Welfare Implications for Brazil and the Americas

of MERCOSUR Trade Policy Options

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1. Introduction

MERCOSUR is considering a wide range of regional, multilateral and unilateral trade policy options in the first decade of the 21st century.[1] Negotiations to implement the Free Trade Agreement of the Americas (FTAA) are underway. The most notable bilateral regional arrangement that MERCOSUR is negotiating is a potential free trade agreement with the European Union (EU). Brazil has also supported further multilateral negotiations within the World Trade Organization (WTO).[2] Brazil is a member of the Cairns group supporting agricultural trade liberalization and believes that the best negotiating forum for obtaining freer agricultural markets is the WTO. The WTO agreement to launch the Doha Development Agenda suggests that further multilateral trade liberalization is likely. Finally, although political support for unilateral trade liberalization in Brazil and MERCOSUR may be less evident, each has undertaken considerable unilateral trade liberalization in the last ten years. Several Brazilian scholars[3] have noted a significant increase in Brazilian productivity associated with the trade liberalization, and this has cemented the intellectual support for an open trade regime.

As MERCOSUR considers their trade policy options over the next few years, it would be useful for its policy-makers to have an assessment of some of the following questions. What is the impact of the FTAA or the potential EU-MERCOSUR free trade agreement? If the EU excludes agricultural products from the agreements, or if the US applies antidumping actions to its most protected sectors, do the agreements lose their attractiveness? What are the potential gains from multilateral liberalization compared with regional liberalization? Would the FTAA and the EU-MERCOSUR agreement yield greater benefits taken together than separately? How much would further unilateral liberalization contribute to improved welfare, either independently or in combination with regional arrangements? We provide quantitative estimates to answer these and other questions.

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[1] MERCOSUR is a customs union composed of Brazil, Argentina, Uruguay and Paraguay.
[2] See the *Trade Policy Review for Brazil* by the World Trade Organization [2000].
[3] For example, Rossi and Ferreira [1999].

Harrison, Rutherford, Tarr and Gurgel [2004] analyzed these issues with a focus on poverty reduction in Brazil. Here we focus on the aggregate welfare impacts for Brazil and for the countries in the Americas from these trade policy options. It is well known that most results regarding the welfare effects of regional arrangements are typically ambiguous at the theoretical level, and that many questions are quantitative rather than qualitative. Thus we employ a 16-region global computable general equilibrium (CGE) model to quantitatively examine the regional, unilateral and multilateral arrangements. Our model includes the Brazilian economy as well as the economies of Argentina, Uruguay, Chile, Mexico, the United States, Canada, Central America, Venezuela, Colombia, Peru, Rest of Andean Pact, Rest of South America, the EU, Japan and an aggregate Rest of the World. We are therefore able to estimate the impact on partner and excluded countries from each of the agreements we evaluate.

Some of our key results are as follows. Both the FTAA and the EU-MERCOSUR arrangements are net trade-creating for the countries involved, but excluded countries almost always lose from the agreements. We estimate that multilateral trade liberalization of 50 percent in tariffs and export subsidies results in gains to the world more than four times greater than either the FTAA or the EU-MERCOSUR agreement. This shows the continued importance to the world trading community of the multilateral negotiations.

. The regional arrangements under consideration by MERCOSUR, namely the FTAA and an agreement with the EU, can both be expected to result in gains to Brazil. That is, by the standards of preferential trade arrangements, these potential agreements are relatively beneficial. The agreement with the EU is almost twice as valuable as the FTAA due to access to highly protected agricultural markets in the EU. The combined gains from both agreements will be greater than the gains obtained from the sum of the agreements separately due to a reduction of trade diversion. This indicates that the Brazilian strategy of pursuing both agreements, rather than either alone, is beneficial.

Both the US and the EU, however, may attempt to protect their markets despite a preferential trade agreement. What is the cost to the MERCOSUR countries and the countries of the Americas if there is denial of preferential market access to the markets of the EU or the US? If the EU excludes it highly protected agricultural products from the EU-MERCOSUR agreement, the gains to Brazil are reduced to only one-ninth of the value of the gains with full preferential market access to the EU. The negative impact on Uruguay from denied agricultural market access is even more pronounced. If the US employs antidumping to exclude market access to Brazil for the most protected products in the US, the gains to Brazil would be reduced to two-thirds of the gains Brazil would obtain from full market access in a FTAA. If both agreements are implemented with excluded products, the FTAA will be more valuable to Brazil than the agreement with the EU.

We find benefits for Brazil both from unilateral tariff cuts in MERCOSUR or tariff uniformity in MERCOSUR. We estimate that uniform tariffs in MERCOSUR, such that collected tariff revenue in Brazil is unchanged, would yield benefits even larger than a unilateral 50% tariff cut in MERCOSUR.

Our estimates indicate that the apparent Brazilian strategy of simultaneously pursuing a MERCOSUR agreement with the EU and the FTAA, while supporting multilateral trade liberalization at the WTO, is well considered. Brazil can optimize its choice of trade policies by combining regional arrangements in both the Americas and the EU with multilateral liberalization. If tariff uniformity is added to the regional and multilateral liberalization, further gains would be realized.

