International Issues 1
Trade Theory
(Chapter 12)
Comparative Advantage.

The Economist example.

Two countries; east and west.

Two products are produced in each country: wheat and bicycles.

Each country has 100 workers and different production environments.

East produces 4 bushels of wheat per worker, 2 bicycles.
West produces 1 bushel of wheat per worker, 1 bicycle.

Production functions are thus:

$$P_W^{Wheat}(l) = l, P_W^{Bike}(l) = l; P_E^{Wheat}(l) = 4*l, P_E^{Bike}(l) = 2*l$$

Autarky.

Assume that each country divides the labor force into equal shares for each product (50 / 50).

	Wheat	Bicycles
East	200 (50*4)	100 (50*2)
West	50 (50*1)	50 (50*1)

Total world production is 250 bushels of wheat and 150 bicycles.

Note difference between absolute and comparative advantage.

East has an absolute advantage in wheat and bicycles. East has a comparative advantage in wheat, West has a comparative advantage in bicycles.

A worker in East can produce 4 times as much wheat as a worker in the West per unit of work time.

Alternatively, a worker in West produces 25% of what an East worker can per unit of work time.

A worker in East can produce 2 times as many bicycles as a worker in West per unit of work time.

Alternatively, a worker in West produces 50% of what an East worker can produce per unit of work time.

Every country has to have a comparative advantage – the thing at which they are least bad at producing / the thing they are better at producing than any other thing.

There are still gains to specialization and trade.

First, consider the gains to specialization:
Assume that east moves some laborers to the production of the good in which they have comparative advantage – 10 laborers taken from the bicycle factory and sent to the farm.

West moves some laborers (25) to production of the good which they are comparatively less bad at producing – bicycles.

	Wheat	Bicycles
East	(50+10)*4 = 240	(50-10)*2 = 80
West	(50-25)*1 = 25	(50+25)*1=75

Total world production is 265 bushels of wheat and 155 bicycles, an increase of 15 bushels of wheat and 5 bicycles from what we had before moving the laborers across the sectors.

Specialization allows more total world production, but east has fewer bicycles and west has less wheat than before they specialized.

Specialization is not all that great a deal if you can't trade across countries.

Total world production of both goods goes up, true, but east has fewer bikes than before, and west has fewer bushels of wheat.

In autarky, East residents will trade two bushels of wheat for one bicycle.

West will trade one bushel of wheat for one bicycle (based on equivalent labor inputs).

Trade will be attractive to both east and west if east residents can get a bicycle for less than two bushels of wheat, and west residents can get more than one bushel of wheat for one bicycle.

East and west see this, and agree to the something along the lines of the following experiment.

Let's split the difference, and trade one bicycle for one and a half bushels of wheat.

I, east, promise to trade you, west, 33 bushels of wheat for 22 bicycles from what we produce if we specialize.

	Wheat	Bicycles
East	240 – 33 = 207	80 + 22 = 102
West	25 + 33 = 58	75 – 22 = 53

Compared to autarky, both east and west have gained by specializing and trading.

[consider a different price, and say west asks 1 bushel of wheat for one bicycle since that is the price pre trade and specialization in west. I, east, will trade you, west, 25 bushels of wheat for 25 bicycles.

	Wheat	Bicycles
East	240 – 25 = 215	80 + 25 = 105
West	25 + 25 = 50	75 – 25 = 50

Alternatively, say east asks 2 bushels of wheat for one bicycle according to the prevailing prices there. I, east, will trade you, west, 40 bushels of wheat for 20 bicycles.

	Wheat	Bicycles
East	240 – 40 = 200	80 + 20 = 100
West	25 + 40 = 65	75 – 20 = 55

Price can vary without challenging overall result]

This is a static model, based on one variable factor (labor), developed by Ricardo and Mill. The core element of this model is that countries differ in their labor productivity.

Hecksher-Ohlin models look at a broader set of factor endowments (land, labor, and capital). There may be factor endowments that explain the differences in labor productivity.

Trade arises because countries differ in their factor endowments, which lead to factor prices reflecting relative scarcity.

Different products require different relative proportions of factors of production.

You specialize in the one that utilizes your comparative advantage in factor endowments.

Produce goods that use your abundant resources intensively, import goods that use resources that are relatively scarce.

What do we like about trade in theory?

1) Improve economic well being with the factors already at hand. Compared to autarky, specialization and exchange can improve welfare with existing resources.
2) Trade makes factor prices efficient, since it allows factor prices to reflect global abundance or scarcity.
3) Every country has to have a comparative advantage, so there is a path to growth through trade.
4) The market signals of free trade provide an accurate read of where the country should head without requiring research and planning.

What might be questionable about basic trade theory?

1) What if factor endowments are not static, but dynamic? Labor and capital do not flow?

2) Technology is fixed? That sure is not matching Solow? And what if technology undermines the market for that which you produce?

3) Preferences are fixed? Consumers don't have changing preferences (fat content in meat, ostrich meat, palm oil, kiwi fruit,…), Producers don't try to influence preferences (bottled water, pork the other white meat, ….)

4) Politics, society, social institutions, infrastructure are not relevant? Political structure, social institutions, infrastructure may not be easily adapted in response to price signals. Response to price signals may be blocked by policy in both developing and developed countries.

5) Are returns to scale decreasing or constant? What if returns to scale are increasing? Production may not take place under the assumptions of perfect competition, but may be monopolistic or oligopolistic.

6) Risk and uncertainty were not included in the basic model.

7) With foreign ownership of companies, and multinationals, do the benefits of trade flow to the nationals of the trading country, or the owners of the firm in the trading country?

8) Empirically, note that the HO model implies factor prices will tend to equalization across countries if free trade is established. Wage rates and capital rental rates should converge. This does not seem to be happening.

9) Empirically, note a high and rising share of international trade is between high income countries in "similar" manufactured products.

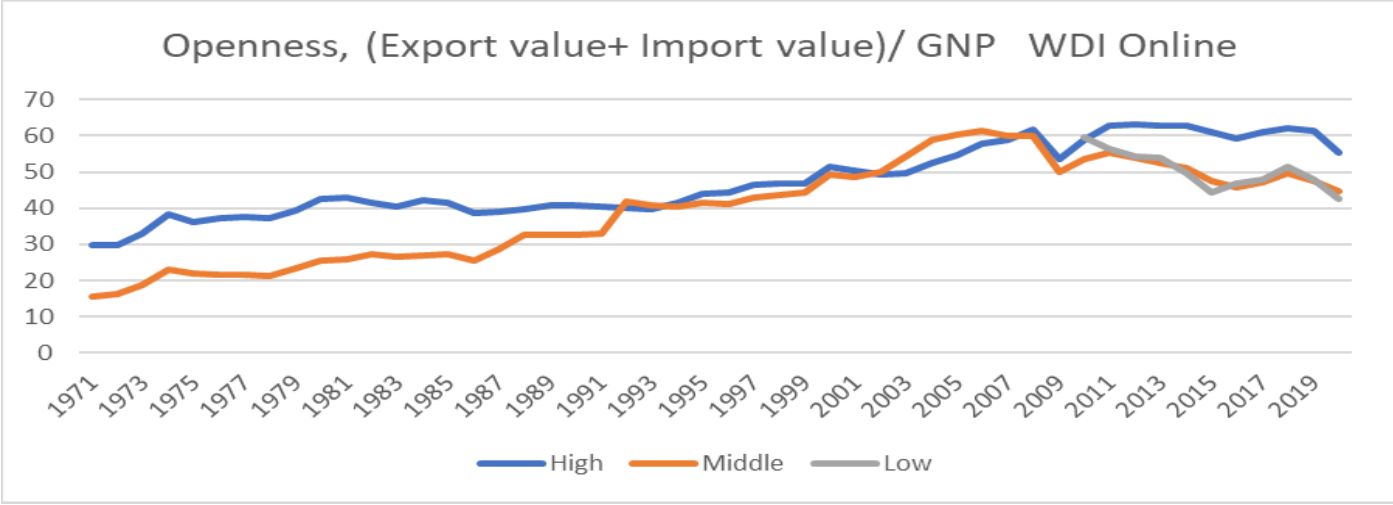
Outward looking strategies.

