



**THE UNITED STATES-CENTRAL AMERICAN FREE TRADE
AGREEMENT: FISCAL IMPLICATIONS FOR THE
CENTRAL AMERICAN COUNTRIES**

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ABSTRACT

In this paper we estimate the fiscal implications of the free trade agreement signed between the United States of America and the five Central American countries of Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua. Of the five possible effects on fiscal revenue (direct, indirect, elasticity, substitution and induced), in this paper we estimate the first three. The fourth effect is most likely negligible, whereas the estimation of the fifth one would be plagued by uncertainty, so we do not attempt it here. We use comparative statics to estimate the impact.

We find the adverse impact of tariff elimination on fiscal revenue is relatively small in Costa Rica and Nicaragua, whereas the greatest impact is in Honduras, where it accounts for almost a five percent loss of tax revenue in only the first year of the Agreement. The loss of revenue from internal indirect taxes is much smaller for all five countries. After summing the two adverse effects (direct and indirect), we find the country least adversely affected by the agreement is Costa Rica. In the first year of the Agreement, the adverse impact is expected to amount to 0.28% of GDP. The country most adversely affected is Honduras, whose revenue is forecast to decline 0.82% of GDP in the first year of the Agreement.

When we calculate the increase in revenue from indirect taxes due to higher imports, we fail to find significant effect in terms of GDP. Despite the fact that in El Salvador and Guatemala the revenue increases almost 0.2% of GDP, under the most optimistic growth scenario, it is not enough to compensate for the loss of fiscal revenue due to the CAFTA. After accounting for the positive and negative revenue implications, we conclude that there would be a net loss of fiscal revenue due to the CAFTA in all countries.

Given that in most cases the fiscal revenue loss is small, the only country that could have serious fiscal problems due to the CAFTA is Honduras. Even under our most optimistic growth scenario, the loss is estimated to be 0.73% of GDP at the beginning of the transition period that lasts twenty years, rising to 0.78% at the end of the period. Honduras is also the economy with the highest level of fiscal vulnerability of the five countries, which means that it is less prepared to mitigate the fiscal implications of the CAFTA.

The optimistic growth scenario leads countries to balance-of-payments crises. Our most pessimistic scenario assumes some major disruptions to the country (economic, political and/or institutional). Therefore, a moderate growth scenario is perhaps the most plausible for the growth rate of GDP for Central America in the future. Accordingly, we conclude that the fiscal implications of the CAFTA from the moderate growth scenario are the most probable.

The Central American countries should use both a reduction of expenditure and an increase in revenue as their main policy to neutralize the adverse fiscal implications of the CAFTA. In addition, economic policies that relax the external constraint on growth would dampen slightly the negative fiscal impact of the CAFTA.

I. INTRODUCTION

In the flood of activities undertaken to improve linkages with the international economy in the last fifteen years in Central America, arguably one of the most important is the Free Trade Agreement, commonly known as the CAFTA, between the United States and the five Central American countries of Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua. Its importance derives from the fact that such an agreement would convert the temporary unilateral privileges of accessing the U.S. market, granted under the Caribbean Basin Economic Recovery Act of 1994 (also known as the Caribbean Basin Initiative), into a permanent standing agreement, without the need for constant renewal. The expected positive effects for Central America include increased transparency of the “rules of the game”, reduced discretion on the part of economic authorities, increased foreign direct investment, and a reduction in unemployment.

For these reasons the Agreement has been welcomed by the economic groups in Central America which are net exporters to the U.S. market, notably the *maquiladoras*. On the other hand, sectors that produce primarily for the domestic market and were protected by tariffs have argued that they can not withstand the competition from stronger American producers. This polarization has provoked much discussion on the merit and the effects of the CAFTA, which is in contrast with the fact that relatively few studies had been published before the process of negotiation was finished.

The lack of research before CAFTA is especially apparent in regards to the fiscal implications of the agreement. Before negotiations concluded, only three papers were published that attempted to estimate the fiscal impact of the CAFTA on the Central American countries. However, since these studies were made prior to the conclusion of the negotiation process of the CAFTA, their results were intended only as a frame of reference for discussion, and were rather generic in nature. Now that the final text of the Central American Free Trade Agreement has been published, it is possible to make more precise estimates of its fiscal implications. This is the purpose of the present paper.

The paper has five sections. After this introduction, the section 2 discusses the methodology and previous studies on the subject. There are two methods commonly used to assess the fiscal implications of a free trade agreement. The use of Computable General Equilibrium (CGE) models provides a comprehensive method to estimate not only the fiscal effects, but also implications for the social welfare and changes in the production structure due to the Free Trade Agreement. We, instead, use a comparative static method, which supposes linear relations between the variables, as opposed to both linear and non-linear relations in the CGE models. Although in this respect the comparative static method could be seen as inferior, it does allow us to concentrate solely on fiscal effects and to adopt some plausible assumptions to assess the changes in the transition period during which the elimination of tariffs will not be applied to some of the goods.

The third section is dedicated to measuring the adverse fiscal impact of the CAFTA. One source of the reduction of fiscal revenue is tariff elimination. The impact is estimated for each

and every year from the moment the Agreement enters into effect, until the end of the transition period when all goods should be traded duty-free. The transition period will last twenty years for a variety of goods in all countries except for El Salvador, where it ends in the fifteenth year. The other source of fiscal revenue reduction is internal indirect tax collections levied on imports. As tariffs are eliminated, the tax base is reduced accordingly, and the revenue from that source is diminished. At the end of the section, we total the two adverse impacts and present the results as a percentage of total tax revenue, and as the percentage of GDP.

We also have to estimate possible positive effects of the Agreement. It is likely that the revenue from internal indirect taxes (value-added taxes and the like) would increase due to the increase in the volume of imports that will be cheaper once the tariffs have been eliminated. This effect depends on the expected growth rates of the economy, and on the income elasticities of imports. We use three scenarios for the growth rates to estimate the positive effects of the CAFTA in the section 4 of the paper. The last section presents the conclusions of the paper.