In Section 2 we briefly describe the model and data. In Section 3 we present and explain the policy results for Brazil, the implications for the distribution of income, and the reallocation of output among sectors. Results for other countries in the model are also explained. The impact on partner and excluded countries of the regional arrangements are also evaluated and compared to the impact under multilateral trade liberalization. Conclusions are in Section 4.

2. A Multi-Regional Trade Model

The quantitative model is a constant returns to scale, comparative static, multi-regional and multi-sectoral model. Table 1 lists the 16 regions included explicitly in the model, as well as the 22 sectors included in each region. The model is relatively detailed in the Americas: there are 13 countries or regions in the Americas. Outside of the Americas, we have European Union 15, Japan and Rest of the World. The general specification of this model follows our earlier multi-regional model of the effects of the Uruguay Round and even more closely our model of the trade policy options for Chile.[4] Since the model is described in those studies and in Harrison, Rutherford, Tarr and Gurgel [2004], we only briefly review the key features of the model here.

Other than Brazil, all economies are modeled in the more traditional manner in which all consumers are represented by a "representative agent." We employ the "GTAP5 dataset,"[5] but augment the data to better capture the Brazilian economy. For present purposes the most important are: we update to the 1996 input-output table of the Brazilian economy; and we alter the protection data for Brazil to more closely capture the Brazilian economy (and we correct for some problems in the protection data in some other countries).

Although the general theory of the welfare effects of preferential trading arrangements does allow for the impact of changes in partner country tariffs on the home country's terms-of-trade,[6] some empirical approaches to evaluating preferential trading arrangements ignore them. Our framework allows us to explicitly evaluate the importance to Brazil of improved market access to regions such as the EU and the Americas, as well as losses Brazil may suffer as partner countries raise export prices to Brazil.

Although there are numerous exceptions to the common external tariff of MERCOSUR, and in many cases it is being phased in over time, we assume that the countries of MERCOSUR apply the common external tariff. Argentina and Uruguay are represented explicitly in our model, while Paraguay is represented as part of the Rest of South America. Thus, we assume that there are zero tariffs on the imports of goods between Argentina, Brazil and Uruguay, and that all three of these countries apply the common external tariff of MERCOSUR. We take the tariff rates of Brazil (from the GTAP5 dataset) as the common external tariff for all countries in MERCOSUR. The MFN tariff rates for all countries in our model are presented in Table 3.

In addition to MERCOSUR, we assume that NAFTA operates as an effective free trade area with zero tariffs among the U.S. Canada and Mexico, but each of the three countries has its own external tariff. Although there are many other regional preferential trading arrangements in the Americas that are implemented at different levels of effectiveness, our dataset does not incorporate

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4 Harrison, Rutherford and Tarr [1997a][1997b][2002]. Complete access to the model is provided at web site HTTP://WWW.BUS.UCF.EDU/GHARRISON/DATA/CGE/UR/.

5 For documentation see Dimaranan and McDougall [2002].

6 See Harrison, Rutherford and Wooton [1989][1993].

these preferential tariff rates. The measures of protection for all the economies in our model are listed in table 2.

Briefly, production entails the use of intermediate inputs and primary factors (Labor, Capital and Land). Primary factors are mobile across sectors within a region, but are internationally immobile. We assume Constant Elasticity of Substitution (CES) production functions for value added, and Leontief production functions for intermediates and the value added composite. Output is differentiated between domestic output and exports, but exports are not differentiated by country of destination.

Except for Brazil, each region has a single representative consumer who maximizes utility, as well as a single government agent. In the case of Brazil there are 20 households: ten rural and ten urban. Urban and rural households are distinguished by income levels, but we report results for aggregate consumers as discussed below. Demand is characterized by nested CES utility functions for each agent, which allow multi-stage budgeting.

We generally assume that the lower-level elasticity of substitution between imports from different regions, σ_{MM}, is 30 and that the higher-level elasticity between aggregate imports and domestic production, σ_{DM}, is 15. We refer to these values as our central elasticities. There are econometric studies, such as those of Reinert and Roland-Holst [1992] and Shiells and Reinert [1993], that suggest values which are lower than these. However, Reidel [1988] and Athukorala and Reidel [1994] argue that when the model is properly specified the demand elasticities are not statistically different from infinity, and their point estimates are close to the central elasticity values we have chosen.[7] Moreover, elasticities would be expected to increase over time, and this model presumes an adjustment of about 10 years, a rather long period in the context of these econometric estimates.

To be clear, a value of σ_{MM} = 30 means that if Brazil tried to raise its prices by 1% on world markets relative to an average of aggregate imports, Brazilian imports would decline relative to aggregate imports by 30%. Given that there may be some economists who would prefer lower elasticity estimates, we also perform most of our important policy simulations with σ_{MM} = 8 and σ_{DM} = 4. We refer to these as our low elasticities. In our view, a high elasticity scenario, for an economy such as Brazil with little market power on world markets in most products, would be a specification

[7] In addition, the estimates of Schiff and Chang [2003] suggest that the elasticities are high.

with still less market power for exports, such as would occur with in the popular theoretical models of international trade where goods are homogeneous.