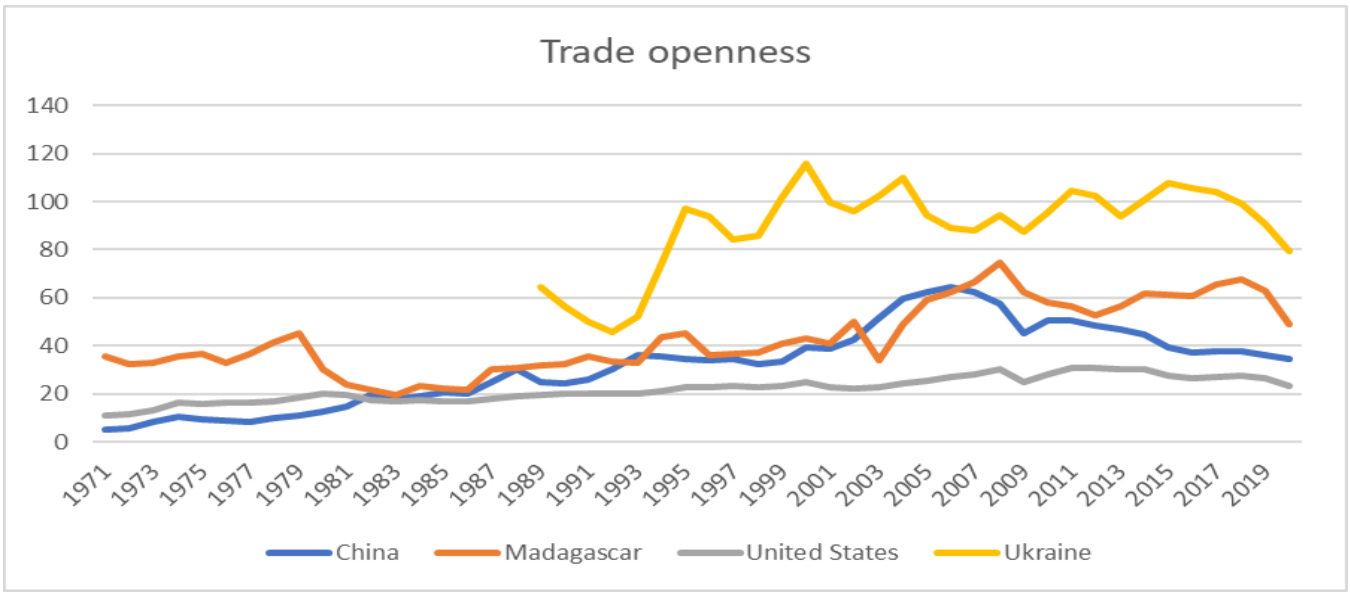
Export Promotion

Outward looking development policies. Accept that there is some basic merit to the comparative advantage story, and attempt to harness it for the development of the country. Adopt policies that encourage free movement of capital, workers, enterprises, students, multinationals setting up…

Access to larger international markets. Growth and efficiency benefits of free trade. Prices are set by markets.

Sometimes you see a measure of "Openness" from Penn World Tables. Exports plus imports divided by GDP.

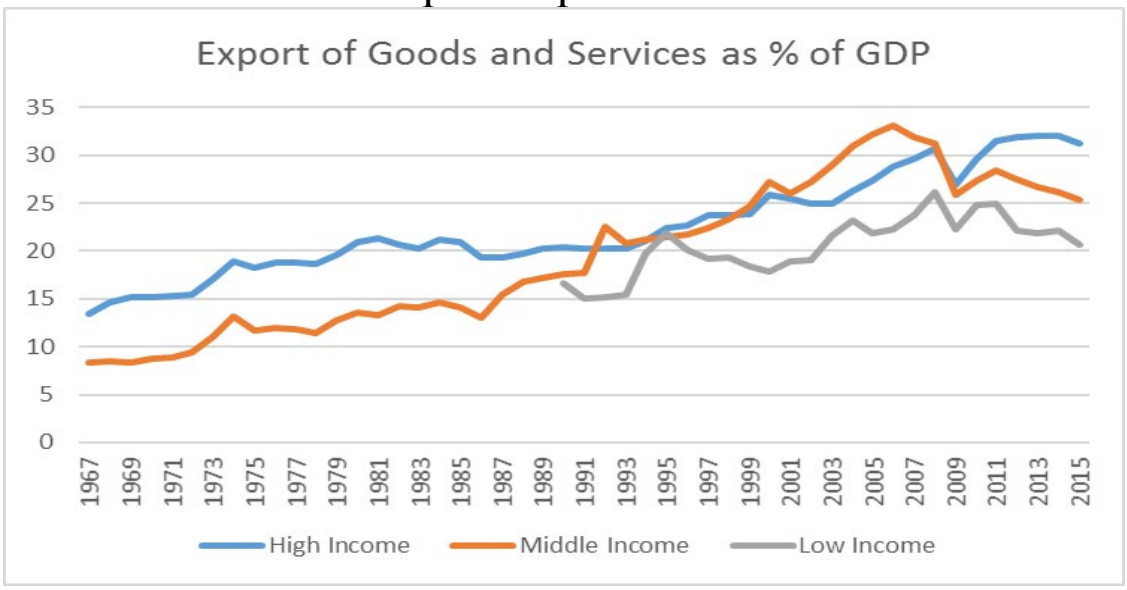


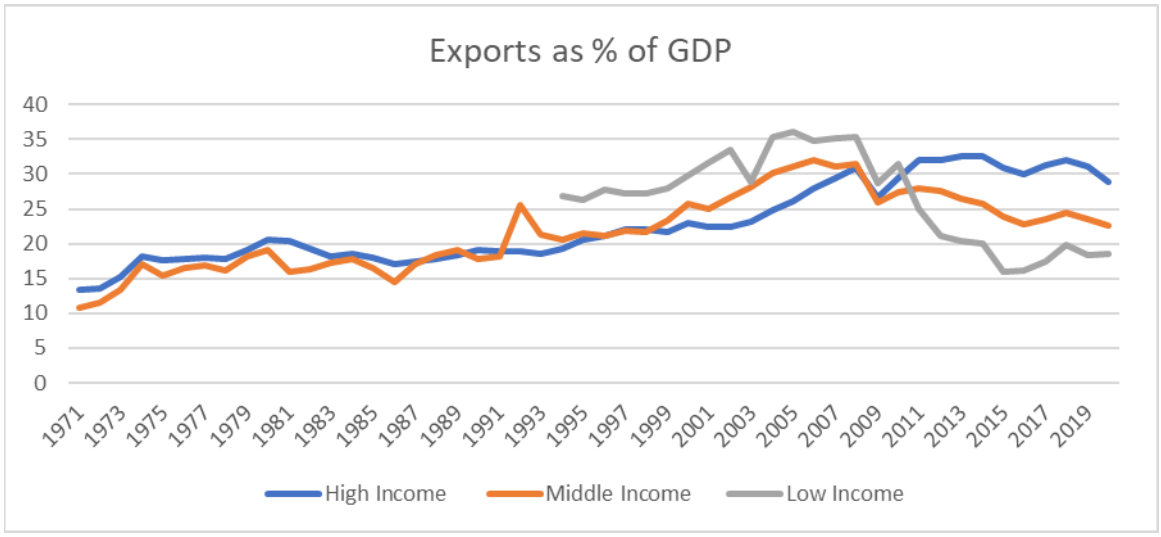


What are we seeing if we look at patterns in developing country trade?

