Selected Lectures on Free Trade Agreements: Analytics, Empirics, and Best Practices

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These five lectures were delivered by the author when he was Senior Economic Advisor to the General Department of Economic and Public Finance Policy, Ministry of Economy and Finance, Royal Government of Cambodia during 2015-2016 as part of a training program to the Department's staff. The views expressed in these lectures are those of the author and not necessarily that of the Ministry of Economy and Finance or its departments.

Preface

These five lectures on Free Trade Agreements: Analytics, Empirics, and Best Practices were delivered to the staff of the ASEAN Department in the General Department of Economic and Public Finance Policy, Ministry of Economy and Finance, Royal Government of Cambodia, Phnom Penh during June-December 2016. Given as part of a training program for the department's relatively young staff, the key objective of these lectures was to familiarize the staff with five selected issues related to trade and Free Trade Agreements (FTAs) and equip the staff to understand the broad historical, technical, and practical dimensions of FTAs. Due to time constraint, this had to be a truncated short course of five lectures selected from an originally designed longer course with 15 lectures.

The educational background of the Ministry's staff varied quite a bit in specifics, but most of them had a Masters Degree in economics, development studies, public policy, international relations, and related subjects. I have made a conscious effort at pitching the technicalities of these lectures at a level that is comfortable for, and easy to grasp by, staff with these varied educational backgrounds.

In preparing these lecture presentations as power point slides, I have departed much from the contemporary best practice of crisp, few, and short bullet slides with infographics thrown in; instead, I have used rather long and wordy sentences in the slides with the objective of enabling my young trainees to use these presentation slides as lecture notes. I am aware that this departure from global best practice mars the aesthetics of these lecture slides but believe that the benefits to the trainees outweigh the aesthetic costs.

The five lecture series begin by dealing with the historical backdrop of global trade and FTAs and some standard taxonomical issues. Lecture 2 moves on to discuss the key elements of how the somewhat intertwined issues of tariffs and rules of origin become critical in FTA negotiations. The next two lectures give a bird's eye view of the standard methods used in the literature for ex-ante and ex-post evaluation of the effects of FTAs on both the members signing them and the rest of the world. Lecture 5 rounds up the lecture series by discussing the several FTAs in which Cambodia is a member and what those memberships mean for Cambodia.

The short training program and this lecture series were enriched immensely by the many young staff from the General Department of Economic and Public Finance Policy at the Ministry of Economy and Finance, especially those from the ASEAN Department, who attended the lectures. The training program and the lecture series would not have been possible but for the unrelenting support that I received from H.E. Vongsey Vissoth, Secretary of State at the Ministry of Economy and Finance, Dr. Phan Phalla and Chan Sopheap, Director General and Deputy Director General, respectively, of the General Department of Economic and Public Finance Policy, Kong Ratha, Director of the ASEAN Department, and Chheang Vanarith, Director of the Macroeconomics and Fiscal Policy Department. I owe special thanks to them for their kindness, support, and encouragement.

Srinivasa Madhur
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Training Program

GDEPFP, Ministry of Economy and Finance (MEF), Royal Government of Cambodia (RGC)

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Free trade across peoples, societies, and civilizations began about 5000 years ago – historians believe

- First long distance trade between Mesopotamia and the Indus Valley (in today's Pakistan) – is believed to have begun 5000 years ago – in 3000 BC.
- Originally limited to the then luxury goods – spices, textiles, and precious metals
- Cities rich in these commodities grew fast and became richer.
- At the same time, those that did not have these commodities but had something else to offer in return also got the opportunities of their lifetimes to enjoy these luxuries.
- Both sides– those who exported and those who imported - thus benefitted
- Soon trade networks crisscrossed the entire Eurasian region – linking cultures for the fist time in history.
- Domestication of Camels – around 3000 years ago – in 1000 BC gave a big boost to global trade – beginning with long distance trade between India and the Mediterranean.
- China – today's the most important trading nation - was not far behind in trade.
- Many of the best known cities of Rome and Greece benefitted much from trade.
- Drinking and dining with foreigners was part of global trade – Many cheers for free trade! It was relaxing the body and the mind, and welfare enhancing overall!

Fast forward to the 16th century – mercantilism arrives, throws sand into the wheels of free trade

- With the rise of Dutch and British seaborne trade, wealth began to shift from southern to northern Europe - coinciding with the emergence of 'nation states'.
- The world drew from a 'limited pot' – the cornerstone of mercantilism.
- So the wealth of each nation state - measured by the stock of money (and 'inflow of money) - depended positively on its 'balance of trade'.
- Exports= money inflow, imports = money outflow - so promote exports and restrict imports
- Thomas Mun (1571 -1641) – an Englishman – the key thinker behind the mercantilist school - A merchant himself and the Director of the East India Company.
- In 1628 the Company appealed to the British government to protect its trade against Dutch competition.
- England, under the influence of mercantilism, passed laws restricting the types of fabric that could be used for clothes – reducing the demand for fine foreign cotton and silk.
- Mun amassed considerable personal wealth in his life time, while Britain's citizens/consumers as a whole were deprived of cheaper imported clothing and other commodities and products.
- Does it sound familiar today too? Don't we find many 'Muns' around now too?

The idea of free trade bounces back – with Adam Smith's Wealth of Nations in 1776

- Adam Smith (1723-1790) – Scottish thinker and the father of modern economics – in his 1776 Wealth of Nations turned mercantilism on its head.
- Book IV of 'wealth of Nations' made a frontal attack on mercantilism and argued that international trade essentially increased the size of the market for everybody.
- Free markets within nations and free trade among nations maximize individuals', nations', and global wealth and welfare.
- Maintaining free markets both within nations and across nations key to the wealth of nations – "Meeting of merchants end in conspiracies to raise prices" – collusion!
- Governments should not intervene in trade and commerce – both within nations and across borders – but focus on designing and maintaining law and order to keep markets free (and hence fair).
- Adan Smith held the job of "Commissioner of Customs" after he published book! "If a foreign country can supply us with a commodity cheaper than we ourselves can make it, better buy it of them"
- Adam Smith must have been the best Customs Commissioner ever, anywhere in the world! importers would have had to bribe him to pay higher, not lower, duties –which they would not have - hence a clean customs department!

David Ricardo (1772-1823) takes over from where Adam Smith left – with his theory of comparative advantage

- A country exports goods in which its relative cost advantage (comparative advantage), is greatest in comparison to other countries; and imports those in which it has the least comparative advantage.
- Suppose country A can produce both shirts and cars more efficiently than country B (A has absolute advantage in both); should A produce and export both shirts and cars and country be produce neither but import both?
- No. because, say, country A can produce shirts twice as efficiently as country B and cars three times more efficiently than country B.
- Country A should produce and export cars and country B produce and export shirts.
- The comparative advantage proposition is at times sounds somewhat counterintuitive but true.
- Country B (say, a developing country, or the global South) that lacks an absolute advantage in any good can still engage in mutually beneficial trade, and
- Country A (say a developed country, or the global North) which has an absolute advantage in producing both than country B can still benefit from trade.
- Analytical support for free trade was firmly established by the early 19th century and free trade became the norm from then on until the early 20th century.

Protectionism returns with the collapse of the gold standard, two World Wars, and the Great Depression (1913-1944)

- The golden period of the gold standard 1870-1913 – global economic stability sustains global free trade. World War I destabilized the gold standard.
- Then came the U.S. Smoot-Hawley Tariff Act in June 1930 – raising US tariffs by 20% - deeply resented abroad.
- Followed by the financial crisis in many countries in the summer of 1931 and the great depression.
- On 19 September 1931, Britain went off the gold standard and imposed trade and payments restrictions almost across the board.
- Other countries – France, Germany, Canada, South Africa, and Netherlands especially - retaliated with tariff hikes, quota restrictions, anti-dumping measures on imports.
- Between 1929 and 1932, the volume of global trade fell by 25%.
- About half of that reduction was due to tariff hikes and other trade restrictions.
- During the great depression, countries resorted to protectionism as a policy response to combat output and job losses – thinking that imposts were causing these.
- Fiscal policy – the key tool to combat such output and job losses – were still only in the making – Keynes' General Theory was published only in 1936! And monetary policy was available only for countries which went off the gold standard.

The reluctant birth of GATT in 1948 and the beginning of the end of protectionism

- The postwar Bretton Woods Institutions – IMF and the IBRD – were created in 1944 to govern global monetary and financial stability and provide development finance.
- Institutional arrangements for freeing and governing global trade took a backseat.
- Finally, when the work for the establishment of an International Trade Organization (ITO) was completed, the U.S. Congress wanted to be no part of it.
- The National Foreign Trade Council, the National Association of Manufacturers, and the U.S. Chamber of Commerce – all strongly opposed its establishment.
- An intergovernmental agreement – General Agreement on Tariffs and Trade (GATT) - came in to being as an ad hoc measure, again US reluctance was prominently visible.
- For nearly a decade, visitors to GATT headquarters were greeted with a sign reading "Interim Commission for the International Trade Organization".
- GATT was obliged to live for years in a state of legal obscurity and institutional undernourishment.
- Its legal basis as an organization was insecure. It had no adequate secretariat or budget.
- From its somewhat 'unwanted birth', or being a 'birth-defect' baby, the GATT did a fairly good job of freeing world trade in the next nearly five decades.

Slowly but steadily, GATT returned the world to freer trade in its nearly 50 years of existence

- The eight successive rounds of multilateral trade negotiations under the GATT dramatically reduced average tariffs in most industrial countries.
- Success in reducing non-tariff barriers have been more modest, yet many of the non-tariff barriers were also reduced.
- Moreover, with the conclusion of the Uruguay Round in 1993, the world finally established a comprehensive set of rules covering virtually all trade barriers.
- Despite its handicaps, GATT's accomplishments were rather extraordinary.
- Ironically, much of the credit for this must go to the United States, despite its allergy to the ITO.
- The U.S was willing to open its domestic market to the European and Japanese products in the postwar years even as these countries severely restricted their imports from the U.S.
- One must also acknowledge the skillful leadership of Eric Wyndham White, GATT's chief executive for its first twenty-one years.
- Under White's leadership, the *ad hoc* body survived its initial difficulties and became a vital instrument for trade expansion for countries accounting for more than 80 percent of world trade.

In 1995, GATT finally leads the way to the World Trade Organization (WTO) – giving institutional teeth

- The WTO brings together under one constitutional umbrella the rules and disciplines on government practices affecting trade in goods and services and the protection of intellectual property rights.
- The WTO facilitates cross retaliation in an integrated dispute settlement mechanism - a country that violates its obligations to respect intellectual property rights, for example, can be subject to WTO-authorized retaliation in the form of higher tariffs on its exports of manufactured or agricultural goods by countries that are injured by its action.
- WTO helps to resolve GATT's "free rider" problem –under which a GATT member could claim the benefits of most-favored-nation treatment from GATT codes or GATT-sponsored tariff reductions without making comprehensive commitments itself.
- The benefits of the WTO are available only to contracting parties who agree to adhere to all of the agreements as one 'package deal' covering all aspects of a multilateral trade round.
- Unlike GATT, WTO has near universality in the coverage of countries around the world.
- The world has thus taken a major step toward an enforceable system of international trade law.

But then success has its own costs – as WTO's coverage expanded, it's operations become slow as a snail

- The expansion of both countries and issues under its jurisdiction have perhaps made WTO a much slower institution unable to make quick progress in pursuing member countries agree on issues
- Some even feel that WTO has become an world bargaining forum on anything and everything rather than governing a rule-based trade in goods and services.
- The inclusion of IPRs in the Uruguay Round (under the GATT) itself was a major bone of contention.
- The WTO-coordinated Doha Round made things even worse – true to its agenda, it became a bargaining forum for anything under the sun that could be shoved under 'development'.
- "Trade and…" subjects – trade and worker rights, trade and environment, trade and competition policy, and trade and investment.
- Many also feel that WTO's dispute settlement mechanism and the anti-dumping procedures have become ultra-legalistic – only can be used by developed countries with the time, technical, and financial muscle to invest.
- To boot, unlike the IMF and the World Bank, WTO's decision-making process is based on consensus and not on majority voting rule.
- Finally, the proof of the pudding is in eating – the failure of the Doha Development Round.

The response has been the rise of bilateralism and regionalism through FTAs, especially since early 2000s

- FTAs have been few as recently as early 2000s
- But since then FTAs have become the main game in town bypassing and overshadowing the WTO and its multilateral negotiations.
- FTAs now cover not only trade in goods and services but also investment, labor standards, procurement systems, and even environmental standards.
- These FTAs take different forms:

➢ Bilateral (between two countries)
➢ Plurilateral (covering more than two countries)
➢ Subregional (within a subregion)
➢ Regional (covering many subregions), and
➢ Trans-regional (covering more than one region).
➢ North-North (between developed countries)
➢ North-South (between developed and developing country/countries)
➢ South-South (between developing country/countries)
➢ Shallow (covering only trade in goods/and/or services)
➢ Deep (covering issues beyond trade in goods and services)

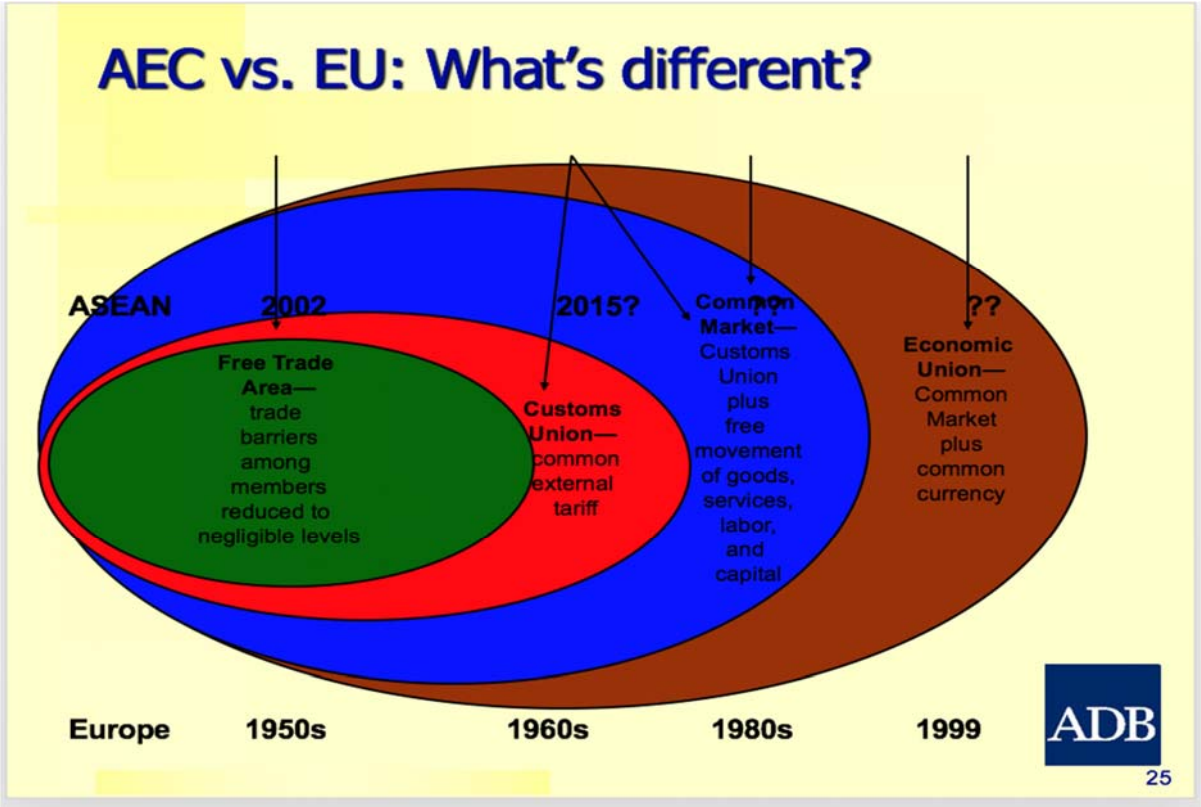
Below and Beyond FTAs –PTAs to Economic Union – to Political Union

