Ec320 Lectures 23-24
Industrialization and Trade Policies

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Introduction

- Importance of industrialization and urbanization in the development process have been discussed earlier (under the topic of Structural Transformation)
- Now discuss what kinds of policies the governments of LDCs should adopt in order to speed up industrialization
- Related policy issue: nature of trade policies
- Should the government provide protection from foreign competition to its industries? provide subsidies? which industries?

Introduction, contd.

- Hotly debated issue of *globalization*: liberal policies w.r.t. trade and foreign capital flows
- First two lectures: focus on theories of comparative advantage, free trade, import substitution and export promotion, with some case studies (Text: Ch. 16, 17)
- Last lecture: globalization and evidence concerning its effects on growth and poverty (Winters, McCulloch and McKay, UPP Chapters 6,7)

Alternative Trade/Industrial Strategies for Development

- *Primary Product Export-Led (PPE) Growth:* earlier development of USA, Australia, New Zealand; more recently Argentina, Bolivia, Jamaica, Malaysia, oil exporters, many SSA countries)
- *Import Substitution (IS):* Brazil (pre-1990), India (pre-1991), Korea (1973-1980), Mexico (pre-1976), China (pre-1980)
- *Manufacturing Export-Led (ME) Growth:* Japan (1950-90), East Asian NICs since 1960s
- *Laissez Faire/Globalization (G):* Singapore, Hong Kong, most LDCs since late 1990s

Associated Extent of Government Intervention

- Government very actively involved in IS, with various regulatory controls: tariff/quota protection, public sector investments in heavy industries, extensive regulation of private investments
- Also involved in promoting select export sectors in ME (subsidies/credits, marketing assistance)
- Far less involved directly in PPE or G (indirect role via foreign policy, treaties, country promotion)

Degree of Specialization

- IS regulations usually across-the-board: aim to have a *diversified* industrial sector relying primarily on domestic market sales; low trade/GDP ratio

- Export-led economies are more *specialized* in a few high-value high-growth high-export sectors, accompanied by imports in other sectors; high trade/GDP ratio

- Difference between small and large countries: IS is feasible only in the latter with large domestic markets

Specialization and the Gains from Trade: Classical Comparative Advantage Theory

- **Recap:** Ec101 theory of comparative advantage
- *Ricardian Comparative Advantage:* two countries N,S; two goods C,R; one factor of production (labor); constant returns to scale; representative household with identical tastes
- Both countries have same factor endowment: 300 units of labor
- N has absolute advantage in production of both goods: one unit of C,S require 10,15 units of labor resp., while in S they require 40, 20 units resp.

Autarky

- Competitive production, labor markets: firm owners make zero profits, all production value paid to workers in wages
- Under autarky, C,R sectors operate in both countries, outputs determined by domestic demand
- Relative prices differ: C is cheaper in N ($\frac{p_c}{p_r} = \frac{2}{3}$) than S (=2)
- Households have higher marginal products, so earn higher wages in N
- With identical consumer preferences between N,S, C sector is bigger in N in both absolute and relative terms

Effect of Trade Opening

- Suppose now there is free trade with zero transport costs
- There will be trade: despite absolute advantage of N in production of both goods
- *Comparative Advantage:* C cheaper in N, R cheaper in S, so N will export C and import R
- N specializes in C, S in R (incomplete specialization with DRS technology)
- Households in both countries are better off (price drop for consumers)

Extension: Differences in Factor Endowments

- Basis of Comparative Advantage need not be in technology, but in factor endowments
- *Heckscher-Ohlin theory:* two factors (capital and labor or skilled and unskilled labor), both countries share common technology wherein C production is more capital-intensive
- N's endowment of capital relative to labor is larger: has comparative advantage in producing C
- Now there can be incomplete specialization as a result of trade, despite CRS technology

