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# Economic Impact of Freer Trade in Latin America and the Caribbean: A GTAP Analysis

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# Structure of Presentation

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# Background

- The Latin America and Caribbean countries were growing rapidly in the past decades.
- The financial crisis has affected trade of the LAC region.
- According to ECLAC estimates, the volume of regional trade (exports and imports) shrank approximately by 13% in 2009.
- This new less favourable international conditions call for greater regional cooperation, not only to contain the adverse impact from this crisis, but also to improve the region's position in the global economy.
- The Latin American and Caribbean countries need to take a more coordinated approach to tightening ties with Asia-Pacific and Europe.
- The LAC- EU summit at Peru, 2008 and recently at Madrid 2010 is an attempt to strengthen LAC-EU coordination and cooperation.

- The Latin American and Caribbean countries are becoming increasingly important to a globalizing India in recent years.
- Several Latin American and Caribbean countries and officials of the Government of India are finding ways of augmenting trade and commerce between India and the LAC countries.

# Initiatives by LAC-INDIA

- Preferential Trade Agreement (PTA) with MERCOSUR
- Preferential Trade Agreement (PTA) with Chile
- Institutional Mechanisms

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# Preferential Trade Agreement (PTA) with MERCOSUR

- Under this PTA, India and MERCOSUR have agreed to give tariff concessions, ranging from 10% to 100%.
- The major product groups (MERCOSUR)…….

food preparations, organic chemicals, pharmaceuticals, essential oils, plastics & articles thereof, rubber and rubber products, tools and implements, machinery items, electrical machinery and equipments.

- The major products (India)……..

meat and meat products, inorganic chemicals, organic chemicals, dyes & pigments, raw hides and skins, leather articles, wool, cotton yarn, glass and glassware, articles of iron and steel, machinery items, electrical machinery and equipments, optical, photographic & cinematographic apparatus.

The Agreement has been signed on March 2005.

# Preferential Trade Agreement (PTA) with Chile

- India has offered to provide fixed tariff preferences ranging from 10% to 50% at the 8 digit level to Chile
- Chile offered India  a similar range of tariff preferences at the 8 digit level.
- India has offered tariff concessions relate to

meat and fish products, rock salt, iodine, copper ore and concentrates, chemicals, leather products, newsprint and paper, wood and plywood articles

- Chile's offer covers some

agriculture products , chemicals and pharmaceuticals, dyes and resins, plastic, rubber and miscellaneous chemicals, leather products, textiles and clothing, footwear

- The Agreement has been signed on March 8, 2006.

# Institutional arrangements

- (a) Indo-Argentine Joint Commission
- (b) Indo-Argentine Joint Trade Committee
- (c) Indo-Mexican Joint Commission
- (d) Indo-Brazilian Commercial Council
- (e) Indo-Cuban Joint Commission
- (f) Indo-Cuban Trade Revival Committee
- (g) Indo-Suriname Joint Commission
- (h) Indo-Guyana Joint Commission

## India’s trade with Latin American countries (Values in US$ million)

| Year | Export values | Import values | Total trade | Balance of trade |
|---|---|---|---|---|
| 1996-1997 | 478.74 | 593.71 | 1072.45 | -114.97 |
| 1997-1998 | 699.83 | 580.42 | 1280.25 | 119.41 |
| 1998-1999 | 611.31 | 730.69 | 1342.00 | -119.38 |
| 1999-2000 | 652.46 | 936.74 | 1589.20 | -284.28 |
| 2000-2001 | 978.42 | 707.71 | 1686.13 | 270.71 |
| 2001-2002 | 1455.71 | 989.73 | 2445.44 | 465.98 |
| 2002-2003 | 1636.36 | 1044.92 | 2681.28 | 591.44 |
| 2003-2004 | 1777.13 | 1194.13 | 2971.26 | 583.00 |
| 2004-2005 | 2160.71 | 2054.80 | 4021.51 | 105.91 |
| 2005-2006 | 2956.01 | 2409.43 | 5365.44 | 546.58 |
| 2006-2007 | 4456.81 | 6278.14 | 10734.95 | -1821.33 |
| 2007-2008 | 5905.51 | 6669.60 | 12575.11 | -764.09 |
| 2008-2009 | 6430.26 | 10224.32 | 16654.58 | -3794.06 |

*Department of Commerce, Export-Import Data Bank, Government of India, New Delhi*

Brazil is the main destination of exports followed by Mexico, Colombia and Argentina.

Chile is the top exporter to India followed by Brazil and Argentina.

Chemicals and pharmaceuticals are the top exports of India followed by engineering products.

Copper is an important item of Chile's exports and Vegetable oils from Argentine.