Features of regional integration

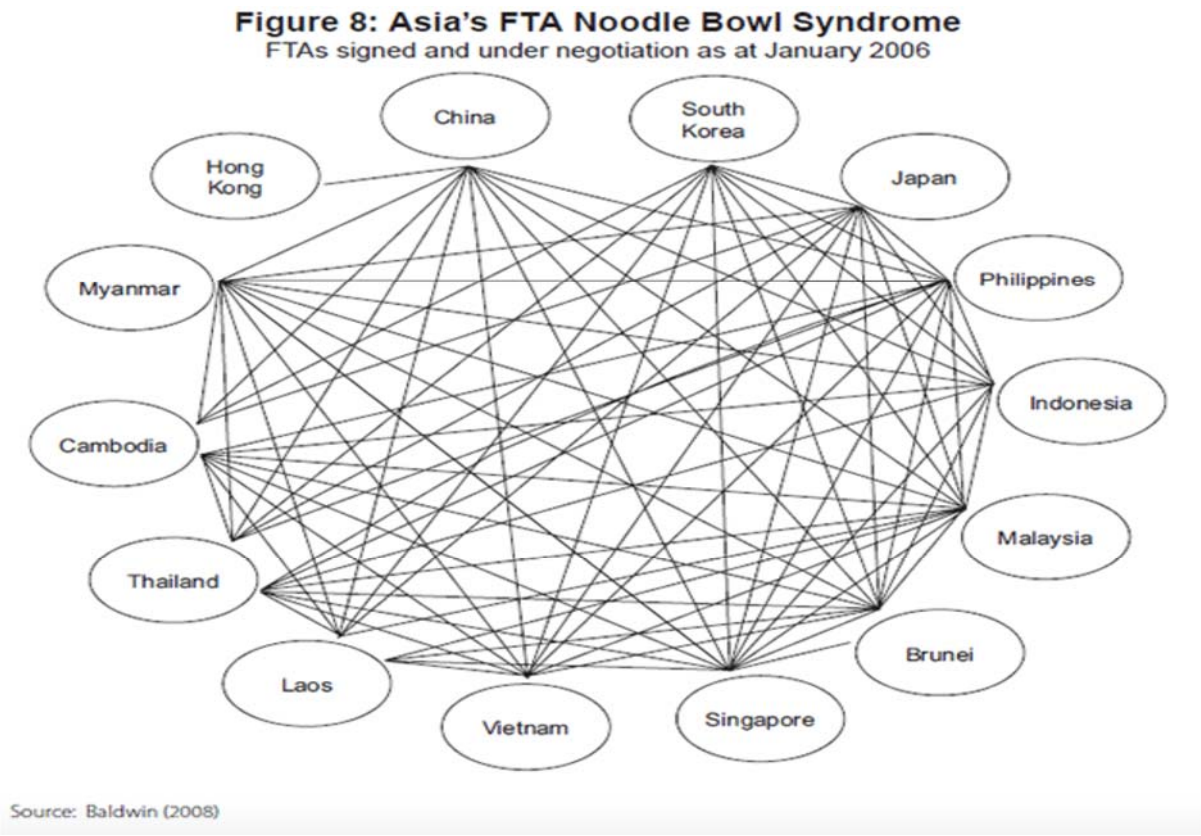
Type of arrangement	Free trade among members	Common commercial policy	Free factor mobility	Common monetary and fiscal policies	One government
Preferential trade area	No	No	No	No	No
Free trade area	Yes	No	No	No	No
Customs union	Yes	Yes	No	No	No
Common market	Yes	Yes	Yes	No	No
Economic union	Yes	Yes	Yes	Yes	No
Political union	Yes	Yes	Yes	Yes	Yes

Source: UNECA (2006).

Is AEC just an FTA+ or Truly an EC?



ASEAN+3 FTA Noodle Bowl



Of course, FTAs and other Agreements are GATT/WTO-Compatible – Article XXIV

- WTO 's two core principles – 'most favored nation' (MFN) treatment and 'reciprocity'.
- MFN – if a country gives a trade preference to one or more of the WTO member countries, it should extend that preference to all other member countries.
- Such a multilateral trade liberalization is also considered as the 'first best' solution to achieve free trade.
- Any departure from that core principle is of course 'second best' solution
- That said, Article XXIV of the GATT/WTO allows member countries to depart from the MFN principle, but subject to a few conditions.
- For any bilateral or plurilateral trade agreement, say an FTA, to be compatible with Article XXIV, it should cover 'substantially all trade' among the contracting countries.
- The origins of this Article is thought to be providing and escape route for the then existing British Commonwealth of States – similar to an FTA!
- But, it has now become a gateway for members to routinely depart from the MFN principle.
- Without Article XXIV, we would have seen far fewer FTAs today!
- In retrospect, It is even possible to look at Article XXIV as a major innovation of the GATT/WTO!
- Without which countries around the world would have caught up endlessly in the 'traffic jam' of WTO-led multilateral negotiations, as has happened in the the Doha Development Round!

Article XXIV's 'substantially all trade' has caused substantial confusion in practice, as does other conditions!

- Till today, 'substantially all trade' is not well defined
- Is it a quantitative measure? Or a qualitative measure? Or both?
- As a quantitative measure, does it mean that some high percentage (whatever that threshold is) of the trade among the FTA members?
- In which case, an FTA leaving out some sectors/products from its coverage, so long as those sectors/products account for a small percentage (say, 10%) of the member countries' trade would be fine.
- However, if it is a qualitative measure – to mean that all major sectors/products of trade should be covered - leaving out any sector/products is not permissible.
- Other conditions such as 'other trade restrictions' are also vague and subject to interpretations.
- Is 'rules of origin' – without which a preferential trade agreement of any sort cannot operate - constitute 'other trade restrictions'?
- In the case of NAFTA, the U.S. argued that in an FTA's 'rules of origin' are not other trade restrictions in the same sense as tariffs and quantitative restrictions.
- In effect, it appears that WTO is now on the defensive, while the FTAs are offering a simpler, faster, and better route to liberalize trade and much more – WTO+ FTAs!

In conclusion, like it or not, preferential trade arrangements – FTAs and other arrangements – seem to be the preferred route to global free trade

- There is fairly robust empirical evidence supporting that preferential trade arrangements have generally led to much more 'trade creation' than 'trade diversion'.
- They are much faster to negotiate than anything under the WTO auspices.
- Indeed, many FTAs have tended to be WTO+, so they have contributed to 'deep integration' among the member countries.
- Even as bilateral FTAs are increasingly signed and implemented, the world is also witnessing much bigger plurilateral FTAs.
- TPP being the latest one, and the TTIP and RCEP – both mega FTAs are in the making.
- The larger geographic coverage and larger the economic coverage of these FTAs, the more would be their contribution to freeing global trade.
- Going forward, therefore, 'making the best of the second best' solution to global trade liberalization should be the single most important objective of FTA formation.
- What role for WTO in such an emerging environment? Need to reinvent itself for 21st century global trade liberalization! Need to be nimble footed at the minimum!

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Training Program on Free Trade Agreements (FTAs): Analytics, Empirics, and Best Practices

Lecture 2: Trade in Goods - Tariffs and Rules of Origin

GDEPFP, Ministry of Economy and Finance (MEF), Royal Government of Cambodia (RGC)

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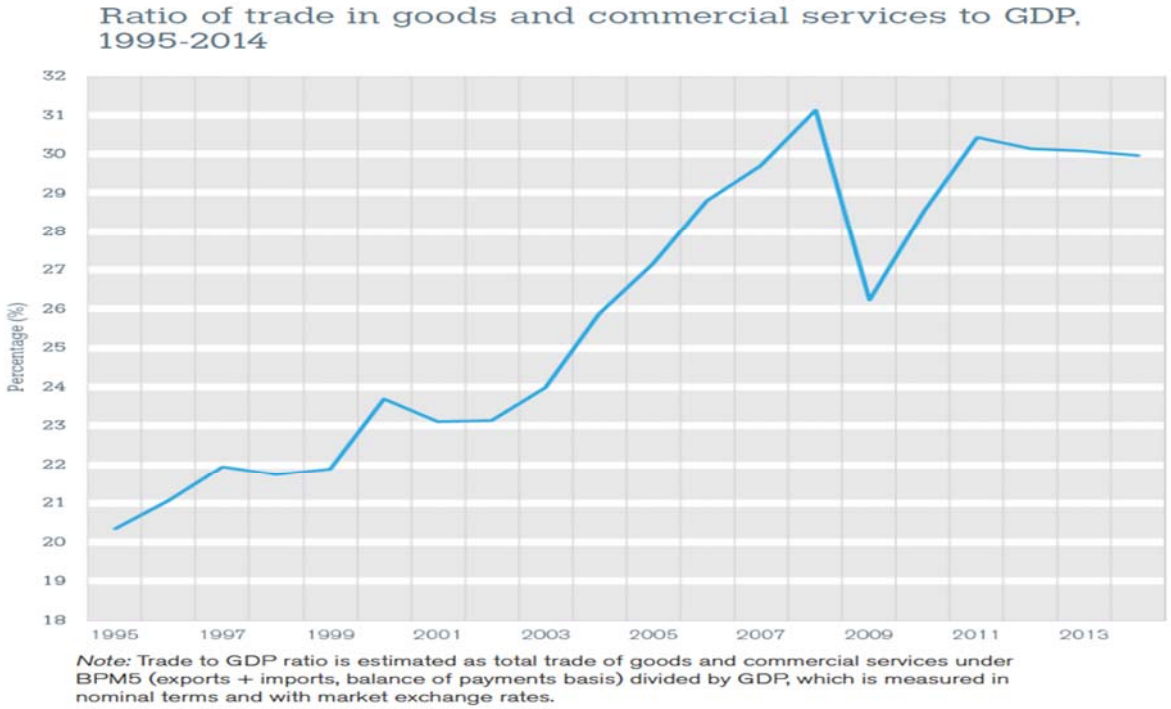
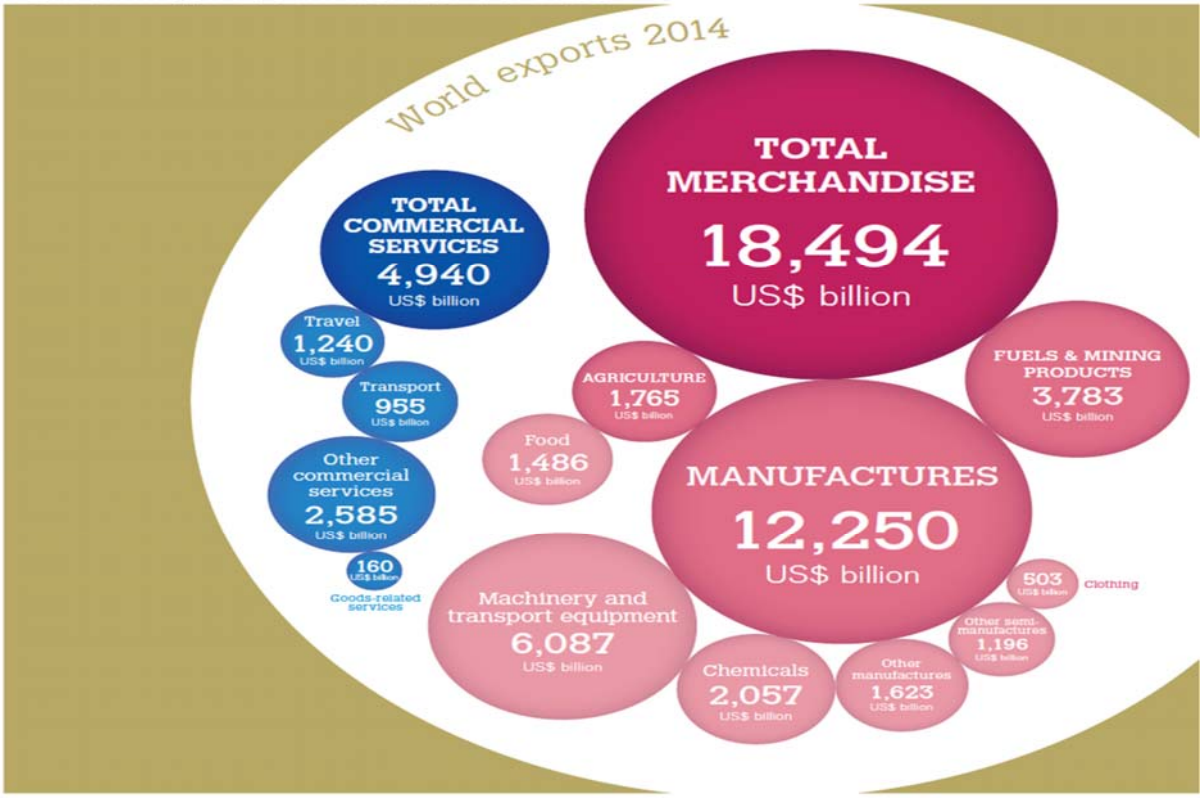
As % of world GDP, world trade in goods (merchandize) and commercial services has been on an upward trend over the decades



