism to CGE

[26]This can be done because one can reduce Ethier-Krugman-models algebraically to Armington-type demand systems with external scale economies linked to a variety of effects (Francois and Roland-Holst, 1997; Francois and Nelson, 2002).

Table 19: Regional GTAP aggregation used in the simulations

region	Code	Region / country	GTAP regions
1	can	Canada	can
2	usa	United States	usa
3	mrs	Mercosur	arg, bra, pry, ury
4	chl	Chile	chi
5	col	Colombia	col
6	mex	Mexico	mex
7	per	Peru	per
8	cri	Costa Rica	cri
9	slv	El Salvador	slv
10	dom	Dominican Republic	dom
11	gtm	Guatemala	gtm
12	hnd	Honduras	hnd
13	nic	Nicaragua	nic
14	pan	Panama	pan
15	rla	Rest LAC	bol,ecu,ven,xsm,xca,jam,pri,tto,xcb
16	eu28	EU28	European Union 28 countries
17	chh	China and Hong Kong	chn,hkg
18	sea	South & Southeast Asia	jpn,kor,twn,xea,brn,khm,idn,lao,mys,phl,sgp,tha,vnm,xse
19	row	Rest of the World	all other regions

Source: GTAP-9 database.

Table 20: Sectoral GTAP aggregation used in the simulations

Sector	Code	Sector description	GTAP sectors	Sector	Code	Sector description	GTAP sectors
1	GRA	Grains	pdr, wht, gro	24	NMM	Mineral products nec	nmm
2	V_F	Vegetables, fruit, nuts	v_f	25	MET	Metals and metal products	i_s, nfm, fmp
3	OSD	Oil seeds	osd	26	MVH	Motor vehicles and parts	mvh
4	C_B	Sugar cane, sugar beet	c_b	27	OTN	Transport equipment nec	otn
5	CRO	Other crops	pfb, ocr	28	ELE	Electronic equipment	ele
6	CTL	Bovine cattle, sheep,goats	ctl	29	OME	Machinery and equipment nec	ome
7	APO	Other animal products	oap, wol	30	OMF	Manufactures nec	omf
8	RMK	Raw milk	rmk	31	ELY	Electricity	ely
9	FRS	Forestry	frs	32	GDT	Gas manufacture, distribution	gdt
10	FSH	Fishing	fsh	33	WTR	Water	wtr
11	MIN	Mining	coa, oil, gas, omn	34	CNS	Construction	cns
12	CMT	Bovine meat products	cmt	35	TRD	Trade	trd
13	OMT	Meat products nec	omt	36	OTP	Transport nec	otp
14	VOL	Vegetable oils and fats	vol	37	WTP	Water transport	wtp
15	MIL	Dairy products	mil	38	ATP	Air transport	atp
16	SGR	Sugar	sgr	39	CMN	Communication	cmn
17	OFP	Other food products	pcr, ofd	40	OFI	Financial services nec	ofi
18	B_T	Beverages and tobacco	b_t	41	ISR	Insurance	isr
19	TEX	Textiles	tex	42	OBS	Business services nec	obs
20	CLO	Clothing	wap, lea	43	ROS	Recreational and other services	ros
21	LUM	Wood products	lum	44	OSG	Public Services,Health,Education	osg
22	PPP	Paper products, publishing	ppp	45	DWE	Dwellings	dwe
23	PCP	Petroleum,chemicals,plastics	p_c, crp				

Source: GTAP-9 database.

models steam from the fact that, given the complexity of the models, they are hard to track and they need to rely on elasticity estimations from other studies and make ad-hoc assumptions on some parameters. These are known drawbacks of CGE and complex models in general. This directly relates to the modeling trade-off between detail and realism against simple but more abstract models. The more detailed and realistic a model is, the less transparent and complex it becomes. On the other hand, compact and tractable models are usually more simplistic and abstract.

In addition, he use of the Armington trade specification in CGE models is also frequently criticized. Recent CGE applications, however, have proven that the use of the Armington specification within the CGE framework generates trade outcomes that are very similar to other trade modeling specifications. For instance, Bekkers et al. (2017) use an Eaton-Kortum trade specification and obtain very similar trade results as with the standard Armington specification.

