

TECHNICAL REPORT

# Analytical Work to Support Peruvian Trade Policy Decisions

An Assessment

**SUBMITTED TO**  
USAID/Peru  
USAID/Colombia

**SUBMITTED BY**  
CRECER Project

**UNDER CONTRACT NO.**  
PCE-I-802-00-00013-00 Task Order 802

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CRECER Project  
Nathan Associates Inc.  
Lima, Peru

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**UNDER CONTRACT NO.**  
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Sponsored by USAID, the Creating Conditions for Economic Revitalization (CRECER) Project, 2003–2006, helps Peru and other Andean countries overcome trade constraints and strengthen their competitiveness in the world economy. The project provides technical assistance and guidance to policymakers and private sector groups on eliminating structural and systemic barriers that inhibit business efficiency, trade, and investment in the region.

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# Introduction

Since 1990 the Peruvian economy has undergone an important and modernizing transformation. A stabilization program ended the ongoing hyperinflation brought on by governmental economic mismanagement in the late 1980s. Accompanying stabilization were a series of structural reforms designed to reduce macroeconomic imbalances, redefine the role of the state, strengthen markets, increase economic efficiency, and promote economic growth and development.<sup>1</sup>

A critical component of the structural reforms initiated in the early 1990s has been trade policy liberalization. In 1990 trade policy had succeeded in isolating Peru from the world and imposing substantial inefficiencies on the economy. Import barriers were very restrictive, consisting of high tariffs with multiple and distortionary rates and extensive nontariff barriers. Reforms began to dismantle this elaborate protective system. First, the number of import items either prohibited or restricted was drastically reduced, falling from 93 percent of all tariff line items in June 1989 to 10 percent in July 1990.<sup>2</sup> While a number of prior government authorizations still exist for a wide variety of products, their number and degree of automaticity imply a nontariff barrier system today of much greater openness.

Import tariffs have become the main means of providing protection to domestic producers, and substantial liberalization has also taken place in simplifying and bringing tariffs down. As demonstrated in Table 1, average nominal tariffs have been reduced from 46.5 percent in 1990 (with 39 different tariff rates) to 10.4 percent in 2003. While the current average tariff rate seemingly compares favorably with many Latin American countries, it is higher than most Asian countries and many countries which have experienced high rates of export and economic growth. Moreover, the Peruvian average tariff of 10.4 percent does not include some difficult to measure non-ad-valorem, or specific, tariff surcharges for a number of agricultural and food products. For example, these surcharges – levied on products considered to be sensitive to import competition – include additional ad- valorem tariff

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<sup>1</sup> An excellent discussion of policy changes in the 1990s is presented in Roberto Abusada *et al.*, editors, *La Reforma Incompleta* (Lima: Universidad del Pacifico, 2000).

<sup>2</sup> Abusada, *et al.*, *Integrando el Perú al Mundo* (Lima: Universidad del Pacifico, 2001), p. 57.

equivalents on rice (25-50 percent), sugar (111 percent), corn (12 percent), powdered milk (30-46 percent) and butter (44 percent). In addition, a temporary surcharge on textile and clothing imports from China is currently being applied under a safeguards trade provision.

**Table 1-1**

*Average MFN Tariff Rates, 1990-2003*

Period	Average Tariff Rate (%)	Standard Deviation	Number of Separate Tariff Rates (%)
July 1990	46.5	25.7	39
August 1990	38.1	12.4	24
January 1991	26.3	13.3	4
March 1992	17.6	4.4	2
July 1993	16.3	3.4	2
April 1997	13.5	3.5	4
March 1998	13.5	3.5	4
September 2002	10.9	6.1	7
December 2003	10.4	5.2	7

*Note: Excludes non-ad-valorem surcharges on certain sensitive agricultural products.*

*Sources: Abusada et al., Integrando el Perú al Mundo, for 1990-98. Torres et al., "Apertura Comercial e Protecciones Efectivas en el Perú" for 2003. Illescas, "Lineamientos de Política Arancelaria," and author's calculations for 2003.*

With the *de facto* dismantling of most nontariff barriers and the significant reduction of tariffs, anti-export biases in economic policies have been considerably reduced. This is most dramatically illustrated by the fall in effective tariff protection. As witnessed in Table 2, average rate of effective protection was brought down from 44 percent in 1991 to 17 percent in 2002.<sup>3</sup> Importantly, the variance around the mean was also reduced, signifying less cross-sector distortions. Nevertheless, effective protection for some sectors remains quite high. The most heavily protected sectors include dairy products, footwear, apparel and clothing, food products, and beverages.<sup>4</sup> All of these sectors, while heavily protected, display considerable diversity in product variety and competitiveness, with successfully exporting firms existing along side of less efficient firms.

The trade policy reforms, and other measures to strengthen markets and improve economic efficiency, have contributed to increased economic growth and export expansion. The Peruvian economy has grown by some 4.5 percent annually since 1991 (as opposed to -1.2 percent annually during 1986-1990). Non-traditional exports have grown at a rate of 11.1

<sup>3</sup> The modest increase of the average rate of effective protection from 1997 to 2002 (from 14 to 17 percent) can probably be attributed to the increase in the number of tariff rates, which included the introduction of lower nominal tariff rates for many intermediate goods.