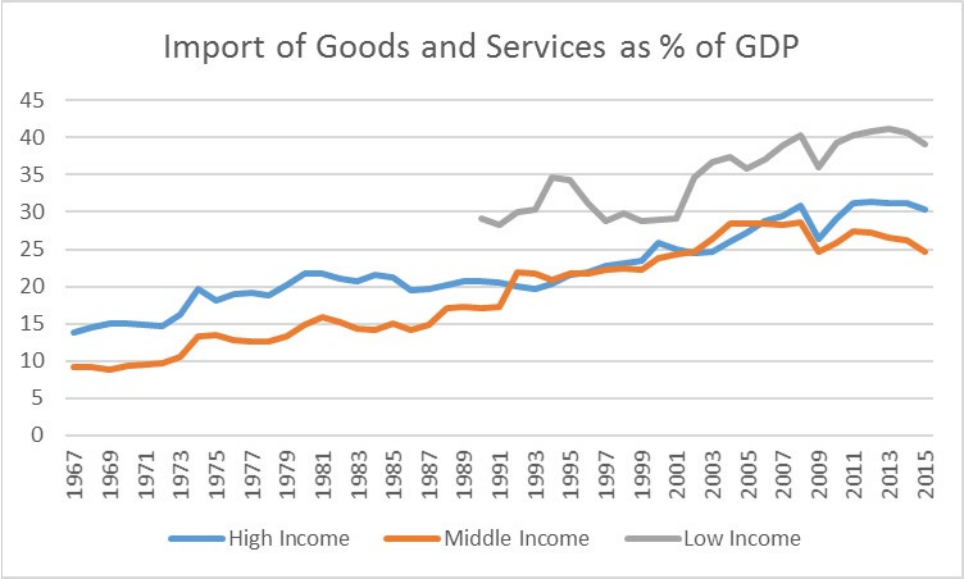
Let us focus on exports in particular now.

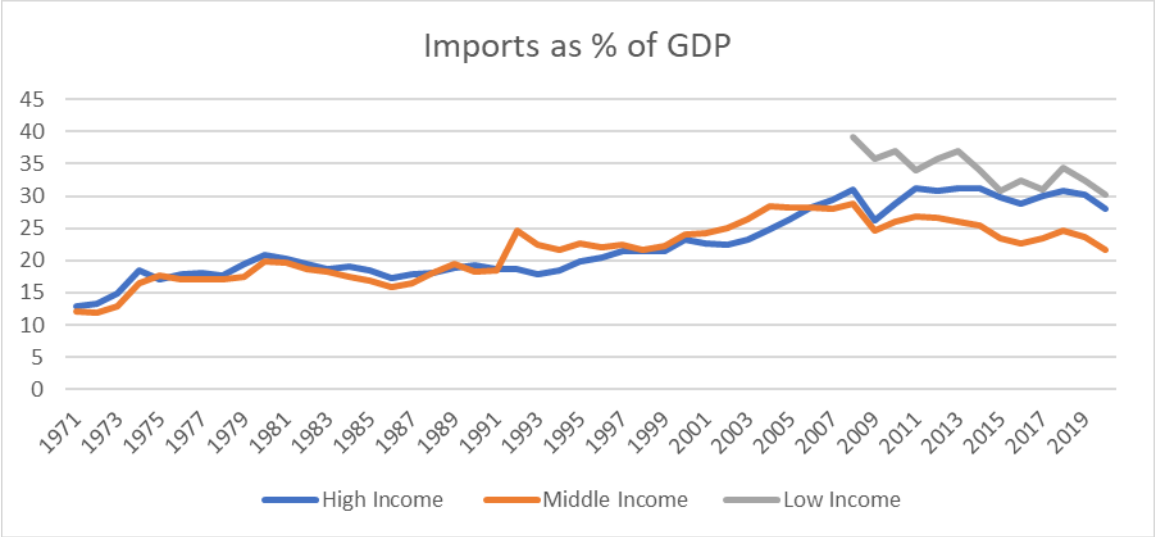
It has been argued that developing countries tend to have a high percentage of their GDP accounted for by exports, sometimes called “Export dependence”.





export of Goods and Services as % of GDP: WDI Online.





Import of goods and services as a % of GDP: WDI Online

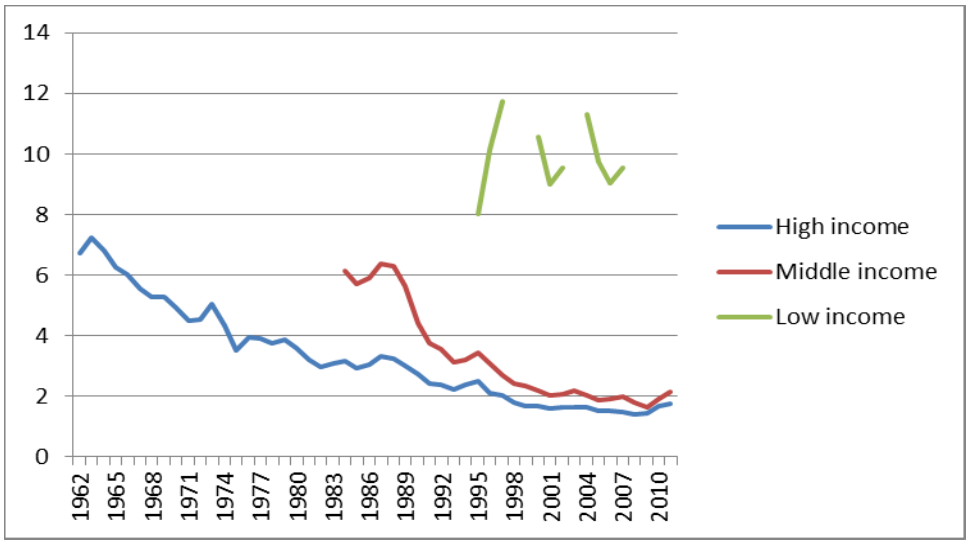
Another issue of potential concern is the nature of the commodities that are being exported.

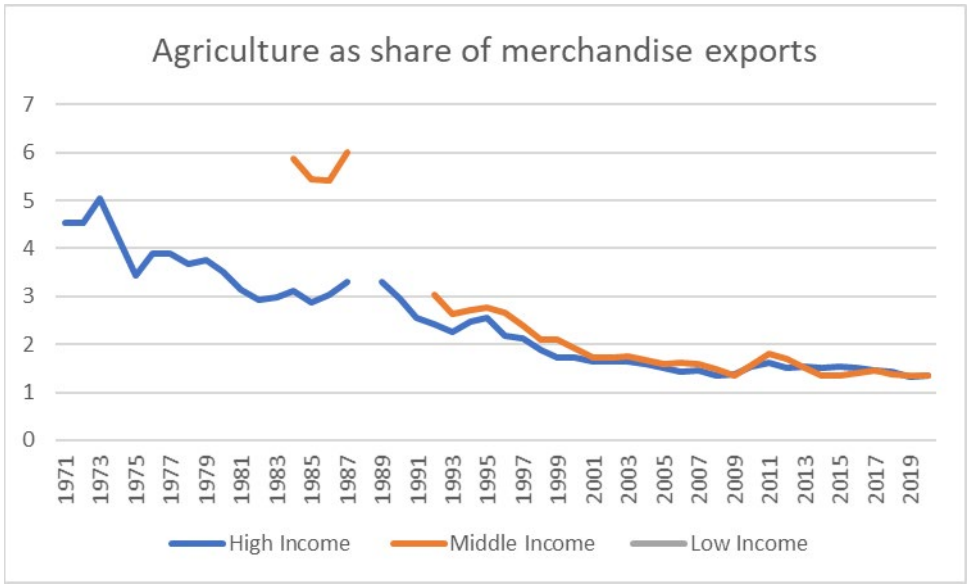
One issue is concentration of exports in a few commodities. This makes you more susceptible to changes in market conditions for that commodity in a kind of non-diversified portfolio sense.