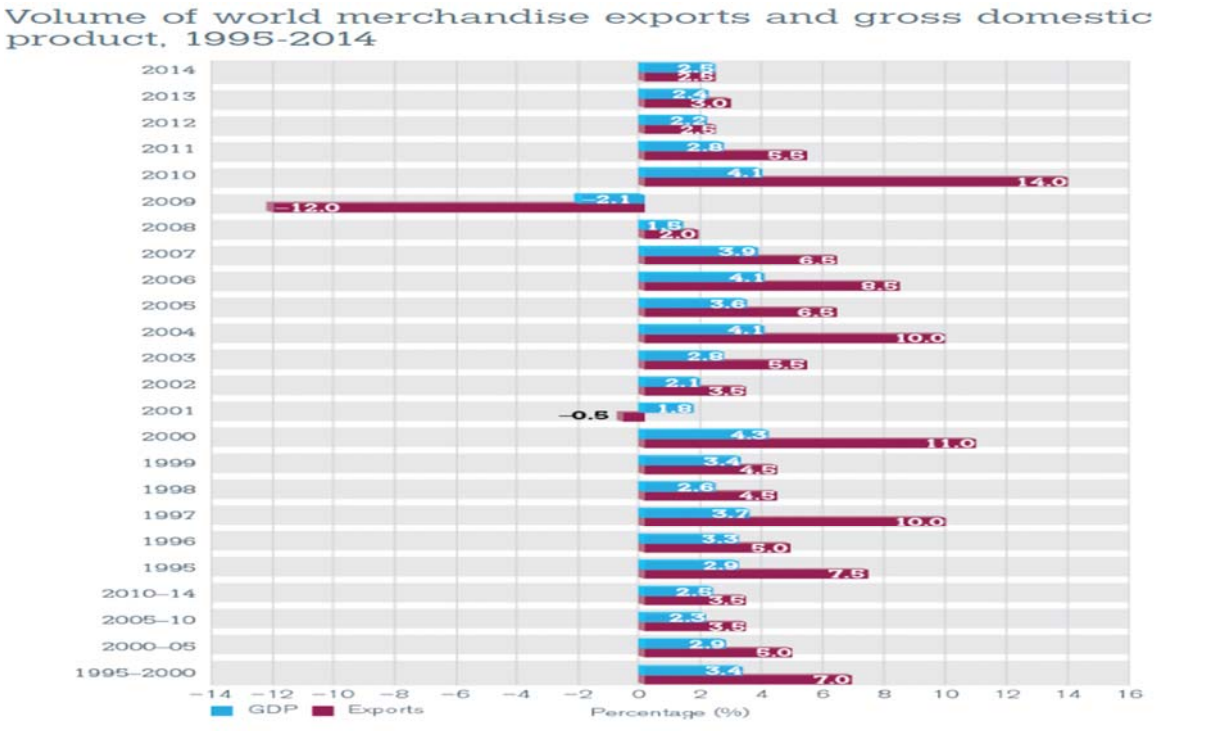
Source: WTO, 2015

More than three-fourths of world trade is in goods and the remaining in commercial services



Source: WTO, 2015

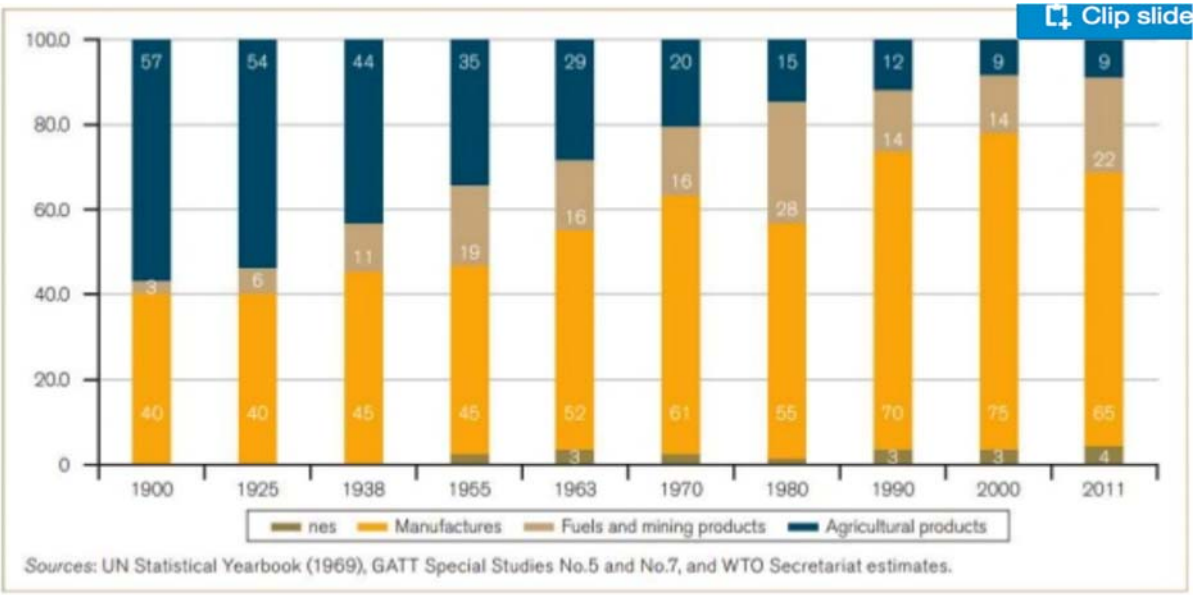
World trade in goods has generally grown faster than world GDP



Source: WTO, 2015

World Trade Organization
International Trade Statistics 2015

Manufactures now account for two-thirds of world trade in goods, up from 40% about 100 years ago



Product shares in world merchandise exports since 1900 (%age)

Source: Bhatt

Trade in goods is thus the starting point for an FTA with several subcomponents.
(This Session Focuses on the first two subcomponents below drawing largely on the two basic readings – ADB, 2008 and Australian Government, 2005)

- Coverage of goods trade and setting preferential tariffs
- Rules of origin (ROO)
- Technical barriers to goods trade
- Sanitary and phytosanitary standards (SPS)
- Trade facilitation (say, customs procedures)
- Safeguards
- Electronic commerce (A recent addition)

At the minimum, creating a free-trade area for goods requires 5 steps under Article XXIV of GATT

- creation of a free-trade area consisting of two or more customs territories
- creation of a mechanism in the form of rules of origin for deciding what goods will be considered by the participating customs territories as products originating in the other participating customs territories
- eliminate duties and other restrictive regulations of commerce on substantially all the trade in goods deemed to be originating products
- ensure that in performing the above steps barriers against third parties are not increased
- notify the WTO promptly of any decision to enter into a free-trade agreement.

Source: Australian Government, 2005

Comprehensive product coverage is key to reap the benefits of an FTA, but difficult in practice

- Comprehensive coverage is the best, but hardly any FTA does that in practice
- Next best is to go by Article XXIV's guidance of 'substantially all goods trade'
- The substantial ambiguity surrounding the 'substantially all trade' leaves enough leeway for the FTA partners to cherry-pick products/sectors to be covered.
- A positive list of products covered verse a a negative list of products excluded – the latter better provided the negative list is short
- Success in negotiation requires each FTA partner to be prepared to accept increased imports of goods from the other partners
- If the partners differ vastly in comparative advantage – thus do not need to expand exports in the same industries/sectors - arriving at the negative list is easier
- Korea-Chile FTA – a good case – Korea a manufacturing economy while Chile's exports mostly agricultural commodities - a partnership made in heaven!
- Partners with more similar economic structures and export industries/sectors find it more challenging to agree on product coverage
- Also, countries with big domestic sectoral lobbies make it even harder to take a quick closure on product coverage

Agreeing on tariff elimination and reduction has to be done almost simultaneously with the decision on product coverage

- Several options in tariff elimination and reduction are available in practice
- ➢ Immediate elimination upon the FTA's entry into force
- ➢ Gradual and straight-line or linear reduction or elimination
- ➢ Substantial elimination or reduction in the initial year (years) – front-loading – followed by more gradual reduction/elimination in the subsequent years.
- ➢ An initial grace period of several years, followed by elimination/reduction in the later years – back-loading.
- Which tariffs to be reduced? – MFN bound tariffs or actual applied tariffs (the latter generally lower
- Whether to apply the tariff rates to the FOB or the CIF value of trade? Mostly the latter case
- Choosing a reference year or base for tariff reductions and eliminations
- How to treat the so-called 'sensitive products'? – sensitive either economically (sudden huge adjustment needed inn the domestic industry/sectors), or politically.
- ➢ A tariff-rate quota option- imports up to a certain quota limit to enter at a lower rate, followed by higher imports at a higher rate
- ➢ And/or a much longer phase-in period, as in the case of Korea-Chile, US-Singapore, and NATFA FTAs.

The Harmonized Commodity Description and Coding System (simply HS) of the World Customs Organization is the usual basis for tariff negotiations.
HS is organized as given below

Box 4.1: The hierarchy of the Harmonised System

The Harmonised System is organised into chapters (2-digit level), headings (4-digit level) and sub-headings (6-digit level). Here is an example:

18	Cocoa and cocoa preparations
1806	Chocolate and other food preparations containing cocoa
180610	Cocoa powder, containing added sugar or other sweetening matter.

Source: Australian Government, 2005

Phasing in tariff reductions – an example from NAFTA –

Box 4.2: Phased tariff reductions: an example

NAFTA (North American Free Trade Agreement) entered into force on 1 January 1994. It established the following broad timetable for the elimination of duties on goods covered by the agreement:

- duties on goods included in staging category A were eliminated on entry into force;
- duties on goods included in staging category B were eliminated by 1 January 1998 in five equal stages;
- duties on goods included in staging category C were eliminated by 1 January 2003 in ten equal stages;
- duties on goods included in staging category C+ will be removed by 1 January 2008 in fifteen equal stages; and
- duties on goods in staging category D remained free of duty on 1 January 1994.

A look at the tariff schedules appended to the Agreement will show that the situation was rather more complex than shown here, but more elaborate examples of phase-in schedules are not hard to find.

NAFTA also contains a provisions allowing for the negotiation of accelerated tariff reductions, and this was used once the Agreement was in force.

Source: Australian Government, 2005

What is Rules of Origin (ROO)? What to expect about it in an FTA?

- it defines the class of goods that will always be considered as originating in the other party or parties and therefore eligible for preferential tariff treatment; these are goods that are *wholly obtained*, *wholly produced* or *substantially transformed;*
- it establishes the method to be used for assessing whether *substantial transformation* has occurred;
- it defines the conditions under which goods will not be considered for preferential tariff treatment, usually because they have undergone *insufficient processing* or *insufficient operations* in the exporting economy, or have merely been transshipped from another economy;
- it describes the method needed for claiming preferential status, i.e. through the presentation of a *certificate of origin*, through *self-certification* or through other agreed means;
- finally, it defines the options available to the importing economy if it suspects, or has established, that goods were falsely claimed to have originated within the free-trade area. Among these options is a suspension or denial of preferential tariff treatment.

Source: Australian Government, 2005

Rules of Origin (ROO) – passport requirement for goods! 'Made in a country' stamp is not good enough for entry!

- Of all the issues of an FTA, ROO is one of the most necessary but also one of the most cumbersome to handle
- Without ROO, 'trade-deflection' – the transshipment of imported goods from non-members of an FTA through a member country with the lowest tariff rate – defeats the very purpose of an FTA.
- The determination of product origin is somewhat easier for primary products and scrap or waste id fairly straightforward (Slide below).
- For manufactures, it is much more complicated, as these products go through several processing stages in many countries – so a 'made in a country' stamp does not help ROO passport issuance.
- The 1973 Kyoto convention of the Customs Cooperation Council (WCO) set forth the principle of a 'last substantial transformation to aid ROO determination (Slide below)
- Even these are increasingly becoming out of sate with the second unbundling of manufacturing through finer fragmentation of the production process has increasingly replaced 'trade in goods' to 'trade in tasks'
- A final note of caution – ROO should not become another backdoor trade restrictiveness measure in FTA negotiations

Easy to issue ROO passport for primary commodities

Table 2.1: **Product Origin—Wholly Obtained Principle**

Type of Tradable	Principle/Criterion
Primary	Wholly obtained in a single customs territory/country
Agricultural Goods	Unprocessed and harvested within customs territory/country
Marine Fisheries (outside territorial waters of member country)	Ownership of vessel/means of catch
Forestry Products	Unprocessed and harvested within customs territory/ country
Mineral Products	Extracted within territory or seabed in territorial waters
Scrap/Waste Products	Collected within and fit only for recovery of raw materials

Source: Author's compilation.

Source: ADB, 2008

Manufactures – not-so-easily amenable for ROO passport issuance

Table 2.2: **Tests for Determining Origin of Processed or Manufactured Goods**

Test for Processed/ Manufactured Goods	Principle of Last Substantial Transformation
Change in tariff heading (CTH) or change in tariff subheading (CTSH) test	A change from any four-digit HS chapter to any other four-digit HS chapter (six digits for CTSH)
Specified process test	Any manufacturing process deemed to confer origin
Value-added (percentage) test	Minimum regional content or maximum non-originating content
Mixed tests	SP test and CTH test; CTH test or value added test, or both

Source: Author's compilation.

Source: ADB, 2008

But don't relax yet, even for somewhat simple primary products, the ROOs can be made complicated, as the case of fish exports to the EU under the GSP exemplifies!

- To receive access to the EU market for fish exports under the GSP, a developing country must satisfy the following conditions:
- The vessel has to be registered in the beneficiary country or any EU member country
- The vessel must sail under the flag of the beneficiary country/EU member country
- The vessel must be at least 60% owned by nations of beneficiary country or any EU member country
- Of which the chairperson and a majority of the boars members are nationals
- The master and the officers of the ship must be nationals of the beneficiary or EU member country, and
- 70% of the crew must be nationals of the beneficiary country or EU member countries!

Source: ADB, 2008

Change in tariff method - generally a change in chapter is considered better than change in headings than change in subheadings

Box 5.7: Assessing the change-in-tariff classification method

Advantages

- More predictable in terms of origin outcomes ("once qualify, always qualify") and therefore permits more effective planning.
- Permits precise formulation of conditions determining origin and therefore easier for government to administer.
- Economically efficient because it allows importing from the cheapest source.
- Advantageous for small and medium-sized enterprises because there is less need to maintain costly records systems.
- Should assist eventual work in the WTO on multilateral preferential rules of origin.

Disadvantages

- Possibility of disputes during the phase-out period over the classification of a good.
- Negotiating the specific rules can be an onerous task.
- Difficulties can arise when the free-trade partners use many split-subheadings.
- The Harmonised System was developed for the use of customs officials at entry and exit ports; it does not necessarily reflect production processes.
- The drafting of the rules may become captive to protectionist interests because they can be tailored to individual requirements.
- As the Harmonised System is normally revised about every five years, it may be necessary to revise the schedule of rules origin from time to time.

Source Australian Government, 2005

Process-based method – requires the product to have gone through certain manufacturing processes – has advantages and disadvantages

Box 5.9: Assessing the process-based method

Advantages

- Permits precise and objective formulation of conditions determining origin.
- Gives complete scope to reflect the production process.

Disadvantages

- Negotiating the specific rules will be an onerous task.
- Major changes in production processes will require renegotiation of the rules.
- The drafting of the rules may become captive to protectionist interests because they can be tailored to individual requirements.

Source: Australian Government, 2005

Value-added method – two versions – first the net-cost method

Box 5.10: The net-cost method: an example

$$RVC = \frac{NC - VNM}{NC} \times 100$$

where RVC is the regional value content of a good, expressed as a percentage;

VNM is the value of non-originating materials used by the producer in the production of a good; and

NC is the total cost incurred in respect of all goods produced by a producer, minus any costs related to sales promotion, marketing, after-sales service, packaging, shipping.

Source: Canada–Chile free-trade agreement

Source Australian Government, 2005

Value-added method – two versions – second, the transaction value method

Box 5.11: The transaction-value method: an example

$$RVC = \frac{TV - VNM}{TV} \times 100$$

where RVC is the regional value content of a good, expressed as a percentage;

TV is the transaction value of the good adjusted to a free-on-board basis; and

VNM is the value of the non-originating materials used by the producer of the good.