<sup>4</sup> A sector disaggregation of effective tariff protection rates is presented in Annex Table 1.

percent annually during the period 1993-2003, with manufacturing exports contributing importantly to this growth. Following the trade reforms, as expected, some sectors contracted, while others have expanded vigorously. Production has fallen in such sectors as electrical household appliances, automobile manufacturing, fertilizers, heavy machinery, leather footwear, paper products, pharmaceutical products, electrical machinery and sugar. Among the sectors more than doubling output between 1991 and 1999 have been ceramics, basic chemicals, food products, fishmeal, and plastic products.<sup>5</sup> Nonferrous metal products, cement, glass, and dairy products have also experienced significant growth. A similar pattern of “losers” and “winners” might be expected from further trade policy liberalization.

**Table 1-2**

*Rates of Effective Tariff Protection, Selected Years*

Year	Average Effective Protection Rate (%)	The Two Most Heavily Protected Sectors	
		Description	Effective Protection Rate (%)
1991	43.9	Clothing	87.6
		Beverages and Tobacco	62.6
1997	14.4	Dairy Products	38.4
		Footwear	26.3
2002	17.2	Dairy Products	47.2
		Footwear	38.7

Sources: Torres et al., “Apertura Comercial e Protecciones Efectivas en el Perú,” PUCP Informe del Proyecto PM42 (Lima: PUCP, Junio 2003), pp. 30-34. The estimates for 1991 and 1997 are reported from work by Rossini and Boloña and Illescas, respectively.

The question of further trade policy liberalization and reforms is currently at issue. The unilateral trade liberalization most marked during the 1990-97 period has seemingly run its course, and questions exist as to whether further unilateral liberalization is either likely or politically feasible. Indeed, the possibilities currently afforded by the various forms of regional trade agreements present an opportunity to consolidate and expand trade liberalization, promote greater integration into the world economy, and achieve improved living standards for the Peruvian population.

The objective of this note is to help identify economic work that can either be accessed or undertaken to assist Peruvian policy-makers in assessing the impacts of various regional trade agreements and therefore in supporting the formulation of negotiating strategies best representing Peruvian national interests. A special emphasis is provided on the proposed US-

<sup>5</sup> Abusada et al., *Integrando el Perú al Mundo*, p. 104.

Peru Free Trade Agreement (FTA) and the Free Trade Area for the Americas (FTAA). The remainder of this note is organized as follows: Section II presents a discussion of regional trade agreements; Section III describes analytical work best suited to assess the impact of the proposed US-Peru FTA and FTAA agreements, including computable general equilibrium (CGE) models and sectoral studies based upon partial equilibrium analyses. Finally, Section IV presents some proposed next steps, both in terms of a short-term strategy (February 2004-February 2005) and a longer-term strategy to equip the Peruvian Government (especially the Ministry of Foreign Trade and Tourism, MINCETUR) to analyze trade policy issues more effectively.

# 1. Regional Trade Arrangements (RTAs)

## Main Features and Appeal of RTAs

In recent years the number of regional trade agreements has increased markedly, mostly in the form of free trade areas, as opposed to deeper economic integration in the form of customs unions formation (with a common external tariff and other possible features). The United States has entered into five such free trade agreements currently in force (NAFTA and separate free trade agreements with Israel, Jordan, Singapore and Chile). The European Union, whose growth and success has motivated the formation of many RTAs, has entered into 50 separate RTAs, 31 of which are with developing country partners entered into since 1989.<sup>6</sup>

The primary motivations for seeking entrance into RTAs may not be economic, but rather political in nature. Country governments are driven by security considerations – both intraregional and extraregional. Such considerations frequently weigh heavily as reasons to enter into an RTA. Similarly, a country's international bargaining power may be increased with its entrance into an RTA, and such an association may also enhance its prospects for obtaining cooperation on such things as common projects and environmental concerns. Moreover, the entrance into an RTA may provide a basis for a country government to lock in policy reforms.

Economic advantages may also constitute an important appeal for a country to seek entrance into an RTA. In addition to trade creation effects, a county's terms of trade may also be benefited. An RTA may also bring positive pro-competitive effects, including economies of scale, greater efficiency and increased productivity. Increased inducements for investment may exist with a larger and more competitive market, and foreign direct investment may also increase.

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<sup>6</sup> Information on existing RTAs is available on the WTO website ([www.wto.org](http://www.wto.org)).

## The Current Status of Peru's Involvement in Regional Trade Arrangements

Over the years Peru has entered into a number of regional trade arrangements. A summary listing of the most relevant Peruvian RTA involvement is presented in Table 3. Some separate mention is warranted for Peru's participation in the Andean Community. Various attempts have been made to convert the Andean Community into a customs union through the implementation of a common external tariff. The most recent attempt dates from January 2002 for an agreement (the Declaration of Santa Cruz), which was approved in the form of Decision 535. This decision, subsequently and provisionally modified to accommodate a Colombian request, established a tariff schedule consisting of 5 separate tariff rates (0, 5, 10, 20 and 35 percent). Under this scenario, Peru's average tariff would increase from 10.4 percent to 11.5 percent, and the average level of effective protection would increase from 17.2 percent to 19.5 percent.<sup>7</sup> Since such an arrangement is clearly not in Peru's economic interest, action on the common external tariff has been deferred – presumably pending the outcome of the ongoing FTAA negotiations.

