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Market Access in the Western Hemisphere: Implications for the Andean Community*

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Abstract

This study contributes to the economic assessment of further trade liberalization in the Western Hemisphere over the Andean Community member countries. The most significant trade liberalization scenarios are identified and simulated by means of the standard, constant returns to scale, GTAP model. The main results show little coincidence in the direction of welfare changes for the Andean countries under the four scenarios analyzed. In a very simplified way, further trade liberalization brings welfare losses for Colombia, Peru, and Ecuador-Bolivia, while Venezuela experiences gains under the implementation of the Free Trade Area of the Americas and loses under the implementation of Free Trade Agreements of the other Andean countries with the U.S. Terms of trade effects play a significant role in determining this outcome. In general, they move against these economies, with the notorious exception of Venezuela. It appears that Andean countries have benefited in the past from trade deviation from other regions as they entered into preferential trade agreements. With the erosion of preferential market access embodied in the scenarios simulated, the increase in competition at the import and export levels tend to adjust the standing of these countries, bringing in new challenges for them.

Keywords: Trade liberalization, Andean Community, Market access.

Jel Classification: F13, F15.

Resumen

Este estudio busca contribuir a la evaluación del impacto económico que una mayor liberalización comercial en el Hemisferio Occidental, puede tener sobre los países miembros de la Comunidad Andina. Los escenarios de liberalización comercial más significativos se identifican y simulan, mediante el uso del modelo GTAP en su versión estándar de rendimientos constantes a escala. Los resultados básicos indican una muy baja coincidencia

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en la dirección de los cambios de bienestar esperables para los países andinos, bajo los cuatro escenarios analizados. De una forma muy simplificada, puede decirse que una mayor liberalización comercial implica pérdidas de bienestar para Colombia, Perú y Ecuador-Bolivia, en tanto que para Venezuela se encuentran ganancias bajo los escenarios que implementan el Área de Libre Comercio de las Américas y pérdidas bajo el que implementa el Acuerdo de Libre Comercio entre sus socios andinos y Estados Unidos. Los términos de intercambio juegan un papel determinante en estos resultados. En general se mueven en contra de estas economías, con la notoria excepción de Venezuela. Al parecer, los países andinos se han beneficiado en el pasado de la desviación de comercio que otras regiones han sufrido, como consecuencia de los acuerdos preferenciales de comercio en los cuales los primeros han participado. Con la erosión del acceso preferencial a otros mercados, implícita en los escenarios simulados, el aumento en la competencia tanto por el lado de las exportaciones como por el de las importaciones, tiende a ajustar la posición internacional de estos países, trayendo con ello nuevos retos para el manejo de sus economías.

Palabras clave: Liberalización de comercio, comunidad andina, acceso a mercados.

Clasificación JEL: F13, F15

1. INTRODUCTION

The aim of this paper is to contribute to the assessment of the economic impact that goods trade liberalization in the context of the Free Trade Area of the Americas (FTAA) and the Bilateral Free Trade Agreement with the United States, would have on the Andean Community member countries. In a more precise way, the paper examines the welfare impact of current trade liberalization agreements (as the Status Quo), and these proposed new policy scenarios.

As trade liberalization in the Western Hemisphere continues, the overlap of preferential market access arising from new trade agreements tends to erode preferences already granted and countries may not be able to reap the benefits that normally ensue from them. The paper mainly examines the main macroeconomic effects of the most significant trade liberalization efforts affecting the Andean Community's member countries. It also provides a glance at these effects viewed at the sectoral level for the scenario that most likely will take place in the near future: the implementation of a Free Trade Agreement between Colombia, Peru, and Ecuador-Bolivia with the U.S. on top of the trade agreements in process of implementation.

The basic results show that, from the point of view of economic welfare, it seems to be scant coincidence of interests between the Andean countries, as there is no single scenario providing these countries the best possible outcome. Welfare losses accruing to Andean countries tend to dominate the results. The effect of terms of trade changes plays a crucial role in determining them.

Winners and losers do not differ much from the ones identified in past studies. In the cases of Colombia and Peru, the sectors showing the highest increase in production are clothing, textiles, and sugar. In the case of Venezuela, machinery and equipment, products derived form energy sources, and minerals. In the case of Ecuador-Bolivia, oilseeds, vegetable fibers, and sugar. On the other hand, among the sectors with the highest decreases in production we find vehicles and transportation equipment for all Andean countries, cereals, and wheat in the cases of Colombia and Ecuador-Bolivia, vegetable oils for Peru, and rice, and agriculture-related products in Venezuela.

The paper is organized as follows. First, some context is provided as to the process of trade liberalization for Andean countries and results from previous studies are briefly discussed. Then, the model and data are described, followed by the description of the experiments performed. The main macroeconomic effects arising from the experiments are presented afterwards. Finally, a glimpse on the effects of the FTA scenario at the sectoral level is provided before concluding with some general comments.