The elasticity of transformation between exports and domestic production is assumed to be about 5 for each sector. Elasticities of substitution between primary factors of production are unity, and we assume fixed coefficients between all intermediates and value added. All of these elasticity assumptions could be relaxed if alternative estimates were to be evaluated.

All distortions are represented as *ad valorem* price-wedges. Border protection estimates combine tariff protection and the tariff equivalents of non-tariff barriers. We employ the GTAP tariff rates for countries outside of Brazil as well. These tariff rates are trade weighted average tariffs, and consequently typically differ according to trading partner. That is, since there are thousands of tariff lines in the tariff schedules of most countries, literally hundreds of tariff lines must be mapped into a single sector in the GTAP database. Since the product mix of imports differs across countries, the trade weighted average tariff rate will differ according to the country of origin.[8] In Table 2 we show the (trade weighted) average protection rates by product category across all countries. Although we impose the CET of Brazil for the external tariff of Argentina and Uruguay, the trade weighted average tariff across all countries is not precisely equal in all cases for the three countries because of product mix differences across sources of imports.

Other distortions include factor taxes in production, value-added taxes, export subsidies (especially on agricultural exports from the EU, but to a limited extent elsewhere), and export taxes on textiles and apparel. It is generally believed that rents under the multi-fiber arrangement are captured by exporters, so these are represented as *ad valorem* export tax equivalents. In the case of Brazil, the export taxes on textiles and wearing apparel are estimated to be four percent. Lump-sum replacement taxes or subsidies ensure that government revenue in each region stays constant at real benchmark levels.

The model is formulated using the GAMS-MPSGE software developed by Rutherford [1999] and solved using the PATH algorithm of Ferris and Munson [2000]. Although the model has 16 regions and 22 sectors, and is large by historical standards, it is smaller than our Uruguay Round

[8] Take the GTAP category motor vehicles and parts in Brazil as an example. Imports of motor vehicles are subject to a tariff of 35%. But motor vehicle parts, and tractors are typically subject to a tariff of 22% or lower. If country A exports mostly parts to Brazil, its weighted average tariff rate will not exceed 22%. If country B exports mostly cars to Brazil its weighted average tariff on its exports to Brazil will be about 35%.

model. Use of demand elasticities as high as those we employ could pose numerical problems in general, but this model solved without difficulty.

3. Policy Results

We report the change in welfare in our model as a percent of consumption[9] and in 1996 US dollars. The change in welfare is the "Hicksian equivalent variation," which in less technical terms can be thought of as the change in real income. In the case of Brazil, our aggregate estimate for the change in welfare is the sum of the welfare changes for the twenty individual households in our model. We emphasize our central elasticity results, but also present results for low elasticities

The overall welfare results are presented in Table 3A for central elasticities (low elasticity results are in Table 3B). Welfare impacts in these tables are presented as a percent of personal consumption of the respective country or region. They represent changes on a recurring, annual basis, so a 1% welfare gain should be interpreted as a 1% increase in real income *each year in the future*. In Tables 4A and 4B we present results for the same scenarios in 1996 US dollars.

Free Trade Agreement of the Americas. In this scenario we assume that all countries in the Americas agree to offer tariff free access on all products reciprocally, while their external tariffs on countries outside of the Americas are not affected by the FTAA. The results for the FTAA with central elasticities are presented in the first column of Table 5A. We estimate that Brazil will gain from the FTAA by about six-tenths of a percent of Brazilian personal consumption (or from Table 6A, about US $3 billion).

The impact of regional trade arrangements is often discussed using the concepts of trade diversion and trade creation. Regional trade arrangements can produce negative welfare results on participating countries, since it is possible that trade is diverted away from more efficient low cost trading partners who are excluded from the agreement toward imports from members of the free trade agreement which are not subject to a tariff. This is known as trade diversion. Trade creation occurs when the partner country is the most efficient supplier of the product on world markets, so even though tariffs are lowered only preferentially, the result is nonetheless an increase in imports from the most efficient supplier in the world. When the agreement is with small countries only, the

[9] Welfare as a percent of GDP would be about 70% of our estimate of welfare as a percent of consumption.

lack of competition among members of the agreement can lead to a significant increase in the cost of imports for member countries, i.e., trade diversion. In the case of the FTAA, the agreement includes a very large economic area. For most products, there are suppliers within the Americas who are either the most efficient supplier of the product on world markets or else they are close to the most efficient supplier. Moreover, competition among the many countries and suppliers prevents the supply price for imports from partner countries from rising significantly.

For these reasons, we estimate that Brazil and most countries in the Americas will gain from a FTAA. The one exception to this pattern in the Americas is Argentina, which we estimate to lose slightly from the FTAA. The reason Argentina is estimated to lose from the FTAA is that prior to the FTAA, it enjoys preferential access to the markets of the other MERCOSUR countries. The FTAA provides equivalent access to the other countries in the Americas to the MERCOSUR markets, thereby eroding the preferential access of Argentina. The loss of preferential access for Argentina, combined with trade diversion effects, are larger than the trade creation effects. On the other hand, it is likely that trade (direct and indirect) with technologically advanced countries yields greater increases in productivity than trade with less advanced countries. In this case, the FTAA could provide dynamic benefits for Argentina, for example, even though our estimated static effects are negative.