Should a meaningful FTAA come into being, there may be still some advantages for Peru's entrance into an Andean Community customs union (although not as currently proposed). A customs union – with its common external tariff – simplifies customs procedures among members of the union, as rules of origin can be largely forgone in trade among union members. A customs union arrangement would become economically attractive for Peru if the common external tariff were kept low and, ideally, uniform. Indeed, the participation of Chile – the most Andean of all countries – might become economically feasible under such an arrangement.

**Table 1-1**

*Peruvian Participation in Existing Regional Trade Agreements*

Agreement/Institution	Starting Date	Nature	Comments
ALADI (Asociación Latinoamericana de Integración) (successor to earlier LAFTA begun in 1960)	1980	Overall objective is to create a Latin American common market.	Limited tariff preferences agreed. Voluntary intraregional agreements emphasized. Slow progress.

<sup>7</sup> Torres *et al.*, "Apertura Comercial e Protecciones Efectivas en el Perú," PUCP Informe del Proyecto PM42 (Lima: PUCP, Junio 2003), pp. 77-80.

Andean Community	1969 (revived in 1991)	Organization for international economic cooperation. FTA and customs union objectives.	Limited progress on FTA. Deadlock on customs union, with no agreement on common external tariff.
Chile-Peru Free Trade Agreement	1999 ?	Agreed FTA objective.	Slow and incomplete implementation. Disproportional liberalization on the Chilean side.
APEC (Forum for Asian-Pacific Economic Cooperation)	1998	FTA and regional cooperation objectives.	Voluntary action for Governments to implement agreed long term FTA objectives. No progress to date in such implementation.
MERCOSUL	2003	Peruvian FTA with MERCOSUL	Not yet effective. Product lists under discussion. Full FTA by 2019.
ATPDEA (US Act for Andean Trade Preferences and Drug Eradication)	2000	Zero tariffs for most Peruvian products in the US market	Temporary institutionalization of US granted GSP for Andean countries.

***STRATEGY CONSIDERATIONS.* THE GROWTH IN THE NUMBER OF RTAS THAT PERU IS PARTICIPATION IN OR IN WHICH PARTICIPATION IS BEING SOUGHT SUGGESTS THAT A STRATEGY OF EFFECTIVE TRADE LIBERALIZATION THROUGH MULTIPLE RTAS IS BEING PURSUED. SUCH A STRATEGY CAN BRING BENEFITS TO THE COUNTRY BUT POSSESSES SOME COSTS AS WELL. COUNTRIES SUCH AS MEXICO AND CHILE SEEM TO BE PURSUING SUCH STRATEGIES.**

**CHILE IS NOW IN THE PROCESS OF IMPLEMENTING AGREED FTAS WITH THE EUROPEAN UNION, THE US, JAPAN AND ISRAEL, ALONG WITH SEVERAL OTHER COUNTRIES. IN DOING SO IT HAS ACHIEVED WIDE AND DUTY-FREE MARKET ACCESS FOR ITS PRODUCTS IN MANY MAJOR MARKETS. THE COSTS OF PURSUING SUCH A STRATEGY CENTER ON POTENTIAL INCONSISTENCIES AND THE RELATED UNCERTAINTY THAT SUCH MULTIPLE FTAS MIGHT IMPLY FOR INVESTORS AND OTHER ECONOMIC AGENTS. MOREOVER, FINANCIAL AND TIME COSTS FOR THE GOVERNMENT ARE INVOLVED IN THE NEGOTIATION OF MULTIPLE AGREEMENTS.**

### III. Assessing the Impact of the Proposed US-Peru FTA, the FTAA, and other

#### Trade Policy Arrangements

#### A. Computable General Equilibrium (CGE) Models

In assessing the effects of different trade policy arrangements, including regional trade agreements, two different, but complementary, types of economic analyses are appropriate and well suited. They involve the use of (a) computable general equilibrium (CGE) models and, secondly (b) sectoral studies founded on partial equilibrium analysis undertaken to go beyond the insights afforded by CGE work and provide greater sectoral detail and understanding. Quantification of the effects of trade policy changes is desirable in order to best assess the magnitudes of effects, the trade-offs and benefits/costs to different policy alternatives. The use of CGE models and sector studies complement each other in terms of their quantitative results. (See Table 4). Some important effects of RTAs however are essentially non-economic or political, as indicated above. These effects can not be quantified.

*Major Features of CGE Models.* Over the past twenty years the use of CGE models has become commonplace in order to assess the effects – both direct and indirect – of economic shocks or policy changes. Advances in computational techniques have facilitated the use of such models. The basic idea underlying a CGE modeling exercise is relatively simple. It involves: (a) the construction of a mathematical model of an economy; (b) the collection of data for a time period for those variables for which data are available; (c) calibration and solution of the model mathematically to establish the initial equilibrium values; (d) imposition of a shock to the initial equilibrium in the form of some exogenous event, such as a policy change; and (e) the observation of simulations derived from the introduction of the shock on various variable values.