II. PREVIOUS STUDIES AND THE METHOD APPLIED IN THIS ONE

A study by Lederman, Perry and Suescún (2002) of the World Bank was the first attempt to assess the fiscal cost of the CAFTA. Their analysis is much broader than the aims of this paper since it is aimed at understanding a set of trade related issues between the United States of America and the Central American countries. Hence, the fiscal effect of the CAFTA is only a small part of their study. They estimate that the total elimination of tariffs on the American exports plus the effect on internal indirect taxes levied on imports (VAT) will cost the Central American countries between 3% and 8% of their tax revenue. The least affected country is Costa Rica, while the most affected one is Honduras.

The second study conducted regarding the fiscal impact of the CAFTA is a paper by Barreix, Villela and Roca (2003) from the Inter-American Development Bank. They estimate the impact of tariff elimination for the Mercosur countries, the Andean Community of Nations, Central America, and for the Caribbean countries using different integration scenarios that comprise the Free Trade Area of the Americas, free trade agreements of each of these groups with the USA, and the Mercosur-Andean Community of Nations free trade area. In the case of the CAFTA their estimate of the fiscal impact of tariff elimination amounts to 1.6% of the tax revenue for Nicaragua as the lower extreme, and 7.5% for Honduras as the upper extreme, with the cases of Costa Rica, El Salvador and Guatemala in between.

Finally, Paunovic and Martínez (2004) from UN ECLAC conduct a similar study but confine their estimate only to the fiscal impact of the elimination of tariffs and the reduction of indirect taxes levied on imports (VAT) in the first year of the Agreement. They estimate three scenarios, from a small reduction of tariffs to a scenario involving a large level of tariff reduction. In the case of the scenario that implies the largest reduction of tariffs during the transition period, the authors estimate the loss of fiscal revenue in the first year of the Agreement to be equal to 1.9% of tax revenue for Nicaragua, and 4.4% for Honduras, with the other countries in between. The estimation is subsequently related to the fiscal vulnerability of the Central American countries in order to reveal which country is better prepared to withstand the adverse impact on its fiscal balance.

In this paper we want to arrive to as precise an estimate as possible, given that negotiations are over and the final text of the Agreement has been made public. The method of comparative statics allows us to estimate the fiscal implications of the CAFTA under the “*ceteris paribus*” clause. Specifically, we use the year 2002 as the base year, and analyze what would have happened had the CAFTA entered into effect in that year.

It is useful to distinguish five possible fiscal effects of a change in a commercial policy.¹ These are direct, indirect, elasticity, substitution and induced effects. The direct effect is the result of the tariff reduction or elimination. The indirect effect stems from the loss of revenue associated with the internal indirect taxes that are levied on the imported goods (value-added tax,

¹ See, for example, Barreix, Villela and Roca (2003).

excise tax, and similar taxes). These are levied on the CIF value of the imports, augmented by the value of the tariffs paid when they were imported. Since the goods will enter free of tariffs (except the goods still protected during the transition period), these taxes will be levied only on the CIF value, once the Agreement has come into effect. Given that the adverse effect on the internal indirect taxes is caused by the elimination of tariffs, it follows closely the path of reduction of the tariff revenue. These two effects are estimated in the third section of the paper.

To get the overall picture of the fiscal implications of the Agreement, however, this loss of fiscal revenue must be contrasted with any possible positive effects. The primary positive source is the elasticity effect that is produced by the (probable) increase in the volume of imports. Since the imported goods are cheaper due to the reduction or elimination of import duties, it is likely that the volume imported would increase. Accordingly, revenue from the internal taxes that are levied on imports would also rise.

The magnitude of that effect will depend on the elasticities of imports and the rates of growth of the Central American economies. As the rate of growth is extremely difficult to project with any certainty beyond a horizon of one or two years, we use three scenarios to estimate a range of outcomes. One scenario that is based on zero per capita growth gives us a lower boundary. The upper boundary is given by the rate of growth of potential output. Lastly, the third scenario is an econometric estimation of the future growth based on the historical rate of growth, measured as the average performance of the Central American countries in the last twenty years. To this rate of growth, we add the growth effect of the CAFTA itself, estimated by Hinojosa-Ojeda (2003).

Hinojosa-Ojeda also estimates there would be no trade diversion due to the CAFTA, so in this paper we do not consider that possible effect on revenue. It is the substitution effect, and is due to the diversion of trade that usually accompanies free trade agreements and customs unions. In this case, however, the average tariff rates in the Central American countries are already so low (between 4% and 7%) that this effect could be considered negligible. A similar claim could be found in Lederman, Perry and Suescún (2002).

Neither do we estimate any induced effects which are the change in tax revenue due to the change in the structure of production, resulting from the new set of incentives after the Agreement has come into effect. The reason is that in a case where the transition period comprises twenty years, we are faced with conditions of deep uncertainty. Since we know neither the appropriate conceptual models that describe the relationships among the key forces that will shape the long-term future, nor the probability distributions needed to characterize uncertainty about key variables and parameters in the mathematical representations of these conceptual models, we are unable to make any reasonable estimates.² In order to reduce these uncertainties, it would be necessary to adopt assumptions of inter-temporal behaviour in the variables involved, something that we could not do due to information constraints.

A few examples may clarify this point. In the medium term, the incentives faced by companies in Central America will change not only because of the CAFTA, but also because of the establishment of the Free Trade Area of the Americas (FTAA), the Central American

² For more details see Lempert, Popper and Bankes, 2003.

Customs Union, and possibly a free trade agreement with the European Union. These changes will have such a profound impact on the productive structure of the Central American economies that it is extremely difficult to envision the region twenty years from now, and even more so to estimate with some certainty the implications for fiscal revenue due to only one of these factors. Another crucial development, agreed to in the Doha Round within the World Trade Organization and with profound impacts on both fiscal revenue and the productive structure, is the end of subsidies in the form of fiscal exemptions for firms in Export Processing Zones by 2009. This will adversely affect Costa Rica, El Salvador and Guatemala (via a possible exodus of *maquiladoras*), but it might have a positive impact in Honduras and Nicaragua, countries exempted from that rule due to their low per capita GDP.