On the other hand, countries that are excluded from the agreement (the EU, Japan and Rest of the World) all lose as a result of the FTAA. Their combined loss is \$8.4 billion. The reason is that the excluded countries suffer a decline in demand for their exports to the Americas as importers in the Americas shift demand toward suppliers from the Americas. The EU is estimated to lose \$2.6 billion, slightly more than the \$2.3 billion the United States is estimated to gain.

European Union-MERCOSUR agreement. In this scenario we assume that MERCOSUR and the EU agree to offer tariff free access to all their markets reciprocally. In column 3 of Tables 3A and 4A we present our central elasticity estimates of the impact of a free trade agreement between MERCOSUR and the EU, in percent of consumption and US dollars, respectively (low elasticity estimates are in Tables 3B and 4B).

The gains to Brazil from a MERCOSUR agreement with the EU are about 1.5 times the gains from a FTAA. The gains to Argentina and Uruguay are dramatically larger than with the FTAA. The reason for this can be seen from Table 2: the EU has several agricultural and food products with very high tariffs. If Brazil, Argentina and Uruguay could obtain tariff free access to these EU markets, while the EU continues to apply these tariffs on other countries, they would obtain a very large terms of trade gain in EU markets. In the case of the relatively small economy of Uruguay, the large increase in prices available in the EU induces a large shift of exports toward the EU to take advantage of the increase in prices.

As with the FTAA, countries excluded from the agreement typically lose due to the shift in demand toward partner country suppliers. One exception is Japan. As the EU and MERCOSUR countries shift toward the markets of each other, Japan obtains a small terms of trade improvement in the markets of the Rest of the World. The gains to Japan, however, are very small, and round to zero at the nearest one-tenth of a percent of Japan's consumption.

Excluded Products in the EU-MERCOSUR Agreement. Some would argue that MERCOSUR will have great difficulty negotiating an agreement with the EU in which the EU would grant tariff free access in its highly protected agricultural products. The EU has steadfastly refused to do so in its Association Agreements with the Central and Eastern European countries, in its customs union agreement with Turkey, and in its free trade area agreements with various Mediterranean countries such as Morocco and Tunisia. Hence it is unlikely to offer concessions to MERCOSUR that it has refused to offer to other countries for which it might be viewed as having more to gain geo-politically. What is the cost to Brazil of denial of full market access in a MERCOSUR-EU agreement? In this scenario we assume that the EU fails to provide improved market access to its highly protected products. These products and the tariff rates in the EU in our data set are: paddy rice (65%), cereal grains (44%), processed rice (86%), other food products (28%), bovine meat products (95%), dairy products (90%), other meat products (61%) and sugar (76%).

For Brazil we see that if the EU fails to provide full market access, the value of the EU-MERCOSUR agreement is reduced to one-tenth of a percent of consumption from nine-tenths of a percent, i.e., the agreement contains very little value. The estimated gains for Uruguay are reduced dramatically. The highly protected agriculture and food product markets in the EU are products in which the MERCOSUR countries have a comparative advantage. Consequently, if the free trade agreement between the EU and MERCOSUR excludes these products, the expected benefits would be significantly reduced. These results demonstrate the importance of improved access in preferential trade agreements, emphasized by Wonnacott and Wonnacott [1981]. In addition, the gains to the EU are reduced from 0.5% of its consumption to 0.1%, reflecting the importance of agriculture liberalization in the EU for the EU to reap gains.

Excluded Products in the FTAA (by the United States against Brazil). There is also a potential for excluded products in the FTAA, although the exclusion is likely to be implicit rather than explicit. Despite a proposal by Chile to limit the use of antidumping actions as part of the FTAA, the US has heretofore strongly resisted efforts to limit the use of antidumping actions as part of the FTAA. In addition, the Brazilian authorities have expressed the fear that the benefits of improved access to the markets of the US will be denied by antidumping actions. In this scenario we provide an estimate of the costs to Brazil of continued US protection of its most protected markers even if a FTAA is implemented. We focus on the most highly protected products in the US market: oil seeds (18%), other crops (14%),[10] dairy products (42%) and sugar (53%). In this scenario we assume that on the most sensitive and highly protected products in the US, the US employs antidumping duties to neutralize the impact of the FTAA on the exports of Brazil. That is, the US tariff applied on exports from Brazil of these products does not change in the counterfactual when we implement the FTAA with excluded products in the US. This is not a full treatment of the potential use of antidumping within the FTAA or of the impact on Brazil. Such a treatment would have to account for antidumping duties by the US against other partners in the Americas as well, and the use of antidumping by countries other than the US. But this scenario should provide an assessment of the *potential* costs to Brazil of US antidumping.