# Efforts by LAC-EU

The 1999 founding Summit of Rio de Janeiro has been followed by several bi-annual Summits held in Madrid, Spain (2002); Guadalajara, Mexico (2004); Vienna, Austria (2006); and Lima, Peru (2008) and recently in Madrid (Madrid Declaration, 2010).

All these events have facilitated further deepening of the EU-LAC relations in order to reaffirm their commitment to continue promoting and strengthening Bi-regional Strategic Partnership based on common principles, values and interests.

- The EU and Brazil launched their Strategic Partnership at the first EU Brazil Summit in 2007 .
- On December 17, 2007 the European Commission initiated an Economic Partnership Agreement with the CARIFORUM countries.
- The EPA fully opens the EU market to Caribbean exports and gradually opens the Caribbean market to new trade from the EU.
- Both Mexico (2000) and Chile (2003) have concluded Free Trade Agreements with the EU which cover both trade and investment.
- Recently held Madrid Summit(2010), re-launch negotiations for an EU-MERCOSUR Free Trade Agreement, political approval to the conclusion of a comprehensive trade agreement between the EU and the Andean Countries (Peru and Colombia) as well as the endorsement of the conclusion of the negotiations between the EU and Central America.

# LAC and EU Trade

- LAC's trade with the EU has increased remarkably since 1980, particularly during the last decade resulting in trade figures that more than doubled between 1990 and 2008(approximately €180 billion in 2008) (MEMO/10/191, MEMO/08/286).
- In 2007 the EU represented around 14% of Latin American exports and 19% of Caribbean export. These numbers are constantly rising (MEMO/08/303).
- EU imports from CARICOM have traditionally been dominated by oil, aluminum oxide, rum, sugar, and bananas.
- The EU has become the important investor in the LAC region, with over €25 billion of Foreign Direct Investment (FDI) flows and more than €260 billion of FDI stock as of 2007(MEMO/10/191).

# Objective

The objective of the study is to estimate the economic impacts of trade reforms between LAC and India, and LAC and the EU.

# Modeling Approach

- The basic structure of the Global Trade Analysis Project (GTAP) model includes: industrial sectors, households, governments, and global sectors across countries.
- Countries and regions in the world economy are linked together through trade.
- Prices and quantities are simultaneously determined in both factor markets and commodity markets.
- International trade is linked through Armington substitution among goods differentiated by country of origin.
- Five main factors of production are included in the model: labour (unskilled &skilled), capital, natural resource and land.
- In equilibrium, all firms have zero real profit, all households are on their budget constraint, and global investment is equal to global savings.
- Demand equals supply in all markets.
- Changing the model's parameter allows one to estimate the impact from a country's/region original equilibrium position to a new equilibrium position.
- Closure plays a very important role in GTAP modeling

# Aggregation scheme

- The GTAP model and database used to undertake the analysis is version 7.
- GTAP 7 includes 57 commodities (sectors) and 113 countries (regions).
- The 57 industrial sectors in the model provide a broad disaggregation of the industrial sectors in each country and region
- The 113 countries were aggregated into 5 regions and one individual country.
- This aggregation includes India, Latin America, rest of Asia, Rest of OECD, the EU and rest of the world (ROW).

# Scenario Developments

Three scenarios have been attempted

a) Business as Usual

b) Moderate tariff reduction –scenario 1

c) High tariff reduction –scenario 2

- Recursive updating process is used to generate a new economy for 2010 and 2020.
- The up-dating of the model to 2020 would require two discrete steps (2004-2010, 2010-2015,2015-20).

Moderate tariff reduction

**India and Latin America**, while rest of the regions are not under agreement.

Moderate tariff reduction describes a situation where the timing of the tariff reductions, is low for the period 2010-2015.

The rate of reduction is 30% for the selected agricultural commodities and 40% for selected non agricultural commodities.

High tariff reduction

**India and Latin America**, while rest of the regions are not under agreement.

It expresses a situation where reductions occur at a high rate compared to moderate tariff reduction for the period 2015-2020.

In this simulation, tariff barriers were reduced by 40% and 60% for selected agricultural and non-agricultural commodities respectively.

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The rate of reduction is 40% for the selected agricultural commodities and 60% for selected non agricultural commodities respectively for EU.

The rate of reduction is 60% for selected non agricultural commodities for LAC.

High tariff reduction

**Latin America and EU**, while rest of the regions are not under agreement.

It expresses a situation where reductions occur at a high rate compared to moderate tariff reduction for the period 2015-2020.

In this simulation, tariff barriers were reduced by 60% and 80% for selected agricultural and non-agricultural commodities for the EU.

The rate of reduction is 80% for selected non agricultural commodities for LAC.

Specific commodities have been identified for tariff reduction on the basis of recent proposed agreement and trade intensiveness with Latin American countries with India and EU.