A.1.5 GFCF and FDI inflows

Table 21: Central America, Dominican Republic and Mexico, gross fixed capital formation (GFCF) and FDI inflows, in US$ million

	Costa Rica	Dominican Rep.	El Salvador	Guatemala	Honduras	Mexico	Nicaragua	Panama
FDI								
2007	1,896	2,253	1,551	859	967	32,419	382	2,224
2008	2,078	2,728	903	751	1,201	29,352	627	2,390
2009	1,032	1,695	369	696	494	18,054	434	1,086
2010	1,855	1,820	-113	846	485	26,455	490	2,549
2011	2,733	2,198	123	1,140	1,043	24,552	936	4,396
2012	2,696	3,416	448	1,264	1,068	20,548	768	3,382
2013	3,205	1,600	242	1,353	1,069	46,903	816	4,272
2014	2,952	2,385	509	1,166	1,294	26,948	884	4,761
2015	3,009	2,244	518	1,176	1,317	32,056	835	5,835
average 2013-15	**3,055**	**2,076**	**423**	**1,231**	**1,227**	**35,302**	**845**	**4,956**
Investment (GFCF)								
2007	6,013	11,942	3,279	6,682	3,952	232,344	1,848	5,935
2008	7,314	13,575	3,258	7,018	4,633	254,312	2,129	7,660
2009	6,458	11,205	2,776	5,709	3,188	201,629	1,637	7,568
2010	7,327	13,525	2,853	6,121	3,391	222,123	1,873	8,728
2011	8,310	14,173	3,323	7,053	4,299	254,630	2,418	11,652
2012	9,573	14,539	3,368	7,452	4,484	264,944	2,967	14,939
2013	9,647	14,365	3,643	7,676	4,333	266,292	3,157	18,751
2014	9,923	15,598	3,414	8,136	4,317	272,445	3,288	21,310
2015	11,062	16,102	3,615	8,445	4,853	253,936	3,841	n.a.
average 2013-15	**10,211**	**15,355**	**3,557**	**8,086**	**4,501**	**264,224**	**3,429**	**20,031**
FDI / GFCF								
2007	0.32	0.19	0.47	0.13	0.24	0.14	0.21	0.37
2008	0.28	0.20	0.28	0.11	0.26	0.12	0.29	0.31
2009	0.16	0.15	0.13	0.12	0.16	0.09	0.27	0.14
2010	0.25	0.13	-0.04	0.14	0.14	0.12	0.26	0.29
2011	0.33	0.16	0.04	0.16	0.24	0.10	0.39	0.38
2012	0.28	0.23	0.13	0.17	0.24	0.08	0.26	0.23
2013	0.33	0.11	0.07	0.18	0.25	0.18	0.26	0.23
2014	0.30	0.15	0.15	0.14	0.30	0.10	0.27	0.22
2015	0.27	0.14	0.14	0.14	0.27	0.13	0.22	n.a.
average 2013-15	0.30	0.14	0.12	0.15	0.27	0.13	0.25	0.25

Source: World Development Indicators.

A.2 WITS tariff data

The original tariff data from the WITS database (for both applied and MFN tariffs) is specified at the product level, which is a very disaggregated basis that cannot be used in our CGE model. Therefore, our source data is taken using the 57 GTAP sectoral classification directly from the WITS database, and as such, these sector-specific tariffs are trade-weighted using COMTRADE data, to generate average sectoral trade-weighted tariffs. In addition, we also use the COMTRADE import data provided also in the WITS database as weights to further aggregate the tariffs from the 43 GTAP sectors provided directly by the WITS database, to obtain the tariffs for our 32 merchandise sectors (i.e. non-services sectors).

Applied tariffs Applied tariffs are the effectively applied tariff at the product-line, which are then aggregated at the GTAP sector level by using country-specific import values to the US. This generates sectoral trade-weighted average tariffs. After compiling these tariffs, we observe that in 2004 the US tariffs faced by CAPDR countries where below the world average, which reflects the unilateral trade preferences granted by the US before DR-CAFTA was signed. In 2014 we observe how the tariffs significantly decreased to values close to zero for all CA countries. On the other hand, the applied tariffs for US imports into each CAPDR country also shows a reduction of tariff levels, and for several sectors applied tariffs to US imports into CAPDR are zero. However, there are still positive tariffs in some sectors after the implementation of DR-CAFTA.

WTO-MFN tariffs The MFN tariff data are also taken from the World Bank-UNCTAD WITS database. As done before, the MFN tariff is also given as the trade weighted average US import MFN tariff by GTAP sector. The MFN tariffs for CAPDR imports show, as expected, that the MFN tariffs are higher than the applied tariffs.