The impact of excluded products in the US is to reduce the benefits to Brazil to about two-thirds of the gains Brazil would receive with full market access in a FTAA. The reduction in benefits from denied market access in the US is not as severe as the impact of excluded products with the EU agreement. There are two principal reasons why denial of market access is more important in the agreement with the EU. First, the tariff peaks in the United States market are not as high as the tariff peaks in the EU. The large impacts tend to be driven by the tariff peaks, so the impact of excluding

[10] Our category other crops is an aggregate of the following sectors from the full GTAP dataset: wheat, vegetables and fruits, fiber based plants, wool, forestry, fishing and the category other crops. We have also performed simulations with wheat as part of grains rather than other crops. Argentina gains more from the EU-MERCOSUR agreement, but otherwise most of the results change by extremely small amounts.

the tariff peak products in the EU is very large. Second, there are other markets in the Americas that open up to Brazil as part of the FTAA. If the US fails to provide preferential access to its highly protected products, Brazil may sell these products in the other markets of the Americas since, in the FTAA, Brazil obtains preferential access to these markets compared to countries outside the Americas. On the other hand, if the EU denies preferential access as part of a free trade agreement between Brazil and the EU, there are no alternate markets in which Brazil has preferential access for these products as part of the agreement.

Combining the Free Trade Agreement of the Americas with the MERCOSUR-EU Agreement. Some authorities in Brazil have expressed a desire for an agreement with the EU to come into effect together with the FTAA. Our results indicate that the benefits to Brazil from the two agreements together exceed the sum of the benefits for each of the agreements separately. This is because the combined economic area of the Americas plus the EU is rather vast, and Brazil is more likely to find the most efficient world supplier in this combined economic area than in either region separately. That is, the trade diversion effects that are part of either agreement separately are reduced by combining the two agreements. Thus, the strategy of negotiating an agreement with the EU in addition to the FTAA appears to be a useful strategy that is likely to increase the welfare gains to Brazil.[11]

Unilateral Trade Liberalization by 50 Percent. We estimate that a 50% cut in the tariffs of MERCOSUR will result in an increase in welfare by about four-tenths of a percent of Brazilian consumption, or about $1.9 billion per year. Thus, the gains from the FTAA with excluded access to the US market on selected products results in approximately the same gains as a unilateral tariff cut by MERCOSUR of 50%.

Multilateral Trade Liberalization. Brazilian authorities have also encouraged multilateral trade negotiations, and supported the Doha Development Agenda. In part, this is due to the view that, despite the collapse of talks at Cancun in September 2003, the most likely venue in which

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[11] These results are similar to the results Harrison, Rutherford and Tarr [2002] found for Chile when they found that the "additive regionalism" strategy of Chile resulted in significantly larger benefits than the agreements taken separately.

agricultural liberalization (which is important to Brazil) will take place is through the WTO. We consider a scenario in which all countries in the world reduce their tariffs and export subsidies and taxes by 50%.

Brazil gains about eight tenths of a percent of personal consumption from multilateral trade liberalization in our static model, or about $4.5 billion. This is larger than the gains from the FTAA and larger than the gains from an agreement with the EU that excludes the highly protected agricultural and food products. Given the likely exclusion of agriculture from a MERCOSUR agreement with the EU, these results support the strategy of the Brazilian authorities that it is important to pursue multilateral liberalization together with the regional options. In fact, it is most important.

FTAA with no change in the external tariffs of MERCOSUR. We can also evaluate the impact of the Free Trade Agreement of the Americas in which no improved access to the markets of MERCOSUR is offered. That is, in this scenario we assume that the countries in the Americas outside of MERCOSUR lower their tariffs preferentially to all countries in the Americas (so Brazil obtains improved market access), but the countries in MERCOSUR do not lower MERCOSUR tariffs against the partner countries in the Americas (so Brazil does not offer any improved market access). The purpose of this scenario is to assess how much of the gains to Brazil, Uruguay and Argentina will come from improved market access to the markets of the Americas and how much is due to lowering the tariffs of MERCOSUR, thereby achieving improved resource allocation in Brazil. One could imagine active use of antidumping policy in Brazil and Argentina that denies improved access to the countries of the Americas. This is analogous to our scenario above in which we assumed the FTAA was implemented but the United States failed to provide improved market access to Brazil through the use of antidumping.

In column (8) of table 3A we see that the gains to Brazil are reduced to 0.4 percent of consumption, i.e., about two-thirds of the gains remain. This shows that improved market access in responsible for about two-thirds of the gains to Brazil from the FTAA; the remaining one-third of the gains comes from the lowering of the MERCOSUR tariff preferentially. We have shown in Harrison, Rutherford, Tarr and Gurgel [2004] that poor Brazilian households gain much more from the reduction in MERCOSUR tariffs in the FTAA than from improved market access.

Impact on Partner and Excluded Countries–Comparison with Multilateral Liberalization. Experience with regional trade arrangements has shown that if the agreement is not mutually beneficial to all parties, then it is unlikely to be effectively implemented or sustained (World Bank [2000]). Agreements may exist *de facto*, but are not implemented effectively. Thus the impact of the FTAA or EU-MERCOSUR on Brazil's partner countries in the trade agreements is relevant to the likely success of the agreements in the long run. Moreover, even if the agreements are beneficial to Brazil and its partners, if the benefits are derived from losses to countries that are excluded from the agreements, then clearly the agreements would be unattractive from the perspective of the multilateral trading system. Thus, it is important to estimate the impact on partner and excluded countries as well. We compare the results to multilateral trade liberalization of 50% tariff and export subsidy cuts. In order to be able to compare gains and losses across countries, in Table 6A and 6B we add the dollar estimates across countries to arrive at a sum for countries included in the agreement or a sum for those excluded from the agreements.