CGE models are founded on Walrasian general equilibrium theory in which market prices and quantities are simultaneously determined. Economic agents comprising firms, households and government make economic decisions related to production and consumption for different goods and services. Equilibrium conditions are established in the multiple goods and services markets such that demand and supply conditions determine prices and quantities. Factor markets - generally specified as land (for agriculture), capital and labor - are similarly specified. CGE models are general in the sense that they include all the economy's sectors and economic agents. Consequently, upon solution all the effects - direct and indirect - of a given shock can be assessed.

*Table 4: Quantification of the Effects from RTAs: CGEs vs. Sector Studies*

Effects	Sector Studies	
	CGE Models	
Economic Effects:		
Static Economic Effects:		
Trade creation and diversion	XX	X
Terms of trade	XX	X

Cross sectoral effects	XX	X
Net changes in welfare/GDP	XX	X
Scale and Dynamic Effects:		
Pro-competitive effects	X	XX
Economies of scale	X	XX
Efficiency/Productivity	X	XX
Investment	X	XX
Foreign direct investment	N	X
Market structure and industrial organization	N	X
Industrial location and regional effects	N	X
Non-Economic/Political Effects:		
Enhanced Intraregional Security	N	N
Enhanced Extraregional Security	N	N
Increased Bargaining Power	N	N
Improved Regional and Project Cooperation	N	N
Locking in Reforms	N	N

Note and Key:

XX quantifiable effects

X limited measurement, some quantification possible

N no quantification possible.

Source: Author's elaboration.

The advantages in the use of CGE models for policy simulations are several. First, such models are based upon solid microeconomic theoretical foundations. Second, they are complete in that they model the entire economy and can be used to capture and estimate *total* effects, taking into account interdependencies and linkages imbedded in the functioning of the economy. Third, CGE models generate quantifiable results for the impact of policy changes, including for output, resource allocation, and welfare. Income distributional implications can also be simulated. Fourth, since policy impacts are quantitatively estimated, analyses of alternative policy packages can be assessed and ranked in a consistent framework. Fifth, CGE models are well suited to analyze major policy changes as opposed to the marginal changes analysis stemming from an analytical general equilibrium approach.

While the advantages of CGE models are powerful, serious shortcomings are also present. First, CGE models require massive and detailed data inputs, building upon an elaborate social accounting matrix framework, including household consumer surveys, national account information, fiscal data, trade flow and restriction information, etc., for the multiple regions (or countries) being modeled. Since the reliability of such secondary data is often questionable, models employing such data to construct a benchmark period equilibrium possess no real means to test the model structure, as is frequently possible with the statistical testing of econometric models. Moreover, the simulation results will be heavily dependent upon the benchmark year data, as well as the model parameters and any other related assumptions. Second, the aggregation in CGE models, normally mandated by data limitation considerations, may mask important effects in any simulation. In other words, sectoral detail can not reasonably be expected from CGE models. Third, the more elaborate and detailed the CGE model, the more likely it is to become a “black box” for which result interpretation is difficult. Fourth, there is no time dimension in a CGE model. The supposition is that with the imposed shock (e.g., policy change) the economy moves from one equilibrium to another. How long this adjustment takes is a matter of judgment. Fifth, there is no financial sector in CGE models. Sixth, and very importantly, despite efforts to dynamize CGE models, they are essentially comparative static models.

*Use of CGE Models in Policy Simulations.* While initially confined to universities and research institutions, CGE models are now also widely used by governments to assess the impacts of policy changes. A recent survey estimated that government CGE modeling capability and use were present in at least 20 countries around the world.<sup>8</sup> Policy simulation impact analysis using CGE models has

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<sup>8</sup> Shantayanan Devarajan and Sherman Robinson, “The Influence of Computable General Equilibrium Models on Policy,” International Food Policy Research Institute, TMD Discussion Paper No. 98 (August 2002).

taken place to assess trade policy changes, public finance and fiscal reform, agriculture, migration, labor market issues, income distribution and structural reform. With time and the improvement of modeling and computational techniques, the models have become more sophisticated, realistic and, at the same time, difficult to interpret. The “first generation” of CGE models generally assumed that all markets were perfectly competitive, while a “second generation” of models has been able to include increasing returns to scale and imperfect competition, thereby enabling the models to better reflect scale economy and competitive effects. “Third generation” CGE models have sought to endogenize some dynamic effects, including allowing for investment, productivity growth and externalities related to trade.

When these different generations of CGE models are used to assess the impact of regional trade and integration arrangements, the more simple “first generation” models generally show that most RTAs have positive, but very small, aggregate welfare effects. The net effect of trade creation and trade diversion effects, as simulated with such models, has generally run less than 1 percent of GDP. The use of “second generation” models have increased the measured gains to an order of about 2-3 percent of GDP, while “third generation” models have presented net gains in the magnitude of around 4-5 percent of GDP.<sup>9</sup> A recent study of Mexico’s entrance into NAFTA, in part based upon a CGE model, has concluded that Mexico’s GDP has increased by 4-5 percent of GDP as a result of NAFTA membership.<sup>10</sup>

#### CGE Modeling for Peru: Results of Policy Simulations for a Peru-US FTA and FTAA

*Universidad Católica.* A basic CGE model has been established by a team of economists in the Department of Economics of the Pontificia Universidad Católica del Perú (PUCP). The model in use so far is a static model incorporating assumptions of perfect competition and constant returns to scale. Efforts are currently ongoing to extend the model to incorporate increasing returns to scale and imperfect competition for the manufacturing sector and to include some dynamic elements. The model used so far uses the GTAP5 database and is calibrated for 11 regions and 8 sectors. The base year (or initial equilibrium) is for 1997 (dependent upon the database availability). The modeling effort

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<sup>9</sup> For a discussion, see World Bank, *Trade Blocs: A World Bank Policy Research Report* (New York: Oxford University Press, 2000).