Alternative Sources of Gains from Trade

- *Differences in Consumer Preferences:* US consumers have greater preference for fuel efficient cars than Mexican consumers, so Mexico exports fuel-efficient cars and imports fuel-inefficient cars from US

- *Preference for Product Variety:* French and Spanish consumers both like to drink both French and Spanish wines

- *Economies of Scale:* gains from specialization even if technology, factor endowments and tastes are the same across countries

Return to Ricardian or H-O Theory of Gains from Trade

- Disturbing result/recommendation: S should specialize in R, and never industrialize (except to produce C for domestic market when domestic producers are competitive)
- More generally, offers no argument in favor of any government intervention to foster/stimulate the C industry

Return to Ricardian or H-O Theory of Gains from Trade, contd.

- Argument based on efficiency/GDP/consumer benefits
- What about distributive (inequality/poverty) impacts of free trade? Job losses for workers in the C-industry, versus gains for C-consumers

Sector-Specific Skills and Distributive Impacts

- Suppose we depart from the fiction of a representative household, and absence of sector-specific skills

- Otherwise workers in the C sector can costlessly move to the R sector and earn higher living standards

- What if C workers do not have skills needed to produce R? Or there are large transition/learning costs?

- At least in the short run, costs of transition from C to R sector have to be borne by C workers

Effects on Welfare/Surplus of C-Producers

- Introduce heterogeneous skills/production costs of different individuals in the two sectors
- Suppose producers in C sector earn a surplus, owing to heterogenous costs resulting in upward-sloping supply curve of C
- Intra-marginal producers will earn rents, equal to difference between the price of computers and their respective costs
- Competition from C imports from N (which has a larger pool of producers skilled in producing C) will cause C-price drop in country S, and loss of rents of intra-marginal C-producers in this country

Distributive and Aggregate Impacts of Free Trade: Import-Competing Sector

- Offsetting rent losses of C-producers, are gains in consumer surplus for C-consumers owing to price drop of C
- How do the two compare?
- Suppose the government weights the surplus of C-producers and consumers equally (implicit judgment when effect on real GDP growth is the yardstick)
- **General Result:** *Gain in consumer surplus for consumers outweighs the loss in surplus for producers*

Distributive and Aggregate Impacts of Trade Liberalization: Import-Competing Sector, contd.

- Added complication when comparing restricted trade with free trade: government tariff revenue effects
- Suppose there is a 50% tariff rate on C imports, which restricts imports but does not eliminate them entirely
- Additional effect arising from lowering the tariff rate: tariff revenues fall
- Nevertheless, *always true that consumer surplus gains outweigh sum of producer surplus and government revenue losses*

Impacts of Trade Liberalization: Import-Competing Sector, example

- Typical example: effects of removing protective tariff on steel imports
- 100,000 jobs lost, each job generating income of $30K = $3 million loss
- Government tariff revenue loss: $2 million
- 200 million consumers, per capita gain $0.50 = $100 million gain
- Concentrated losses; diffuse gains

Distributive and Aggregate Impacts of Trade Liberalization: Export Sector

- Situation is reversed in export sectors (primary products, light manufactures)
- Trade liberalization causes these sectors to grow: more jobs and profits in these sectors
- Effects on consumer surplus: negative e.g., rice and prawns in Bengal
- What continues to be true: *aggregate surplus (producer plus consumer plus government net revenues) goes up when trade is liberalized*
- Here we have concentrated gains and diffuse losses: industries lobby for trade liberalization

Why Trade Liberalization is Politically Unpopular

- Gains and losses are more concentrated among firms and workers, compared with consumers
- Therefore firms and workers are politically more active and vocal than consumers (political salience of "jobs")
- Government revenue interests also aligned with firms and workers
- Losses in import competing sectors are more immediate and visible than gains in export sectors: In many Latin America countries, former were more unskilled-labor-intensive than latter

Trade Liberalization: the Distributive Problem

- Problem with the simple Ricardian argument for trade liberalization: C-producers get hurt (**not** a Pareto improvement)
- If C-producers/workers are politically powerful/salient, trade liberalization is unpopular (besides causing revenue losses to the government)
- If C-producers/workers are poorer relative to average citizen, poverty/inequality will rise

How do Economists Respond to the Distributive Problem?