Finally, twenty years ago three of the five Central American countries were submerged in civil wars, and all five countries went through a difficult economic period caused by the debt crisis of the 1980s. Thus, a two-decade period could bring economic, political and institutional changes that cannot readily be envisioned, which makes appropriate modelling far more difficult. In sum, the effect on fiscal revenue due to a change in the structure of production resulting from the CAFTA is, in our opinion, simply too uncertain to be assessed with reasonable precision.

Thus, of the five possible fiscal effects, we attempt to assess three of them. The direct and indirect effects will produce a negative impact on the fiscal revenue. The elasticity effect will attenuate the adverse impact, so we could calculate the net impact by subtracting that effect from the sum of the first two. The fourth one, the substitution effect, is likely to be negligible, whereas the last one (the induced effect) is not estimated here due to the difficulties its assessment implies.

III. FISCAL IMPLICATIONS OF THE CAFTA: ADVERSE EFFECTS

In this section we estimate the negative impacts of the CAFTA on fiscal revenue. We first discuss the direction of the impact of tariff elimination. Then, we present our estimate of the impact of the elimination of tariffs and the way it was calculated. We next present the estimate of the impact the reduction of tariffs will have on the revenue from internal indirect taxes levied on the imported goods. Finally, we present the estimate of the total negative fiscal consequences of the CAFTA.

1. The direction of the impact of tariff elimination

The literature on the revenue implications of trade liberalization, *inter alia* Tanzi (1989), Blejer and Cheasty (1990), concludes that the effects are uncertain, i.e. they could be positive or negative. In the case of the CAFTA, however, we have strong reasons to believe that the elimination of tariffs - *ceteris paribus* - would undoubtedly have an adverse fiscal impact. There are three basic reasons for this.

First, the literature has established that fiscal revenue could actually increase with trade liberalization if the tariff rates are originally above the revenue-maximizing level (for example, Geenaway and Milner 1991; Bevan 1995; Ebrill, Stotsky and Gropp, 1999). One of the reasons why there is a non-linear relationship between the tariff rates and revenue is the existence of tax evasion. High tariff rates increase incentives to smuggle imported goods. Thus, as tariff rates go down with trade liberalization, the incentive for tax evasion decreases as well, and this then results in a higher revenue for the Government. In the case of Central American countries, however, the average tariffs have already been reduced to the 4% to 7% range in the last fifteen years. This is clearly below the revenue-maximizing level, so further reduction of tariffs due to the CAFTA cannot be expected to increase the fiscal revenue. Additionally, given that tariffs are already low, the negative impact of their elimination is bound to be small.

Second, there is another possible positive effect of trade liberalization that renders the overall impact uncertain, namely, the tariffication of quantitative restrictions. If quantitative restrictions are numerous, their tariffication causes the revenue to increase since the surplus that was previously appropriated privately now goes into Government coffers. But here again, due to the structural reforms of the last two decades, quantitative restrictions have all but disappeared in Central America. Therefore, this possible source of increase of fiscal revenue thanks to trade liberalization does not exist any more.

Finally, and most important, since the US and the Central American countries are forming a free trade area, there will be tariff elimination on most traded goods, the impact of which is clearly adverse for the Treasury. In the case of tariff reduction there might be a possibility of revenue enhancement, due to the two effects discussed above, but in the case of tariff elimination, the ambiguity of the impact disappears. Thus, the revenue consequences are clearly adverse.

2. The impact of tariff elimination on fiscal revenue

As was mentioned above, there are two basic sources of fiscal revenue levied on imports in Central American countries: those from tariffs and those from internal indirect taxes levied on imports. We first present the significance of both of them in terms of GDP and in terms of tax revenue of the Central American countries.

As shown below in table 1, the revenue from taxes on imports represents a relatively high proportion of the total tax revenue, ranging from 30% to 40%. The participation of tariffs in total tax revenue, however, has been steadily declining due to the successive trade liberalization measures in the past twenty years. As a result, the revenue from internal taxes levied on imports is now two to three times more important than the revenue from tariffs.

Table 1

PARTICIPATION IN GDP AND IN TOTAL TAX REVENUE
OF THE REVENUE FROM TARIFFS AND INTERNAL
INDIRECT TAXES LEVIED ON IMPORTS

(Percentages)

	Type of taxes	Participation in GDP	Participation in total tax revenues
Costa Rica	Tariffs	0,83	6,32
	Indirect taxes	3,38	25,64
	Total	4,21	31,96
El Salvador	Tariffs	1,09	9,7
	Indirect taxes	3,44	30,66
	Total	4,53	40,36
Guatemala	Tariffs	1,24	11,73
	Indirect taxes	2,88	27,17
	Total	4,12	38,9
Honduras	Tariffs	1,99	12,54
	Indirect taxes	2,73	17,17
	Total	4,72	29,71
Nicaragua	Tariffs	1,79	7,89
	Indirect taxes	5,18	22,88
	Total	6,97	30,77

Source: author's calculation, on the basis of official data.

Since we do not have a detailed data on the sources of fiscal revenue from imports, we estimate the impact of the CAFTA indirectly.³ We assume that the proportion of the imports from the U.S. to total imports of the Central American countries roughly equals the proportion of the revenue from custom duties resulting from the imports of goods from the U.S. to the total tariff revenue:

$$\frac{M_{US}}{M_{TOT}} \approx \frac{T_{US}}{T_{TOT}} \quad (1)$$

where M_{US} represents imports from the U.S. net of imports for offshore in bond production (*maquila*), M_{TOT} are total imports net of imports for offshore in bond production (*maquila*),⁴ T_{US} is the revenue from tariffs due to the imports of goods from the U.S., and T_{TOT} is total revenue from tariffs. We have to use this assumption since we have neither the data on T_{US} , nor the detailed structure of T_{US} by products. Thus, we had to estimate the impact on revenue indirectly, using the sufficiently detailed information on international commerce.