A particular area of concern has been if a developing country has a low percentage of their export earnings coming from manufactured goods and a high percentage coming from primary products.

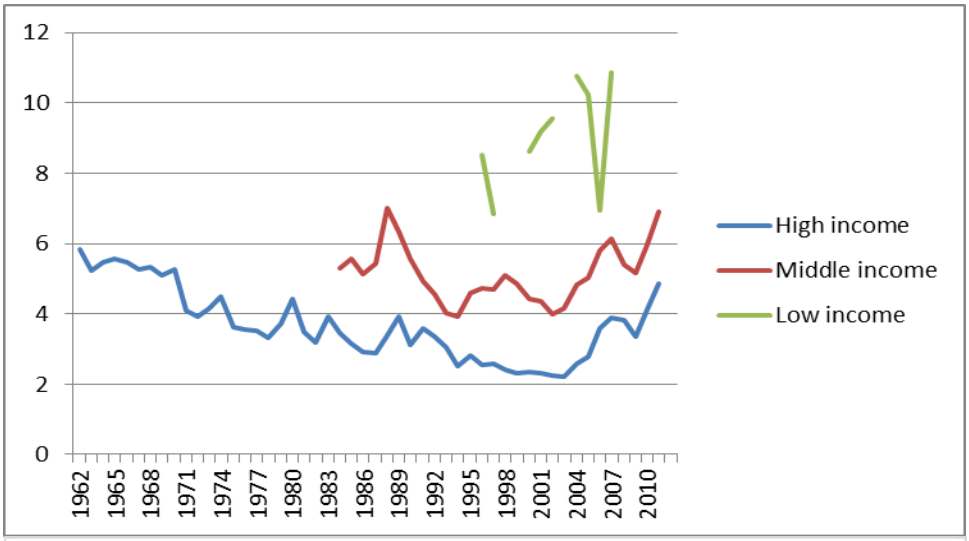
Primary products. Products derived from all extractive occupations – farming, timbering, fishing, mining, and quarrying. Composed of foodstuffs and raw materials.

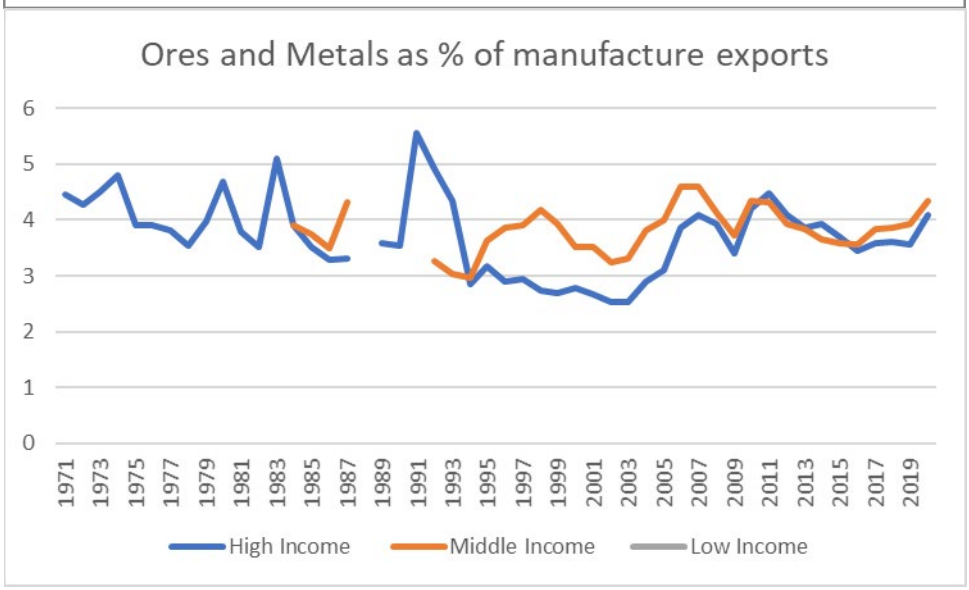
US exports: 10% ag, 4% minerals and fuels.
Nigeria exports: 96% fuels
Burkina Faso exports: 71% ag (cotton and livestock products)