2. THE ANDEAN COMMUNITY'S TRADE AGENDA

Economic integration among Andean countries dates back to 1969 with the creation of the Cartagena Pact. After reaping some benefits from this scheme, inspired in the context of Import Substitution Industrialization policies, integration stalled until 1992 when the signing of a Free Trade Agreement (FTA) between Colombia and Venezuela gave new impetus to it. Proper trade liberalization among Colombia, Ecuador, Bolivia, and Venezuela started in 1992. Peru

joined the FTA later, starting in 1997. In 1996, the Andean Community is officially launched with a set of institutional modifications to the old Cartagena Pact.

Significant trade policy changes, started from the mid 1980s, brought an increasing interest in trade liberalization schemes in the Western Hemisphere. Outward oriented policies gave place to a myriad of trade accords directly or indirectly affecting Andean countries. In 1994, Colombia and Venezuela signed a bilateral FTA with Mexico (the G-3 FTA). Along the 1990s, most Andean countries signed bilateral FTAs with Chile, and attempted to deepen the old partial scope trade agreements with several Latin American countries, that were put in place in the framework of the Latin American Integration Association.

In 1994, during the Summit of the Americas, the initiative for the negotiation and implementation of an FTA covering the entire Western Hemisphere, the FTAA, shaped (or at least deeply influenced) the trade agenda in the Hemisphere. To this date, although negotiations have stalled, the FTAA continuous to be one of the major scenarios for further trade liberalization for Andean countries. In 2004, the Andean Community ended negotiations for the issuing of a FTA with the MERCORSUR, starting a process that will informally lead to the establishment of a FTA covering South America.

Currently, the trade agenda of the Andean Community is marked by the launching of negotiations between Colombia, Ecuador, Peru, and the United States, for the establishment of a FTA. Negotiations are in what is expected to be their final stages and the agreements are supposed to be implemented from January 2006. Additionally, the Andean Community works towards the opening of trade negotiations with the European Community and other regions.

3. LITERATURE REVIEW

Even though not profuse, there are a fair number of studies on the impact of the FTAA. Most of these work at a highly aggregated level in terms of regions and sectors. Studies in this line include ALADI (2004); Gopal, Andriamananjara (2004); Diao, Diaz-Bonilla, Robinson (2002); Diao, Somwaru (2001); and, Hinojosa-Ojeda, Lewis, Robinson (1997). Particular reference to the Andean countries is done in Monteagudo, Rojas, Stabilito, Watanuki (2004); Light (2003); and Arguello (2004).

Monteagudo et al (2004), examines the economic impact of the FTAA, of a FTA between the Andean Community and MERCOSUR, and a series of individual FTAs between Colombia, Ecuador, Peru, and Bolivia, with the U.S. The study focus on tariff elimination, disregarding domestic support and export subsidies, being in this respect similar to the approach we take in our study. However, the authors modeled trade-related externalities that bring about efficiency gains in production, linked to increased trade. All Andean countries attain welfare gains under all scenarios, the ones from the FTAA being the largest.

In Light (2003), the impact of various set-ups for the FTAA on the Andean Community is evaluated. For implementing the FTAA, this study considers that tariffs and subsidies in the Hemisphere are eliminated (and therefore differs from what is assumed in our study, as will be seen). It concludes that welfare gains for the Andean countries tend to be negative but small, as

preferential market access erodes, and that gains from the Andean Trade Preferences Act are positive. Arguello (2004) examines the impact of the implementation of the FTAA on the Andean Community as a region. He finds that modest but positive welfare gains accrue to the region, involving differential effects at the sectoral level.

To the best of our knowledge, our study evaluates for the first time the impact of the FTAA and of the FTA on the Andean Community in the context of the most significant trade liberalization initiatives undertaken by countries in the region. Therefore, it provides the best approximation to the economic results that can be expected, once other trade agreements are implemented and the FTAA or the FTA takes place on top of them.

4. THE MODEL AND DATA

We make use of the static, constant returns to scale version of GTAP, running on the GTAP database version 5.4 (Dimaranan and McDougall, October 2003). The experiments use a general equilibrium closure, allowing for a full adjustment of the economy. The regional aggregation strategy employed seeks to better reflect the current geographical structure of Andean countries trade flows, as well as the issuing of the main recently signed trade agreements (after 1997, the database base year). As for the sectoral aggregation, the 29 sector groupings used in this exercise try to reflect the actual composition of Andean countries exports and imports and keep separate the different degrees of border protection. Tables 1.A and 2.A in the Appendix show the detail on the regions and sectors used.

The database does not include a number of trade preferences that were in place in the base year. For this reason, the Altertax[1] procedure was employed to adjust the tariff levels reflecting the existence of the MERCOSUR, part of the Andean Community, the CARICOM and CACM, as well as the partial implementation of the agreement between Chile and MERCOSUR, Chile and Mexico, the G-3 and the unilateral preferences from ATPA.