A.3 CAPDR effectively applied tariffs with regional partners

Table 22: Costa Rica, effectively applied imports tariffs with the Pacific Alliance and CAPDR regions, in percentages

Sector	Code	Chile	Colombia	Mexico	Peru	El Salvador	Domin.Rep.	Guatemala	Honduras	Nicaragua	Panama
1	GRA	13.9	11.5	-	0.5	-	11.7	-	-	-	17.5
2	V_F	0.4	8.2	-	-	-	-	-	-	-	-
3	OSD	-	-	-	-	-	-	-	-	-	-
4	C_B	-	-	-	-	-	-	-	-	-	-
5	CRO	-	2.9	1.5	3.2	5.0	0.3	4.4	5.0	5.2	12.0
6	CTL	-	4.5	-	-	-	-	-	-	-	-
7	APO	-	9.0	-	-	-	-	-	-	-	-
8	RMK	-	-	-	-	-	-	-	-	-	-
9	FRS	-	4.8	-	-	-	-	-	-	-	-
10	FSH	-	10.3	-	14.0	-	-	-	-	-	-
11	MIN	-	8.9	-	-	-	-	-	-	-	1.5
12	CMT	0.3	-	-	-	-	-	-	-	1.9	-
13	OMT	34.9	-	-	-	-	-	-	-	-	0.4
14	VOL	1.3	12.2	2.2	12.5	2.8	2.6	1.4	2.7	-	3.3
15	MIL	43.3	46.3	30.9	-	-	33.0	-	1.0	4.9	-
16	SGR	45.0	45.0	45.0	45.0	41.5	45.0	-	45.0	-	45.0
17	OFP	0.3	11.4	0.3	5.1	-	-	-	-	0.4	0.1
18	B_T	-	14.1	0.4	10.1	-	-	-	-	-	1.3
19	TEX	-	5.7	-	1.5	-	-	-	-	-	1.2
20	CLO	-	13.9	-	2.7	-	-	-	-	-	3.5
21	LUM	0.4	12.0	-	9.5	-	-	-	-	-	-
22	PPP	0.0	6.1	-	2.6	-	-	-	-	-	1.2
23	PCP	-	3.7	-	3.4	-	0.0	-	-	-	0.0
24	NMM	-	9.4	-	12.4	-	-	-	-	-	-
25	MET	-	4.6	-	2.8	-	-	-	-	-	0.0
26	MVH	-	2.0	-	2.0	-	-	-	-	-	0.3
27	OTN	-	4.4	-	6.2	-	-	-	-	-	-
28	ELE	-	0.2	-	0.0	-	-	-	-	-	-
29	OME	-	3.3	-	1.0	-	-	-	-	-	-
30	OMF	-	12.6	-	0.0	-	-	-	-	-	0.0
31	ELY	-	-	-	-	-	-	-	-	-	-
32	GDT	-	-	-	5.0	-	-	-	-	-	-

Notes: Using latest available GTAP sector-weighted tariff data after 2011. Source: WB-UNCTAD WITS using the UNCTAD-TRAINS database.

Table 23: Dominican Republic, effectively applied imports tariffs with the Pacific Alliance and CAPDR regions, in percentages

Sector	Code	Chile	Colombia	Mexico	Peru	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
1	GRA	-	-	-	-	14.0	-	-	-	-	-
2	V_F	20.0	20.0	21.7	20.0	-	20.0	-	20.0	24.4	20.0
3	OSD	-	-	-	-	-	-	-	-	-	-
4	C_B	-	-	-	-	-	-	-	-	-	-
5	CRO	0.2	14.1	13.0	13.5	0.0	-	-	11.8	1.4	11.3
6	CTL	-	4.0	-	-	-	-	4.0	-	-	-
7	APO	8.0	1.0	16.0	8.0	-	-	8.0	-	-	8.0
8	RMK	-	-	-	-	-	-	-	-	-	-
9	FRS	-	-	0.2	-	-	-	-	-	-	-
10	FSH	19.9	10.0	20.0	20.0	-	20.0	-	-	-	20.0
11	MIN	9.0	0.1	0.0	0.1	-	9.0	-	-	20.0	0.0
12	CMT	-	-	-	-	28.3	-	-	-	-	28.3
13	OMT	17.8	23.8	7.4	33.3	-	-	20.0	-	25.0	40.0
14	VOL	19.2	0.9	10.6	0.1	10.1	8.0	-	-	-	-
15	MIL	19.7	20.0	20.0	20.0	4.3	17.0	-	-	20.0	20.0
16	SGR	-	20.0	20.0	-	-	20.0	20.0	20.0	-	8.0
17	OFP	14.4	14.3	10.4	8.3	-	-	-	-	-	16.1
18	B_T	20.0	20.0	19.7	20.0	-	-	1.6	1.9	18.4	16.2
19	TEX	18.0	8.5	2.5	7.2	0.3	3.2	3.2	0.5	0.6	3.2
20	CLO	6.9	12.4	4.5	20.0	0.9	19.5	3.9	17.8	15.1	19.5
21	LUM	0.1	17.1	16.0	0.2	-	-	-	-	-	9.1
22	PPP	7.5	10.0	5.3	3.7	-	-	-	-	-	1.5
23	PCP	2.5	4.5	5.3	6.2	0.0	0.0	0.0	0.0	-	4.4
24	NMM	9.8	13.8	9.0	14.1	-	-	-	-	-	11.5
25	MET	5.5	10.6	7.7	7.9	-	-	-	-	-	10.9
26	MVH	3.3	9.4	11.6	0.3	-	-	-	8.0	3.0	5.6
27	OTN	3.3	13.0	13.4	14.0	-	-	-	-	20.0	4.1
28	ELE	5.4	0.5	10.5	0.4	-	-	-	-	-	13.2
29	OME	7.4	2.5	9.9	9.8	-	-	-	-	-	6.5
30	OMF	19.6	15.5	19.1	18.1	0.6	1.0	0.0	3.3	5.3	19.2
31	ELY	-	-	-	-	-	-	-	-	-	-
32	GDT	-	-	-	-	-	-	-	-	-	-