- Nevertheless, widespread (not universal) consensus amongst economists regarding normative desirability of free trade

- **Efficiency/Growth-Based Argument:** Gain of the gainers is larger than the loss of the losers

- Same issues arise with regard to effects of new modern technology: pro- or anti-Luddites? Should the Industrial Revolution not have happened?

How do Economists Respond to the Distributive Problem? contd.

- Nevertheless, in the short run, undeniable fact: real losses in import-competing sectors
- Compounded by government revenue losses
- While export sectors take time to grow
- Need to accompany trade liberalization with adjustment/retraining measures for those dislocated

How do Economists Respond to the Distributive Problem? contd.

- Government can tax part of the consumer gains and compensate the producers
- Need to work out (esp. in democracies) some package of trade adjustment/rehabilitation/compensation of C-producers who lose their livelihoods, which accompanies trade liberalization

Counter Arguments

- In principle, can tax gainers to compensate the losers, and still have positive surplus left over (e.g. $95 million gain in the steel tariff removal example)
- Problems with tax-transfer mechanisms: deadweight losses, identification/targeting problems, administrative costs, political credibility of govt promises regarding transfers
- What if these are large?

Counter to Counter-Argument: Second-Best Theory

- **Economists' counter-counter-argument:** there are other more efficient ways of providing support to C-producers
- Provide support to domestic C-producers with a per-unit subsidy, while eliminating import tariff on C
- Domestic C-producers and workers are not hurt at all
- Cost of the subsidy involves lower total deadweight loss than the protective import tariff

Counter to Counter-Argument: Second-Best Theory, contd.

- The government will still have to raise revenues in order to finance the subsidies to C-producers
- But aggregate deadweight costs would be lower: cost of the subsidies would be widely spread amongst the population, instead of C-consumers bearing the entire cost (as in tariff protection)
- However, WTO agreements do not allow such forms of subsidy assistance to specific industries, with some exceptions (e.g., farmers, which are sought to be phased out)

Important Qualification: Dynamic Comparative Advantage and Asian Growth Miracles

- Contrary to these general arguments in favor of free trade, Asian growth miracles (Japan, Korea, Taiwan, China) involved various findustrial policies involving extensive government assistance to new and emerging industries

- Center-of-gravity in manufacturing (e.g., auto, electronics, shipbuilding, steel) in the world economy has moved to Asia-Pacific region

- Yet, in 1950, these industries barely existed in Asia

Industrial-Trade Policies in LDCs in 1960-70s

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Appendix 3
World Bank's Classification of Forty-one Developing Countries by Trade Orientation
(1963–73 and 1973–85)

Period	Outward oriented		Inward oriented	
	Strongly	Moderately	Moderately	Strongly
1963-73	Hong Kong Korea, Republic of Singapore	Brazil Cameroon Colombia Costa Rica Cote d'Ivoire Guatemala Indonesia Israel Malaysia Thailand	Bolivia El Salvador Honduras Kenya Madagascar Mexico Nicaragua Nigeria Philippines Senegal Tunisia Yugoslavia	Argentina Bangladesh Burundi Chile Dominican Republic Ethiopia India Pakistan Peru Sri Lanka Sudan Tanzania Turkey Uruguay Zambia Ghana
1973-85	Hong Kong Korea, Republic of Singapore	Brazil Chile Israel Malaysia Thailand Tunisia Turkey	Cameroon Colombia Costa Rica Cote d'Ivoire El Salvador Guatemala Honduras	Argentina Bangladesh Bolivia Burundi Dominican Republic Ethiopia Ghana

Dynamic Comparative Advantage and Asian Growth Miracles, contd.