5. EXPERIMENTS DESCRIPTION

We run four experiments reflecting the most significant scenarios that current trade liberalization efforts entail. In the first place, we implement the completion of trade agreements that were in course during the base year and those signed within the Western Hemisphere from the base year and up to date. This constitutes the Status Quo scenario, providing the ending point of current trade liberalization directly or indirectly affecting the Andean Community. The second scenario, the FTAA, implements the proposed Free Trade Area of the Americas on top of the accords belonging to the Status Quo.[2] We specify a third scenario as a variation of the latter one, accounting for the possibility that some agricultural sectors maybe excluded from trade liberalization. This scenario is named the FTAA with sensible products. Lastly, the fourth scenario accounts for the possibility that the FTAA will not be implemented, but the Free Trade

[1] The Altertax is a procedure that uses the GTAP model itself to adjust the structure of border protection, keeping as unchanged as possible the shares that regions have in costs and sales.

[2] The FTAA is a proponed free trade agreement encompasing all countries within the Western Hemisphere.

Agreement between three of the five Andean countries (Colombia, Ecuador, and Peru) and the United States is signed. This is the FTA scenario. Table 3.A in the appendix summarizes the content of the scenarios.

6. MAIN MACROECONOMIC EFFECTS

This section summarizes the main macroeconomic effects that trade liberalization, as implied in the scenarios considered, has on the Andean Community's member countries. The discussion evolves around the effects on: welfare, production, trade balance, trade flows, and real factor returns.

6.1. WELFARE EFFECTS

It is well known that welfare effects from discriminatory trade liberalization are the result of forces that tend to improve welfare (trade creation), and forces that tend to deteriorate welfare (trade diversion). Determination of the final outcome is basically an empirical problem, usually solved by using models like this one. Table 1, bellow, shows the welfare effects arising from the Status Quo scenario for the whole set of regions included. Welfare is measured as the equivalent variation, that is, the amount of money that a representative household should be given/taken away to be kept indifferent before price changes induced by, in this case, tariff elimination.

As usual in this type of models, the relative impact of trade liberalization on welfare is modest. The biggest changes are of the order of one percent of GDP, observed in the cases of Central America and the Caribbean, and Argentina. Most regions outside the Western Hemisphere show welfare losses as they suffer from trade deviation due to discriminatory tariff elimination among several countries belonging to the Hemisphere. The notable exceptions to this are China and the European Union, that show welfare gains basically derived from the implementation of the Multi-fiber Agreement (MFA).

Within the Hemisphere, the only regions showing negative welfare effects are Venezuela and Ecuador-Bolivia. In the case of Venezuela, this is basically due to losses in resource allocation, while for Ecuador-Bolivia the main cause is deterioration in the terms of trade. Colombia and Peru, the latter to a higher degree, attain slight welfare gains. This happens as gains in resource allocation more than offset losses arising from terms of trade deterioration. In the case of Colombia, 20 out of the 29 sectors show resource allocation gains while in Peru 21 sectors do.

The Status Quo scenario provides the basis for comparing the results arising from the remaining three. This is so because it represents what the situation of the Andean countries economies will be, once the set of trade agreements already signed in the Hemisphere has been completely implemented. In this sense, the effects of the FTAA and of the FTA with the U.S. must be properly understood as 'marginal' to those of the agreements currently implemented or in course of implementation. Table 2 presents the welfare results for the other three scenarios for the Andean countries.

TABLE 1

WELFARE EFFECTS UNDER THE STATUS QUO SCENARIO

Region	Equivalent Variation (EV) *	% GDP**
Japan	-1,606	-0.04
China	1,937	0.23
Korea	-445	-0.10
R. Asia	-2,499	-0.15
Canada	1,216	0.19
U. S.	6,597	0.08
Mexico	352	0.09
C. A. C.	929	1.00
Colombia	**43**	**0.04**
Peru	**48**	**0.07**
Venezuela	**-37**	**-0.04**
Ecu-Bol	**-100**	**-0.36**
Brazil	2,503	0.32
Argentina	2,946	0.91
R. S. A.	29	0.10
Chile	606	0.80
E.U.	1,682	0.02
R. of Eur.	-259	-0.03
Russia	-84	-0.01
A. N. Z.	-121	-0.03
ROW	-1,930	-0.13

Source: authors' simulations

* 1997 million dollars

** E.V. as a percentage of 1997 GDP

TABLE 2

WELFARE EFFECTS OF THE FTAA AND THE FTA WITH THE U.S. ON THE ANDEAN COUNTRIES (EQUIVALENT VARIATION)

Region	Scenario		
	FTAA	FTAA with sensible	FTA
Colombia	-117	-121	-75
Peru	13	12	17
Venezuela	392	380	-70
EcuadorBol	-83	-69	-142

Source: authors' simulations

All figures in 1997 million dollars

As a consequence of the implementation of the FTAA, the FTAA with sensible products, and the FTA, all regions outside the Western Hemisphere show the same type of results that the ones obtained under the Status Quo scenario. The only difference is that welfare losses (or gains) tend to be bigger (smaller) under the FTAA and FTAA with sensible products, given that the potential for trade diversion is bigger. Intermediate results between these and those of the Status Quo scenario are attained under the FTA scenario.