<sup>10</sup> World Bank, *Lessons from NAFTA for Latin America and the Caribbean: A Summary of Research Findings* (Washington: World Bank, 2003).

has been institutionalized at PUCP, and expectations are that improvements, including data updating, will be gradually incorporated.

While the ongoing modeling effort is also intended for other policy simulations, some initial (and still preliminary) simulations have been undertaken for differing regional trade policy arrangements. The overall simulation results for ATPDEA and the FTAA are presented below in Table 5.<sup>11</sup> Simulated sectoral production results are presented in Annex Table 2; the sectors where expansion is the highest include textiles/clothing and food products. Simulations were also undertaken for the effects of Peru joining a genuine free trade area for the Andean Community and for a free trade zone for South America. In both of these cases, the net positive welfare effects for Peru are substantially less than for the FTAA. This result is consistent with other work also showing that the benefits for the South (or developing countries) are generally greater with entering into RTAs with the North (or industrialized countries) than with other Southern countries.<sup>12</sup>

*Inter-American Development Bank (IDB).* Over the past several years the IDB's Integration and Regional Programs Department has assembled a small team of economists charged with developing a CGE modeling framework primarily for the purpose of analyzing regional trading arrangements and initiatives. A Latin American based CGE has been developed. While the GTAP5 database is used as a starting reference point, the IDB database is built upon national social accounting matrixes (where possible), and the trade and trade restrictions information come from the hemispheric database assembled by the IDB in conjunction with the ongoing FTAA discussions. Different exercises have involved different regional and sectoral groupings, although the basic model runs with 15 productive sectors. The year 1997 is taken as the base year. Efforts to make the modeling framework more dynamic have included the incorporation of elasticities for trade flows and productivity to reflect positive externalities linked to trade. Ongoing work to extend the modeling framework includes efforts to include increasing returns to scale and imperfect competition for manufacturing sectors.

Using this CGE framework and the IDB hemispheric trade database, and a number of different simulations have been undertaken.<sup>13</sup> Some basic simulation results are presented in Table 5.

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<sup>11</sup> For a summary of the preliminary results, see Gabriela Cuadra *et al.*, "Escenarios de Integración para el Perú en la Economía Mundial," PUCP, Presentación hecha em Power Point en Septiembre 2003. No simulation results are yet available for the proposed Peru-US FTA.

<sup>12</sup> One such study is Monteagudo and Watanuki, "An Empirical Assessment of North-South and South-South Agreements for Latin America," IDB Working Paper, November 2003.

<sup>13</sup> Inter-American Development Bank, *Beyond Borders: The New Regionalism in Latin America*, Economic and Social Progress in Latin America: 2002 Report (Washington: Inter-American Development Bank, 2002), pp. 52-55. Other IDB reporting

Unfortunately, separate estimates for Peru are not yet available from the IDB work.<sup>14</sup> The simulation results presented in Table 5 for Peru+ include the grouping of Peru, Ecuador and Bolivia. Since Peru accounts for about two-thirds of the collective GDP for this group of countries, the results are presumably representative for Peru.

Table 5: CGE Simulations under Different Regional Trade Policy Agreements:  
Estimated Effects for Peru, in %

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on CGE simulations is contained in various papers by Monteagudo and Watanuki, *op cit.*, as cited in this note's list of references.

<sup>14</sup> Some very preliminary IDB results were presented in a workshop in MINCETUR in September 2003. The presentation however contained incomplete results and posed questions of consistency with other IDB simulations. See Monetagudo *et al.*, "Impacto de Diferentes Estrategias Hemisféricas en el Comercio de Perú," Power Point presentation made September 18-19, 2003.

Impacted Variable	Universidad Católica		IDB (Peru +) <sup>1</sup>	
	ATPDEA	FTAA	US FTA	FTAA
	GDP	0.06%	0.27%	1.78%
Total Exports	2.1	9.7	4.4	8.3
Total Imports	2.1	10.0	4.0	7.5
Exports to FTA Partners	22.6	26.1	n.a.	n.a.
Imports from FTA Partners	2.6	26.9	n.a.	n.a.

Notes: 1. For the IDB simulations Peru+ also includes the smaller economies of Bolivia and Ecuador.

Sources: Gabriela Cuadra *et al.*, "Escenarios de Integración para el Perú en la Economía Mundial," PUCP, Presentación hecha en Power Point en Septiembre 2003 and Monteagudo and Watanuki, "An Empirical Assessment of North-South and South-South Agreements for Latin America," IDB Working Paper, November 2003.