All the agreements considered result in net benefits for virtually all the included countries.[12] These agreements are roughly all trade creating agreements. This reflects the fact that all the agreements create large economic areas, where it may be expected that competition prevails for most products and the most efficient suppliers are likely to be close to the most efficient in the world.

Regarding excluded countries, virtually all excluded countries lose from regional agreements (the impact on Japan of EU-MERCOSUR is an exception for the reasons mentioned above). The agreements are sufficiently trade creating, however, that these agreements generate gains to the world as a whole. For the world as a whole, we estimate that multilateral liberalization generates gains to the world of more than four times the gains from the best of the regional arrangements we consider. This emphasizes the importance to the world trading community of multilateral negotiations.

[12] Argentina loses slightly from the FTAA in our central elasticity case due to the erosion of preferential access in the MERCOSUR markets.

4. Conclusions

Our results suggest that the regional arrangements under consideration by MERCOSUR, the FTAA and an agreement with the EU, can both be expected to result in gains to Brazil. The agreement with the EU is about 1.5 times as valuable as the FTAA due to access to highly protected agricultural markets in the EU. The combined gains from both agreements will be greater than the gains obtained from the sum of the agreements separately due to a reduction of trade diversion. The big countries in these agreements, however, may exclude their most protected products from the agreements. In that case, the FTAA will be more valuable to Brazil than the agreement with the EU.

We find that tariff uniformity also yields benefits for Brazil. Unilateral application of uniform tariffs in MERCOSUR, such that collected tariff revenue in Brazil is unchanged, would yield benefits even larger than a unilateral 50% tariff cut in MERCOSUR.

Our estimates indicate that the apparent Brazilian strategy of simultaneously pursuing a MERCOSUR agreement with the EU plus the FTAA, while supporting multilateral trade liberalization at the WTO, is well considered. Brazil can optimize its choice of trade policies by combining regional arrangements in both the Americas and the EU with multilateral liberalization. If tariff uniformity is added to the regional and multilateral liberalization, still further gains would be realized.

Both the FTAA and the EU-MERCOSUR arrangements are net trade-creating for the countries involved, but excluded countries almost always lose from the agreements. Multilateral trade liberalization results in gains to the world more than four times greater than either of these relatively beneficial regional arrangements, showing the importance to the world trading community of the multilateral negotiations.

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Table 1: List of commodities, regions, factors of production and households

Commodities		**Regions**	
PDR	Paddy rice	BRA	Brazil
GRO	Cereal grains	ARG	Argentina
OSD	Oil seeds	URY	Uruguay
AGR	other agriculture	CHL	Chile
OCR	Other crops*	COL	Columbia
CMT	Bovine meat products	PER	Peru
OMT	Other meat products	VEN	Venezuela
MIL	Dairy products	XAP	Rest of Andean Pact
PCR	Processed rice	MEX	Mexico
SGR	Sugar	XCM	Central America and Caribbean
OFD	Other food products	XSM	Rest of South America
ENR	Energy and mining	CAN	Canada
TEX	Textiles	USA	United States of America
WAP	Wearing apparel	E_U	European Union 15
LEA	Leather products	JPN	Japan
LUM	Wood products	ROW	Rest of World
MAN	Other manufacturing		
I_S	Iron and steel		
FMP	Other metal products		
MVH	Motor vehicles and parts		
SER	Services		
CGD	Savings good		
DWE	Dwellings		

* Note: Our "other crops" is an aggregate of the following sectors from the full GTAP dataset: wheat, vegetables and fruits, fiber based plants, wool, forestry, fishing and the GTAP category other crops.

Factors

CAP	Capital
LAB	Unskilled labor
LND	Land
RES	Natural resources
SKL	Skilled labor

Table 2: Structure of protection for all countries in the sample *

	BRA**	USA	CAN	MEX	ARG	CHL	COL	PER	VEN	URY	XCM	XAP	XSM	EUR	JPN	ROW
PDR	12	5	***	15	12	11	13	22	13	12	25	12	15	65	409	7
GRO	7	1	9	38	7	11	12	12	12	7	9	11	5	44	20	77
OSD	6	18	***	3	6	11	11	12	11	6	5	8	4	3	76	52
AGR	10	3	12	17	10	11	17	12	17	10	12	17	7	13	18	24
OCR	8	14	2	12	9	11	12	16	12	9	9	9	7	10	46	20
ENR	4	0	1	7	5	11	9	12	6	5	6	6	4	1	-1	5
CMT	12	5	16	35	12	11	19	15	19	12	15	18	11	95	36	34
OMT	14	4	72	68	14	11	18	20	18	14	20	19	13	61	58	33
MIL	19	42	215	38	19	11	19	19	17	19	24	18	16	90	287	43
PCR	15	5	1	15	15	11	20	20	20	15	36	20	18	86	409	19
SGR	19	53	5	4	19	11	18	12	18	19	20	17	24	76	116	17
OFD	18	8	29	22	18	11	18	15	19	18	16	18	17	28	34	32
TEX	16	11	16	15	16	11	17	16	17	16	16	11	16	10	8	16
WAP	20	13	21	33	20	11	20	20	20	20	24	15	23	12	13	17
LEA	26	13	15	25	26	11	16	18	18	23	15	15	19	8	15	13
LUM	15	2	7	13	13	11	17	12	16	14	15	15	20	3	3	11
MAN	13	2	3	10	13	11	9	12	10	13	9	9	11	4	1	7
I_S	13	3	5	8	12	11	10	12	12	12	6	9	11	3	3	8
FMP	16	4	6	14	16	11	14	12	15	16	10	12	16	4	1	12
MVH	26	2	5	14	26	10	21	12	25	29	13	20	14	5		13