Source: Canada–Chile free-trade agreement

Source: Australian Government, 2005

Good and the not-so-good features of the value-added methods

Box 5.12: Assessing the value-added method

Advantages

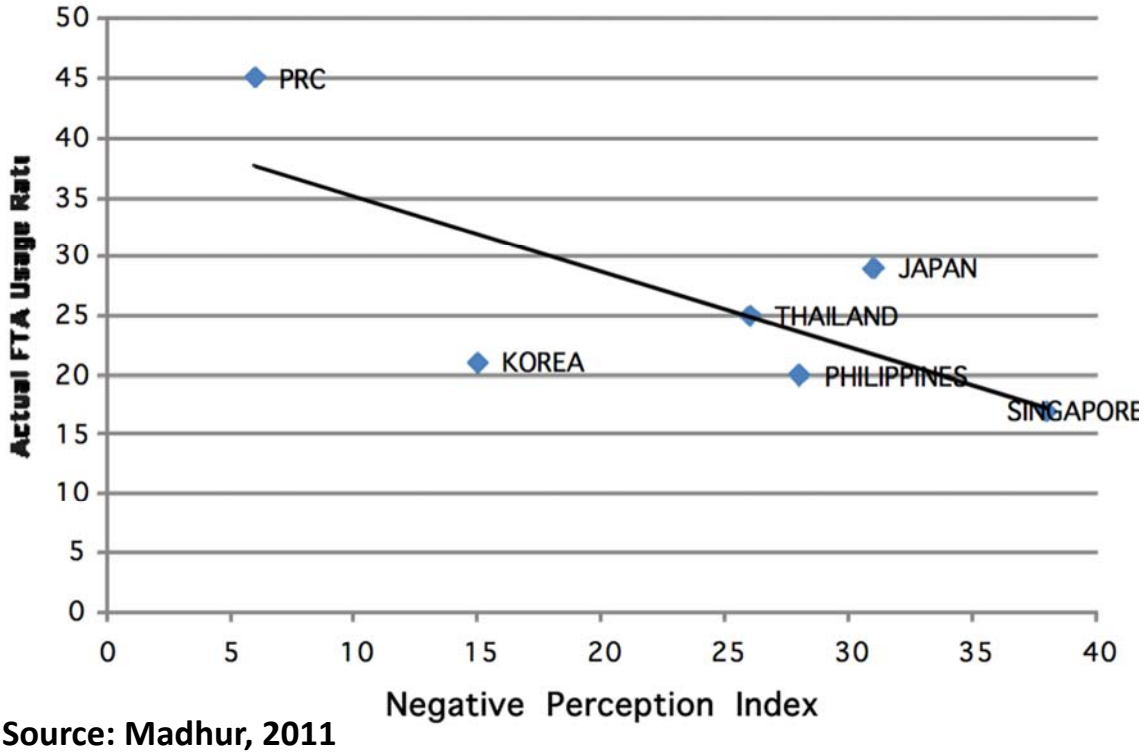
- The rule is simple and precise.
- Much of the evidence can be established from commercial records or documents.
- If there is only one value-added threshold covering all products, classification disputes cannot occur.
- Sectoral pressures are harder to accommodate.

Disadvantages

- Regardless of the value-added threshold, some goods will always miss out by a small amount, and this creates frustration.
- Such systems can only be made to work properly through the use of tolerance rules or *de minimis* rules.
- Changes in the exchange rate and commodity prices can have an influence on the value of inputs which places exporters in a vulnerable position.
- Goods with low overheads, labour and locally-obtained materials compared to the cost of imported materials may have greater difficulty in satisfying the regional value content.
- Small firms may have difficulty calculating and allocate the relevant costs without obtaining additional expertise.
- Differing accounting conventions will lead to disputes over allowable costs.

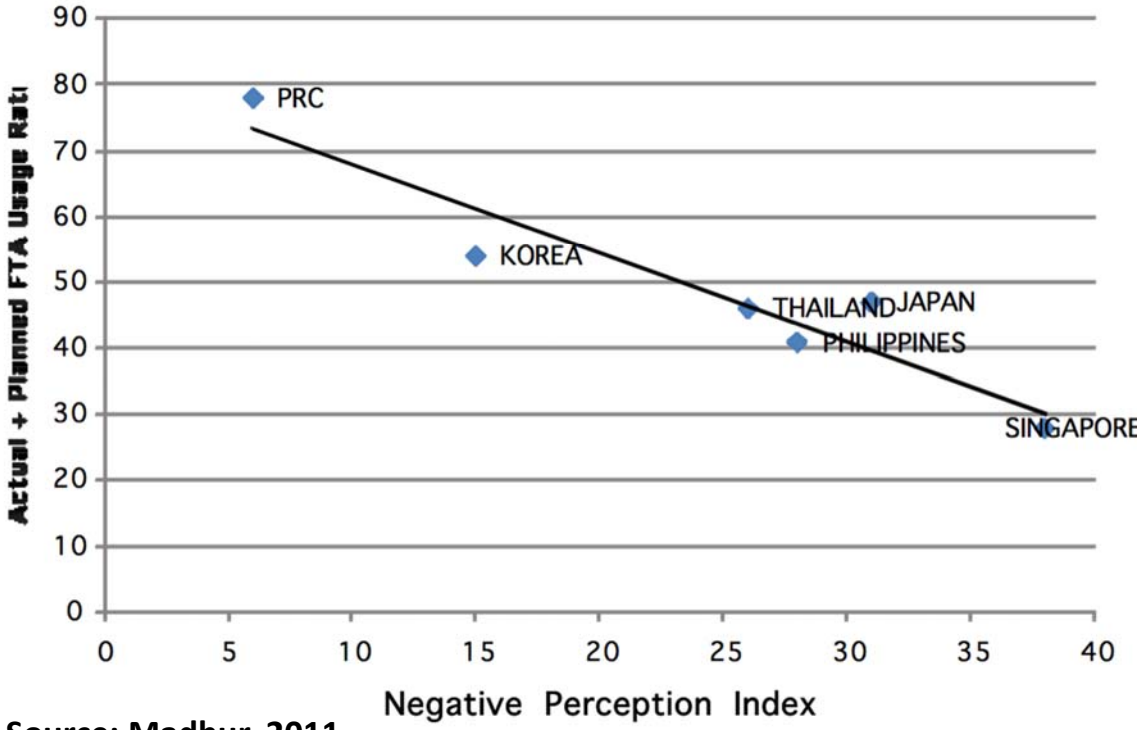
Source: Australian Government, 2005

Actual FTA usage rate falls when the ROO is perceived to be cumbersome by users



Source: Madhur, 2011

Planned FTA usage rate also falls if the ROO is perceived to be cumbersome by the users



Source: Madhur, 2011

21st century global production networks and supply chains increasingly make ROO obsolete

Box 1. The concept of "country of origin" in question

The concept of "country of origin", which is used for the compilation of customs-based merchandise trade statistics, has become partially obsolete as various operations leading to the production of final consumption goods – from design to manufacture of components and assembly – have spread across the world. As illustrated in the example of the Boeing 787 Dreamliner (see Figure 1), more and more products are effectively "made in the world", rather than made in a specific economy.

In order to deal with this difficulty, a set of criteria – the "rules of origin" – has been established by the WTO to determine where a product comes from. These rules are applied essentially to the implementation of trade policy instruments, such as antidumping and countervailing duties, origin marking and safeguard measures.

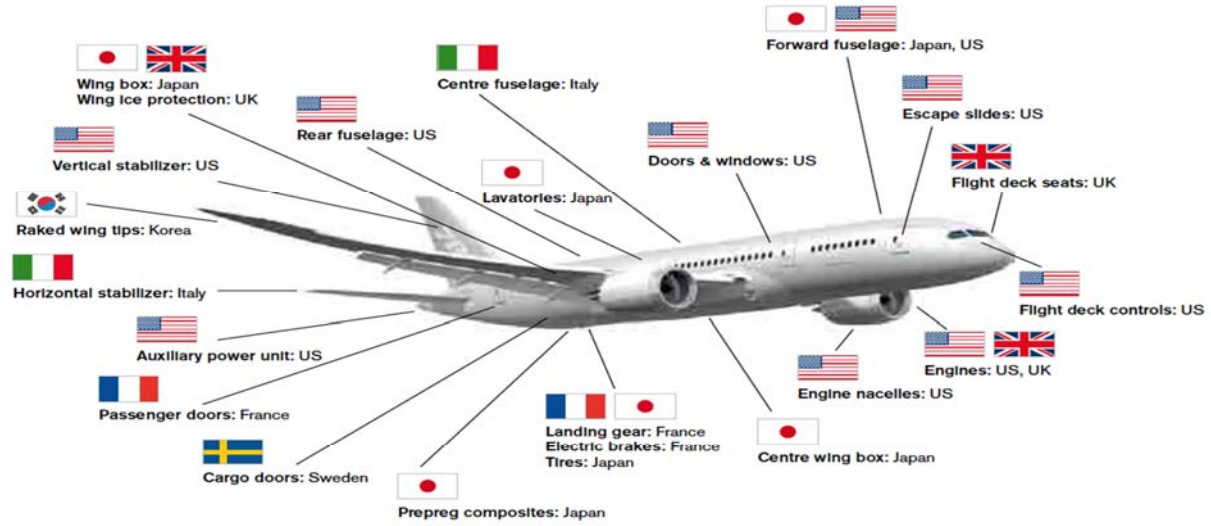
The rules applied to trade statistics to determine the most appropriate country of origin of a trade flow differ from those used for trade policy. When two or more countries take part in the production of a good, its origin can change whenever a "substantial transformation" of the product has been made, or when the product changes name, tariff code, character or use (for instance from a wheel to a car) during a manufacturing step. Due to the constraints to be met when implementing such criteria, the concepts and definitions applied to merchandise trade statistics[1] propose other types of partner country attribution, such as the "country of purchase", the "country of consignment" or the "country of shipment", which deviate from the actual manufacturing source of the product. The World Customs Organization (WCO) and the WTO are driving a process of harmonization of the definitions and criteria applied to rules of origin.

But in all cases, the full value of the product is assigned to one country. This does not reflect the geographical fragmentation of the production chain. A more recent methodological development, the "trade in value added" approach, can help circumvent the difficulty of assigning the country of origin faced by traditional trade statistics. This additional measure of international trade flows enables the domestic content embedded in exports to be assigned to each country that participated in the supply chain that led up to production of the final good.

Source: IDE-JETRO-WTO, 2011)

Who makes the Boeing 787 Dreamliner?

The fragmentation of production: The example of the Boeing 787 Dreamliner



Source: Meng and Miroudot (2011).

Source: IDE-JETRO-WTO, 2011

In conclusion, goods trade appears to be the easiest to handle in an FTA, but even that is easier said than done…

- The tariff reduction/elimination process itself could involve addressing several knotty issues among the FTA partners
- Moreover, the gains from tariff reduction/elimination has gradually declined worldwide, as MFN tariffs under the GATT/WTO multilateral negotiations have come down substantially.
- Despite this, most FTA negotiations do get bogged down with product coverage, phasing in off tariffs reductions, and agreeing on sensitive list.
- The ROO – without which an FTA does not make sense – makes the task of FTA negotiations even harder.
- There is no perfect or universal test for determining the origin of a good, especially with the spread of production fragmentation and the spread of global production networks and supply chains.
- Trade in products is increasingly being replaced by trade in tasks across the world.
- All these complicates the ROO. The more cumbersome the ROO in an FTA, the less likely that businesses and firms will use the preferential tariffs of that FTA.
- To keep compliance costs of an FTA's ROO - that could run anywhere from 3% to 5% of the FOB value of the exported goods (Plummer 2007) - ROOs have to be simple and transparent.

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Training Program on Free Trade Agreements (FTAs): Analytics, Empirics, and Best Practices

Lecture 3: Methods for Ex-post Evaluation of FTAs

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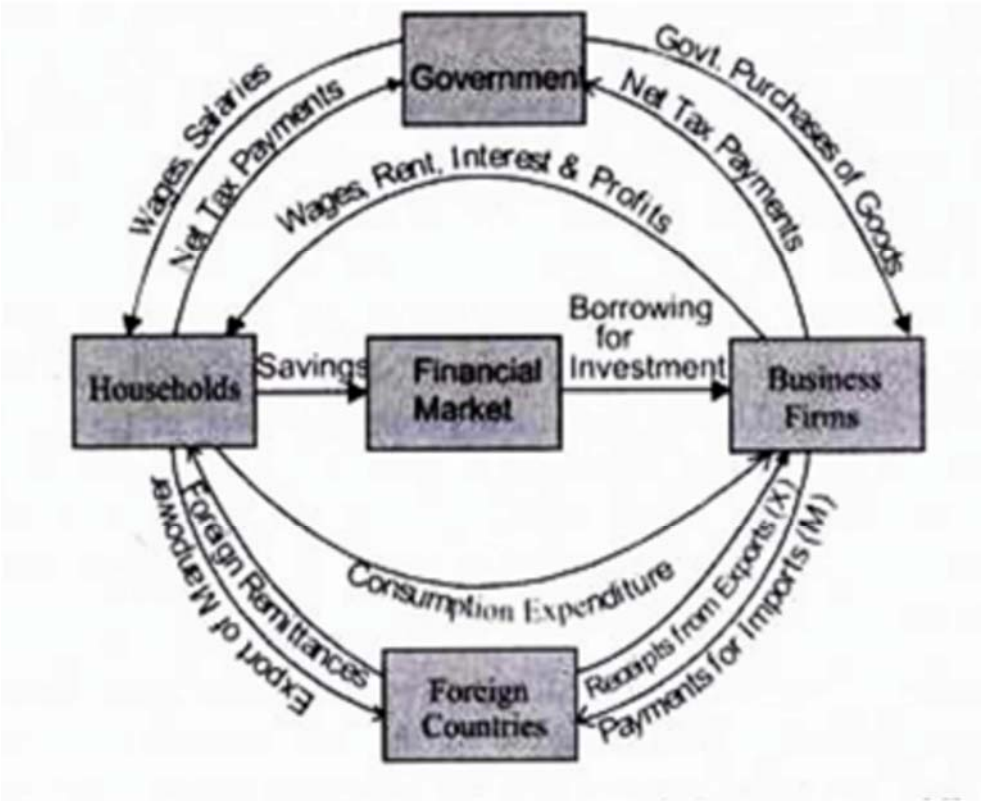
FTAs have many economic effects on their partner countries

- trade in goods – imports and exports
- trade in services – imports and exports
- domestic production and consumption
- domestic prices
- govt. revenues
- even spillovers on to the financial and other sectors within the economy
- almost all – households, firms, and the government – get affected by an FTA
- Effectively evaluating these multiple effects is often extremely challenging…
- even with massive data, complex quantitative techniques, precise computer software, and the best human minds.

Even within the framework of a highly simplified and stylized economy, such as, say…



In practice, focus of ex-post evaluations of FTAs have mostly been on a few issues, mostly on what happens to trade

- Tariff Preference Indicators
  - Coverage Rate
  - Utility Rate
  - Utilization Rate
- Trade Indicators – Before and After an FTA
  - Trade creation
  - Trade diversion
  - Net trade creation
  - Change in volume
- Trade-model-based estimates
  - Gravity models
  - More recently, CGE and similar models (Not covered in this session)

The Coverage Rate measures the official coverage of an FTA

$$CoverageRate = \frac{\sum_{i \in P} M_i}{\sum_{i \in D} M_i}$$

where:
i is a tariff line
M_i is the value of imports in the tariff line i from FTA members
D is the set of all tariff lines with dutiable imports from FTA members
P is the set of all dutiable tariff lines that are eligible for preferences under the FTA

In the formula, the numerator is the sum of imports over all tariff lines that are both dutiable and eligible for preferences, while the denominator is the sum of imports over all dutiable tariff lines.[3] To calculate this fraction, one needs to know the import values from FTA partners for all dutiable tariff lines, and which dutiable tariff lines were eligible for preferences.