As for countries within the Hemisphere, Central America and the Caribbean, Colombia, Peru, Argentina, the Rest of South America, and Chile lose welfare as compared to the Status

Quo, when the FTAA is implemented. The same happens when the FTAA is implemented and sensible products are excluded from trade liberalization, although welfare levels are lower than in the case where no exclusions are allowed. Under the FTA, the same direction is observed for welfare results affecting Western Hemisphere countries that do not participate in the agreement. However, given the reduced size of trade involved, changes in welfare results are small.

Andean countries attain different results from each of the scenarios. Colombia and Peru lose welfare, as compared to the Status Quo, under the two FTAA and the FTA scenarios, while Ecuador-Bolivia and Venezuela tend to be better off under the two forms of the FTAA scenario and worse off under the FTA one. This situation would imply a divergence of interest between the Andean countries, making it more difficult for them to act as a trading group in the context of these negotiations. To a large extent, these results are the consequence of changes in the terms of trade. In the particular case of Peru, the effect of improved resource allocation is significant. This seems to be the result of trade liberalization *vis a vis* the other Andean countries, a force that has no role in the latter cases, given that in the base year they already have almost completely liberalized trade among them.[3]

It is worth making an explicit mention of the results for Venezuela. This economy shows in all cases a positive effect from terms of trade changes. In spite of this, under the Status Quo it registers a net negative welfare result due to losses in resource allocation. Under the two FTAA scenarios, Venezuela has positive results from both resource allocation and terms of trade effects. When the FTA is implemented it shows a similar result that under the Status Quo, leading to the worst welfare outcome. This comes as a consequence of losing trade with its Andean partners as U.S. imports get duty free into their economies.

In summary, Colombia loses welfare under the FTAA and FTA and attains modest gains under the Status Quo. This suggests that the economy benefits from trade diversion and that as its preferential access deteriorates the economy gains less. In the case of Peru, welfare results are positive in all cases, the highest belonging to the Status Quo. This seems to be due to the effect that trade liberalization with the other Andean countries has on the economy and to resource allocation improvements. Ecuador-Bolivia is the only Andean region to show welfare losses in all cases. These are always driven by the negative effect of changes in the terms of trade, largely associated to the prices of primary products. This situation is reflected in the region being the only one that shows better welfare results when agricultural sensible products are excluded from trade liberalization. Lastly, welfare results for Venezuela tend to be dominated by positive terms of trade effects. However, losses in resource allocation under the Status Quo and FTA scenarios lead the economy to welfare losses.

6.2. EFFECTS ON PRODUCTION

Across scenarios and Andean countries, the most common result of enhanced preferential market access is a slight decrease in the value of GDP. Table 3 illustrates this result and shows that the Peruvian case is the only one in which the economy attains welfare gains while its GDP shrinks. Under the Status Quo the Colombian and Peruvian GDP rise while those of Venezuela

[3] Peru started liberalizing trade with the other Andean countries afterwards.

and Ecuador-Bolivia decrease, moving in line with welfare results. The two FTAA scenarios lead to GDP decreases for all Andean countries but Venezuela, and the FTA scenario produces GDP decreases in all cases. The above may indicate that as relative preferential market access deteriorates, the Andean economies tend to shrink in a negligible manner.

TABLE 3

CHANGES IN ANDEAN COUNTRIES' GDP UNDER ALL SCENARIOS*

Region	Scenario			
	Status Quo	**FTAA**	**FTAA with sensible**	**FTA**
Colombia	0.005	-0.011	-0.009	-0.008
Peru	0.001	-0.010	-0.009	-0.008
Venezuela	-0.005	0.004	0.005	-0.009
EcuadorBol	-0.010	-0.022	-0.019	-0.023

* Figures correspond to percentage changes from 1997's GDP.
Source: authors' simulations

From the point of view of the expenditures side, under the Status Quo scenario trade presents in the case of all Andean countries the most important contribution to GDP changes. The highest contributions are found for Colombia and Peru, while for Ecuador-Bolivia it is lower. In the case of Venezuela, only the contribution from imports is significant. Exports do not contribute above the other components of GDP, but its place is taken by investment.

The FTAA scenarios lead to the highest contributions of trade to changes in GDP for all Andean countries. However, in the case of Venezuela these are high only for imports. Lastly, under the FTA scenario, Colombia and Peru show contributions of trade to changes in GDP that are of a similar level to those observed under the FTAA scenarios. For Ecuador-Bolivia these are slightly lower, and for Venezuela the contribution from imports is the least important among all scenarios.

6.3. EFFECTS ON THE TRADE BALANCE

As expected from tariff elimination, the trade balance worsens for all countries under every scenario considered. However, there are no cases in which the deterioration of the trade balance causes a switch in the net position that the economy has in the base year. Therefore, the deterioration arising from trade liberalization simply worsens a trade deficit or reduces a trade surplus already in existence.

This is the effect of changes in the volume of trade flows and of changes in the terms of trade. Exports from the Andean countries show a relatively high dependence on bilateral trade with the U.S. As the latter brings little improvement in market access for Andean countries, due to the presence of unilateral preferences in the base year, the deterioration in the trade balance tends to be of a larger size than what can be deemed as usual.