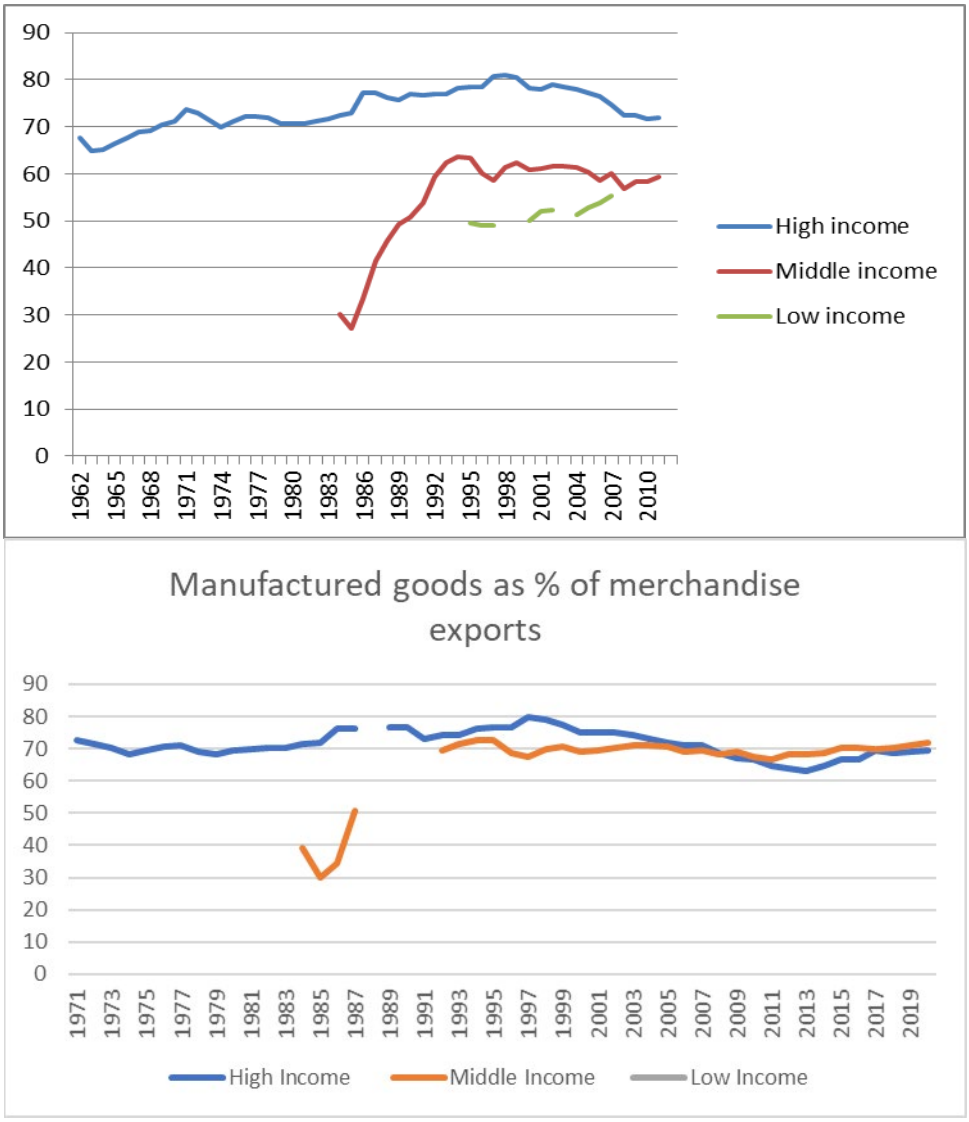


Raw agriculture share of merchandise exports, WDI online

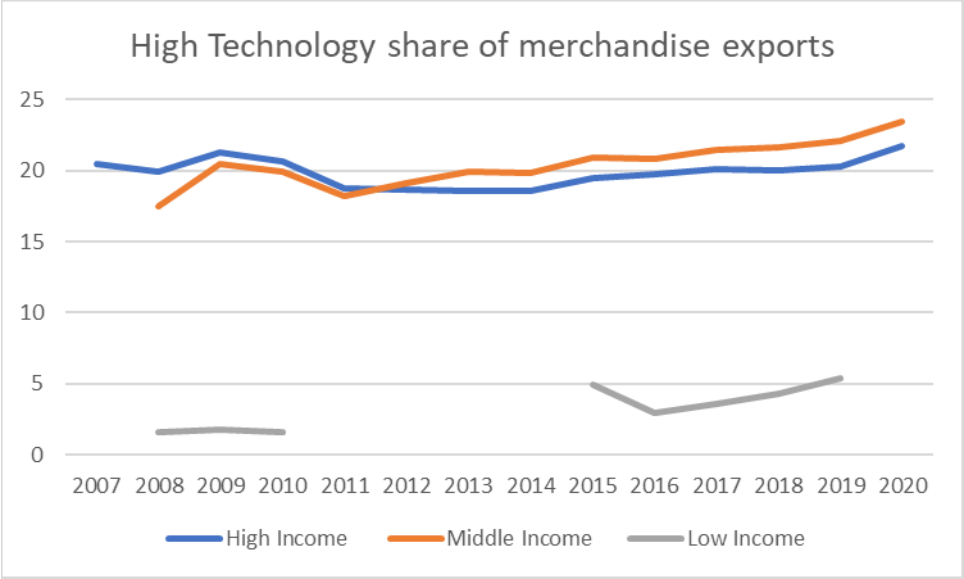




Ores and minerals share of merchandise exports, WDI online



Manufactured goods as a share of merchandise exports, WDI online



Why is this a problem?

One explanation is the Prebisch-Singer hypothesis. Primary product export orientation results in a decline in terms of trade. This will lead to a long-term transfer of income from poor to rich countries.

Historically, Prebisch looked at the terms of trade that were declining for primary product exporters from 1870 to WWI.

Show Prebish-Lewis graph from Hadass and Williamson.

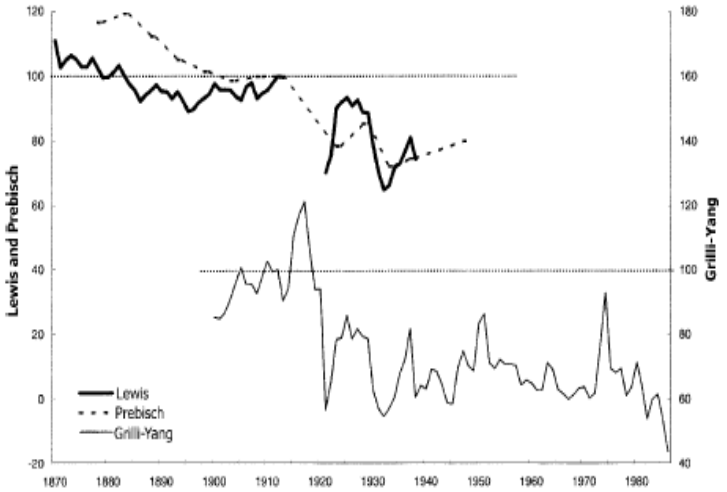


FIG. 1.—Relative price of primary products according to Lewis, Prebisch, and Grilli-Yang, 1870–1990 (1912 = 100). Sources: W. A. Lewis, "World Production, Prices, and Trade, 1870–1960," *Manchester School of Economic and Social Studies* 20 (1952): 105–33; R. Prebisch, *The Economic Development of Latin America and Its Principal Problems* (New York: United Nations, 1950); this was reprinted under the same title in *Economic Bulletin for Latin America* 7 (1962): 1–22; E. Grilli and M. C. Yang, "Primary Commodity Prices, Manufactured Goods Prices, and the Terms of Trade of Developing Countries: What the Long-Run Shows," *World Bank Economic Review* 2 (1988): 1–47.

Both prices go up, but prices for foodstuffs go up at a relatively slower rate. The relative price of primary products will decrease over time if this is true (not the absolute, but the relative).

One explanation for why an export-oriented strategy based on primary commodities is a problem is based on the income elasticity of demand – the percentage increase in quantity demanded by consumers brought about by a 1% increase in income.

Manufactured goods have higher **income elasticities** than do primary products. For example, a 1% increase in

developed country GNP brings about a less than 1% increase in the demand for cashews, but a greater than 1% increase in demand for smart phones.
[show S and D graph with shift in D]

Another argument is based on relative price variability.

This is based on the idea that **price elasticities** of primary products tend to be more inelastic than those found for manufactured goods.

A price elasticity of demand largely reflects the availability of substitutes, and primary products have fewer close subs than manufactured goods by their nature.

Increased volatility of prices. Export earnings instability.

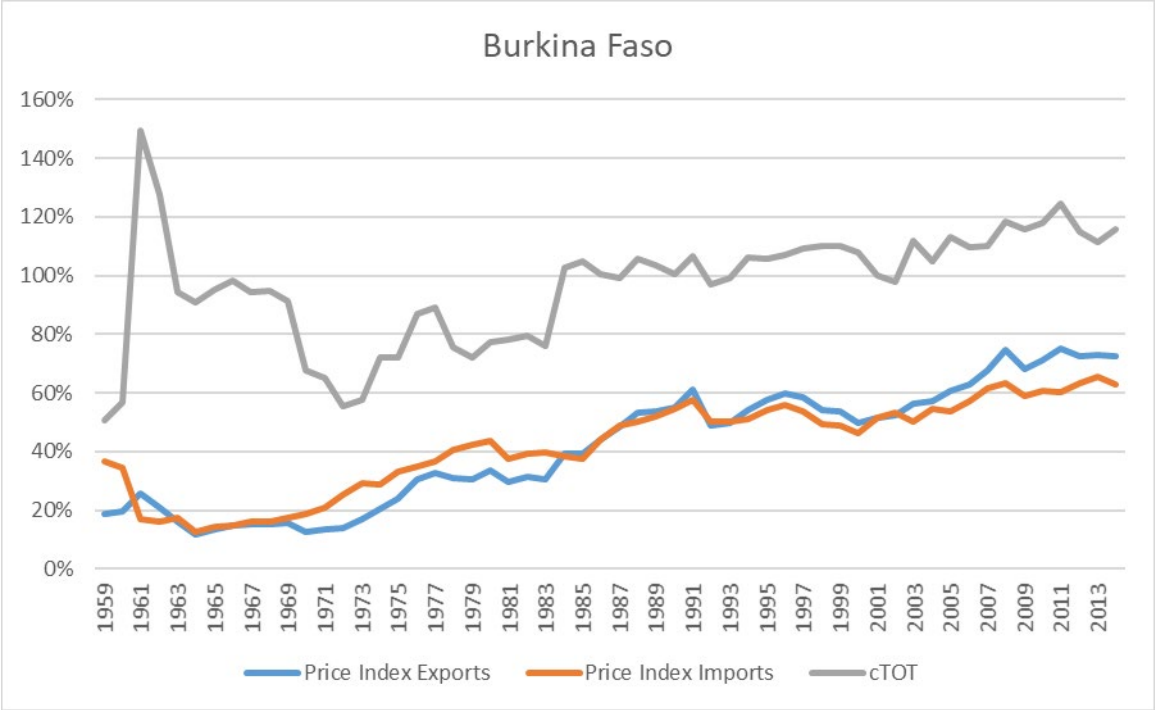
[show S and D graph with different slopes on D and shift in S]

This is based on the idea of a long term decline in the Commodity terms of trade.