Comparing the simulations made with the PUCP and IDB CGE models, a number of observations are relevant. First, it would appear, as expected that the ATPDEA, US-Peru FTA and the FTAA are all beneficial for Peru. GDP is seen to increase in all cases. Second, as simulated by the PUCP and IDB models, total Peruvian exports increase with the FTAA by roughly similar amounts. Third, as expected, exports increase more with the FTAA than with the US-Peru FTA. The opening of Latin American markets is important for expanding Peruvian exports. Fourth, the net welfare gains to Peru (as represented by GDP growth) are seen as greater under the IDB model simulations as opposed to the PUCP simulations. The explanation for this is the inclusion of some dynamic effects into the IDB CGE model.

*Universidad del Pacifico.* In addition to that of the Universidad Católica, a promising, Peruvian-based, effort to construct and use for policy simulations is that currently being undertaken by the Universidad del Pacifico. A competent team of economists, including some statistical expertise, has been formed, and work has begun. The initial CGE will be intentionally a simple one - with, for example, perfect competition and small economy assumptions - but the model will take on more realistic complications as the experience evolves. A major feature is to construct the domestic economy base upon Peruvian data and assumptions. This effort, although promising, is still in its early stages, and there are to date no policy simulations yet available.

*Andean Community.* The headquarters of the Andean Community has recently undertaken an analytical effort to assess the impact of different regional trade arrangements on the Andean Community countries. This effort has involved contracting an international consultant to undertake some CGE model based simulations.<sup>15</sup> The CGE model used is based upon the GTAP5 framework and database, employing 10 productive sectors and with separate breakouts for the Andean Community countries (although Ecuador and Bolivia are lumped together for data availability reasons). The simulations are first made of the effects of the ATPDEA (which, as expected, show

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<sup>15</sup> Comunidad Andina, *Análisis del Impacto del ALCA en la Comunidad Andina* (Lima: Secretaria General de la Comunidad Andina, 2003).

positive net benefits in terms of consumption and welfare, along with expanded trade flows) for both Peru and Colombia, as well as for the Andean Community as a whole. There are difficulties in assessing the results for the ensuing FTAA simulations, however. Those simulations are based upon an initial equilibrium with the ATPDEA effects incorporated in the base. In reality, there is no *sequential* choice for the Andean Community countries between sticking with ATPDEA or joining the FTAA. The ATPDEA provisions, granted by the US government, are time bound, with expiration scheduled for 2006. In addition, even if the ATPDEA benefits were unilaterally extended by the US, there is no guarantee that they would be permanent. The US could withdraw them at any time, whereas either an FTA or the FTAA would reduce this uncertainty with stipulated treaty commitments.

## B. Sectoral Studies

Sector studies of trade policy effects, building upon partial equilibrium analysis, complement and extend in greater detail the indicative results from CGE models. Both types of approaches are useful in assessing the impact stemming from alternative trade policy arrangements, such as an RTA. In Peru there are many individual sector studies available for various sectors, especially for the agricultural sectors, but these studies are not generally focused on the impact of possible trade liberalization or other changes in trade policy arrangements. Indeed, some common special features and characteristics are central if sector studies are to be useful to policy-makers in the discussion and negotiation of diverse RTAs.

Questions that should be posed in such analytical work involving specific sectors include the following:

1. What are the sector specific net welfare gains accruing to the country as a result of adherence to the proposed RTA? What are the related production effects likely to result from the RTA? Using partial equilibrium analysis, sector specific welfare changes stemming from the RTA can be estimated. Trade creation and diversion can be determined and quantified, along with changes in producer surplus, consumer surplus and tariff revenues. Significant sector knowledge and understanding – both in Peru and the prospective RTA partners - are required to model and quantitatively estimate these changes. Price comparisons in the work are critical, implying much greater ease of analysis for more standardized products. In the case of the US-Peru FTA the analysis should involve the use of Peruvian domestic prices, US prices and international prices.

The price changes associated with the FTA can be simulated along with their production, trade, consumption and revenue effects.<sup>16</sup>

2. For those sectors where output and/or export expansion are anticipated as a result of the RTA, is it likely that there will be a supply response to either the increased relative prices and a more competitive environment? What are the impediments to the sector's supply response? A properly done sector should be able to identify such impediments, which may be caused by market imperfections, domestic regulation, institutional rigidities, or other market distortions. Recommendations as to how to deal with such impediments to market supply response would be an important component for the envisaged sector studies.
3. What are the sectoral employment effects likely to result from the RTA? While CGE simulation models can provide some notions of the employment effects, further and more in-depth analysis may be necessary. CGE models are generally based on perfect competition assumptions in labor markets, and also no distinction is commonly made between labor - and skill - categories. In reality, there may be considerable labor market rigidities or peculiarities which can not be captured in more aggregative analyses. Since employment is of central concern to any government entering into an RTA, more in-depth analysis at the sector level may provide important insights for policy-makers.
4. What are the implications of the RTA for market structure for the sector in question? And how might the existing market structure influence the outcome? Most manufactured and nontraditional service sectors are characterized by imperfect competition. Sector studies are necessary to examine the relationship between market structure and trade. An RTA, for example, may make for a more competitive sector market and either increase or diminish concentration. Analysis can be useful for policy formulation.
5. What are the likely effects of the RTA on sector investment? And how might the RTA affect foreign direct investment? In sectors which expand as a result of an RTA, new investment is likely to occur. Examining how, how much, where and what type of investment is likely to occur can be addressed in sector studies.
6. What are the likely effects of the RTA on productivity and technological enhancement? One commonly observed effect of more open trade policy environments is an increase of productivity. This may be because of increased competitive pressures or the embodiment of productivity enhancing technology in new investment. Sector studies can usefully address related issues.
7. What are the implications of the RTA for industrial location and geographical dispersion? One frequently observed feature of trade liberalization is the certain geographic regions may be