Notes: Using latest available GTAP sector-weighted tariff data after 2011. Source: WB-UNCTAD WITS using the UNCTAD-TRAINS database.

Table 24: El Salvador, effectively applied imports tariffs with CAPDR and Pacific Alliance, in percentages

Sector	Code	Chile	Colombia	Mexico	Peru	Costa Rica	Domin.Rep.	Guatemala	Honduras	Nicaragua	Panama
1	GRA	-	-	9.1	-	-	-	-	-	-	-
2	V_F	0.1	6.8	-	15.0	-	-	-	-	-	-
3	OSD	-	-	-	-	-	-	-	-	-	-
4	C_B	-	-	-	-	-	-	-	-	-	-
5	CRO	-	10.0	-	-	1.6	-	3.8	1.6	0.2	-
6	CTL	-	-	-	-	-	-	-	-	10.0	-
7	APO	-	-	-	10.0	-	-	-	-	-	-
8	RMK	-	-	-	-	-	-	-	-	-	-
9	FRS	-	-	-	-	-	-	-	-	-	-
10	FSH	-	-	-	-	-	-	-	-	-	-
11	MIN	-	-	-	9.4	-	-	-	-	-	-
12	CMT	-	-	-	-	-	-	-	-	-	-
13	OMT	48.7	-	-	-	-	-	-	-	-	29.1
14	VOL	10.0	14.3	-	12.1	-	15.0	-	-	-	5.0
15	MIL	-	17.5	35.0	-	-	16.3	-	-	-	20.2
16	SGR	15.0	15.0	40.0	-	-	-	-	40.0	40.0	40.0
17	OFP	0.6	11.8	2.5	14.4	-	0.0	-	-	-	0.7
18	B_T	-	8.5	7.0	29.2	-	3.6	-	-	-	2.0
19	TEX	-	8.8	-	9.9	-	-	-	-	-	11.4
20	CLO	-	10.0	-	14.7	-	-	-	-	-	10.4
21	LUM	-	5.8	-	10.9	-	-	-	-	-	-
22	PPP	-	4.4	-	1.2	-	-	-	-	-	-
23	PCP	-	6.5	-	3.1	-	0.0	-	0.0	-	-
24	NMM	-	3.0	0.0	10.5	-	-	-	-	-	-
25	MET	0.5	1.5	0.2	2.9	-	-	-	-	-	-
26	MVH	-	0.4	3.1	0.7	-	-	-	-	-	0.3
27	OTN	-	2.4	-	0.0	-	-	-	-	-	6.3
28	ELE	-	-	-	0.1	-	-	-	-	-	-
29	OME	-	1.6	0.3	2.6	-	-	-	-	-	-
30	OMF	0.0	4.0	-	14.8	-	-	-	-	-	0.0
31	ELY	-	-	-	-	-	-	-	-	-	-
32	GDT	-	-	-	-	-	-	-	-	-	-

Notes: Using latest available GTAP sector-weighted tariff data after 2011. Source: WB-UNCTAD WITS using the UNCTAD-TRAINS database.

Table 25: Guatemala, effectively applied imports tariffs with the Pacific Alliance and CAPDR regions, in percentages