We used the data from the United States Department of Commerce (2002) at the 10-digit level of the Harmonized System. This level of detail allows the analysis of tariff elimination during the transition period since the published negotiated texts express the tariff elimination schedules at the 8-digit level of the Harmonized System. After assigning a corresponding letter describing the schedule of elimination of custom duties⁵ to each item that enters into a category of goods protected during the transition period, we calculated the individual schedules for each item. Next, we calculated the total schedule of elimination of tariffs for each Central American country by summing up the individual items.⁶ The results are presented in table 2 as a percentage of the imports from the U.S. that will remain with some level of tariff protection during the transition period. The base year is 2002.

³ We would need data on the fiscal revenue from imports of goods originating from the United States at the level of the 8-digit Harmonized System classification to estimate the impact directly.

⁴ We use import data net of the imports for *maquiladoras* since the latter do not pay custom duties. For that reason, they distort the picture of the participation of imports from the U.S. in the total imports.

⁵ There are 17 schedules, corresponding to letters A, B, C, D, E, F, G, H, M, N, O, P, Q, R, T, U and V, each with different profile of elimination of custom duties. See the Annex 3.3 of the text of the Agreement, and General Notes for each of the countries for details.

⁶ In the case of Costa Rica, there were 9902 import items in the year 2002. For El Salvador the number is 6097, for Guatemala 8797, Honduras 6712, and for Nicaragua 3064.

Table 2

PERCENTAGE OF THE VALUE OF IMPORTS FROM THE U.S. THAT WILL NOT
ENTER DUTY-FREE DURING THE TRANSITION PERIOD

(The base year is 2002)

Country\Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Costa Rica	7,61	6,77	5,79	4,81	3,83	3,27	2,51	1,75	1,00	0,24	0,19	0,13	0,10	0,06	0,02	0,01	0,01	0,01	0,00
El Salvador	6,67	5,77	4,82	3,86	2,91	2,42	1,85	1,28	0,71	0,15	0,09	0,03	0,02	0,01					
Guatemala	7,14	6,29	5,39	4,48	3,57	2,97	2,28	1,60	0,92	0,23	0,19	0,14	0,10	0,05	0,00	0,00	0,00	0,00	0,00
Honduras	5,39	4,75	4,05	3,36	2,66	2,22	1,71	1,19	0,68	0,17	0,13	0,09	0,06	0,03	0,00	0,00	0,00	0,00	0,00
Nicaragua	10,45	9,47	8,42	7,37	6,32	5,73	4,93	4,14	3,34	2,55	2,22	1,89	1,58	1,26	0,81	0,55	0,29	0,02	0,01

Source: author's calculation, on the basis of official data.

The fiscal impact of tariff elimination for the five countries in the first year of the Agreement is more pronounced than that estimated by Paunovic and Martínez (2004), even in their scenario involving a large level of tariff reduction. According to the results in table 2, in Honduras the tax revenue from custom duties levied on the imports from the U.S. would drop from 100% in the base year (2002) to only 5.4% in the first year of the CAFTA. The situation is similar in other countries, with the impact in Nicaragua the smallest, namely, a reduction to 10.4%. The rest of the countries are placed between these extremes. These figures decrease year by year until they become negligible (below 1%) in the ninth year after the Agreement comes into effect for all countries, except Nicaragua, where this point is reached in the fifteenth year.

Next, we wanted to see how that loss translates into a loss of tax revenue. We first calculated the participation of tariff revenue from imported goods from the U.S. in total tariff revenue by using the assumption from the equation (1), and the data from table 1. We then applied to this the results from table 2. That way we obtained the loss of tariff revenue due to the CAFTA in terms of tax revenue. As shown in table 3, the adverse impact on revenue is relatively small in Costa Rica and Nicaragua, below two percentage points of total tax revenue. The highest impact is in Honduras, where it already reaches almost five percent of the tax revenue in only the first year of the Agreement.

The bulk of the impact for all the countries would be felt in the first year of the Agreement. The impact increases afterwards, but only marginally. In the case of Costa Rica, for example, from the first to the second year the impact increases from 1.87% of the total tax revenue to 1.89%.

Table 3

LOSS OF TARIFF REVENUE DUE TO THE CAFTA DURING THE TRANSITION PERIOD,
AS A PERCENTAGE OF THE TOTAL TAX REVENUE

Country\Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Costa Rica	1,87	1,89	1,91	1,93	1,95	1,96	1,98	1,99	2,01	2,02	2,02	2,03	2,03	2,03	2,03	2,03	2,03	2,03	2,03	2,03
El Salvador	3,00	3,03	3,06	3,09	3,12	3,13	3,15	3,17	3,19	3,21	3,21	3,21	3,21	3,21	3,21	3,21	3,21	3,21	3,21	3,21
Guatemala	3,66	3,69	3,73	3,76	3,80	3,82	3,85	3,88	3,91	3,93	3,93	3,94	3,94	3,94	3,94	3,94	3,94	3,94	3,94	3,94
Honduras	4,84	4,87	4,91	4,94	4,98	5,00	5,03	5,06	5,08	5,11	5,11	5,11	5,11	5,11	5,12	5,12	5,12	5,12	5,12	5,12
Nicaragua	1,72	1,74	1,76	1,78	1,80	1,81	1,83	1,85	1,86	1,88	1,88	1,89	1,89	1,90	1,91	1,91	1,92	1,92	1,92	1,92

Source: author's calculation, on the basis of official data.

3. The impact of reduction in internal indirect tax collections levied on imports

As tariffs are reduced or eliminated, the internal indirect taxes such as value-added tax, excise tax and similar taxes that are levied on the CIF value of the imports augmented by the value of the tariffs paid when these goods were imported, will also be affected. The elimination of tariffs (except for the goods still protected during the transition period), will reduce fiscal revenue since these internal taxes are levied only on the CIF value, once the Agreement has come into force.