Price index of exports divided by price index of imports (assuming that exports are primary commodities and imports are manufactured commodities, though we are sort of mixing concepts here).

Price indices are constructed on the basis of a reference year. Commodity terms of trade deteriorate for a country if the commodity terms of trade ratio falls.

For example (recalling that Burkina Faso exports were 71% agricultural):



Burkina Faso, Price index of exports, imports, and the ratio of these two from 1980 to 2007. Recall 71% of Burkina Faso exports were agricultural.

[This would not be consistent with Prebish-Singer, and the commodity price spike of 2007 brings up the values at the right hand side of the graph.]

> Prebisch was right about the terms of trade between 1870 and World War I: these globalization-induced relative price shocks tended to diminish growth performance in the periphery. But he was right for the wrong reasons. The terms of trade did not deteriorate in the periphery sampled in this study. On the contrary, it improved until World War I; furthermore, it improved by more than it did in the center. However, and consistent with Singer's prediction, these positive relative price shocks had an asymmetric impact in the center and periphery, boosting growth in the center and suppressing it in the periphery.[61] Why the asymmetry? Until future research can confirm this plausible link, we can only assume that the asymmetry will be explained by one of the competing hypotheses that now dominate the literature.[62] Here is one hypothesis that dates at least from as far back as Singer: the long-run impact of these relative price shocks reinforced industrial comparative advantage in the center—favoring the sector that carried growth while it reinforced primary-product comparative advantage in the periphery—penalizing the sector that carried growth. Here is another hypothesis that has earned the label "resource curse": the long-run impact of these relative price shocks caused capital flight and rent seeking in the primary producers, both of which diminished long-run growth potential. Furthermore, we think the evidence, at least in our limited sample, points to causality that runs from exogenous price shocks (driven mainly by world transport events) to economic performance, not vice versa.

Hadass and Williamson p. 651

Based on concern about the outward looking strategies, a set of countries adopted **Inward looking strategies.** Government uses policy tools to develop a national manufacturing industry. The "Latin American" variant, using the domestic market as the target market. The "Asian" variant, using world markets as the target market.

Import Substitution (ISI – import substitution industrialization)
Encourage indigenous industries, greater self reliance, restrict trade as part of an overall strategy of development.

The **infant industry** argument. Since firms learn by doing, costs curves will fall as firms gain experience.

- Industry grows to be self reliant, and will be able to compete in world market at the end of the process.

- In long run, engage world market from stronger position than without adopting this strategy.

Replace goods that are currently being imported with domestic sources.

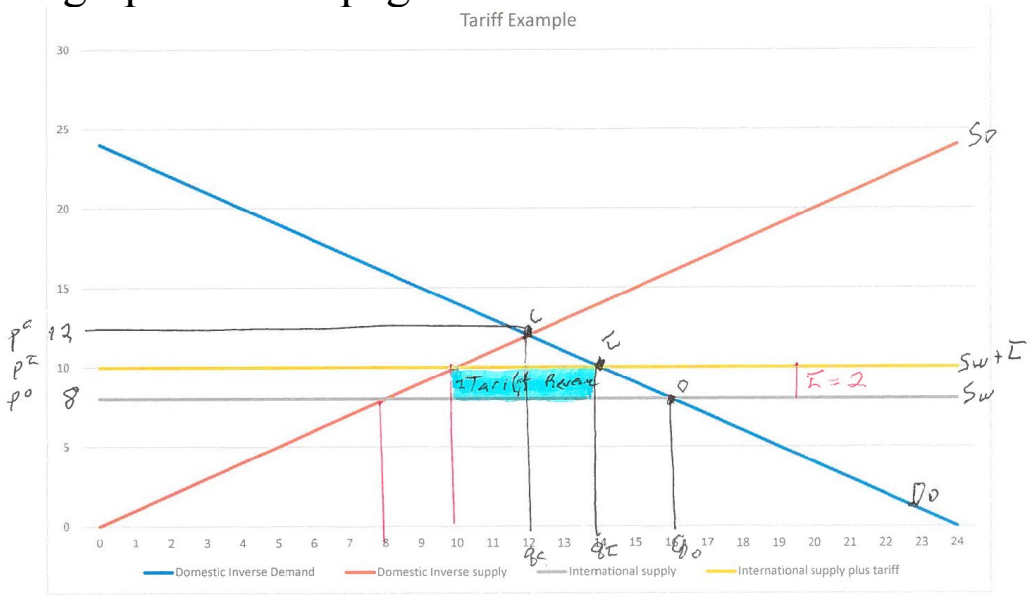
Erect tariff barriers or quotas, then set up a local industry to produce a similar product.

This means the protection should be temporary.

- This helps reduce the current account imbalance (reduces imports).

- This helps with government revenue, as imports are relatively easy to tax (tariff leads to government revenue).

Show graph 12.3 on page 601



Closed Economy: Domestic supply = 12, International supply=0, Demand =12, Price =12, Tariff Revenue = 0.
Open Economy: Domestic supply =8, International supply =8, Demand =16, Price =8, Tariff Revenue =0.

Place to note:

External structure: Underdevelopment theory / Dependency theory. (Frank mid 1960's, late 1970's)

The west was not underdeveloped, it was undeveloped when it started the industrialization process.

Underdevelopment is not characterized by having traditional economic, political, and social institutions, but by a state of being on the periphery of the world economic system.

There are core countries, and there are periphery countries.

Economic development of the rich at least in part arose from the periphery (slaves, colonial extraction, markets), and the status of the developed countries contributes to the position of the underdeveloped countries.

Local elites can never be the engine for change as they are comprador bourgeoisie.

The greatest hope for development is to be the least dependent on the world capitalist system as possible: withdrawal if possible. Since the structure of the world capitalist economy is the cause of underdevelopment, the only chance for true development is to disengage.

Can be sequenced as an overall strategy (as was common in the Asian variant):

1st stage: substitute domestic production for imports for simple consumer goods. "light industry", "basic manufactured goods".

2nd stage: move to more sophisticated manufactured goods.

Both stages occur with the protection of tariffs and quotas. Issues of import substitution during the period the protection is in place.

1) Protection is to protect them from competition. What is going to drive them to reduce costs? Also, is promise to remove protection compatible with the "commitment problem" discussed earlier?
2) Foreign firms move in behind tariff walls and benefit from strategy. Multinational partners, not domestic capital.
3) Capital intensive production systems often brought in behind tariff protection. Costly, and not the most appropriate for labor rich developing country environment.
4) The high price of products from a protected industry and the reliance on imported capital goods for the production process limits both forward and backward linkages. Forward – high price of output. Backward – bring in technology and capital from outside.

One other inward looking strategy is to overvalue the domestic currency to develop industry (as opposed to explicit trade barriers).