Sector	Code	Chile	Colombia	Mexico	Peru	Costa Rica	El Salvador	Domin.Rep.	Honduras	Nicaragua	Panama
1	GRA	-	0.0	1.1	-	-	-	-	-	-	-
2	V_F	0.8	1.3	5.2	15.0	-	-	-	-	-	-
3	OSD	-	-	-	-	-	-	-	-	-	-
4	C_B	-	-	-	-	-	-	-	-	-	-
5	CRO	0.0	2.8	-	0.9	-	-	-	-	0.0	-
6	CTL	-	-	-	5.0	-	-	-	-	-	-
7	APO	-	0.1	-	10.0	-	-	-	-	-	-
8	RMK	-	-	-	-	-	-	-	-	-	-
9	FRS	-	-	-	-	-	-	-	-	-	-
10	FSH	-	3.0	-	10.0	-	-	-	-	-	-
11	MIN	-	4.0	-	5.0	-	-	-	-	-	1.9
12	CMT	-	-	-	-	-	-	-	-	-	4.5
13	OMT	13.2	15.0	-	-	-	-	-	-	-	-
14	VOL	1.3	6.2	0.0	-	-	-	13.3	-	-	9.9
15	MIL	10.4	0.2	13.9	-	-	-	15.0	-	-	5.8
16	SGR	20.0	15.0	15.0	20.0	-	-	20.0	-	-	-
17	OFP	2.8	9.0	0.9	9.1	-	-	-	-	-	0.0
18	B_T	-	13.3	8.1	38.5	-	-	38.1	-	-	0.1
19	TEX	3.9	8.2	-	4.7	-	-	0.8	-	-	2.5
20	CLO	6.1	12.4	-	14.3	-	-	11.8	-	-	3.6
21	LUM	4.6	8.5	-	12.4	-	-	-	-	-	1.0
22	PPP	2.5	3.4	-	0.6	-	-	-	-	-	0.0
23	PCP	1.9	2.4	0.0	3.1	-	-	0.2	-	-	0.1
24	NMM	0.7	3.6	0.0	7.4	-	-	-	-	-	-
25	MET	2.6	1.8	0.4	1.0	-	-	-	-	-	0.0
26	MVH	0.0	0.0	-	5.6	-	-	-	-	-	0.4
27	OTN	11.0	0.2	-	0.4	-	-	-	-	-	0.3
28	ELE	0.3	0.0	-	0.8	-	-	-	-	-	-
29	OME	0.4	1.2	-	1.3	-	-	-	-	-	-
30	OMF	4.6	1.2	-	13.8	-	-	1.3	-	-	0.1
31	ELY	-	-	-	-	-	-	-	-	-	-
32	GDT	-	-	-	-	-	-	-	-	-	-

Notes: Using latest available GTAP sector-weighted tariff data after 2011. Source: WB-UNCTAD WITS using the UNCTAD-TRAINS database.

Table 26: Honduras, effectively applied imports tariffs with the Pacific Alliance and CAPDR regions, in percentages

Sector	Code	Chile	Colombia	Mexico	Peru	Costa Rica	El Salvador	Domin.Rep.	Guatemala	Nicaragua	Panama
1	GRA	-	-	-	11.3	-	10.1	-	-	-	-
2	V_F	0.1	15.0	15.0	15.0	-	-	-	-	-	15.0
3	OSD	5.0	-	2.5	-	-	-	-	-	-	-
4	C_B	-	-	-	-	-	-	-	-	-	-
5	CRO	-	0.3	3.3	-	-	-	-	0.0	-	-
6	CTL	-	5.0	5.0	-	0.2	5.0	-	10.0	-	-
7	APO	-	-	11.1	3.3	-	-	-	-	-	1.9
8	RMK	-	-	-	-	-	-	-	-	-	-
9	FRS	-	-	0.3	-	-	-	-	-	6.0	-
10	FSH	-	-	3.3	-	-	-	-	-	3.4	-
11	MIN	10.0	2.3	0.8	8.7	-	-	-	-	-	-
12	CMT	-	-	2.9	-	-	-	-	-	-	-
13	OMT	-	15.0	5.8	-	-	-	15.0	-	-	82.0
14	VOL	2.0	9.3	12.8	10.0	-	-	-	-	-	10.0
15	MIL	4.0	20.0	12.7	6.4	-	-	-	-	-	11.9
16	SGR	15.0	-	10.7	-	-	-	-	-	-	-
17	OFP	0.8	12.7	11.0	9.1	0.0	-	-	-	-	-
18	B_T	-	1.5	21.8	15.0	-	-	-	-	-	9.7
19	TEX	-	0.3	7.9	8.8	-	-	-	-	-	12.4
20	CLO	0.4	1.7	14.6	15.0	-	-	-	-	-	11.5
21	LUM	9.9	6.5	13.5	13.5	-	-	-	-	-	0.8
22	PPP	-	4.2	8.2	5.4	-	-	-	-	-	0.6
23	PCP	0.8	1.5	6.7	3.6	-	-	-	-	-	0.9
24	NMM	0.0	0.6	6.5	9.9	-	-	-	-	-	0.1
25	MET	0.6	1.1	6.5	3.1	-	-	-	-	-	0.4
26	MVH	-	0.1	6.5	1.1	-	-	-	-	-	-
27	OTN	3.9	2.4	10.0	0.8	-	-	-	-	-	-
28	ELE	0.0	0.0	5.4	0.6	-	-	-	-	-	-
29	OME	0.0	0.6	8.0	0.6	-	-	-	-	-	0.0
30	OMF	1.5	2.5	13.2	13.3	-	-	-	-	-	2.3
31	ELY	-	-	-	-	-	-	-	-	-	-
32	GDT	-	-	-	-	-	-	-	-	-	-

Notes: Using latest available GTAP sector-weighted tariff data after 2011. Source: WB-UNCTAD WITS using the UNCTAD-TRAINS database.