For that reason the reduction of revenue from internal taxes follows the path of the reduction of revenue from tariffs. Thus, we applied the results obtained in table 2 to the revenue from internal taxes coming from the imports of goods from the U.S. affected by the elimination of tariffs. To obtain the latter, we first had to calculate collected tariff rates,⁷ following the suggestion of Ebrill, Stotsky and Gropp (1999). Next, we calculated the revenue from internal taxes levied on the imports of U.S. goods:

$$IT_{US} = \frac{IT_{TOT}}{TT_{TOT}} \times \frac{M_{US}}{M_{TOT}} \times CTR \quad (2)$$

where IT_{US} is the proportion of the revenue coming from internal taxes levied on imports of U.S. goods, IT_{TOT} is fiscal revenue from internal indirect taxes, TT_{TOT} is total tax revenue, and CTR is the collected tariff rate.

⁷ Collected tariff rate is a ratio of revenue from tariffs to import values. The collected tariff rate for Costa Rica was 2.83% in 2002, El Salvador 3.97%, Guatemala 4.75%, Honduras 4.37%, and 2.51% for Nicaragua.

Finally, we applied the results of table 2 to IT_{US} to obtain the loss of revenue due to the reduction of indirect taxes levied on imported goods (table 4). The loss of revenue from internal indirect taxes is not large. In this case, the greatest loss is in the case of Guatemala with 0.4% of total tax revenue, and El Salvador a close second. The losses of the other Central American nations are even smaller.

Table 4

LOSS OF REVENUE FROM INTERNAL INDIRECT TAXES LEVIED ON IMPORTS DUE TO THE CAFTA DURING THE TRANSITION PERIOD, AS A PERCENTAGE OF THE TOTAL TAX REVENUE

Country\Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Costa Rica	0,22	0,22	0,22	0,22	0,22	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23
El Salvador	0,38	0,38	0,38	0,39	0,39	0,39	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40
Guatemala	0,40	0,41	0,41	0,41	0,42	0,42	0,42	0,43	0,43	0,43	0,43	0,43	0,43	0,43	0,43	0,43	0,43	0,43	0,43
Honduras	0,29	0,29	0,29	0,30	0,30	0,30	0,30	0,30	0,30	0,31	0,31	0,31	0,31	0,31	0,31	0,31	0,31	0,31	0,31
Nicaragua	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14

Source: author's calculation, on the basis of official data.

4. The total adverse fiscal effect of the CAFTA

Summing up the two revenue-reducing implications of the CAFTA, we obtain the total adverse effect. For the sake of the ease of comparison, we express it first as a proportion of the total tax revenue (table 5), and then as a proportion of GDP (table 6).

Table 5

TOTAL LOSS OF REVENUE DUE TO THE CAFTA DURING THE TRANSITION PERIOD, AS A PERCENTAGE OF TOTAL TAX REVENUE

Country\Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Costa Rica	2,1	2,1	2,1	2,2	2,2	2,2	2,2	2,2	2,2	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3
El Salvador	3,4	3,4	3,4	3,5	3,5	3,5	3,5	3,6	3,6	3,6	3,6	3,6	3,6	3,6	3,6	3,6	3,6	3,6	3,6
Guatemala	4,1	4,1	4,1	4,2	4,2	4,2	4,3	4,3	4,3	4,4	4,4	4,4	4,4	4,4	4,4	4,4	4,4	4,4	4,4
Honduras	5,1	5,2	5,2	5,2	5,3	5,3	5,3	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4
Nicaragua	1,8	1,9	1,9	1,9	1,9	1,9	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,1	2,1	2,1	2,1

Source: tables 3 and 4.

The least affected country is Costa Rica. In the first year of the Agreement, according to our calculations, the adverse impact would amount to 0.28% of GDP. This will slowly increase, to a maximum level of 0.30% of GDP ten years after the CAFTA comes into effect, and then remains at this level from then on. El Salvador will have an impact equal to 0.38% of GDP at the start of the CAFTA, and 0.41% from the eleventh year onwards. The starting figure for Guatemala is 0.43% of GDP and 0.46% will be reached in the eighth year of the agreement. Nicaragua starts with an impact equivalent to 0.42% of GDP, slowly rising to 0.47% in the sixteenth year. Finally, the most affected country is Honduras, whose revenue will decline 0.82% of GDP already in the first year of the Agreement. The plateau will be reached in the ninth year of the agreement, with a loss of 0.86% of GDP.

Table 6

TOTAL LOSS OF REVENUE DUE TO THE CAFTA DURING THE TRANSITION PERIOD, AS A PERCENTAGE OF GDP

Country\Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Costa Rica	0,28	0,28	0,28	0,28	0,29	0,29	0,29	0,29	0,29	0,30	0,30	0,30	0,30	0,30	0,30	0,30	0,30	0,30	0,30
El Salvador	0,38	0,38	0,39	0,39	0,39	0,40	0,40	0,40	0,40	0,40	0,41	0,41	0,41	0,41	0,41	0,41	0,41	0,41	0,41
Guatemala	0,43	0,43	0,44	0,44	0,45	0,45	0,45	0,46	0,46	0,46	0,46	0,46	0,46	0,46	0,46	0,46	0,46	0,46	0,46
Honduras	0,82	0,82	0,83	0,83	0,84	0,84	0,85	0,85	0,86	0,86	0,86	0,86	0,86	0,86	0,86	0,86	0,86	0,86	0,86
Nicaragua	0,42	0,42	0,43	0,43	0,44	0,44	0,44	0,45	0,45	0,46	0,46	0,46	0,46	0,46	0,46	0,47	0,47	0,47	0,47

Source: tables 3 and 4.

There are several reasons why Costa Rica is the least affected country and Honduras the most affected one. Firstly, tariff revenue in Costa Rica in 2002 was equivalent to only 0.83% of GDP, the lowest of the five countries, as opposed to 1.99% in Honduras. Secondly, the proportion of the imports from the United States that are subject to tariffs (imports without *maquila*) is the second lowest in Costa Rica (32.1% of the total imports), while again that proportion is the highest in Honduras at 40.8%. Thirdly, at the beginning of the transition period, tariffs will be levied on 7.61% of the value of imports from the United States that enters Costa Rica, whereas that percentage for Honduras is only 5.39%. Finally, each of the five countries has a different import structure and a different profile of elimination of custom duties, which is reflected in the divergence of their losses of fiscal revenue. Since the bulk of the loss of fiscal revenue comes from the reduction and elimination of tariffs, the results from the reduction of revenue from indirect internal taxes do not change the overall picture. Therefore, a combination of all of these factors is responsible for the differing results among the five countries with respect to the fiscal cost of the CAFTA.