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<sup>16</sup> An illustrative case study is a sector study done recently by Gary Pursell for the Indian cement industry. See Gary Pursell, "Study of India-Bangladesh Trade and Trade Policies: Case Study Simulations of Economic Welfare Effects of a Free Trade Agreement," World Bank working paper, December 2003.

negatively impacted. Sector studies can help identify regions either losing or gaining from an RTA.

8. Finally, what can the Government do to enhance the gains for those sectors benefited by the RTA and to cushion and facilitate (but not forestall) adjustment in negatively impacted sectors? Any proposed government interventions should be seen as supporting the adjustment and transition to a more competitive environment. They also should be budgeted and analyzed for cost effectiveness.

There are several criteria available for selecting sectors that might be productively analyzed. First, CGE simulations can indicate *grosso modo* which sectors are likely to expand and to contract as a result of the RTA. (See Annex Table 2) The level of aggregation in the sector designation may hide important features, and more information about the outlying expanding or contracting sectors can be useful for policy-makers. Both the identified major “winners” and “losers” from the RTA merit more careful analysis than that afforded from the CGE alone. .

A second criterion for selecting sectors for more in-depth analysis is to base that considerations of recent growth and export performance. How is the RTA likely to affect that performance? Third, protection in the domestic market – including effective protection – can be used as screening criterion for selecting sectors for study. (See Annex Table 1) With the presumed reduction in protection, what will happen? Or is that protection redundant? Fourth, sectors important for the economy can not be neglected, and policy-makers charged with negotiating RTAs need to have a sense of what the impact may be on those sectors. All four of these criteria can be used to suggest some relevant sector studies to support the Peruvian Government’s position for RTA negotiation.

#### *IV. Suggested Next Steps*

##### A. Short Term (February 2004-February 2005)

The suggested analytical work is driven by the negotiating schedules for the US-Peru FTA and the FTAA. With the FTA negotiations envisaged to begin in March 2004, time is critical if there is to be any usefulness of such work to the Government’s negotiation team, which is already formed and preparing for the negotiations. Accordingly, a number of near-term tasks are suggested, roughly covering the period February 2004 to February 2005. To the extent that the negotiations drag out, greater flexibility would exist in the overall suggested program of tasks. In the medium term, efforts would be intended to strengthen MINCETUR’s longer-term capability to do analytical work on trade policy issues.

*CGE Analysis.* While over the medium term it may be desirable to have an in-house CGE capability, developing that capability takes time and resources. Moreover, in the near term there are issues related to the pending and ongoing discussions for the Peru-US FTA and the FTAA which would benefit from additional CGE analysis. At present the best choice in Peru for undertaking that analysis

lies in the CGE model which has been established at the Universidad Católica (PUCP). The team responsible for that model should be asked, or contracted, to undertake some additional simulations incorporating some refinements in the scenarios and exercises. First, a run for the scenario of a US-Peru FTA should be easily feasible and quickly producible within the present modeling framework. Second, probably less easily produced, simulations should be carried out with a greater sectoral disaggregation than the current 8 sectors. Scenarios for the US-Peru FTA, the FTAA, and the ATPDEA, as well as other possible trade policy scenarios, should be simulated for comparison purposes. Third, for comparison purposes simulations for different RTA scenarios should be run with a given commercial balance closure rule. Likewise, additional simulations could be run to test the sensitivity of the results to parameter choice (such as price elasticities). Fourth, the extensions of the CGE framework currently underway at PUCP should be supported. Those efforts involve the introduction of imperfect competition elements in the model and relaxing the constant scale economies assumptions. Fifth, when available (expected in March 2004) the GTAP6 database and framework should be made available to the PUCP team.

MINCETUR-PUCP cooperation and collaboration are key for the advancement of MINCETUR objectives both with respect to obtaining CQE simulations to support the FTA and FTAA preparations and to developing a longer term CGE capability within MINCETUR. Seconding some key personnel from PUCP to MINCETUR, possibly with Proyecto Crecer support, would help in developing MINCETUR's CGE modeling capabilities. In purchasing the soon-to-be-released GTAP6, a sharing arrangement (i.e., between MINCETUR and PUCP) could be negotiated with the supplier.

The IDB CGE model also holds some promise for Peruvian policy analysis, if for no other reason than providing a basis of comparison and reference point for the PUCP CGE modeling and simulations. The IDB should be requested by MINCETUR to undertake some Peru specific simulations and make them available to the Government. Such simulations should include those for a US-Peru FTA. To help assure appropriate responsiveness on the part of the IDB, the Government request should be made at a non-technical level (although some initial sounding out of the personnel involved might prove helpful). Further informal technical assistance from the IDB, including training at IDB headquarters in Washington, should also be encouraged.