In the case of Colombia, the smaller deterioration in the trade balance arises under the Status Quo scenario, where its trade deficit increases in seven percent. On the other hand, the largest is originated in the FTA scenario with an increase of almost 12 percent. Peru also finds the

smallest increase in its trade deficit under the Status Quo (10%), but the largest arises under the FTAA (15.4%). Ecuador-Bolivia shows results similar to the ones from Peru, with trade deficit deteriorations in the order of 7 and 16 percent, respectively. Finally, the trade surplus of Venezuela, the only in the region, shrinks the least under the FTA scenario (8.2%) and the most under the FTAA scenario (21.4%). It is interesting to note that even though the largest deterioration that Venezuela has in its trade balance is under the FTAA scenario, it provides Venezuela with its largest welfare gain.

6.4. Effects on Trade Flows

As mentioned above, the Andean countries show a relatively high concentration of trade with the U.S. Imports from the U.S. account for 32, 25, 37, and 24 percent of total imports of Colombia, Peru, Venezuela, and Ecuador-Bolivia, respectively. On the side of exports, figures are of a similar order in all cases. In all the scenarios considered trade with countries outside the Western Hemisphere decreases in different proportions according to the extent of preferential market access granted in each scenario.

Under the Status Quo, the share of trade with the U.S. for the Andean countries decreases too. This is due to tariff elimination *vis a vis* Mexico, in the case of Colombia and Venezuela, and *vis a vis* MERCOSUR and Chile for practically all Andean countries. The effect of the two FTAA scenarios on trade with countries outside the Hemisphere is the most negative of all. In these cases, Andean countries' trade with the U.S. concentrates the most and intra-community trade suffers as preferential market access within the Community erodes. Under these scenarios, imports from the U.S. reach shares of the order of 39, 31, 41, and 29 percent in the cases of Colombia, Peru, Venezuela, and Ecuador-Bolivia. As expected, the geographical structure of Andean trade under the FTA scenario tends to be similar under the Status Quo and FTA scenarios, with the difference that in the latter, trade with the U.S. increases the most (except in the case of Venezuela, since it does not takes part in this agreement).

6.5. Effects on Real Factor Returns

Real returns to land under the Status Quo decrease in all Andean countries but Ecuador-Bolivia.[4] This is a consequence of the decrease in returns to the agricultural sector. The largest decrease happens in the case of Colombia (-4.38) and the smallest in Venezuela (-0.1). Real returns to the other factors (unskilled labor, skilled labor, and capital) increase in all cases, the ones corresponding to Peru being the largest.

Under the FTAA scenario, real returns to land decrease in Colombia (-4.5) and Peru (-0.2), while increase in Venezuela and Ecuador-Bolivia (1.4 and 2.6, correspondingly). Unskilled labor shows increases in real returns in all countries, being the largest among all scenarios. These are 1.2 for Colombia and 1.7 for the rest of Andean countries. Skilled labor shows return gains too, which are larger than in the Status Quo but smaller than under the FTA scenario. Returns to capital increase also for all Andean countries, being the largest among all scenarios in all cases but Colombia. Compared to the FTAA scenario, the FTAA with sensible products

[4] As usual in GTAP, real factor returns are measured as the ratio of the factor price index to the consumer price index.

scenario favors returns to land in all Andean countries, but it does so at the expense of lower real gains for the rest of factors (although higher than under the Status Quo).

The FTA scenario leads to real returns to land that are of similar magnitude to those under the FTAA with sensibles for all countries but Venezuela, case in which returns to land are the lowest among all scenarios and negative. Unskilled labor shows gains below the ones attained under the FTAA but higher than under the Status Quo. Skilled labor and capital get return gains that are smaller than under the FTAA scenario in the cases of Peru, Venezuela, and Ecuador-Bolivia, while in the case of Colombia these are marginally larger.

In summary, agricultural land returns tend to fluctuate. In Colombia, they decrease under all scenarios. In Peru, decrease under the Status Quo and the FTAA scenarios, but increase under the other two. In Venezuela decrease under the Status Quo and FTA scenarios and increase under the two remaining scenarios. In Ecuador-Bolivia, land returns increases in all cases. The best results for real land returns are attained under the FTAA with sensibles scenario. On the other hand, returns to unskilled labor, skilled labor, and capital, increase under all scenarios for all Andean countries. Unskilled labor returns increase the most under the FTAA scenario. Skilled labor and capital returns also increase the most under the FTAA scenario in all cases but Colombia, case in which the largest increases are attained under the FTA scenario.

7. MAIN EFFECTS OF THE FTA AT THE SECTORAL LEVEL

Negotiations for the FTAA have been stalled for more than a year now. Differences in the treatment to be given to domestic support and export subsidies, as well as the reach of issues such as intellectual property rights have led to this situation. Given these circumstances, the most likely scenario for Andean countries is the signing of the FTA with the U.S. For this reason we present some sectoral detail on the effects of the FTA scenario, which, as said, implements this FTA on top of undergoing trade liberalization processes.