- These industries were not internationally competitive in 1950/60s
- But became competitive over time
- How did they get going? How did they become so competitive?
- Government assistance was crucial: allowed these industries to get started, nurtured, until they became competitive
- Comparative advantage not something that is technologically given, but can evolve and can be developed

Learning-by-doing and Spillovers in Knowledge-Intensive Industries

- **The Learning Curve:** unit costs fall with cumulative production experience and R&D in cutting-edge knowledge-intensive industries (aircraft, semiconductors (Moore's Law), autos)
- Costs fall owing to knowledge/knowhow embedded in workers' experiences in production, development of new prototypes
- **Learning Spillovers:** As workers leave to work for other firms in the industry, these benefits accrue to other firms as well; not internalized by the original firm, leading to underinvestment in R&D

The Infant Industry Argument for Protection

- Important exception to general argument for free trade, in presence of learning effects and spillovers
- **Infant Industry Argument:** Temporary protection to a nascent industry, to enable it to crawl, then walk, then run.... which is withdrawn subsequently after learning period is over
- Deadweight losses in early years of protection
- Justified by producer+consumer surplus gains after infant industry becomes competitive

Infant Industry Protection: Implementation Problems

- Government has to pick winners: those that will become eventually competitive
- Difficult to identify winners in infancy: there will inevitably those who will not succeed
- Losses all the way for the latter
- To be ahead overall, have to ensure a high enough proportion of those selected will succeed

Infant Industry Protection: Implementation Problems, contd.

- Whether or not a given industry given IIP will succeed, depends on way the incentives for success is structured
- Once an industry is successful, protection is withdrawn
- Creates a disincentive to 'grow up': lose protection
- Unless protection is time-bound, and linked to indicators of progress

Infant Industry Protection: Implementation Problems, contd.

- Problem with credibility of threat to withdraw support if the industry has not succeeded in becoming competitive
- Industry inevitably wants protection for 'just one or two years more', every year!
- Argues withdrawal of support will result in so many jobs being lost
- Hard for the government to carry through its threat just like parents whose children do not become self-sufficient upon becoming adults

Infant Industry Protection: Implementation Problems, contd.

- So success of IIP depends on how *tough* the government is
- Helps to have a powerful autocratic government (Korea under President Park, China)
- With weak governments, infants never grow up, resulting in a permanent drain of revenues, low-quality high-cost domestic industry (e.g., India: Ambassador cars)

Korea Growth Statistics 1960-1990

APPENDIXES

Appendix 1
Statistical Tables for the Korean Economy

TABLE A1
Developments of Macroeconomic Aggregates from 1962 onwards

	1962	1965	1970	1975	1980	1985	1990	1992
	(in US$ billion)							
GNP	2.7	3.0	8.8	20.8	60.4	83.7	242.3	294.5
Exports[a]	0.05	0.2	0.9	5.0	17.2	26.4	63.1	75.2
Imports[a]	0.4	0.4	1.8	6.7	21.6	26.5	65.1	77.3
External debts	0.1	0.2	2.3	8.5	27.2	46.8	35.0	45.9
	(in US$)							
Per capita GNP	87	107	273	589	1,584	2,052	5,652	6,746
Per capita exports	2	6	27	142	452	648	1,472	1,732

[a] Covering only merchandise at FOB prices.

Sources: International Monetary Fund, *International Financial Statistics* (various issues), Washington, D.C.; and Bank of Korea, *Economic Statistics Yearbook* (various issues), Seoul.