*Sector Studies.* To a certain extent, the distinction between the short and medium terms for the suggested work program is flexible (at least for the less pressing activities) and dependent upon budgetary considerations and available technical expertise to undertake the work. This is most clearly the case with the suggested sector studies. Using the four selection criteria specified above, a number of potentially significant (in terms of their policy implications) can be identified. A first cut of sector studies would include: (a) textiles; (b) clothing and apparel; (c) dairy products; (d) fruit production;

and (e) vegetables (including truck farming products such as asparagus and artichokes). In addition, and alternatively, Proyecto Crecer should respond to MINCETUR requests and interests to undertake specific sector studies. Terms of reference for the proposed studies can be developed fairly quickly.

B. Medium Term (to begin as soon as feasible)

*CGE Analysis.* Depending upon MINCETUR's evolving capabilities with CGE modeling and the suggested cooperative arrangement with PUCP, the proposed joint MINCETUR-PUCP effort in CGE modeling will have to be reassessed. Eventually a full fledged and free-standing CGE modeling effort in MINCETUR may be advantageous. Desirable extensions of the CGE framework would include additional efforts to endogenize dynamic effects such as investment and productivity gains into the model. Income distributional effects should also be added.<sup>17</sup> Another desirable extension would be to include a regional dimension within Peru (such as the specification, for example, of regions representing the greater Lima metropolitan area, the North, the South and the East). Such an extension would necessarily have to await the availability of a stronger statistical base.

*Sector Studies.* Flexibility in sector choice should exist for the sector studies, especially after the initial studies are carried out. Their usefulness to the Government will need to be assessed, with any necessary modifications made in their design, execution and/or dissemination. In addition to the five sector studies suggested above, additional candidates for analytical work along the lines described above would include: (i) steel; (ii) metalworking; (iii) ceramics; (iv) processed foodstuffs; (v) chemicals; (vi) footwear; and (vii) wood products.

*Capacity Building within MINCETUR.* In addition to developing a CGE modeling capability within MINCETUR, more general economics training and professional development should be supported. This would include: (a) short training courses abroad (such as, for example, some of those routinely administered by the World Bank) for MINCETUR staff; (b) an exchange program for a resident foreign scholar (professional economist) to spend a period in residence in Lima working in MINCETUR; (c) an exchange program between MINCETUR and Peruvian universities; and (d) the establishment of an informal seminar program to draw on available expertise to present topics of

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<sup>17</sup> See David Tarr, Glenn Harrison, Thomas Rutherford and Angelo Gurgel, "Regional, Multilateral and Unilateral Trade Policies for Growth and Poverty Reduction in Brazil," unpublished World Bank working paper, March 2002.

interest to MINCETUR staff. On a more ambitious scale, graduate school training abroad in economics for MINCETUR economists and staff would be expensive but could bring substantial longer-term benefits.

*Strengthening of the National Statistical Database for Economic Analysis.* If high quality economic analysis is to be done for the Peruvian economy (including work on a CGE model), improvements in the national economic database are necessary. A starting point would be to undertake a revision of the existing input-output table, possibly beginning anew based upon the industrial census planned for 2004.

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Annex Table 1: Estimated Rates of Effective Tariff Protection, September 2002, expressed in %

Sector	Effective Protection Rate (%)
Agriculture and Livestock	18.6
Fishing	17.0
Petroleum Extraction	-1.5
Minerals	-1.6
Dairy Products	47.2
Fish Products	30.1
Fishmeal	-11.7
Grain Processing and Milling	30.0
Sugar	17.6
Other Foodstuffs and Products	34.8
Beverages and Tobacco	31.6
Textiles	26.6
Clothing and Apparel	34.5
Leather Products	15.7
Footwear	38.7
Wood Products	20.4

Paper and Paper Products	14.6
Printing and Publishing	18.9
Basic Chemicals	7.3
Pharmaceutical Products	16.9
Other Chemicals	14.5
Petroleum Refining and Products	35.2
Plastic Products	10.5
Non-Metallic Mineral Products	17.2
Steel	17.4
Non-Ferrous Metal Products	-2.6
Metalworking	13.6
Machinery	11.8
Electrical Machinery	19.0
Transportation Equipment	16.2
Other Manufacturing	19.5
Average (unweighed)	17.2

Source: Jorge Torres, Alan Fairlie y Gabriela Cuadra, "Apertura Comercial e Protecciones Efectivas en el Perú," PUCP Informe del Proyecto PM42, Junio 2003.

Annex Table 2: Simulated Sector Output Changes in Response to ATPDEA and FTAA Arrangements, expressed in %

Sector	ATPDEA	FTAA
Agriculture	3.42	0.64

Livestock	1.88	1.13
Mining and Metal Products	-0.78	-0.65
Food Products, including Seafood Products	1.50	0.78
Textiles and Apparel	3.95	4.09
Light Manufacturing, inc Wood, Paper and Leather Products	1.15	-0.14
Petroleum Products, Heavy Manufacturing and Chemicals	0.62	-3.17
Services	1.18	0.66

*Source:* Gabriela Cuadra, David Florián y Alan Fairlie, "Escenarios de Integración para el Perú en la Economía Mundial," PUCP, Presentación hecha em Power Point en Septiembre 2003.