7.1. RESOURCE ALLOCATION

In general, the effects arising from resource allocation and those from terms of trade changes are the most significant components of the welfare effects arising from the FTA scenario. Positive resource allocation effects, in this context, are second best effects accruing from expansion of production in sectors that are subject to taxes. Negative effects come from expansion in sectors that are subsidized. Table 4 shows for each Andean country the top five sectors making positive contributions to resource allocation.

As shown in the table, three out of the five sectors in Colombia and Ecuador-Bolivia belong to the agricultural sector. In the cases of Colombia and Peru the clothing sector generates gains, although in the latter these are smaller. In the case of Peru, products derived from energy sources, and machinery and equipment account for the biggest resource allocation gains. Finally, in the case of Venezuela only the beverages and tobacco products sector generate resource allocation gains of some significance. This is due to the fact that this economy shows important resource allocation losses in the face of market access deterioration *vis a vis* its Andean partners.

TABLE 4

TOP FIVE SECTORS WITH POSITIVE CONTRIBUTIONS TO RESOURCE ALLOCATION (1997 MILLION DOLLARS)

Colombia		Peru		Ecuador-Bolivia		Venezuela	
Clothing	70.9	Derived	57.6	M & E	3.1	B & T	3.4
Textiles	16.4	M & E	52.7	Meat	2.3		
Meat	10.5	Clothing	7.3	Other Food	2.1		
Veg. Oils	4.9	Energy	5.9	Energy	2.0		
Other Food	4.6	Other Food	5.0	Veg. Oils	1.8		

Source: authors' simulations

Resource allocation effects in the case of Colombia are mostly linked to trade taxes, mainly export taxes. For this reason, the biggest contributions to resource allocation gains come from the clothing and textiles sectors. In contrast, in the case of Peru this type of gains arise from input and consumption taxes. Machinery and equipment originates the bulk of gains as for input taxes, while products derived from energy sources do the same for consumption taxes. Therefore, for Peru, resource allocation gains tend to come from lower priced imports substituting for relatively more expensive domestic production. It is worth remembering that Ecuador-Bolivia shows resource allocation losses under the FTA scenario. Therefore, sectoral contributions to allocative efficiency gains are scant. The most important is found for machinery and equipment, which originates in gains associated to input taxes as cheaper imports benefit sectors using it in their production processes.

7.2. TERMS OF TRADE

For Colombia, Peru, and Ecuador-Bolivia, negative terms of trade effects are the dominant force in determining the welfare outcome arising from the FTA scenario. In the case of Venezuela, terms of trade effects are positive but small and can not compensate for resource allocation losses. Given that Andean countries entering into the FTA with the U.S. experience negative terms of trade effects, we concentrate in briefly examining the sectoral contribution to this outcome. Table 5 presents the set of top five sectors contributing negatively to terms of trade effects in each of the Andean countries.

TABLE 5

TOP FIVE SECTORS WITH NEGATIVE CONTRIBUTIONS TO TERMS OF TRADE EFFECTS (1997 MILLION DOLLARS)

Colombia		Peru		Ecuador-Bolivia		Venezuela	
Clothing	-107	Metals	-17	Other Food	-29	Veg. Oils	-14
Textiles	-21	Clothing	-16	Metals	-20	M & E	-13
Other Crops	-20	Derived	-12	M & E	-9	Metals	-13
Veg. & Fru.	-8	Other Food	-11	Chemicals	-9	Chemicals	-9
M & E	-7	Energy	-9	Veg. & Fru.	-7	Veg. & Fru	-6

Source: authors' simulations

It is interesting to note that in the cases of Colombia, Peru, and Ecuador-Bolivia, there is a relatively high coincidence between sectors contributing negatively in terms of trade effects and sectors contributing positively in allocative efficiency. For Colombia, the deterioration in the terms of trade for the first four sectors listed in Table 5 comes from decreases in export prices while in the case of the last one it arises from a decrease in the world price. For Peru, the deterioration of terms of trade originates in declining export prices with the exception of clothing for which it is due to the decline in the world price.

In the case of Ecuador-Bolivia, losses linked to metals, machinery and equipment, and chemicals are associated to increases in import prices as domestic demand triggers them. Those arising from other food, and vegetables and fruits, in turn, depend on declining export prices. For Venezuela, the situation is more complex as a mixture of declining world prices, declining export prices, and increasing import prices affects the sectors that contribute the most to terms of trade deterioration.

7.3. PRODUCTION

Observing the impact of trade liberalization on sectoral production does the usual identification of "winners" and "losers". Tables 6 and 7 show the top five sectors for which there are increases and decreases in production levels, respectively, for all Andean countries.

The expansion in production is linked to increased exports for all sectors listed, in the cases of Colombia, Peru, and Ecuador-Bolivia. In the case of Venezuela, growth in products derived from energy sources, chemicals, an metals, is linked to exports increases, while that of energy sources is associated to increased domestic demand and the one belonging to machinery and equipment to both exports increase and growing domestic demand.