IV. FISCAL IMPLICATIONS OF THE CAFTA: POSITIVE EFFECTS

1. Possible sources of positive fiscal effects of trade liberalization

On the positive side, there are two possible sources that have to be taken into account. One comes from tariffs, and the other from internal indirect taxes. Unfortunately, it is certain that the former would be virtually zero in the case of the CAFTA, which leaves only the latter to be estimated.

If it had not been the case of tariff elimination, but instead the reduction in tariff rates in the CAFTA, we would have reasons to expect a positive effect on fiscal revenue from the first source. Namely, the reduction of tariffs produces a positive income effect, resulting in an increase of demand for imported goods, and a subsequent rise in imported volume of goods. This increase enhances fiscal revenue, partly compensating for the adverse effect of the tariff reduction described in the section 3. In the case of tariff elimination, however, the increase in volume of imported goods has no bearing on tariff revenue for obvious reasons. Thus, in the case of the CAFTA, a positive impact on the revenue from that source is negligible since, depending on the country, tariffs will be eliminated for ninety to ninety-five percent of the goods imported from the United States.

2. Positive fiscal effects from the increase of imports due to the CAFTA

That leaves us with the other source of possible positive effects on fiscal revenue. Thanks to the cheaper imports the demand for imported good rises and with the increase in volume of imported goods the revenue from internal indirect taxes rises too. The magnitude of the effect depends critically on two factors: the assumed rate of growth of GDP, and the income elasticity of imports for each country. We obtained data on the income elasticity of imports from CEPAL (2003a). The estimates of the future rate of growth of GDP, however, are more complicated. One must assume different scenarios in order to capture a range of possibilities, given that the future is unknown. For this reason we assumed three different scenarios.

The first one is an optimistic scenario, where the five economies grow according to their potential. We use the estimates of the potential growth rate from Ros (2003). The second scenario is a moderate one, and is taken from CEPAL (2003a). The most likely future rate of growth of GDP in Central America is estimated on the basis of econometric models using historical data from the 1980-2001 period.⁸ We call them “historic” rates. Finally, a pessimistic scenario (“demographic rates”) assumes that the future rate of growth will be equal to the rate of growth of population, i.e., the per capita growth would be equal to zero. For this scenario we used the projections of population growth rates from CEPAL (2003b).

⁸ The only exception is the rate of growth of Nicaragua. Although CEPAL (2003a) takes the lower boundary (1.9%) as the most likely in the next ten years, we use the average of the upper and lower boundaries (2.5%).

The rates in all three scenarios were augmented by the projected increase in the rate of growth of GDP due to the CAFTA, estimated by Hinojosa-Ojeda (2003). Using a CGE model for the “Greater North America” region (NAFTA, CACM and CARICOM) he estimates different scenarios of integration in that region, in order to highlight the effects of possible policy options. He reports both potential static and dynamic gains in terms of GDP, exports, imports, wages and other relevant variables. We take the rates of growth of GDP that include both static (relatively small) and dynamic (much larger) effects of the CAFTA. These rates were added to the three scenarios since no scenario takes into account the increase of GDP due to the CAFTA (table 7). The rates Hinojosa-Ojeda estimates are 0.76% for Costa Rica, 1.59% for El Salvador, 2.32% for Guatemala, 0.89% for Honduras, and 1.49% for Nicaragua.

Table 7

ESTIMATES OF GROWTH OF GDP FOR CENTRAL AMERICAN COUNTRIES, WITHOUT AND WITH THE EFFECT OF CAFTA

(Percentages)

	Potential rate	"Historic" rate	"Demographic" rate	Optimistic scenario	Moderate scenario	Pessimistic scenario
Costa Rica	4,74	3,50	1,51	5,50	4,26	2,27
El Salvador	5,35	2,60	1,49	6,94	4,19	3,08
Guatemala	7,17	3,30	2,42	9,49	5,62	4,74
Honduras	6,22	2,90	2,08	7,11	3,79	2,97
Nicaragua	6,94	2,50	1,91	8,43	3,99	3,40

Source: Ros (2003) for potential rate; CEPAL (2003a) for “historic” rate; CEPAL (2003b) for “demographic” rate; the three scenarios are those three rates augmented by the CAFTA effect estimated in Hinojosa-Ojeda (2003).

With these three growth scenarios we are in a position to estimate the increases of imports for each scenario using the income elasticities of imports (table 8). The resulting rates of growth of imports (ΔM_{TOT}) were then used to calculate the impact of the CAFTA on the proportion of revenue coming from internal taxes levied on imports of U.S. goods to the total (IT_{US}).

We first applied the rates of growth of imports (ΔM_{TOT}) to total indirect internal revenue as a proportion of GDP in 2002 (IT_{TOT_2002}) to obtain the revenue from indirect taxes for the three growth scenarios with the CAFTA (IT_{TOT_CAFTA}). The difference between the two is the total change of revenue from indirect internal taxes (ΔIT_{TOT_CAFTA}). However, since the imports from

the United States are only part of the total imports, we then applied that proportion ($\frac{M_{US}}{M_{TOT}}$) to the total change of revenue from indirect internal taxes to obtain the proportion of revenue coming from internal taxes levied on imports of U.S. goods to the total (ΔIT_{US_CAFTA}). In this way we obtained the magnitude of the positive fiscal effect of the CAFTA for Central America.

As is clear from the last column of table 8, the increase of revenue from indirect taxes due to higher imports from the U.S. is not very significant in terms of GDP. Even though in El Salvador and Guatemala the revenue increases almost 0.2% of GDP under the most optimistic scenario, it is not enough to compensate for the loss estimated in section 2.