Table 27: Nicaragua, effectively applied imports tariffs with the Pacific Alliance and CAPDR regions, in percentages

Sector	Code	Chile	Colombia	Mexico	Peru	Costa Rica	El Salvador	Domin.Rep.	Guatemala	Honduras	Panama
1	GRA	-	22.5	-	-	-	-	-	-	-	-
2	V_F	0.1	18.0	-	15.0	-	-	-	-	-	-
3	OSD	-	2.5	-	-	-	-	-	-	-	-
4	C_B	-	-	-	-	-	-	-	-	-	-
5	CRO	-	8.3	-	3.8	-	-	3.7	-	-	-
6	CTL	-	-	-	-	3.8	-	-	-	-	-
7	APO	-	10.0	-	10.0	-	-	-	-	-	-
8	RMK	-	-	-	-	-	-	-	-	-	-
9	FRS	-	-	-	6.0	-	-	-	-	-	-
10	FSH	-	-	-	-	-	-	-	-	-	-
11	MIN	-	2.5	-	-	-	-	-	-	-	-
12	CMT	-	-	-	-	-	-	-	-	-	15.0
13	OMT	-	-	-	-	-	-	-	-	-	-
14	VOL	2.0	-	-	15.0	-	-	-	-	-	-
15	MIL	2.0	19.2	-	-	-	-	-	-	-	-
16	SGR	-	-	-	-	-	-	55.0	-	9.0	-
17	OFP	0.3	12.6	-	12.5	-	-	-	-	-	0.2
18	B_T	0.1	15.1	-	13.5	-	-	-	-	-	0.1
19	TEX	7.5	14.7	-	9.9	-	-	-	-	-	9.3
20	CLO	10.0	14.0	-	14.0	-	-	-	-	-	3.1
21	LUM	2.4	14.5	-	14.4	-	-	-	-	-	0.7
22	PPP	0.7	1.5	-	1.1	-	-	-	-	-	0.2
23	PCP	0.3	3.3	-	3.0	-	-	-	-	-	-
24	NMM	-	10.3	-	13.9	-	-	-	-	-	0.1
25	MET	0.9	3.1	-	1.4	-	-	-	-	-	-
26	MVH	-	0.2	-	4.1	-	-	-	-	-	1.2
27	OTN	-	-	-	-	-	-	-	-	-	-
28	ELE	-	0.8	-	-	-	-	-	-	-	-
29	OME	1.5	0.6	-	0.4	-	-	-	-	-	-
30	OMF	0.2	9.6	-	11.3	-	-	-	-	-	2.0
31	ELY	-	-	-	-	-	-	-	-	-	-
32	GDT	-	-	-	-	-	-	-	-	-	-

Notes: Using latest available GTAP sector-weighted tariff data after 2011. Source: WB-UNCTAD WITS using the UNCTAD-TRAINS database.

Table 28: Panama, effectively applied imports tariffs with the Pacific Alliance and CAPDR regions, in percentages