TABLE 6

TOP FIVE SECTORS WITH INCREASING PRODUCTION LEVELS

Colombia		Peru		Ecuador-Bolivia		Venezuela	
Clothing	934	Clothing	178	Other Food	37	Derived	107
Textiles	277	Textiles	165	Veg. & Fru	36	Chemicals	69
Sugar	102	Metals	128	Ag. Relat.	35	Energy	65
Leather	34	Other Food	55	Metals	20	M & E	45
Energy	5	Sugar	53	Clothing	18	Metals	40

Source: authors' simulations

TABLE 7

TOP FIVE SECTORS WITH DECREASING PRODUCTION LEVELS

Colombia		Peru		Ecuador-Bolivia		Venezuela	
Vehicles	-342	M & E	-289	Vehicles	-94	Vehicles	-701
M & E	-202	Vehicles	-95	M & E	-23	Ag. Relat.	-12
Metals	-111	Chemicals	-39	Meat	-17	Veg. Oils	-10
Chemicals	-104	Veg. Oils	-30	Other Crops	-15	Meat	-10
Other Food	-85	O. Manuf.	-27	Cereals	-13	Veg. & Fru	-6

Source: authors' simulations

Decreases in production levels for Colombia, Peru, and Ecuador-Bolivia, are mostly due to decreased demand for domestic goods from both private households and firms. In the case of Ecuador-Bolivia, the decrease in other crops production basically arises from lower exports. For Venezuela there is a mixture of causes between decreased domestic demand and lower exports, as a result of imports competition and the erosion of preferential market access to its Andean partners.

8. CONCLUSIONS

The evolution of preferential market access, as represented in the experiments carried out in this study, leads to diverging welfare results for Andean countries. The Status Quo scenario generates gains for Colombia and Peru, and losses for Ecuador-Bolivia and Venezuela. The FTAA scenarios give rise to losses for all Andean countries but Venezuela. Lastly, the FTA scenario produces losses for Colombia, Ecuador-Bolivia, and Venezuela, while modest gains for Peru.

In general, terms of trade play a crucial role in determining the welfare effects. These tend to be negative with the only exception of the case of Venezuela, for which they largely determine the welfare outcomes. Seemingly, what happens is that Andean countries have benefited in the past from trade diversion from other countries as they entered preferential trade agreements. With preferences erosion due to further trade liberalization, as embodied in the experiments, the Andean countries suffer economic adjustments in the face of increased import and export competition.

Effects on production tend to be more homogeneous than welfare effects. Only under the Status Quo Colombia, Peru, and Ecuador-Bolivia, show diverging trends, while under the two FTAA and the FTA scenarios the GDP decreases in all cases. As for Venezuela, GDP decreases under the Status Quo and FTA scenarios, but increases under the two FTAA scenarios.

The trade balance deteriorates for all Andean countries under all scenarios, as trade flows tend to concentrate with the U.S. The only case in which the share of trade with the U.S. decreases is under the Status Quo. In all cases, as could be expected, intra-Andean Community trade decreases as other regions gain preferential access to this market. Real returns to land show a varied pattern among countries and scenarios, but unskilled labor, skilled labor, and capital consistently show gains, although in different proportions.

From the description of the sectoral effects of trade liberalization under the FTA, we can identify "sources of welfare gains" and "sources of welfare losses" based on sectoral net contribution to economic welfare. For this, we add each sector's contribution to welfare from allocative efficiency to its contribution from changes in the terms of trade. This provides an interesting comparison to sectors identified as "winners" and "losers" from the standpoint of production changes.

The following sectors act as sources of welfare gains for each of the Andean countries. For Colombia, in order of importance, we have energy, meat, other manufactures, products derived from energy sources, and vegetable oils. For Peru: machinery and equipment, products derived from energy sources, processed rice, sugar, and products related to agriculture. For Ecuador-Bolivia, these are energy, meat, sugar, fish, and clothing. For Venezuela: energy, products derived form energy sources, beverages and tobacco products, fish, and processed rice.

On the other hand, the sources of welfare loss are, in the case of Colombia, clothing, vehicles, other crops, machinery and equipment, and vegetables and fruits. In the case of Peru, metals, minerals, clothing, chemicals, and other food. For Ecuador-Bolivia these are other food, metals, minerals, vehicles, and chemicals. Finally, for Venezuela these are vehicles, machinery and equipment, metals, vegetable oils, and chemicals.

From the above, it follows that there is no necessary coincidence between the list of sectors with growing or decreasing production and the sources of welfare gains or welfare losses. This simply calls the attention to the fact that, in envisioning industrial policies that adequately address the problem of easing the adjustment of the economy to freer trade, it is not enough to identify the traditionally called "winners" and "losers" for achieving appropriate policy-making. The challenge that Andean countries face from further trade liberalization is that, before eroding preferential market access, they do not only need to find common ground for moving together in trade negotiations, but also to design coherent industrial policy that fits their need to ease the transition to a more competitive Hemispheric market and that helps in reaping the seemingly scant benefits that arise from it.