The Utility Rate measures the the share of dutiable imports that actually entered under the preferential FTA tariffs

$$Utility\ Rate = \frac{\sum_{i \in P} M_i^U}{\sum_{i \in D} M_i}$$

where:
i is a tariff line
M_i is the value of imports in the tariff line i from FTA members
M_i^U is the value of imports from FTA members that actually utilized the FTA's preferential rate in the tariff line i
D is the set of all tariff lines with dutiable imports from FTA members
P is the set of all dutiable tariff lines that are eligible for preferences under the FTA

In the formula, the numerator is the sum of all dutiable imports that actually utilized the FTA's preferences, while the denominator is the sum of imports over all dutiable tariff lines. The higher the utility rate, the larger the share of dutiable imports that actually entered under the preferential—rather than the MFN—tariff, indicating a wider effective scope of the FTA. Different from the coverage rate, the utility rate requires knowing the value of imports that actually entered with preferences within each dutiable tariff line that was eligible for preferential treatment.

The Utilization Rate measures the share of tariff-preferential imports that actually utilized the preferences

$$Utilization\ Rate = \frac{\sum_{i \in P} M_i^U}{\sum_{i \in P} M_i}$$

where:

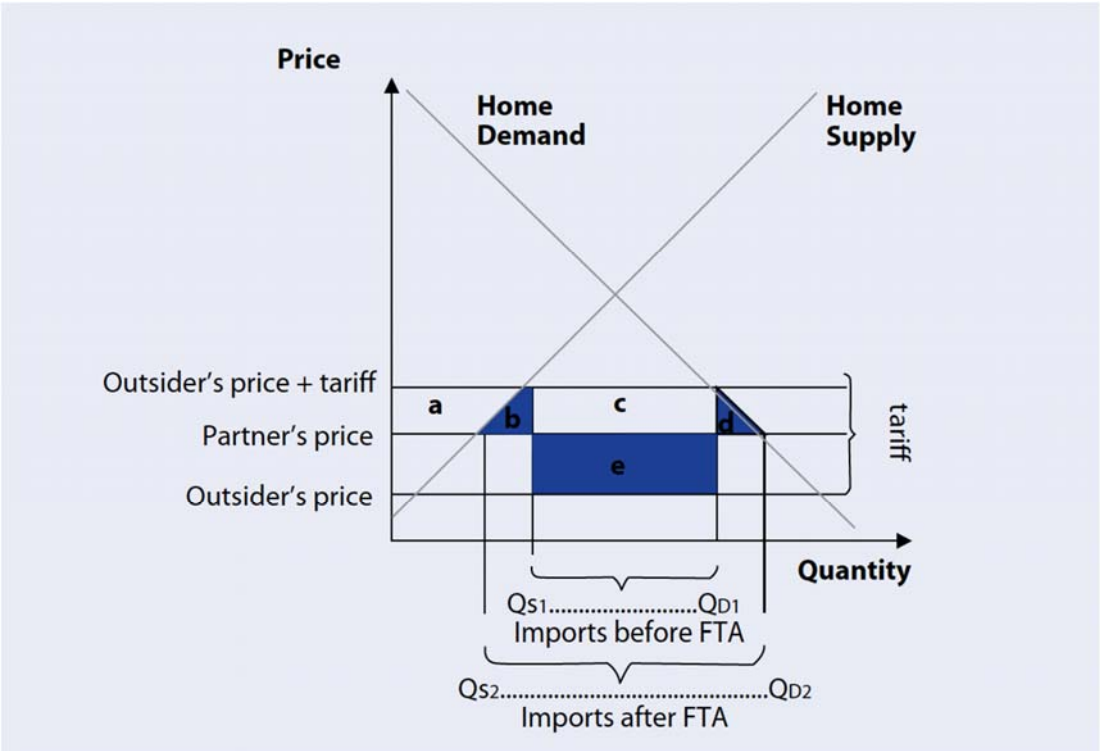
i is a tariff line

M_i is the value of imports in the tariff line i from FTA members

M_i^U is the value of imports from FTA members that actually utilized the FTA's preferential rate in the tariff line i

P is the set of all dutiable tariff lines that are eligible for preferences under the FTA

Before and After FTA Scenarios – the Viner Model and its Implication – Is (b+d-e)>0?



Before-and-After Assessments: Better or Worse – Some Guidelines

- An increase in imports from FTA partners accompanied by a reduction in domestic production – trade creation
- An increase in imports from FTA partners accompanied by a drop in imports from non-partners – trade diversion
- A rise in total imports accompanied by a constant or rising imports from non-partners – no trade diversion
- A rise in total imports accompanied by a fall in non-partner imports and domestic production:
  - ➢ fall in non-partner imports is larger than fall in domestic production – trade diversion exceeds trade creation
  - ➢ fall in non-partner imports is smaller than fall in domestic production - trade creation exceeds trade diversion
- A fall in total imports – trade destruction

Change in trade volume – a composite measure of the the effect of an FTA

$$Change\ in\ Trade\ Volume = \sum_{p} t_{mp} u^{0}_{mp} \left(m^{1}_{p} - m^{0}_{p} \right)$$

where:

the p subscript indicates a partner country

t_{mp} is the import-weighted *ad valorem* tariff on imports from partner country p in the base period

u^{0}_{mp} is the unit value of imports from partner country p in the base period

m^{1}_{p} is the quantity of imports from partner country p in the new period

m^{0}_{p} is the quantity of imports from partner country p in the base period

Change in terms of trade - another composite measure of the effect of an FTA

$$Change\ in\ Terms\ of\ Trade = \sum_p x_p^0\left(u_{xp}^1 - u_{xp}^0\right) - \sum_p m_p^0\left(u_{mp}^1 - u_{mp}^0\right)$$

where:

the p subscript indicates a partner country

x_p^0 is the quantity of exports to partner country p in the base period

u_{xp}^1 is the unit value of exports to partner country p in the new period

u_{xp}^0 is the unit value of exports to partner country p in the base period

m_p^0 is the quantity of imports from partner country p in the base period

u_{mp}^1 is the unit value of imports from partner country p in the new period

u_{mp}^0 is the unit value of imports from partner country p in the base period

FTA effects through Gravity Model using cross-country data - the basis model

$$\ln TF_{ijt} = \beta_0 + \beta_1\left(\ln GDP_{it}GDP_{jt}\right) + \beta_2\left(\ln DIST_{ij}\right) + \beta_3\left(ADJ_{ij}\right) + \beta_4\left(LANG_{ij}\right) + \beta_5\left(FTA_{ijt}\right) + \varepsilon_{ijt} \quad (1)$$

where TF_{ijt} denotes the sum of the values of the nominal bilateral trade flows between countries i and j in year t, GDP_{it} (GDP_{jt}) denotes the nominal gross domestic product in country i (j) in year t, $DIST_{ij}$ denotes the bilateral distance between the economic centers of countries i and j, ADJ_{ij} is a dummy variable assuming the value 1 if both countries are adjacent (i.e., share a land border) and 0 otherwise, $LANG_{ij}$ is a dummy variable assuming the value 1 if both countries share a common language and 0 otherwise, FTA_{ijt} is a dummy variable assuming the value 1 if both countries are members of a free trade agreement (or deeper economic integration agreement) in t and 0 otherwise, and ε_{ijt} is a normally-distributed error term.[7]

Infer the effect of FTAs from the coefficient of (FTAij)

Table 2
Typical gravity equation coefficient estimates

Variable	(1) 1960	(2) 1965	(3) 1970	(4) 1975	(5) 1980	(6) 1985	(7) 1990	(8) 1995	(9) 2000
ln $(GDP_i\ GDP_j)$	0.75 (43.53)	0.76 (53.07)	0.81 (57.18)	0.84 (63.64)	0.90 (71.01)	0.87 (73.25)	0.90 (79.62)	0.95 (93.88)	0.99 (100.11)
ln $DIST_{ij}$	−0.56 (−1.33)	−0.65 (−14.40)	−0.65 (−14.10)	−0.75 (−16.29)	−0.88 (−21.19)	−0.88 (−22.48)	−0.98 (−24.24)	−1.01 (−26.15)	−1.08 (−27.39)
ADJ_{ij}	0.31 (1.64)	0.06 (0.37)	0.10 (0.54)	0.33 (1.93)	0.45 (2.77)	0.43 (2.80)	0.40 (2.40)	0.63 (3.99)	0.84 (5.17)
$LANG_{ij}$	0.03 (0.25)	0.24 (2.33)	0.36 (3.29)	0.48 (4.57)	0.47 (4.72)	0.39 (3.98)	0.68 (6.57)	0.76 (7.62)	0.63 (6.35)
FTA_{ij}	0.43 (2.02)	0.80 (4.24)	1.32 (6.08)	0.42 (2.47)	−0.11 (−0.62)	0.32 (1.98)	−0.04 (−0.27)	−0.04 (−0.27)	0.15 (1.37)
Constant	−9.66 (−15.28)	−9.45 (−17.45)	−11.58 (−20.89)	−12.17 (−23.04)	−13.40 (−26.11)	−12.66 (−26.76)	−13.49 (−28.83)	−14.97 (−35.52)	−15.87 (−37.12)
RMSE	1.1504	1.1089	1.2715	1.3218	1.3342	1.3227	1.4315	1.4029	1.4717
R^2	0.6649	0.6985	0.6969	0.7038	0.7250	0.7171	0.7308	0.7684	0.7741
No. observ.	1059	1325	1570	1947	2189	2433	2802	3073	3342

t-statistics are in parentheses. The dependent variable is natural log of the sum of nominal bilateral trade flows between *i* and *j*. The gravity equation was also estimated using the log of the bilateral trade flow from *i* to *j*; the results are not materially different. The data are the same as used in Baier and Bergstrand (2007a). The binary variable for an FTA (which also includes customs unions, common markets, and economic unions) was constructed by the authors, is described in Section 5 and Table 3 (a listing of all the agreements used) of Baier and Bergstrand (2007a), and is available at http://www.nd.edu/~jbergstr and http://people.clemson.edu/~sbaier. See Section 4.1, Data Description for sources for other variables.

In conclusion, there are many ways of evaluating FTAs ex-post, but none foolproof

- Trade Preference Measures - the coverage rate, utility rate, and utilization rate - are generally simpler to compute
- But they do not tell us if an FTA has a positive or a negative effect on member countries' trade.
- The qualitative measures do indicate if an FTA has had a positive or a negative effect on member country's trade by looking at if the FTA had a trade creating or a trade diverting effect
- But these do not give a good estimate of the magnitudes of these effects
- Before and after composite measures - such as changes in the trade volume and terms of trade – represent better quantitative measures of the effects of an FTA
- However, the demands these place on data requirements for computing them are also that much higher
- Similarly, the gravity models do give a better sense of the quantitative effects of FTAs, but data requirements and the skill requirements also very demanding
- The reliability of the gravity model results are beset with many statistical problems – omitted variables, reconciling the vast variations in the effects found across different points in time, and samples of countries covered, to name a few.
- All measures are thus indicative at best in evaluating FTAs ex-post

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Training Program on Free Trade Agreements (FTAs): Analytics, Empirics, and Best Practices

Lecture 4: Some Methods for Ex-ante Evaluation of FTAs

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FTAs have many economic effects on their partner countries

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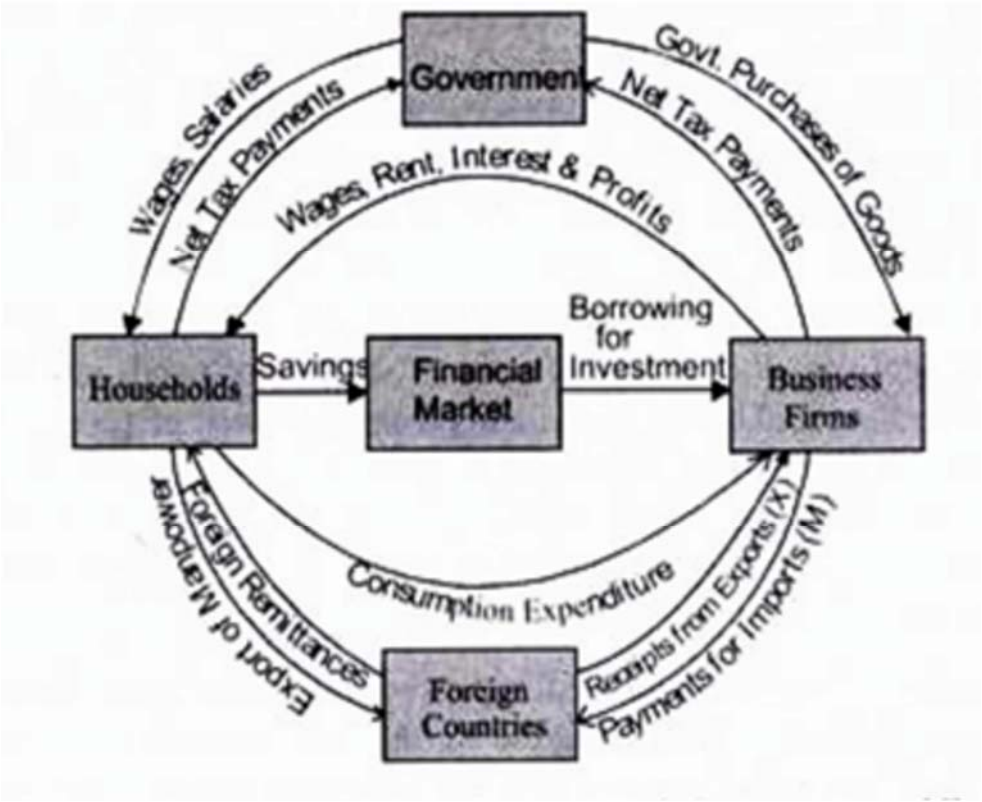
Even within the framework of a highly simplified and stylized economy, such as, say…



In practice, three broad methods are used to evaluate FTAs ex-ante

- **Trade Indicators**
  - Intra-regional trade share
  - Intra-regional trade intensity
  - Regional trade Introversion Index
  - Revealed comparative advantage
  - Regional orientation index
  - Complementarity index
  - Export similarity index
- **Partial equilibrium analysis – the SMART Model**
- **CGE models – the GTAP Model (not covered in this session)**

Questions answered by the Trade Indicators

(i) To what extent is trade intraregional?
(ii) What is the comparative advantage of each FTA member?
(iii) Are a country's exports of a good regionally oriented?
(iv) How complementary is trade between a given pair of FTA members?
(v) How similar are the exports of a given pair of FTA members?

Questions answered by the partial equilibrium methods

(i) How much will imports increase?
(ii) How much will exports from regional partners increase?
(iii) How much will exports from outsiders decrease?
(iv) How much will tariff revenue fall?