Table 8

ESTIMATES OF THE INCREASE IN INDIRECT INTERNAL REVENUE DUE TO THE CAFTA
WITH THREE DIFFERENT GROWTH SCENARIOS

(% change, coefficients, and % of GDP)

	Scenario	ΔM_{TOT} % change	IT_{TOT_CAFTA} % of GDP	IT_{TOT_2002} % of GDP	ΔIT_{TOT_CAFTA} % of GDP	$\frac{M_{US}}{M_{TOT}}$ coefficient	ΔIT_{US_CAFTA} % of GDP
Costa Rica	Optimistic	8.24	3.66	3.38	0.28	0.32	0.09
	Moderate	6.39	3.60	3.38	0.22	0.32	0.07
	Pessimistic	3.40	3.49	3.38	0.11	0.32	0.04
El Salvador	Optimistic	16.74	4.02	3.44	0.58	0.33	0.19
	Moderate	10.10	3.79	3.44	0.35	0.33	0.11
	Pessimistic	7.41	3.69	3.44	0.25	0.33	0.08
Guatemala	Optimistic	19.65	3.45	2.88	0.57	0.34	0.19
	Moderate	11.63	3.22	2.88	0.34	0.34	0.11
	Pessimistic	9.81	3.16	2.88	0.28	0.34	0.10
Honduras	Optimistic	7.61	2.94	2.73	0.21	0.41	0.09
	Moderate	4.06	2.84	2.73	0.11	0.41	0.05
	Pessimistic	3.18	2.82	2.73	0.09	0.41	0.04
Nicaragua	Optimistic	12.64	5.83	5.18	0.65	0.24	0.16
	Moderate	5.99	5.49	5.18	0.31	0.24	0.07
	Pessimistic	5.09	5.44	5.18	0.26	0.24	0.06

Source: author's calculation, on the basis of official data.

3. The net effect of the CAFTA on fiscal revenue

Here we join our estimates of the total loss and total gain due to the CAFTA to obtain the net revenue implications of the Agreement. The total loss is a product of the direct and indirect effects, i.e., of the loss of revenue due to the reduction and elimination of tariffs, and the loss of revenue coming from the indirect taxes levied on imports. The gain is the product of the increase in revenue from indirect taxes levied on imports thanks to the rise in the volume of imports. The overall picture emerging from table 9 is that there is bound to be a net loss of fiscal revenue due to the CAFTA. The positive effects from the increase of the volume of imports are overwhelmed by the combined effect of the reduction of revenue from the custom duties and from the internal indirect taxes levied on imports. This is true even under the most optimistic scenario where the growth of imports is very strong.

Table 9

NET LOSS OF FISCAL REVENUE DUE TO THE CAFTA DURING THE TRANSITION PERIOD,
WITH THREE GROWTH SCENARIOS

(Percentages of GDP)

Country\Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Costa Rica																			
Optimistic	0,19	0,19	0,19	0,19	0,20	0,20	0,20	0,20	0,21	0,21	0,21	0,21	0,21	0,21	0,21	0,21	0,21	0,21	0,21
Moderate	0,21	0,21	0,21	0,21	0,22	0,22	0,22	0,22	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23
Pessimistic	0,24	0,24	0,24	0,25	0,25	0,25	0,25	0,26	0,26	0,26	0,26	0,26	0,26	0,26	0,26	0,26	0,26	0,26	0,26
El Salvador																			
Optimistic	0,19	0,19	0,20	0,20	0,20	0,21	0,21	0,21	0,21	0,21	0,22	0,22	0,22	0,22	0,22	0,22	0,22	0,22	0,22
Moderate	0,26	0,27	0,27	0,28	0,28	0,28	0,28	0,29	0,29	0,29	0,29	0,29	0,29	0,29	0,29	0,29	0,29	0,29	0,29
Pessimistic	0,29	0,30	0,30	0,31	0,31	0,31	0,31	0,32	0,32	0,32	0,32	0,32	0,32	0,32	0,32	0,32	0,32	0,32	0,32
Guatemala																			
Optimistic	0,24	0,24	0,25	0,25	0,25	0,26	0,26	0,26	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27
Moderate	0,32	0,32	0,32	0,33	0,33	0,34	0,34	0,34	0,35	0,35	0,35	0,35	0,35	0,35	0,35	0,35	0,35	0,35	0,35
Pessimistic	0,33	0,34	0,34	0,35	0,35	0,35	0,36	0,36	0,36	0,37	0,37	0,37	0,37	0,37	0,37	0,37	0,37	0,37	0,37
Honduras																			
Optimistic	0,73	0,74	0,74	0,75	0,75	0,76	0,76	0,77	0,77	0,77	0,78	0,78	0,78	0,78	0,78	0,78	0,78	0,78	0,78
Moderate	0,77	0,78	0,78	0,79	0,79	0,80	0,80	0,81	0,81	0,81	0,81	0,82	0,82	0,82	0,82	0,82	0,82	0,82	0,82
Pessimistic	0,78	0,78	0,79	0,80	0,80	0,81	0,81	0,82	0,82	0,82	0,82	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83
Nicaragua																			
Optimistic	0,26	0,27	0,27	0,28	0,28	0,28	0,29	0,29	0,30	0,30	0,30	0,30	0,30	0,30	0,31	0,31	0,31	0,31	0,31
Moderate	0,34	0,35	0,35	0,36	0,36	0,37	0,37	0,37	0,38	0,38	0,38	0,38	0,39	0,39	0,39	0,39	0,39	0,39	0,39
Pessimistic	0,36	0,36	0,37	0,37	0,38	0,38	0,38	0,39	0,39	0,39	0,39	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40

Source: author's calculation, on the basis of official data.

However, the situation is not so gloomy for four of the Central American countries. For Costa Rica the net loss is between 0.19% of GDP and 0.24%, depending on the assumed rate of growth of GDP. By the end of the transition period, these figures rise to 0.21% of GDP in the optimistic scenario and to 0.26% in the pessimistic one. In El Salvador, Guatemala and Nicaragua, losses are slightly larger, but do not exceed 0.4% of GDP by the end of the transition period.