*Import share trade weighted average import tariff defined over the set of countries subject to positive tariffs.
**See Table 1 for definitions of countries and products.
***There are only imports are from the US and these are not subject to duties.

Table 3A: The Impact of MERCOSUR Trade Policy Options on Different Countries
(welfare change as a percent of consumption – central elasticities)

	AGREEMENTS *							
Country	FTAA (1)	FTAA (excluded products) (2)	EU - MERCOSUR (3)	EU - MERCOSUR (excluded products) (4)	FTAA and EU - MERCOSUR (5)	Unilateral 50% tariff cut (6)	Multilateral Tariff Liberalization by 50% (7)	FTAA no MERCOSUR Liberalization (8)
Brazil	0.6	0.4	0.9	0.1	1.8	0.4	0.9	0.4
Argentina	-0.2	-0.2	2.3	0.2	2.2	0.2	0.8	0.2
Uruguay	1.7	1.6	43.9	1.2	43.4	1.4	7.8	0.4
Chile	1.1	1.1	-0.2	0.0	0.9	0.1	1.3	0.8
Columbia	1.7	2.0	-0.1	-0.1	1.7	0.0	1.0	1.7
Peru	1.0	1.0	-0.1	0.0	0.9	0.0	1.3	1.0
Venezuela	1.1	1.1	0.0	-0.1	1.1	0.0	0.9	1.1
Rest of Andean Pact	1.9	2.0	0.0	0.0	1.9	0.1	2.5	1.8
Mexico	0.3	0.4	0.0	0.0	0.3	0.0	0.5	0.0
Central America and Caribbean	4.3	4.8	0.0	0.0	4.4	0.0	2.1	4.6
Rest of South America	0.8	0.8	-1.2	0.1	0.0	0.3	4.1	0.1
Canada	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.1
United States of America	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
European Union 15	-0.1	0.0	0.5	0.1	0.4	0.0	0.8	-0.1
Japan	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0
Rest of the World	-0.1	-0.1	0.0	0.0	-0.1	0.0	2.3	-0.2

* **FTAA** Free Trade Agreement of the Americas
FTAA (excluded products) Free Trade Agreement of the Americas, with US antidumping policy denying improved access to its four protected sectors
EU-MERCOSUR A Free Trade Agreement between MERCOSUR and the European Union
EU-MERCOSUR Excluded Products-- A Free Trade Agreement between MERCOSUR and the European Union , with the most seven most protected food and agricultural products in the European Union excluded from the agreement.
FTAA and EU-MERCOSUR Free Trade Agreement of the Americas combined with a free trade agreement between MERCOSUR and the European Union
Unilateral 50% tariff cut—a MERCOSUR only tariff cut by 50%.
Multilateral tariff liberalization—All regions reduce tariffs and export subsidies by 50%.
FTAA (no MERCOSUR liberalization) Free Trade Agreement of the Americas, but MERCOSUR does not change its own external tariff to the rest of the Americas.

Table 3B: The Impact of MERCOSUR Trade Policy Options on Different Countries
(welfare change as a percent of consumption – low elasticities)

	AGREEMENTS *							
Country	FTAA (1)	FTAA (excluded products) (2)	EU - MERCOSUR (3)	EU - MERCOSUR (excluded products) (4)	FTAA and EU - MERCOSUR (5)	Unilateral 50% tariff cut (6)	Multilateral Tariff Liberalization by 50% (7)	FTAA no MERCOSUR Liberalization (8)
Brazil	0.2	0.1	0.6	0.0	1.1	0.2	0.6	0.2
Argentina	-0.2	-0.2	1.2	0.0	1.3	0.0	0.5	-0.2
Uruguay	0.0	0.0	17.3	0.2	17.3	0.6	3.4	0.0
Chile	0.6	0.6	-0.2	-0.1	0.4	0.1	0.9	0.6
Columbia	1.0	1.2	0.0	0.0	1.0	0.0	0.7	1.0
Peru	0.5	0.5	-0.1	0.0	0.4	0.0	0.7	0.5
Venezuela	0.7	0.7	0.0	0.0	0.7	0.0	0.6	0.7
Rest of Andean Pact	1.3	1.4	0.0	0.0	1.3	0.1	1.8	1.3
Mexico	0.2	0.2	0.0	0.0	0.1	0.0	0.1	0.2
Central America and Caribbean	3.1	3.3	-0.1	0.0	3.1	0.0	1.5	3.1
Rest of South America	0.2	0.2	-0.9	0.1	-0.4	0.4	1.9	0.2
Canada	-0.1	0.0	0.0	0.0	-0.1	0.0	0.1	-0.1
United States of America	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1
European Union 15	-0.1	0.0	0.2	0.1	0.1	0.0	0.4	-0.1
Japan	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Rest of the World	-0.1	-0.1	0.0	0.0	-0.1	0.0	1.4	-0.1

* See Table 3A for description of Agreements.