Sector	Code	Chile	Colombia	Mexico	Peru	Costa Rica	El Salvador	Domin.Rep.	Guatemala	Honduras	Nicaragua
1	GRA	-	-	2.1	23.0	37.8	25.0	51.3	-	-	-
2	V_F	1.4	15.2	9.4	8.3	14.8	15.0	10.0	11.8	18.6	15.0
3	OSD	-	1.3	-	-	1.9	-	-	6.1	-	2.5
4	C_B	-	-	-	-	-	-	-	-	-	-
5	CRO	4.9	13.9	2.4	6.5	6.0	1.5	-	3.4	-	-
6	CTL	2.5	-	7.5	2.5	7.5	-	-	0.4	-	7.5
7	APO	-	12.5	-	15.0	1.4	-	-	15.0	-	5.8
8	RMK	-	-	-	-	-	-	-	-	-	-
9	FRS	10.0	-	8.1	9.4	9.4	-	10.0	10.0	-	9.4
10	FSH	15.0	10.0	-	15.0	15.0	-	15.0	-	-	15.0
11	MIN	34.5	0.7	4.4	1.4	1.6	34.5	3.3	1.1	10.0	-
12	CMT	25.0	-	25.0	-	28.9	-	-	7.5	-	21.8
13	OMT	12.0	14.9	10.0	15.0	60.1	10.0	15.0	11.8	-	16.8
14	VOL	10.0	10.0	9.9	10.0	9.8	10.0	10.0	10.0	10.0	10.0
15	MIL	57.7	23.8	44.5	9.1	39.1	14.4	-	27.8	85.0	23.8
16	SGR	-	79.5	22.5	-	15.0	-	-	15.0	-	-
17	OFP	6.4	7.1	7.8	6.0	7.9	7.3	10.1	8.9	10.4	5.8
18	B_T	11.9	7.1	13.6	13.6	11.2	10.0	13.4	10.4	14.9	11.0
19	TEX	7.7	6.7	5.8	5.8	8.8	4.3	1.1	7.6	8.3	7.1
20	CLO	9.8	9.6	9.8	10.4	10.8	10.8	11.0	8.8	11.1	13.0
21	LUM	5.8	9.1	11.9	12.6	11.4	10.9	14.6	11.5	6.6	14.8
22	PPP	6.8	5.9	7.5	3.2	9.5	7.8	6.8	10.0	10.2	5.7
23	PCP	2.7	2.9	3.9	7.3	4.1	5.3	2.9	4.9	6.9	3.1
24	NMM	4.9	7.0	6.8	9.8	8.2	9.0	10.4	9.6	13.4	6.3
25	MET	5.6	7.6	5.4	4.0	7.3	7.5	4.7	10.7	10.7	8.2
26	MVH	10.1	2.0	0.3	4.8	5.5	8.4	8.9	6.9	8.3	9.5
27	OTN	8.0	7.3	10.1	0.4	9.9	11.7	15.0	11.7	10.0	15.0
28	ELE	0.9	0.3	1.3	2.0	1.3	0.8	-	0.6	0.5	0.0
29	OME	5.1	4.1	6.0	3.1	6.1	6.2	3.5	4.9	4.4	5.4
30	OMF	8.8	8.4	9.2	9.1	8.6	9.9	10.2	9.0	10.2	10.3
31	ELY	-	-	-	-	-	-	-	-	-	-
32	GDT	-	12.0	-	-	-	-	-	-	-	-

Notes: Using latest available GTAP sector-weighted tariff data after 2011. Source: WB-UNCTAD WITS using the UNCTAD-TRAINS database.

A.4 Summary of sectoral effects for CAPDR

Table 29: CAPDR regional aggregate, baseline (initial) sectoral gross output in 2030 (in US$ million) and percentage changes by scenario

			Scenarios (percentage changes)			
Sector	**Description**	**Initial Output**	only NAFTA	only CAPDR	All PTAs unilateral	All PTAs bilateral
1	Grains	4,177	-0.4	0.6	0.3	12.4
2	Vegetables & fruits	10,895	2.4	-6.2	-4.5	-5.4
3	Oil seeds	1,047	-2.0	-1.0	-3.2	4.3
4	Sugar cane	2,733	1.9	-9.1	-8.2	-11.1
5	Other crops	6,558	-1.1	2.2	1.7	-1.3
6	Cattle	2,100	0.1	-6.5	-6.5	-6.5
7	Other animal prod.	2,400	0.2	-7.3	-7.3	-7.0
8	Raw milk	5,189	0.2	-5.5	-5.5	-6.1
9	Forestry	1,698	0.1	-1.5	-1.5	-1.9
10	Fishing	2,602	0.1	-2.3	-2.2	-3.2
11	Mining	2,253	0.0	-3.5	-3.5	-4.7
12	Bovine meat prod.	4,245	0.2	-6.2	-6.1	-6.6
13	Other meat prod.	6,158	0.3	-5.1	-5.0	-5.4
14	Vegetable oils	2,146	-2.7	-0.8	-3.8	11.0
15	Dairy products	4,436	0.3	-4.8	-4.7	-4.2
16	Sugar	3,972	3.4	-6.6	-5.0	-7.3
17	Other food prod.	19,921	0.4	-7.0	-7.0	-7.9
18	Beverages & tobacco	7,396	1.6	-11.7	-11.0	-12.4
19	Textiles	9,613	0.6	-40.5	-41.1	-45.2
20	Clothing	10,773	0.4	-18.3	-18.3	-22.9
21	Wood products	1,709	-0.5	2.3	1.8	-0.1
22	Paper products	5,095	0.0	-0.7	-0.8	-0.6
23	Petrol.,chem. & plast.	20,279	1.0	-11.6	-11.0	3.3
24	Other mineral prod.	3,526	-0.2	-0.7	-1.1	-3.0
25	Metals	6,813	0.8	-12.8	-12.8	-17.9
26	Motor vehicles	1,973	1.1	2.3	2.3	4.4
27	Other transp. equip.	1,723	0.2	24.8	25.7	14.7
28	Electronics	11,565	0.1	4.5	4.8	-13.8
29	Other machinery	8,085	1.6	-14.1	-13.5	-21.1
30	Other manuf.	3,310	0.9	1.1	1.8	-7.4
31	Electricity	8,217	0.9	-7.0	-6.5	-10.3
32	Gas manuf. & distr.	12	6.8	-8.6	-2.9	-7.4
33	Water	1,511	0.7	-6.4	-6.0	-8.6
34	Construction	33,075	0.6	-8.3	-8.2	-12.3
35	Trade	49,785	0.6	-5.3	-5.1	-6.9
36	Land transport	16,380	0.7	-2.5	-2.1	-8.0
37	Water transport	4,535	0.3	-0.1	0.2	-23.4
38	Air transport	3,482	0.5	-1.4	-1.0	-16.1
39	Communication	8,168	0.7	-3.1	-2.6	-5.3
40	Financial serv.	11,725	0.6	-5.6	-5.3	-7.6
41	Insurance	3,728	0.4	-4.1	-4.0	-7.0
42	Other business serv.	20,791	0.5	-5.5	-5.3	-7.3
43	Recreational serv.	10,585	0.6	-4.7	-4.4	-6.6
44	Public services	36,112	0.4	-4.6	-4.4	-5.9