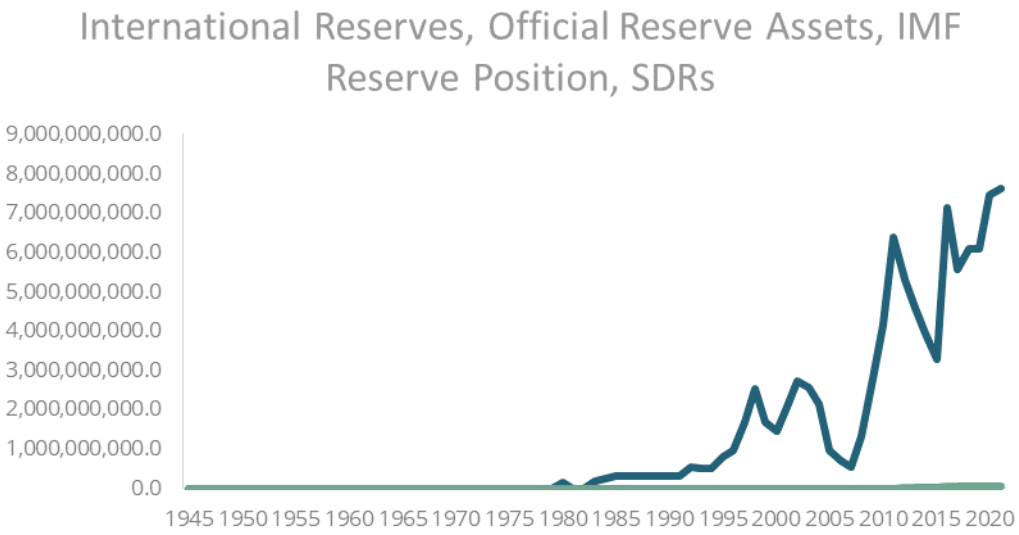
- Encourage capital intensive production methods.
- Inhibit primary product sector.

Show overvaluation on a supply and demand graph– show excess demand.

Sometimes see the emergence of a "dual / parallel exchange rate". There are different exchange rates depending on what you want to use the money for.

Black markets.

Note what undervaluation looks like on this graph.



https://www.investopedia.com/trading/chinese-devaluation-yuan/

What are the prospects for trying to export **manufactured goods** if the infant industry "grows up"**?**

"Light industry". Make use of unskilled labor – rugs, textiles, shoes, sporting goods,…

Tariff – tax on a product that enters a given market.
Quota – limit on the quantity of the product allowed into a given market.

Tarrifs higher for processed goods than raw primary products.

The price of basic manufactured goods (the kind that tend to be exported by developing countries – think textiles for example) have been falling relative to the price of advanced manufactured goods. Decline in developing country export prices of about 30% in the 1980's.

Anti-dumping investigations.

Dumping is international price discrimination in which an exporting firm sells at a lower price in a foreign market than it sells for in its home country market. The idea is to use this to eliminate competitors, later rising prices after the competition is gone. You use your monopoly power in the home market to fund this attempt at getting monopoly power in the world market.

Estimates made in 2000 that trade restrictions by developed countries cost LDC's more than 100 billion per year. In contrast, 2002 official development assistance was 58 billion. (2011 it was 133.5 billion according to the OECD)

Developed countries have import restrictions / subsidies directed at the products developing countries make to protect domestic industry.

Also have subsidies in the developed country that lead to reduced competitiveness of developing country products.

	Subsidy per head of cattle	Subsidy per chicken	Subsidy per head of pigs	Subsidy per head of sheep	Net aid transfer per poor person
Australia	$18.37	$0.41	$7.12	$1.12	$0.44
Canada	$92.19	$0.46	$17.34	$0.00	$0.71
EU-15	$200.09	$0.36	$10.52	$35.45	$11.03
Japan	$160.64	$0.23	$5.17	$0.00	$2.20
New Zealand	$2.55	$0.47	$0.44	$0.05	$0.06
Norway	$964.98	$0.85	$51.50	$91.07	$0.75
Switzerland	$985.87	$2.63	$140.35	$15.74	$0.46
United States	$41.34	$0.43	$6.16	$2.22	$5.26

Aggregate protection in rich countries with respect to non-DAC countries, agriculture and all goods, uniform *ad valorem* equivalents

Agriculture	**Tariffs and Subsidies combined to a percent tax rate**
For Agricultural imports	
Australia	7.3
Canada	14.0
EU-15	45.7
Japan	179.1
New Zealand	1.5
Norway	99.8
Switzerland	60.1
United States	16.4
For All imports	
Australia	5.4
Canada	4.7
EU-15	9.4
Japan	32.6
New Zealand	2.7
Norway	18.3
Switzerland	12.1
United States	4.3

From Roodman (2005)
http://www.cgdev.org/content/publications/detail/3534

Although to give his argument full credit, he notes:

"With respect to developing countries, New Zealand is least protective, followed by the United States, Canada, and Australia. EU barriers are about three times as high as those of the United States in agriculture, and twice as high overall. Norway and Switzerland use their freedom from EU constraints to erect even higher barriers, and Japan's well-known barriers against rice rank it as most protective. Overall, agricultural tariffs—not the subsidies so frequently cited in the media—are the largest barrier to exports from developing countries." The subsidy per head of livestock figures may end up getting more attention simply because they are just plain disturbing.

Export promotion seems to have had a more positive impact on GDP growth than ISI when world economic growth (and hence demand for exports) was strong.

Outward looking is more successful when the world economy is growing, not very good when world economy is stagnant.

Growth in semi-outward / semi – inward strategies.