# Results and discussion
# Growth of output

| | BAU 2010-15 | BAU 2015-20 |
|---|---|---|
| Rest of OECD | 6.35 | 2.71 |
| Rest of ASIA | 21.53 | 14.71 |
| INDIA | 42.66 | 52.58 |
| LAC | 17.27 | 15.92 |
| EU_25 | 3.78 | 4.30 |
| Rest of World | 15.62 | 11.36 |
| Total | 9.30 | 2.60 |

# India and LAC

| Growth of Output in tariff reduction scenarios compared to BAU | 2015 | 2020 |
|---|---|---|
| Rest of OECD | 0.0004 | -0.41 |
| Rest of ASIA | 0.0001 | -0.81 |
| INDIA | 0.1154 | 3.56 |
| LAC | 0.0183 | 2.48 |
| EU_25 | 0.0065 | -0.89 |
| Rest of World | 0.0144 | -1.49 |
| Total | 0.0013 | -0.65 |

- A marginal increase in growth for India and LAC is observed in 2015 after tariff reduction compared to BAU.
- However in 2020, a fair growth is observed for both the economies.
- Other regions in the world have a marginal decline in updated 2020 compared to BAU growth due to bilateral tariff cut between India and LAC.

# SECTORAL IMPACT

- The sectoral output growth has increased for few agricultural sectors (plant based fibres, fishing and forestry) and almost all manufacturing sectors in **India** due to tariff reduction in 2015.
- While at 2020 the sectoral output growth has concentrated primarily on agricultural sectors and leather.
- A large number of sectors (agriculture and manufacturing) show a positive growth due to tariff reduction compared to BAU in both scenarios in **Latin America**.
- Some common sectors like wheat, vegetable fruits and nuts, processed rice and leather have increased output for both the economies at 2020.
- Missing one to one correspondence.

| Export Growth in BAU | 2010-15 | 2015-20 |
|---|---|---|
| Rest of OECD | 4.42 | 8.98 |
| Rest of Asia | 16.11 | 17.58 |
| India | 39.91 | 51.11 |
| LAC | 30.43 | 11.06 |
| EU_25 | 7.58 | 3.12 |
| Rest of World | 8.70 | 13.95 |

| Direction of export (% change) in India and LAC under different phases of tariff reduction | 2015 IND | 2015 LAC | 2020 IND | 2020 LAC |
|---|---|---|---|---|
| Rest of OECD | -2.18 | -1.42 | 0.69 | 4.08 |
| Rest of Asia | 10.28 | -1.17 | -4.45 | 5.46 |
| INDIA | | 6.8 | | 6.61 |
| LAC | 1.78 | | 6.25 | |
| EU_25 | -3.16 | -2.78 | 13.21 | -10.79 |
| Rest of World | -3.57 | -1.33 | 26.29 | -6.47 |
| Total | 3.15 | 0.20 | 12.05 | 2.65 |

- Exports of LAC and India are diverted from other regions and increase within themselves.
- A sharp difference is observed regarding trade diversion in two scenarios.
- In 2015 the direction of trade for India and LAC is more diversified.
- India’s export has been withdrawn from Rest of OECD, Rest of the world and the EU
- Export of LAC has been from all regions under study (except India).
- In 2020 the diversion is concentrated on one region for India (rest of Asia) and two regions for LAC (the EU and rest of the World).
- The 2020 updated compared to BAU scenario records an increase of 6.25% of trade with LAC. While for LAC  it is 6.61%, which is higher than India’s.
- On the whole, trade creation is observed for India (3.15% and 12.05%) and LAC (0.20%  and 2.65%).

- Sectoral exports affected favourably are mostly agriculture based in 2020 while mixed (agriculture and manufacturing) positive impact is shown in 2015 in India.
- For LAC, the sectors influenced favourably are a combination of agriculture and manufacturing in 2015.
- The sectors mostly impacted are textile, wearing apparel and leather at 2020.

# Welfare effect

- Welfare gains or losses are not spread evenly.
- The welfare gain is observed for India and Latin America in 2015 and 2020.
- The other regions of the world are losers in both the periods.

# LAC and the EU

## *EU and Latin America tariff reduction scenarios compared to BAU*

| Growth of Output | 2015 | 2020 |
|---|---|---|
| Rest of OECD | -0.04 | -1.17 |
| Rest of ASIA | 0.01 | -0.71 |
| INDIA | -0.15 | 1.81 |
| LAC | 0.18 | 1.65 |
| EU_25 | 0.16 | 0.94 |
| Rest of World | 0.01 | -1.1 |
| Total | 0.04 | -0.034 |

LAC and the EU show a positive growth of output due to the tariff reduction but rest of the regions perform differently

# Sectoral impact

- The positive output growth is observed for tariff imposed sectors as well as for other sectors.
- Highest output growth is observed for vegetables, fruits and nuts; grains nec, crops nec and sugarcane and sugar beet mostly for LAC during 2010-20.
- For some sectors even though tariff reduction is applied increase in the output growth is not found. On the other hand some sectors are found to be influenced favourably even though tariff reduction is not imposed on those.
- It covers mainly agriculture and agri- food sectors for the two regions under the two scenarios.