Source: GTAP9 database and projections using OECD and UN data.

Table 30: CAPDR regional aggregate, baseline (initial) sectoral exports in 2030 (in US$ million) and percentage changes by scenario

			Scenarios (percentage changes)			
Sector	**Description**	**Initial exports**	only NAFTA	only CAPDR	All PTAs unilateral	All PTAs bilateral
1	Grains	106.8	-2.0	12.0	10.6	35.7
2	Vegetables & fruits	7,356.3	5.8	-12.2	-8.2	-9.4
3	Oil seeds	367.1	-3.4	6.7	3.5	12.9
4	Sugar cane	6.5	-1.1	41.4	41.2	42.2
5	Other crops	7,909.0	-1.2	-0.6	-1.1	-5.7
6	Cattle	49.1	-0.7	3.6	3.0	5.3
7	Other animal prod.	6.8	-3.7	33.0	30.5	19.5
8	Raw milk	223.9	-2.0	5.5	3.8	9.6
9	Forestry	528.7	0.0	6.0	6.4	5.1
10	Fishing	300.3	0.4	-4.5	-4.0	1.4
11	Mining	3,516.0	0.5	-14.1	-13.6	-15.1
12	Bovine meat prod.	1,149.1	-0.8	-15.0	-15.5	-14.4
13	Other meat prod.	805.0	-0.2	-12.3	-12.8	-23.5
14	Vegetable oils	1,727.1	-6.0	-1.5	-7.8	5.4
15	Dairy products	1,269.5	0.0	-9.9	-10.3	-6.1
16	Sugar	2,817.1	6.9	-10.6	-7.6	-10.0
17	Other food prod.	6,057.9	0.8	-17.3	-17.3	-16.0
18	Beverages & tobacco	2,458.0	3.8	-29.2	-27.8	-26.0
19	Textiles	11,356.3	0.7	-51.0	-51.7	-57.3
20	Clothing	7,871.4	0.4	-27.2	-27.2	-32.6
21	Wood products	897.1	-1.8	-0.7	-2.7	-6.0
22	Paper products	3,128.4	-0.2	-2.3	-2.6	-4.3
23	Petrol.,chem. & plast.	22,892.9	0.3	-27.9	-28.2	-23.6
24	Other mineral prod.	1,292.4	0.6	-6.0	-5.9	-9.6
25	Metals	8,574.5	1.7	-23.7	-23.2	-31.2
26	Motor vehicles	1,073.0	5.5	-29.1	-29.3	-32.7
27	Other transp. equip.	3,160.2	0.5	31.8	33.2	21.2
28	Electronics	20,482.6	0.7	-0.4	0.5	-17.6
29	Other machinery	14,597.5	2.1	-25.2	-24.5	-33.3
30	Other manuf.	1,234.2	1.6	-2.1	-0.8	-20.3
31	Electricity	153.2	0.0	4.8	4.8	-6.3
32	Gas manuf. & distr.	0.5	0.0	7.5	7.5	1.9
33	Water	50.3	-0.5	14.8	14.6	14.3
34	Construction	104.4	0.2	3.4	3.7	0.2
35	Trade	2,936.9	-0.2	6.5	6.5	3.2
36	Land transport	7,383.9	-0.3	6.4	6.3	-2.5
37	Water transport	5,902.9	0.2	0.5	0.7	-20.8
38	Air transport	3,396.9	0.1	-0.1	0.0	-15.1
39	Communication	2,731.4	0.2	5.4	5.8	2.7
40	Financial serv.	776.1	0.0	6.0	6.2	6.8
41	Insurance	652.0	-0.2	7.5	7.6	6.0
42	Other business serv.	4,281.2	0.1	0.2	0.3	0.2
43	Recreational serv.	2,344.7	-0.2	6.2	6.2	4.1
44	Public services	2,443.6	-0.6	11.3	11.0	13.0

Source: GTAP9 database and projections using OECD and UN data.