Questions answered by the CGE models

(i) How does real gross domestic product (GDP) change in a country that joins an FTA?
(ii) How does the country's trade balance change?
(iii) How do the country's terms of trade change?
(iv) How do import and export prices in a particular sector change?
(v) How do output and trade in different sectors within the country change?
(vi) Is there trade diversion?
(vii) How does the country's welfare change?
(viii) Where do these welfare effects come from?

Intra-regional trade share

The intraregional trade share is defined as the ratio of trade between countries in the proposed region over the total trade of all these countries. This indicator shows the relative importance of trade within the region compared to the total trade of all regional members. The intraregional trade share of region *i* in mathematical form is:

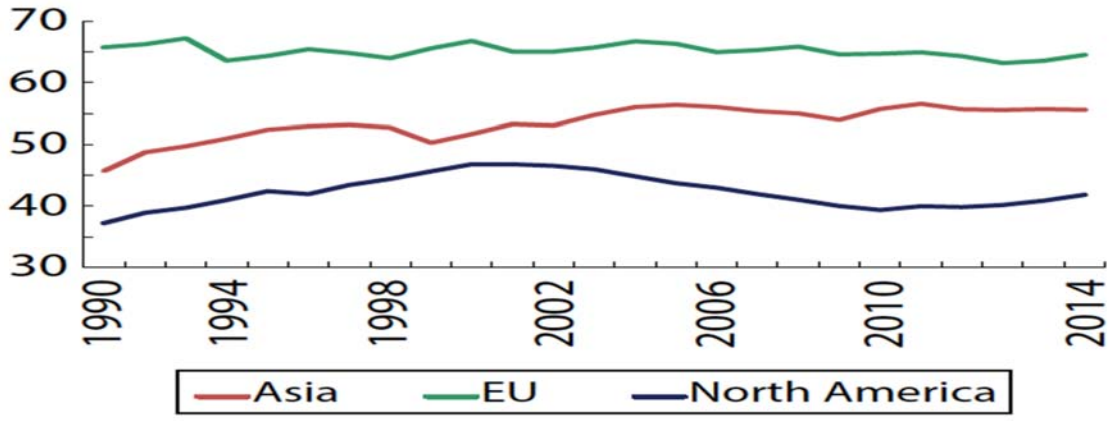
$$\text{Intraregional Trade Share}_i = \frac{T_{ii}}{T_i}$$

where

T_{ii} = exports of region *i* to region *i* plus imports of region *i* from region *i*
T_i = total exports of region *i* to the world plus total imports of region *i* from the world

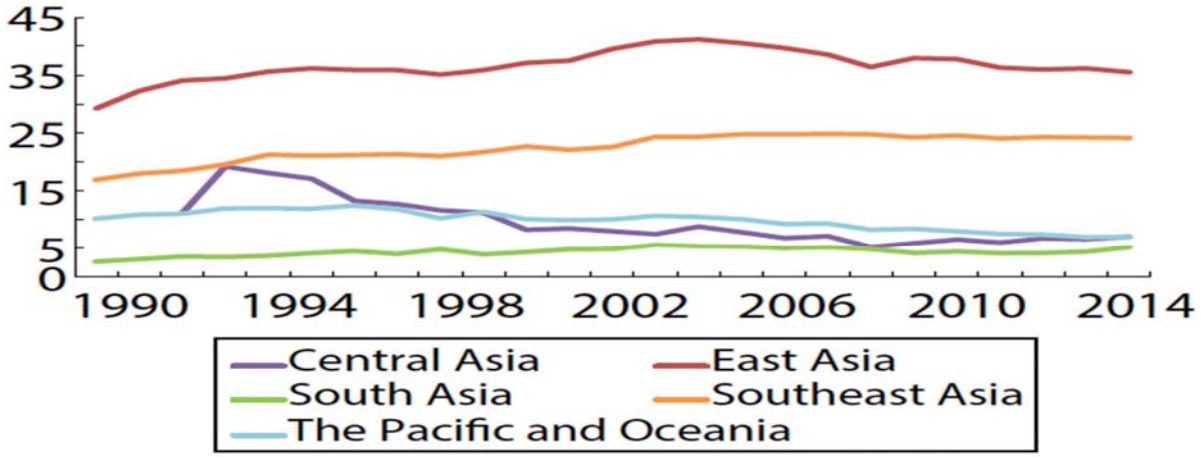
The exports of region *i* to region *i* should be equal to the imports of region *i* from region *i*. Therefore, the numerator of this indicator can simply be twice the exports of region *i* to region *i*, or twice the imports of region *i* from region *i*. This indicator is simple to calculate and can be used by a single country or a group of countries to measure the regional direction of trade.

Intra-regional trade share of major regions in the world (%)



EU=European Union (27 members).
Note: North America covers the United States, Canada, and Mexico. Intraregional trade shares are calculated as $100 \cdot ((X_{ii}+M_{ii})/(X_{iw}+M_{iw}))$, where $X_{ii}+M_{ii}$ refers to region i's total intraregional trade and $X_{iw}+M_{iw}$ refers to region i's total trade with world.
Source: ADB calculations using data from *Direction of Trade Statistics,* International Monetary Fund.

Intra-Subregional trade shares in Asia (%)



Note: Intra-subregional trade shares are calculated as $100 \cdot ((X_{ii}+M_{ii})/(X_{iw}+M_{iw}))$, where $X_{ii}+M_{ii}$ refers to region i's total intraregional trade and $X_{iw}+M_{iw}$ refers to region i's total trade with world.
Source: ADB calculations using data from *Direction of Trade Statistics,* International Monetary Fund.

Intra-regional trade intensity

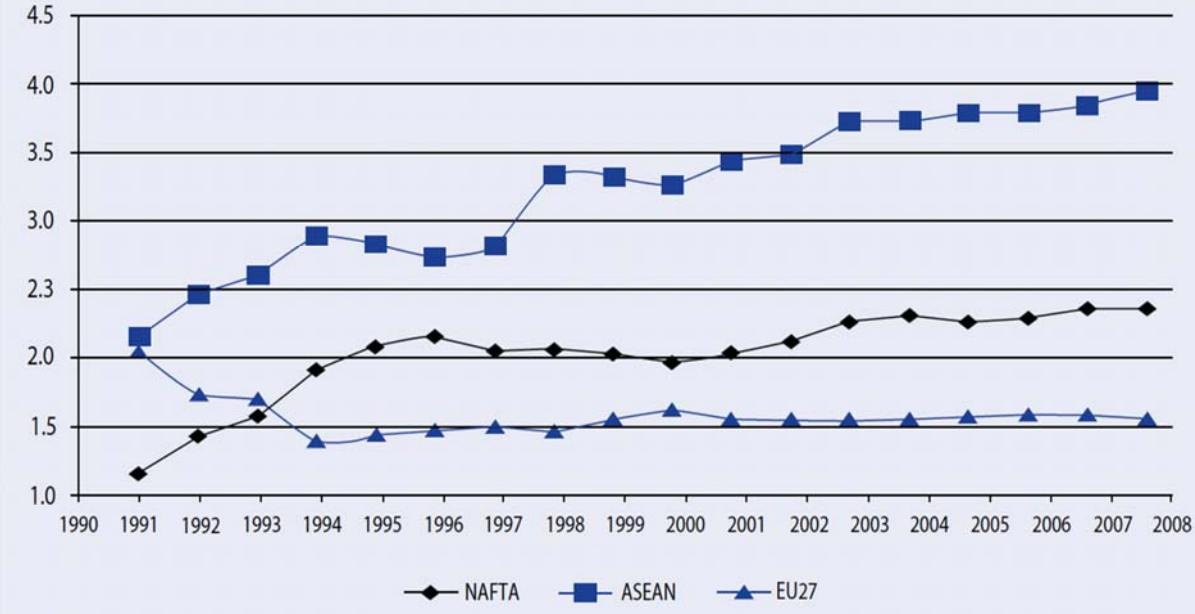
$$\text{Intraregional Trade Intensity}_i = \frac{\left(T_{ii}/T_i\right)}{\left(T_i/T_w\right)}$$

where

T_{ii} = exports of region i to region i plus imports of region i from region i
T_i = total exports of region i to the world plus total imports of region i from the world
T_w = total world exports plus total world imports, which can be twice the value of world exports or twice the value of world imports since the value of world exports should equal world imports

Intraregional trade intensity is defined as the intraregional trade share divided by the share of the region's total trade in world trade.[24] The numerator—the intraregional trade share—can be thought of as the probability that any $1 worth of total trade of regional members is an intraregional transaction. The denominator—the region's total trade share in world trade—can be thought of as the probability that any $1 worth of world trade is a transaction involving at least one regional member. The closer the numerator and denominator are in value (i.e., the closer the intraregional trade intensity is to the value of 1), then the more neutral the regional members' trade is.[25] In other words, the region tends to not have any bias toward trading between its members or with outsiders. If the indicator is more than 1, then the region has a bias toward trading within itself; if the indicator is less than 1, then the region has a bias toward trading with outsiders. The intraregional trade intensity will tend to rise when the share of a region's trade within itself rises faster than its share of world trade.

Intraregional trade intensity across the major regions in the world



ASEAN = Association of Southeast Asian Nations, EU = European Union, NAFTA = North American Free Trade Agreement.

Source: Author's computations with data sourced from the United Nations Commodity Trade (UN Comtrade) Statistics Database.

Regional trade introversion idex

$$\text{Regional Trade Introversion Index}_i = \frac{(HI_i - HE_i)}{(HI_i + HE_i)}$$

where

$HI_i = (T_{ii} / T_i)/ (T_{Oi} / T_O)$ and $HE_i = [1 - (T_{ii} / T_i)]/[1 - (T_{Oi} / T_O)]$

T_{ii} = exports of region i to region i plus imports of region i from region i

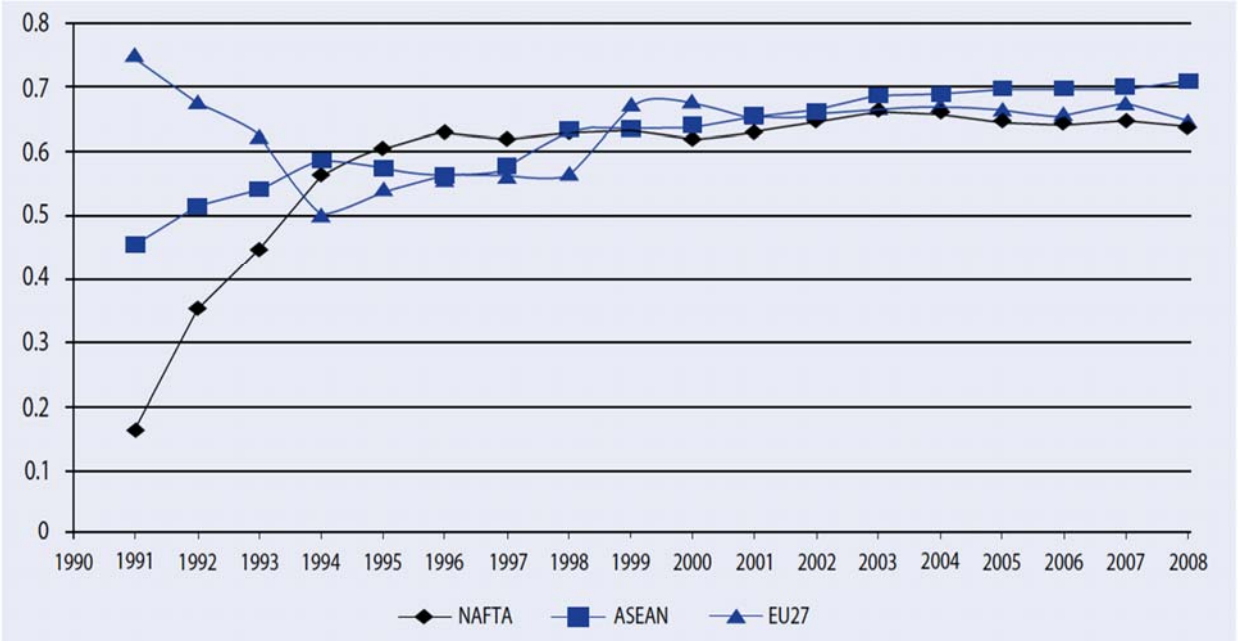
T_i = total exports of region i to the world plus total imports of region i from the world

T_{Oi} = exports of region i to outsiders plus imports of region i from outsiders

T_O = total exports of outsiders plus total imports of outsiders

trading versus trading with outsiders. In this index, intraregional trade intensity (HI_i) and extraregional trade intensity (HE_i) are functions of the region's share of outsiders' total trade and not of world trade as in the previous trade intensity index. The index's range is –1 to 1 and it is independent of the size of the region.[28] The index rises (or falls) only if the intensity of intraregional trade grows more (or less) rapidly than that of extraregional trade. If the index is equal to zero, then the region's trade is geographically neutral. If it is more than zero, then the region's trade has an intraregional bias; if it is less than zero, then the region's trade has an extraregional bias.

Regional trade introversion index in the major regions around the world



ASEAN = Association of Southeast Asian Nations, EU = European Union, NAFTA = North American Free Trade Agreement.

Source: Author's computations with data sourced from the United Nations Commodity Trade (UN Comtrade) Statistics Database.

Revealed comparative advantage index

$$\text{Revealed Comparative Advantage}_{cg} = \frac{\left(X_{cg} / X_{c}\right)}{\left(X_{Wg} / X_{W}\right)}$$

where

X_{cg} = exports of good g by country c
X_{c} = total exports of country c
X_{Wg} = world exports of good g
X_{W} = total world exports

defined as the ratio of a country's share of the commodity in the country's total exports to the share of world exports of the commodity in total world exports. A country is said to have a revealed comparative advantage if the value of the index exceeds 1 and a revealed comparative disadvantage if the index's value is below 1. The larger the difference between countries' RCA indices, the more suitable they are as FTA partners.

Regional trade orientation index

$$\text{Regional Orientation}_{cgr} = \frac{\left(X_{cgr} / X_{cr}\right)}{\left(X_{cg\text{-}r} / X_{c\text{-}r}\right)}$$

where

X_{cgr} = exports of good g by country c to region r
X_{cr} = total exports of country c to region r
$X_{cg\text{-}r}$ = exports of good g by country c to countries outside region
$X_{c\text{-}r}$ = total exports of good g to countries outside region r

two shares. The numerator is the share of the country's exports of the product to the region of interest in the country's total exports to the region. The denominator is the share of the country's exports of the product to other countries in the country's total exports to other countries. If the index has a value greater than 1, this implies that the country has a regional bias in exports of the product. Conversely, if the index is less than 1, then the country has no regional bias. The index can be combined with the RCA index to discover which commodities markets may experience trade diversion after an FTA. If a country's RCA index is less than 1 and its regional orientation index is more than 1, then an FTA between the country and the region may cause trade diversion.

Economic complementarity index

$$\text{Complementarity}_{cgr} = 1 - \left\{ \frac{\sum_{g} abs\left[\left(M_{rg} / M_{r} \right) - \left(X_{cg} / X_{c} \right) \right]}{2} \right\}$$

where
M_{rg} = imports of good g by region r
M_{r} = total imports of region r
X_{cg} = exports of good g by country c
X_{c} = total exports by country c

This index measures the degree to which the export pattern of one country matches the import pattern of a region. It is defined as 1 minus the sum of the absolute value of the difference between the import category shares of the region and the export shares of the country divided in half.