The only country which could have serious fiscal problems due to the CAFTA is Honduras. Even under the optimistic growth scenario, the loss is estimated to be 0.73% of GDP at the beginning of the transition period, rising to 0.78% at the end of it. Comparable figures for the pessimistic scenario are 0.78% and 0.83% of GDP, respectively. As was pointed out in Paunovic and Martínez (2004), Honduras is also the economy with the highest level of fiscal vulnerability of the five countries, which further exacerbates the fiscal implications of the CAFTA for that country.

4. The most likely scenario of GDP growth and the fiscal effects of the CAFTA

After we have seen the estimates of losses due to the CAFTA, the next important issue is the probability of realization of the three scenarios we have been working with. The pessimistic scenario clearly assumes that major disturbances may happen, such as a global recession or severe external or internal shocks. Despite the fact that a global recession is a real possibility, it is unlikely to last twenty years. On the other hand, it is to be expected that the Central American countries have learned how costly civil wars are. Thus, the pessimistic scenario, in our opinion, is not very likely.

The optimistic scenario, however desirable, is not easily attainable. To see this, we compared the rate of growth of imports calculated for the optimistic scenario with the long-term rate of growth of exports (1950-1997). As depicted in table 10, Costa Rica is the only country where the rate of growth of exports required for maintaining the existing balance of payment situation comes close to be sufficiently high. In all other cases, the projected growth of GDP rapidly worsens the external balance and leads to a balance-of-payments crisis. The meaning of these numbers is clear: the optimistic growth scenario is very unlikely, given the current productive structure of the economies, and their respective import and export elasticities.

Since the optimistic scenario is not very probable, that leaves us with the moderate growth scenario. This, in fact, is the most plausible scenario of the growth rate of GDP in Central America in the future. Accordingly, the fiscal implications of the CAFTA of this scenario are the most probable.

Table 10

RATE OF GROWTH OF EXPORTS REQUIRED TO MAINTAIN THE EXTERNAL BALANCE
UNCHANGED IN THE CASE OF THE OPTIMISTIC SCENARIO OF THE GDP GROWTH

(Percentages)

	Rate of growth of GDP (optimistic scenario)	Income elasticities of imports	Rate of growth of imports in the optimistic growth of GDP scenario	Rate of growth of exports in the 1950-1997 period
Costa Rica	5.5	1.5	8.2	5.9
El Salvador	6.9	2.4	16.7	4.5
Guatemala	9.5	2.1	19.6	5.6
Honduras	7.1	1.1	7.6	3.4
Nicaragua	8.4	1.5	12.6	4.3

Source: author's calculation, on the basis of official data.

V. CONCLUSIONS

Of the five possible effects of the CAFTA on fiscal revenue in the Central American countries (direct, indirect, elasticity, substitution and induced), we estimate the first three in this paper. The fourth one is most likely negligible, while the estimation of the fifth is plagued with uncertainty, so we do not attempt it here.

The adverse impact of tariff elimination on fiscal revenue is relatively small in Costa Rica and Nicaragua, below two percentage points of the total tax revenue of each of the countries. The highest impact is in Honduras, where it reaches almost five percent of the tax revenue already in the first year of the Agreement. The loss of revenue from internal indirect taxes is not as large. The greatest loss is in the case of Guatemala (0.4% of the total tax revenue), with El Salvador a close second. The losses in other countries are even less.

When we total the two adverse effects, we find the country least adversely affected is Costa Rica. In the first year of the Agreement, the adverse impact amounts to 0.28% of GDP. The greatest loss of 0.30% of GDP will be reached ten years after the CAFTA comes into effect. The most affected country is Honduras, whose fiscal revenue will decline by 0.82% of GDP in only the first year of the Agreement. The plateau will be reached in the ninth year, with a reduction equivalent to 0.86% of GDP.

There are several reasons why Costa Rica is the least affected country and Honduras most affected, with the remaining countries somewhere in between. These reasons include the proportion of the tariff revenue in the GDP of each country, the proportion of the imports from the United States that actually pay tariffs (imports without *maquila*) in the total imports, the percentage of the imports that are not subject to tariffs during the transition period, and the import structure and profile of elimination of custom duties. Therefore, a combination of all of these factors is responsible for the differing results among the five countries with respect to the fiscal cost of the CAFTA.

When we calculate the increase of revenue from indirect taxes due to higher imports, we see that it is not very significant in terms of GDP. Even though in El Salvador and Guatemala the revenue increases almost 0.2% of GDP under the most optimistic scenario, it is not enough to compensate for the loss of fiscal revenue due to the CAFTA.

Summing the positive and negative revenue implications, we estimate that there would be a net loss of fiscal revenue due to the CAFTA in all countries. The positive effects from the increase of imports are overwhelmed by the combined effect of the reduction of revenue from the custom duties and from the internal indirect taxes levied on imports.

The only country that could have serious fiscal problems due to the CAFTA is Honduras. Even in the optimistic growth scenario, the loss is estimated to be 0.73% of GDP at the beginning of the transition period, rising to 0.78% at the period's end. Comparable figures for the pessimistic growth scenario are 0.78% and 0.83% of GDP, respectively. Honduras is also the

economy with the highest level of fiscal vulnerability of the five countries, which further exacerbates the fiscal implications of the CAFTA for that country.

The optimistic growth scenario leads countries to balance-of-payments crises. On the other hand, the pessimistic one supposes some major disruptions (economic, political and/or institutional) to the economy. Therefore, a moderate growth scenario is the most plausible for the growth rate of GDP in Central America in the future. Accordingly, the fiscal implications of the CAFTA of that scenario are the most probable.

Economic policies that relax the external constraint on growth would dampen the negative fiscal impact of the CAFTA. However, they are only part of the solution to the problem, given that countries have other means to counter the adverse fiscal implications of the CAFTA. Countries could neutralize them by a combination of a reduction of expenditure and an increase in revenue. The last option is especially recommended for the Central American countries since their tax burden is relatively low, below the Latin American average.

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