Table 4A: The Impact of MERCOSUR Trade Policy Options on Different Countries
(welfare gains in billions of 1996 US dollars – central elasticities)

	AGREEMENTS *							
	FTAA	FTAA (excluded products)	EU - MERCOSUR	EU - MERCOSUR (excluded products)	FTAA and EU - MERCOSUR	Unilateral 50% tariff cut	Multilateral Tariff Liberalization by 50%	FTAA no MERCOSUR Liberalization
Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Brazil	3.1	2.3	5.0	0.5	9.5	1.9	4.6	2.3
Argentina	-0.5	-0.5	5.9	0.5	5.7	0.5	2.0	0.5
Uruguay	0.2	0.2	6.5	0.2	6.4	0.2	1.2	0.1
Chile	0.5	0.6	-0.1	0.0	0.5	0.1	0.7	0.4
Columbia	1.1	1.3	-0.1	-0.1	1.1	0.0	0.6	1.1
Peru	0.4	0.4	0.0	0.0	0.4	0.0	0.6	0.4
Venezuela	0.7	0.7	0.0	0.0	0.7	0.0	0.5	0.6
Rest of Andean Pact	0.4	0.4	0.0	0.0	0.4	0.0	0.5	0.3
Mexico	0.9	1.0	0.0	0.0	0.7	0.0	1.2	0.0
Central America and Caribbean	3.4	3.8	0.0	0.0	3.5	0.0	1.7	3.6
Rest of South America	0.1	0.1	-0.1	0.0	0.0	0.0	0.3	0.0
Canada	0.1	0.3	0.0	0.0	-0.1	0.0	0.8	0.2
United States of America	2.3	2.0	-0.4	-0.4	1.7	0.3	3.0	-0.5
European Union 15	-2.6	-2.2	25.0	5.6	21.2	1.6	39.3	-3.2
Japan	-1.0	-0.9	0.7	0.4	-0.5	0.3	45.7	-1.2
Rest of the World	-4.8	-4.2	-0.2	-0.2	-5.0	1.3	83.6	-5.6
Sum for Included Countries	12.7	12.4	42.3	6.9	51.6	NA	NA	9.1
Sum for Excluded Countries	-8.4	-7.2	-0.2	-0.4	-5.5	NA	NA	-9.9
Sum over all countries	4.3	5.2	42.2	6.4	46.1	NA	186.0	-0.9

* See Table 3A for description of Agreements.

Table 4B: The Impact of MERCOSUR Trade Policy Options on Different Countries
(welfare gains in billions of 1996 US dollars – low elasticities)

	AGREEMENTS *							
Country	FTAA (1)	FTAA (excluded products) (2)	EU - MERCOSUR (3)	EU - MERCOSUR (excluded products) (4)	FTAA and EU - MERCOSUR (5)	Unilateral 50% tariff cut (6)	Multilateral Tariff Liberalization by 50% (7)	FTAA no MERCOSUR Liberalization (8)
Brazil	1.2	0.7	3.1	-0.1	5.6	1.2	3.3	1.2
Argentina	-0.4	-0.5	3.2	-0.1	3.3	0.1	1.3	-0.4
Uruguay	0.0	0.0	2.6	0.0	2.5	0.1	0.5	0.0
Chile	0.3	0.3	-0.1	0.0	0.2	0.1	0.5	0.3
Columbia	0.6	0.7	0.0	0.0	0.7	0.0	0.5	0.6
Peru	0.2	0.2	0.0	0.0	0.2	0.0	0.3	0.2
Venezuela	0.4	0.4	0.0	0.0	0.4	0.0	0.4	0.4
Rest of Andean Pact	0.2	0.3	0.0	0.0	0.3	0.0	0.3	0.2
Mexico	0.5	0.5	0.0	0.0	0.3	0.0	0.2	0.5
Central America and Caribbean	2.4	2.6	-0.1	0.0	2.4	0.0	1.2	2.4
Rest of South America	0.0	0.0	-0.1	0.0	0.0	0.0	0.1	0.0
Canada	-0.2	-0.1	0.0	0.0	-0.2	-0.1	0.4	-0.2
United States of America	3.5	3.3	-0.6	-0.6	2.6	0.4	2.7	3.5
European Union 15	-2.5	-2.3	8.7	4.2	5.3	1.2	21.3	-2.5
Japan	-0.9	-0.9	0.2	0.2	-0.8	0.3	26.3	-0.9
Rest of the World	-3.6	-3.3	-1.1	-0.7	-4.5	0.9	51.8	-3.6
Sum for Included Countries	8.8	8.5	17.5	4.1	23.6	NA	NA	8.8
Sum for Excluded Countries	-7.0	-6.5	-1.9	-1.2	-5.3	NA	NA	-7.0
Sum over all countries	1.7	2.0	15.6	2.9	18.2	NA	110.9	1.7

* See Table 3A for description of Agreements.