The index takes a value between 0 and 1, with 0 indicating no overlap and 1 indicating a perfect match in the import–export pattern. A high degree of complementarity may indicate more favorable prospects for a successful trade arrangement.

Export similarity index

$$\text{Export Similarity}_{cgr} = \sum_{g} min\left[\left(X_{rg} / X_{r} \right), \left(X_{cg} / X_{c} \right) \right]$$

where
X_{rg} = exports of good g by region r
X_{r} = total exports of region r
X_{cg} = exports of good g by country c
X_{c} = total exports by country c

This index captures the degree of similarity between the export profiles of one country and other countries in a region. It is defined as the sum over export categories of the smaller export share, comparing the export share of the country with that of other countries in the region.

The index ranges between 0 and 1, with 0 indicating no overlap in the export profiles (i.e., the country is not a competitor with other countries in the region) and 1 indicating perfect overlap. The more similar the export profiles are, the more likely it is that there will be limited potential for gains from interindustry trade with a regional trading arrangement. This index does not consider gains from intra-industry trade.

Partial Equilibrium Analysis - SMART (Software for market analysis and restrictions on trade) Model in words

- An FTA will affect both the price index of the product under consideration and the relative prices of different national varieties of that product
- Take a three country case – countries A, B, and C – and country A now forms an FTA with country B
- Consumers in country A now want to consume more of the product variety imported from country B and less of the product variety from country C.
- As that substitution takes place, the total consumption of the product by country A is assumed to remain the same as before
- Only the composition of that product consumed changes away from country C variety in favor of country B variety.
- With that, the exports from country B to A has increased and the exports from country C to A has fallen by the same magnitude.
- In other words, FTA partners (countries A and B) now trade more in the product under consideration at the cost of reduction in trade with the outsider (country C)
- SMART will estimate these changes in trade among the three countries, once the extent of tariff preferences are known.

Data and information requirements an assumptions of SMART

- **Data and Information Requirements**
  - Import value of the product from each foreign trade partner country
  - Tariffs faced by each foreign partner country (before and after the FTA)
  - Import demand elasticities for the product
  - Export supply elasticities for the product
  - The Substitution elasticities between the product varieties
- **Key assumptions**
  - SMART assumes that there is one import demand elasticity for the product, not one for each national variety
  - Export supply elasticity must be the same for all the foreign exporters of the product
  - Substitution elasticity is the same for any pair of varieties of the product

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Training Program on Free Trade Agreements (FTAs): Analytics, Empirics, and Best Practices

Lecture 5: Cambodia's FTAs: An Overview

GDEPFP, Ministry of Economy and Finance (MEF), Royal Government of Cambodia (RGC)

2 December 2016

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ASEAN – the only route of Cambodia's existing FTAs, no bilateral FTAs as yet

ASEAN-Hong Kong, China Free Trade Agreement
Negotiations launched

Regional Comprehensive Economic Partnership
Negotiations launched

ASEAN Free Trade Area
Signed and In Effect

ASEAN-Australia and New Zealand Free Trade Agreement
Signed and In Effect

ASEAN-India Comprehensive Economic Cooperation Agreement
Signed and In Effect

ASEAN-Japan Comprehensive Economic Partnership
Signed and In Effect

ASEAN-People's Republic of China Comprehensive Economic Cooperation Agreement
Signed and In Effect

ASEAN-[Republic of] Korea Comprehensive Economic Cooperation Agreement
Signed and In Effect

Laos and Myanmar have two more FTAs each

Asia-Pacific Trade Agreement
Signed and In Effect

Laos-Thailand Preferential Trading Arrangement
Signed and In Effect

Myanmar-US FTA
(FA) signed

Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) Free Trade Area
Negotiations launched

Vietnam has 8 more FTAs

Viet Nam-European Free Trade Association Free Trade Agreement
Negotiations launched

Viet Nam-European Union Free Trade Agreement
Negotiations launched

Viet Nam-Israel Free Trade Agreement
Negotiations launched

Trans-Pacific Partnership (TPP)
Signed but not yet In Effect

Viet Nam-Customs Union of Russia, Belarus, and Kazakhstan Free Trade Agreement
Signed but not yet In Effect

Chile-Viet Nam Free Trade Agreement
Signed and In Effect

Japan-Viet Nam Economic Partnership Agreement

Signed and In Effect
[Republic of] Korea-Viet Nam Free Trade Agreement
Signed and In Effect

Tariff Reduction Commitments between ASEAN and its Dialogue partners

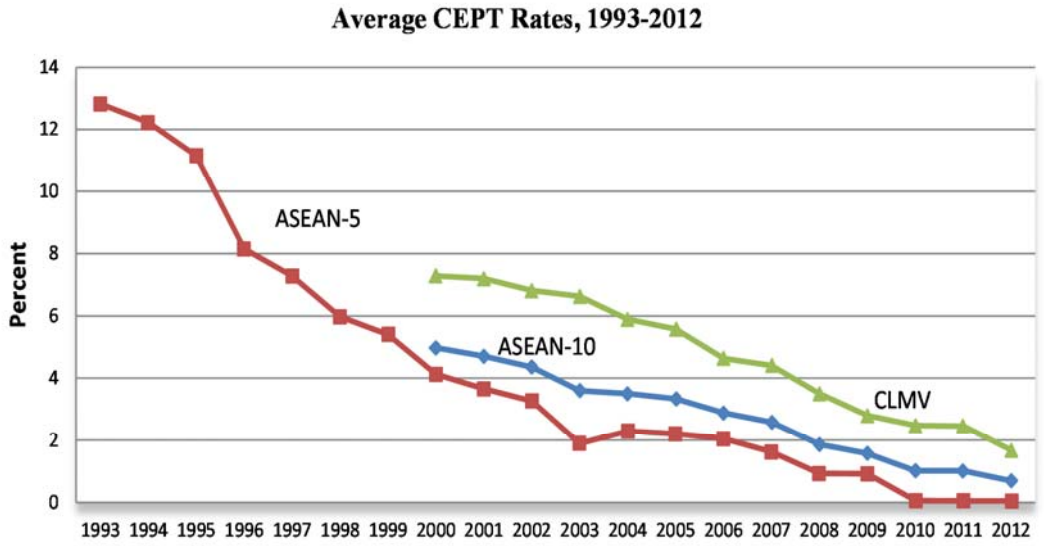
ASEAN FTAs with	Schedule of zero tariff rates (excluding sensitive product lists)					
	2010	2011	2015	2018	2024	2026
China	ASEAN 6		CLMV			
India		ASEAN 5 (except the Philippines)		Cambodia		
South Korea	ASEAN 6			Cambodia		
Japan				ASEAN 6		CLM
Australia	ASEAN 6				Cambodia	
New Zealand					Myanmar	

CLMV: Cambodia, Laos, Myanmar, Vietnam

Source: WTO 2011

Intra-ASEAN Preferential Tariffs are already down sharply

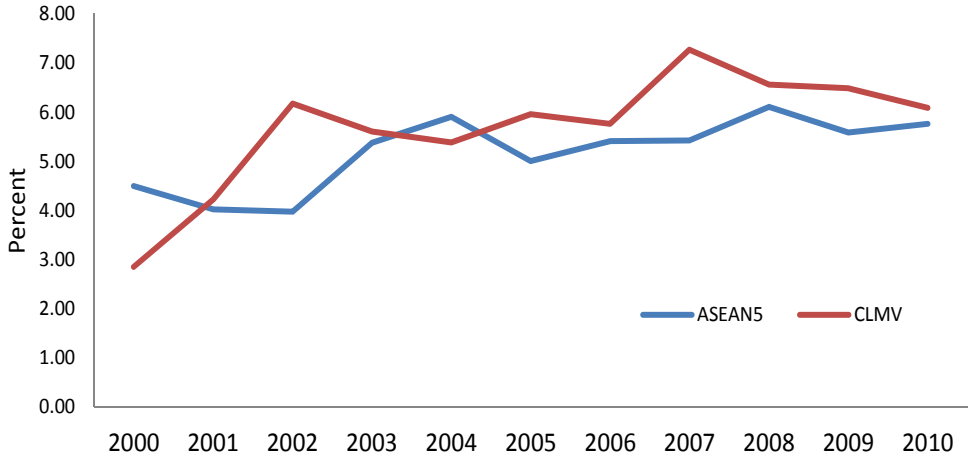
Intra-ASEAN Preferential Tariffs, 1993-2012



Source: ASEC database

But Cambodia does not use the ASEAN preferential rates much

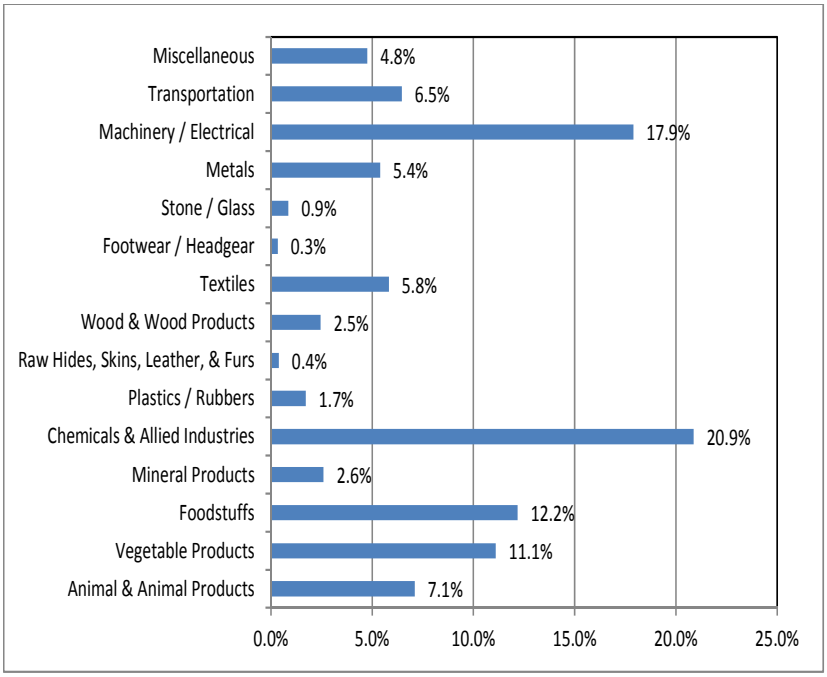
Low Preferential Margins Largely Explain Low Preference Utilization



Source: TRAINS downloaded via WITS (average preferential margins between MFN and CEPT tariffs)

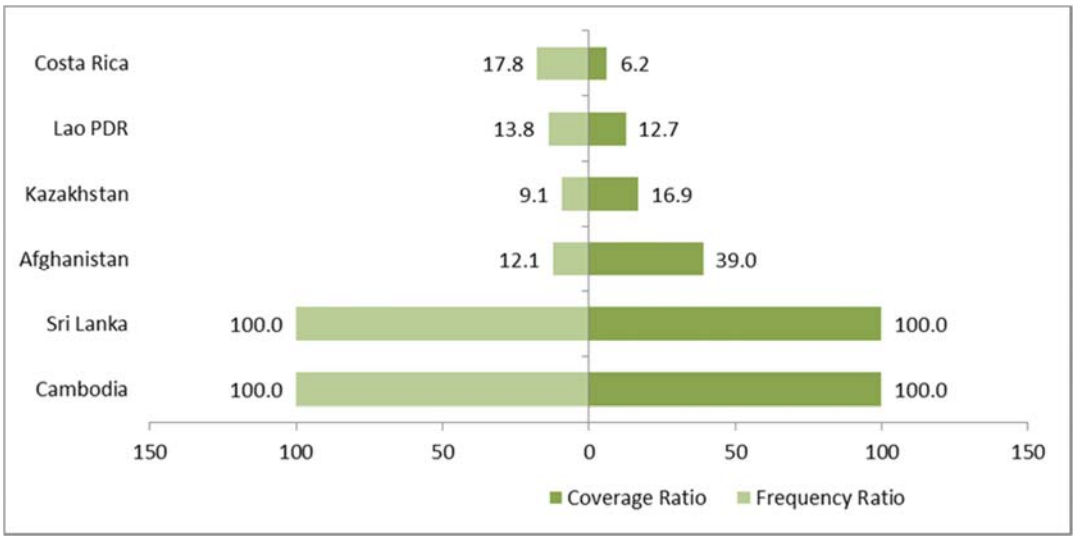
Increase in intra-ASEAN trade flows is slowed down by NTM proliferation

NTMs in ASEAN by Industry (officially notified)



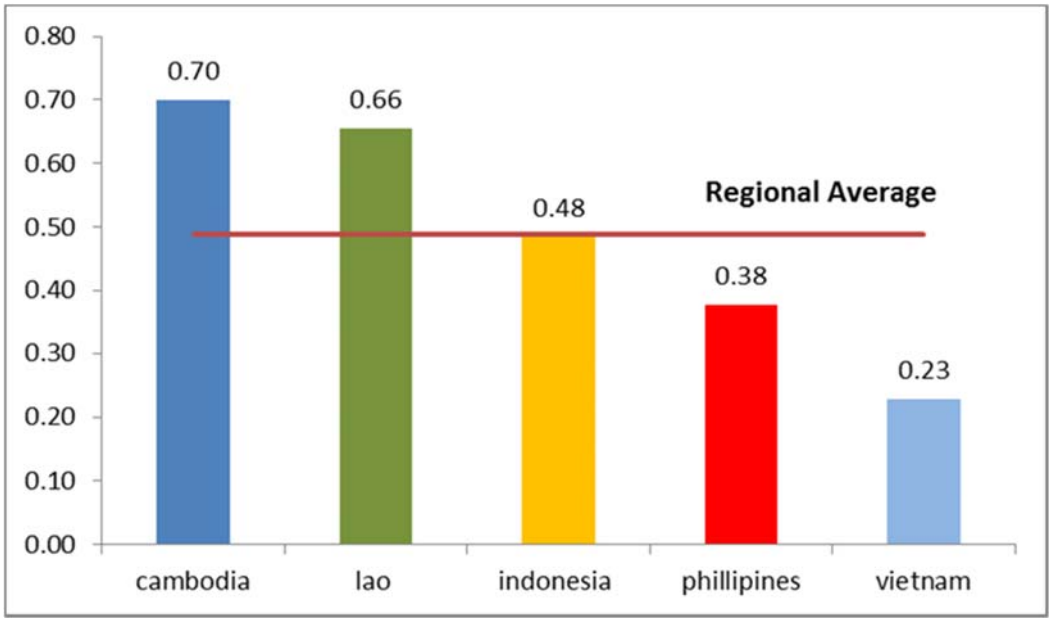
Source: AADCP II staff estimates based on ASEAN NTM database

NTMs are also about export measures imposed by Cambodia



Out of 49 countries in the Global NTM database, only in Cambodia and Sri Lanka exporters need to get an export license…limiting competitiveness.
A GDCE's export permit is required for all shipments, but the requirement to get a CO for all shipment has recently being abolished.