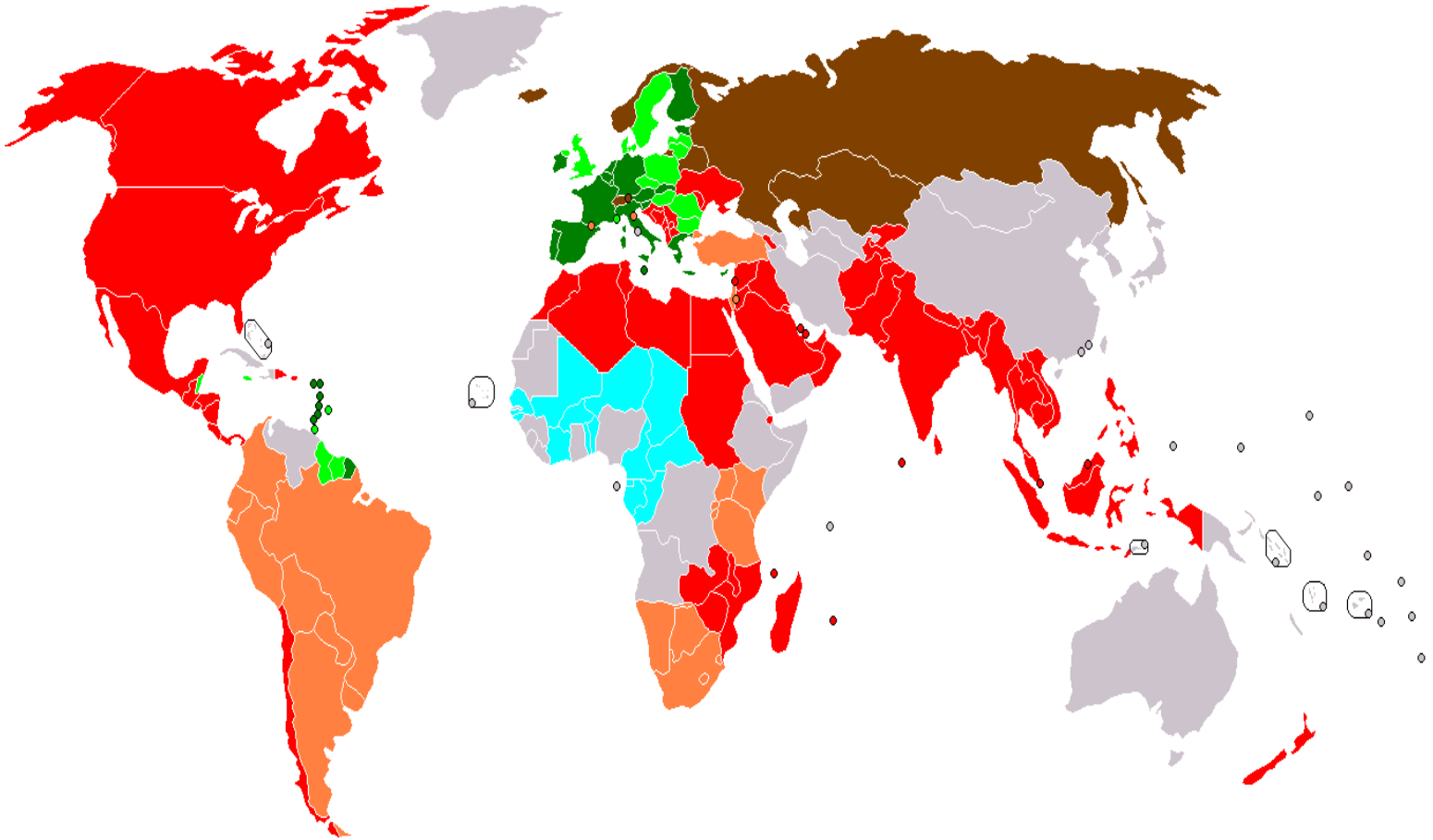
Regional integration. There is a growing trend towards regional trade agreements. Note contrast to WTO. Uruguay round in 1994. GATT replaced by WTO. WTO oversees trade agreements and settles trade disputes. Doha round has been struggling.

What are some examples of regional integration?

Free trade area. Internal trade among member countries is free, but each member's tariff barriers against non-members vary by country

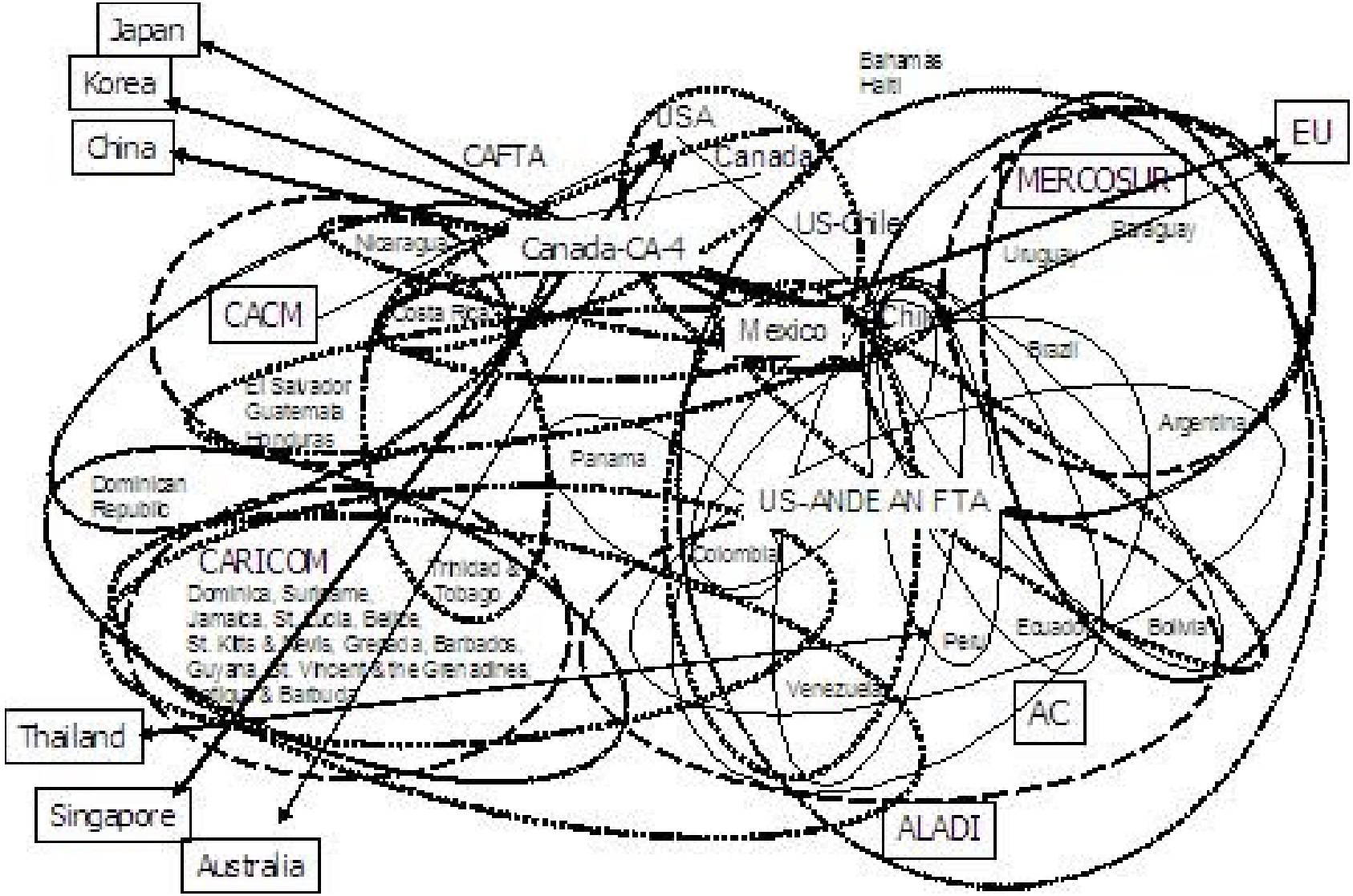
Customs unions. Internal trade among member countries is free and there are common tariff barrier against non-members.

Common market / single market (though small distinctions between these on policy harmonization). Internal trade among member countries is free and there are common external tariffs against non—members, plus there is free movement of labor and capital among member states.



Description	**English:** Stages of economic integration around the World: (each country colored according to the most advanced agreement that it participates in. Economic and monetary union (CSME/EC$, EU/€) Economic union (CSME, EU) Customs and Monetary Union (CEMAC/franc, UEMOA/franc) Common market (EEA, EFTA, CES) Customs union (CAN, CUBKR, EAC, EUCU, MERCOSUR, SACU) Multilateral Free Trade Area (AFTA, CEFTA, CISFTA, COMESA, GAFTA, GCC, NAFTA, SAFTA, SICA, TPP)
Date	20 September 2010 (original upload date); 19 January 2012 (last version))

http://en.wikipedia.org/wiki/File:Economic_integration_stages_(World).png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Korea
China
CAFTA
USA
Canada
Bahamas
Haiti
EU
MERCOSUR
US-Chile
Paraguay
Uruguay
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CACM
Costa Rica
Mexico
Chile
Brazil
El Salvador
Guatemala
Honduras
Argentina
Panama
Dominican
Republic
US-ANDEAN FTA
CARICOM
Trinidad &
Tobago
Colombia
Dominica, Suriname,
Jamaica, St. Lucia, Belize,
St. Kitts & Nevis, Grenada, Barbados,
Guyana, St. Vincent & the Grenadines,
Peru
Ecuador
Bolivia
Venezuela
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