# Export growth

The export of LAC and the EU is expected to grow differently under **BAU during 2010-20**.

The export of LAC would decline sharply from 30.43% in 2010-15 to 11.06% in 2015-20.

The export growth rate of EU is expected to decline moderately (7.58% in 2010-15 to 3.12% in 2015-20).

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## Tariff reduction impact

- Trade creation is observed in 2015 and 2020 updated for the EU (0.23% and 0.12%), and LAC (0.79% and 0.66%).
- The rate of trade creation is expected to decline during this period for the two economies.
- The export from the EU to LAC is expected to decline from 22.26% to 13.12% between the periods 2015 and 2020.
- Similar pattern is observed for exports from LAC to the EU (9.12% to 4.12%).
- Trade diversion has occurred for the economies.
- LAC has diverted its exports from rest of OECD, rest of Asia, and the rest of the world in 2015 and only for rest of OECD in 2020.

# Direction of % change in export in LAC and EU scenarios

| | 2015 | | 2020 | |
|---|---|---|---|---|
| | EU | LAC | EU | LAC |
| Rest of OECD | -0.51 | -0.19 | -0.41 | -1.58 |
| Rest of ASIA | -0.51 | -0.55 | -0.37 | 0.14 |
| INDIA | -0.16 | 1.61 | -0.27 | 4.97 |
| LAC | 22.26 | | 13.12 | |
| EU_25 | | 9.10 | | 4.12 |
| Rest of World | -0.29 | -0.65 | -0.19 | 1.92 |
| Total | 0.23 | 0.79 | 0.12 | 0.66 |

•Tariff imposition on the selected sectors will not always favour those particular sectors to have access to the partners' market…..Seems that direct impact is marginal or zero.

•On the other hand, Indirect impacts might stimulate the export growth of the other sectors.

•These may be due to the direct and indirect interactions among all sectors within a country and across regions and also because of the aggregated sectors.

# Sectoral impact

- EU will be gaining from processed food and mining sectors at 2020 and manufacturing sectors at 2015.
- The favourable impact is noted for metals nec and electronic equipment for the EU in 2015, but these sectors do not figure so prominent in 2020.
- LAC is expected to benefit particularly from oilseeds, crops nec., bovine cattle, horse, goat and meat products for both the periods.

# Welfare effect

- The welfare gain is observed for the EU, LAC and India under different trade scenarios.
- The other regions of the world show a reduction in welfare under LAC- EU tariff reduction scenarios.

# Conclusion

- Output of six economies varies at 2020.
- A positive growth in terms of output is indicated under BAU for India, LAC and the EU.
- Change in positive output growth is found after tariff implementation scenarios compared to BAU.
- The bilateral tariff reduction scenarios of LAC and India, and LAC and the EU reflect that the countries under the agreement have benefited within themselves but the impact on other countries is not so favourable.
- Trade creation and diversion is observed under both the scenarios for LAC, India, EU.
- LAC will be gaining more while trade liberalisation with India in the long run compared to EU at 2020.
- LAC will be diverting trade from EU while trade liberalisation with India , but not diverting trade from India while trade reforms with EU.

- Sectoral impacts vary in different scenarios for the regions under trade reforms.
- The welfare effect of bilateral tariff cut is found to be positive for India, LAC and the EU.
- LAC-EU tariff reduction appears to be beneficial for both the region in the short run, though not so in the long run.
- This might be due to the imposition of high sectoral tariff reduction.
- On the other hand LAC-India tariff reduction impact appears to be more beneficial for both the economies under long run than in the short run.
- This important finding emphasizes the necessity of the south-south cooperation in the long run. This is also discussed in "India: Latin America's Next Big Thing" by Moreira,2010 (special report on Integration and Trade, IDB).
- The policy makers of Latin America and the Caribbean need to give more thoughts in pursuing trade liberalization policies in the long run.

# Future agenda of research

- The impact on the three economies LAC, INDIA and the EU together by performing simultaneous trade reforms of LAC with India and the EU.
- Disaggregation of regions -China and North America, major players in the world economy, to be included separately in the analysis.
- Impact of trade reforms on the environment of LAC.
- Adopting healthy diet in Canada –impact on LAC.
- Dynamic general equilibrium model.

*THANK YOU*