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APPENDIX

TABLE 1.A

REGIONAL AGGREGATION

Code	Region Name	Countries Included (as in GTAP database)
Japan	Japan	Japan
China	China	China
Korea	Korea	Korea
R. Asia	Rest of Asia	Hong Kong, Taiwan, Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam, Bangladesh, India, Sri Lanka, Rest of Asia
Canada	Canada	Canada
U. S.	United States	United States
Mexico	Mexico	Mexico
C. A. C.	Central America and Caribbean	Central America-Caribbean
Colombia	Colombia	Colombia
Peru	Peru	Peru
Venezuela	Venezuela	Venezuela
Ecu-Bol	Ecuador and Bolivia	Rest of Andean Pact
Brazil	Brazil	Brazil
Argentina	Argentina	Argentina
R. S. A.	Rest of South America	Rest of South America
Chile	Chile	Chile
E.U.	European Union (15)	Austria, Belgium, Denmark, Finland, France, Germany, United Kingdom, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal, Spain, Sweden
R. of Eur.	Rest of Europe	Switzerland, Rest of EFTA, Albania, Bulgaria, Croatia, Czech Republic, Hungary, Malta, Poland, Romania, Slovakia, Slovenia, Estonia, Latvia, Lithuania, Cyprus
Russia	Russia and former USSR	Russian Federation, Rest of Former Soviet Union
A. N. Z.	Australia and New Zealand	Australia, New Zealand
ROW	Rest of the World	Turkey, Rest of Middle East, Morocco, Rest of North Africa, Botswana, Rest of SACU, Malawi, Mozambique, Tanzania, Zambia, Zimbabwe, Other Southern Africa, Uganda, rest of Sub-Saharan Africa, Rest of World

TABLE 2.A
SECTORAL AGGREGATION

Code	Group Name	Sectors Included (as in GTAP database)
Paddy Rice	Paddy Rice	Paddy rice
Proc. Rice	Processed Rice	Processed rice
Wheat	Wheat	Wheat
Cereals	Cereals	Cereal grains nec
Veg. & Fru.	Vegetables and Fruits	Vegetables, fruit, and nuts
Oilseeds	Oilseeds	Oil seeds
Veg. Oils	Vegetable oils and fats	Vegetable oils and fats
Sugar	Sugar	Sugar cane; sugar beet; Sugar
N. Fibers	Natural Fibers	Plant-based fibers
O. Crops	Other crops	Crops nec
Livestock	Livestock	Cattle, sheep, goats, and horses; Animal products nec
Meat	Meat and meat products	Meat: cattle, sheep, goats, horse; Meat products nec
Dairy	Dairy	Raw milk; Dairy products
Fish	Fisheries	Fishing
O. Foods	Other foods	Food products nec
B. & T.	Beverages and tobacco	Beverages and tobacco products
Ag. related	Agriculture-related products	Wool, silk-worm cocoons; Forestry; Wood products
Leather	Leather products	Leather products
Textiles	Textiles	Textiles
Clothing	Clothing	Wearing apparel
Minerals	Minerals and mineral products	Minerals nec; Mineral products nec
Energy	Energy sources	Coal; Oil; Gas
Derived	Products derived from energy sources	Petroleum, coal products
Chemical	Chemical products and other products	Chemical, rubber, plastic prods
Metals	Metals and metal products	Ferrous metals; Metals nec; Metal products
M & E	Machinery and equipment	Electronic equipment; Machinery and equipment nec; Transport equipment nec
Vehicles	Vehicles and parts	Motor vehicles and parts
O. Manuf.	Other manufactures	Paper products, publishing; Manufactures nec

TABLE 3.A.
EXPERIMENTS (SCENARIOS) DESCRIPTION

Scenario	Description
1. Status Quo	Implements the completion of the trade accords in place during the base year. It assumes that complete tariff elimination is achieved and that it covers all sectors. Besides, considers implementation of the following accords: Chile-Colombia, Chile-Venezuela, Chile-Canada, Chile-Central America, Chile-Korea, Chile-European Union, Chile- U.S., Chile-Peru, Mexico-European Union, Mexico-Central America, CAN-MERCOSUR, and U.S.-Central America. It also takes into account the completion of the Multifiber Agreement.
2. FTAA	To the accords implemented in the Status Quo scenario, this one adds the implementation of the FTAA. This is understood as the complete tariff elimination for trade in goods among all Western Hemisphere countries.
3. FTAA with sensible products	Similar to the FTAA scenario but considers that some agricultural sectors, deemed as sensible, are excluded from trade liberalization. The excluded sectors comprise: rice, wheat, cereals, oilseeds, vegetable oils, meat, dairy, and sugar. It is important to notice that these sectors are excluded from trade liberalization in all the agreements implemented after 1997.
4. FTA	To trade liberalization under the Status Quo scenario, this adds the implementation of the FTA between Colombia, Ecuador, and Peru with the U.S. (no FTAA is implemented in this case).