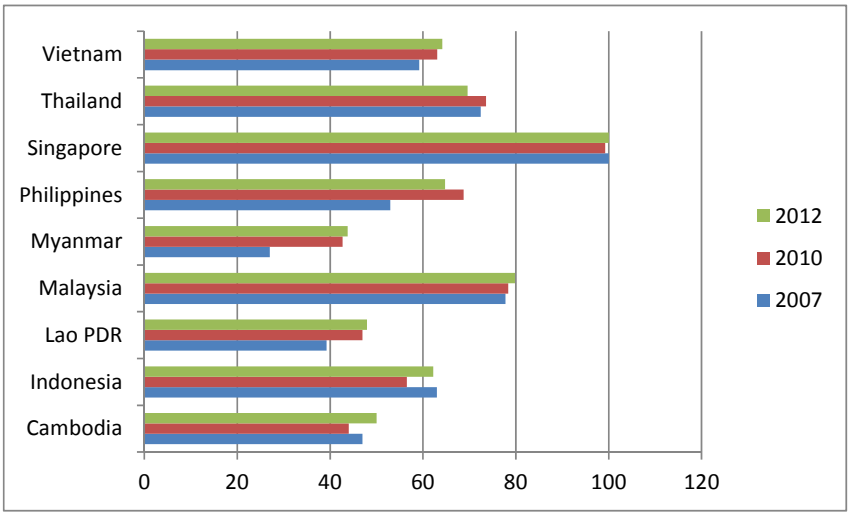
It is also more expensive to export from Cambodia than other ASEAN countries



In Cambodia export costs are 40% higher than the regional average.
This can explain why very few firms are exporting.

Trade Logistics have a strong influence on trade costs

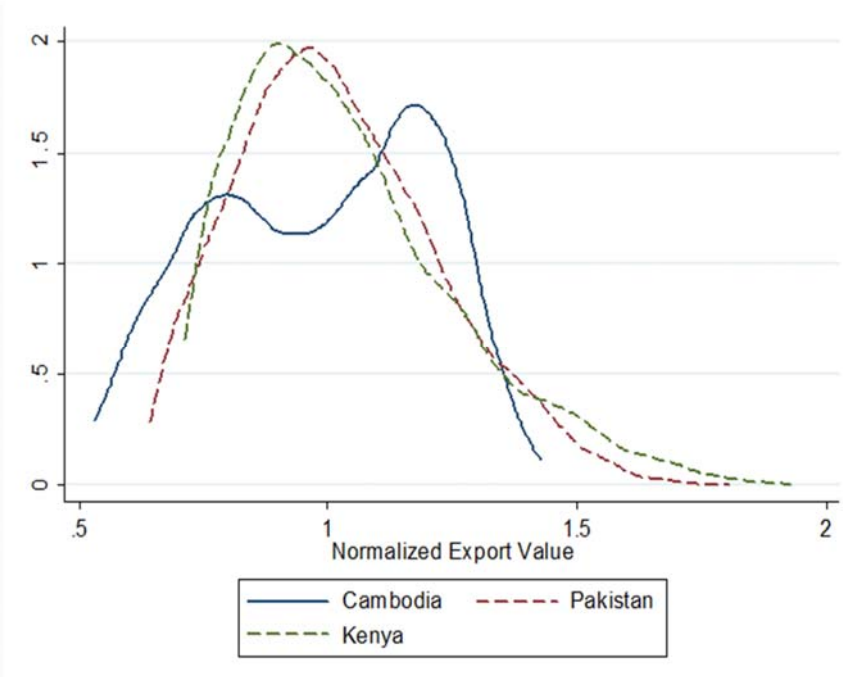
International LPI scores as a percentage of the top performer, 2007-2012



Source: Logistics Performance Index 2007-2012.

Cambodia needs to look at at-the-border and beyond-the-border reforms in trade logistics and facilitation to spur both their intra-regional and global integration

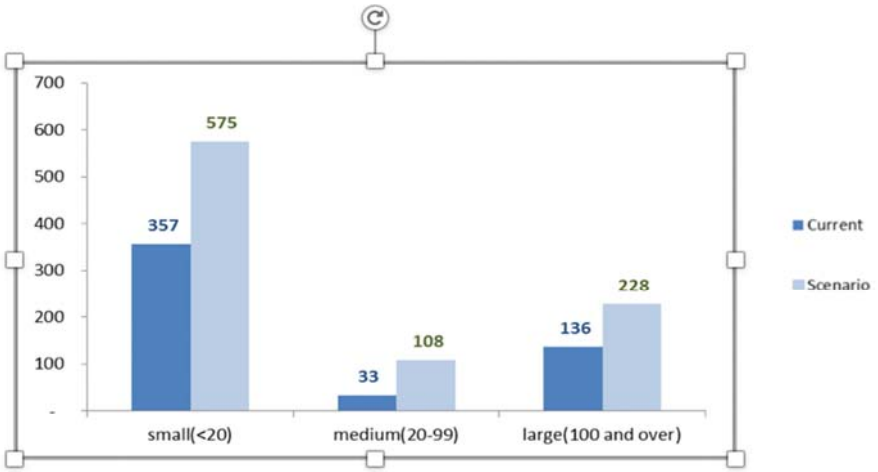
High export costs are also discouraging mid-size firms from exporting - exporting firms in Cambodia are mostly large firms – missing middle



If costs of exporting is brought down, many more firms would export!

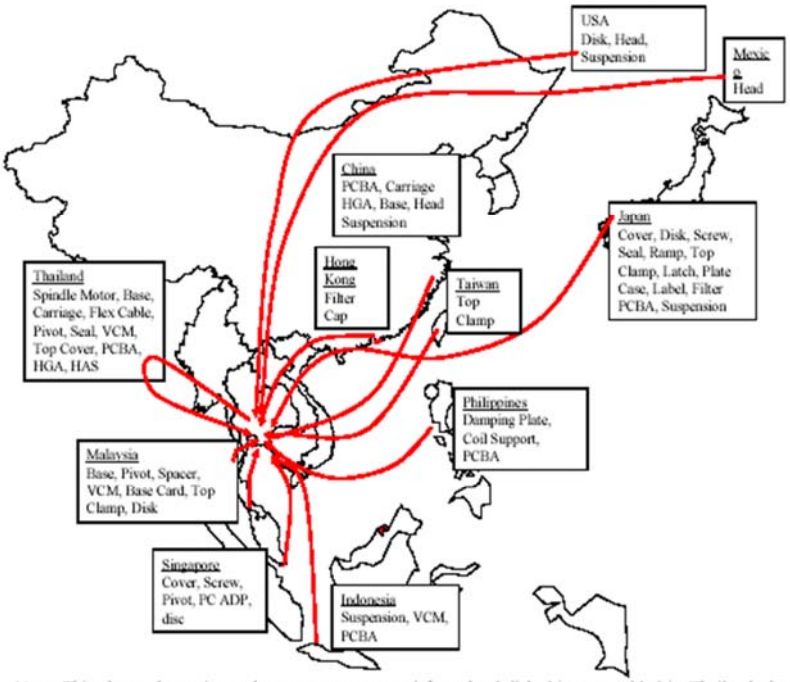
Scenario: Trade costs are lowered to the level of Vietnam, by tackling also trade logistics issues.

Impact: the number of firms would increase, particularly middle-sized which would triple.



Enhancing connectivity will help Cambodia to be part of the regional production networks

Figure 8: An example of interdependence in 'Factory Asia.'



Note: This shows the nations where parts are sourced for a hard-disk drive assembled in Thailand; the disk drives are then shipped on to various markets to be used in various electronics.
Source: Adapted from Hiratsuka (2005). Figure 2

Trade Freedom Index – another measure of openness to trade

$$Trade\ Freedom_i = (Tariff_{max} - Tariffi) / (Tariff_{max} - Tariff_{min}) \times 100 - NTB_i$$

where $Trade\ Freedom_i$ represents the trade freedom in country i, $Tariff_{max}$ and $Tariff_{min}$ represent the upper and lower bounds for tariff rates, and $Tariff_i$ represents the weighted average tariff rate in country i. The minimum tariff is naturally zero, and the upper bound was set as a score of 50. NTB_i, an NTB penalty, is then subtracted from the base score. The penalty of 5, 10, 15, or 20 points is assigned according to the following scale:

- **Penalty of 20.** NTBs are used extensively across many goods and services or impede a significant amount of international trade.
- **Penalty of 15.** NTBs are widespread across many goods and services or impede a majority of potential international trade.
- **Penalty of 10.** NTBs are used to protect certain goods and services or impede some international trade.
- **Penalty of 5.** NTBs are uncommon, protecting few goods and services, with very limited impact on international trade.
- **No penalty.** NTBs are not used to limit international trade.

Cambodia's Trade Freedom Score in the ASEAN Lower Range

Singapore	90.0
Brunei	89.1
Vietnam	83.1
Thailand	82.8
Malaysia	81.2
Indonesia	80.5
Cambodia	**80.3**
Philippines	76.4
Laos	74.6

CGE Model Estimated Effects of AFTA+ and AEC+ Scenarios – Cambodia benefits substantially

	Income gains ($bill)					Percentage change from baseline				
	AFTA	AFTA+	AEC	AEC+	AEC++	AFTA	AFTA+	AEC	AEC+	AEC++
ASEAN	**10.1**	**38.0**	**69.4**	**115.6**	**151.0**	**0.78**	**2.92**	**5.34**	**8.89**	**11.61**
Brunei	0.2	0.4	0.5	0.6	0.7	2.56	5.38	7.00	9.29	10.62
Cambodia	0.3	0.5	0.6	0.7	1.2	2.74	5.42	6.26	7.23	12.34
Indonesia	1.0	6.2	27.6	36.5	43.2	0.22	1.40	6.21	8.21	9.71
Laos	0.0	0.1	0.2	0.2	0.2	0.63	2.50	3.59	3.76	4.56
Myanmar	0.0	0.2	0.6	0.7	1.4	0.33	1.22	4.39	4.80	9.31
Malaysia	2.7	2.9	5.7	21.1	27.9	1.41	1.55	2.99	11.16	14.70
Philippines	0.9	2.2	4.5	4.4	5.9	0.61	1.59	3.24	3.16	4.29
Singapore	2.6	14.0	15.1	18.1	19.0	1.64	9.00	9.68	11.59	12.16
Thailand	1.6	9.8	12.2	19.5	25.8	0.65	3.93	4.90	7.82	10.38
Vietnam	0.9	1.6	2.4	13.8	25.7	1.10	1.81	2.82	16.00	29.83
Partners	**0.9**	**-17.4**	**-16.9**	**28.4**	**17.9**	**0.00**	**-0.04**	**-0.04**	**0.07**	**0.04**
China	0.4	-4.6	-7.8	-6.5	-12.2	0.01	-0.10	-0.16	-0.14	-0.26
Japan	0.1	-1.3	-1.6	9.2	7.3	0.00	-0.02	-0.03	0.17	0.14
Korea	-0.2	-1.4	-2.7	10.6	9.1	-0.02	-0.15	-0.27	1.07	0.92
India	0.8	0.1	-0.8	23.9	23.5	0.06	0.01	-0.06	1.67	1.64
Australia	0.0	-0.2	0.2	0.3	0.1	0.00	-0.02	0.03	0.03	0.01
New Zealand	-0.1	-0.1	-0.1	-0.1	-0.2	-0.05	-0.07	-0.08	-0.05	-0.15
United States	0.2	-2.8	-1.8	-3.7	-3.6	0.00	-0.02	-0.01	-0.03	-0.03
Europe	-0.3	-7.1	-2.3	-5.4	-6.2	0.00	-0.05	-0.01	-0.04	-0.04
Other economies	**0.3**	**-1.1**	**0.2**	**-0.5**	**-2.1**	**0.00**	**-0.01**	**0.00**	**0.00**	**-0.02**
World	**11.4**	**19.4**	**52.7**	**143.4**	**166.8**	**0.02**	**0.04**	**0.10**	**0.26**	**0.30**

Source: Petri, Peter A., Michael G. Plummer and Fan Zhai, "The Economic Impact of the ASEAN Economic Community: An Applied General Equilibrium Approach," *Asian Economic Journal*, Vol. 26 (2), 2012 , pp. 93-118.

Scenario Descriptions of the CGE Model Simulations

1. AFTA: completion of AFTA by reducing all remaining tariffs on intra-ASEAN trade;
2. AFTA+: intensification of AFTA by removing NTBs, including regulatory barriers such as diverging standards and testing requirements; (lacking detailed information on these measures, we assume a horizontal reduction of trade costs equal to 5 percent of trade values);
3. AEC: further reforms that improve the investment climate, modeled via increasing FDI inflows to levels similar to those in the most open ASEAN countries (see Petri, et. al. 2012 for details);
4. AEC+: additional bilateral FTAs with other RCEP economies; and
5. AEC++: additional bilateral FTAs with the United States and the EU.

A CGE model- in brief and in words

General equilibrium analysis takes account of interactions between markets and gives complete, quantitative answers to policy questions about integration scenarios. The crux of general equilibrium analysis is that demand equals supply in all markets and circular flows of income and expenditure are balanced. To achieve this equilibrium, prices are assumed to adjust until demand for factors of production equals available endowments, consumers have chosen desired basket of goods given their incomes, and firms have chosen production levels that maximize profits. CGE models simulate the effects of FTAs by introducing policy changes such as tariff reductions, and adjusting prices until a new general equilibrium is reached.

CGE analysis uses data from a benchmark year and its mathematical modeling is based on a set of neoclassical assumptions about the motivation of agents in the economy, market structure, consumer preferences and production technology. These assumptions are coded in mathematical functions and equations and contain parameters that capture important behavioral relationships. Many of these parameters are elasticities (which measure the responsiveness of one variable to changes in another) or share parameters such as the share of food consumption in total consumption demand. Some parameters are calibrated in the mathematical model to make its baseline solution match real-world data in a benchmark year.

Economic theory tends only to provide qualitative conclusions about the effects of trade policy, which are sometimes ambiguous. CGE models enable policy makers to assess quantitative impacts. For example, in the case of FTAs, "trade creation" (generated by a more efficient division of labor within the trade area) and "trade diversion" (generated by inefficiencies that result from discrimination against outsiders) have opposing effects on welfare, so the net effect may be positive or negative. CGE models can quantify the magnitudes of the effects identified by theory and estimate a net welfare effect.

Our CGE model is based on a global general equilibrium model developed by Zhai (2008). A novel feature of the model is that it incorporates recent innovations in heterogeneous-firms trade theory into the CGE framework. The firms of most sectors in the model are heterogeneous in productivity, enabling the model to capture the intra-industry changes that occur when trade liberalization, say, enables the most productive firms to export more, and the least productive to face stiffer import competition. Given fixed cost of exporting, the model is also able to capture the both the intensive (more trade of already traded products) and extensive margins (trade in products not traded previously) of trade.

This model is especially appropriate for assessing the implications of deep integration efforts. Its demand structure enables it to track the effects of additional varieties of goods on consumer welfare; its scale-sensitive production function allows it to track productivity gains associated with the growth of firms; and its treatment of productivity variations makes it possible to track the shift in production from relatively unproductive firms to relatively productive ones. The full specification of the model is in Petri et al. (2012).

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