Case Study of Successful IIP-based Export Promotion: South Korea

- Background: Korean per capita GDP in 1962: $87, one of the least developed countries in the world
- Exported primary products and raw materials, around 2% of GDP then
- GDP per capita grew to $6746 by 1992 export-GDP ratio rose to 25% (Table A1)
- Exports grew particularly in manufacturing (Table A4)

Structural Change in Korean Industry and Trade

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Table A4:
Structural Change of Korean Economy
(in per cent)

	1962	1965	1970	1975	1980	1985	1990	1991
Exports ratio (I)[a]	1.4	5.8	10.1	23.7	27.6	30.5	25.9	24.6
Imports ratio (II)[a]	12.4	13.9	20.6	31.6	34.6	30.5	26.7	27.1
Trade ratio (I+II)	13.8	19.7	30.7	55.3	62.2	61.0	52.6	51.7
Industrial structure	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture and fisheries	37.0	38.0	26.5	24.4	14.2	13.2	7.8	7.2
Mining and Manufacturing	16.4	20.0	22.3	27.1	29.7	32.4	34.4	34.5
Services and others	46.6	42.0	51.2	48.5	56.1	54.4	57.8	58.3
Manufacturing Structure	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Light	..	..	67.5	58.9	50.0	43.6	34.6	32.2
Heavy and chemical	..	..	32.5	41.1	50.0	56.4	65.4	67.8
Export structure	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Manufactured goods	..	65.4	82.5	82.4	90.9	92.0	94.6	93.9
(of which)								
Textiles	..	31.2	40.8	36.2	29.8	23.4	22.2	21.2
Footwear	..	2.4	2.1	3.8	5.0	5.1	6.4	5.1
Electronics	..	2.3	4.5	6.8	6.5	7.2	13.5	14.5
Machinery	..	1.4	1.0	1.5	2.2	3.9	7.7	8.0
Ship	..	0	0.9	2.7	3.5	16.6	4.3	5.7
Iron and Steel	..	10.2	3.8	7.2	14.4	11.3	8.9	8.4
Cars	..	..	..	..	0.5	1.8	3.3	3.6
Others	..	34.6	17.5	17.6	9.1	8.0	5.4	6.1

[a] As a per cent of GDP. Exports/imports cover merchandise only.

Structural Change in Korea (Table A4)

- Role of agriculture shrank from 37% to 7% between 1962-91 manufacturing rose from 16% to 35%
- Manufacturing initially dominated by light industry (67%) in 1970, later by heavy and chemical industry (67% in 1991)
- Leading industries: textiles, electronics, machinery, shipbuilding, steel, autos

Key Policy Regimes in Korea

- First phase: 1950s: land reform (OC share rose from 17% in 1947 to 72% in 1964) public schooling (literacy rate 22% in 1945, 72% in 1960)
- Population policy (family planning subsidies): population growth fell from 2.7% in 60s to 1.7% in 70s to 1.2% in 80s

Korea Policy Phase 2: 1961-72

- 1961-79: Military Rule under President Park Chung Hee
- Small domestic market size: decided not to adopt import substitution
- 1961-72: Export Promotion of specific LMG sectors: textiles, footwear, plywood (tax, tariff concessions, export credits);
- Import Liberalization of raw materials, intermediate and capital goods; Devaluation of won
- Close supervision of export promotion sectors by President; Economic Planning Board; Korea Trade Center

Korea Policy Phase 3: 1973-80

- Switched to import substitution in heavy and chemical industries (HCI Development Plan) from 1973
- Focused on shipbuilding, auto, steel, machinery, metals, petrochemicals
- Share of HCI in manufacturing rose from 33% to 50% by 1980
- HCI sectors started exporting in late 70s

Korea Policy Phase 4: 1980–

- Balance of Payments Crisis in Early 1980s (oil price shocks): IMF SAP
- Eliminated government intervention in trade and industry; currency devaluation
- Fast growth from mid-80s onwards
- Appreciation of Japanese yen helped Korean HCIs gain competitiveness; continued quality improvements

Summary: Elements of Korean Success

- Fortuitous circumstances: strong authoritarian leader devoted to promoting industrial success; small internal market rendered IS unviable

- Pragmatic leadership: changing course as events unfolded, performance-based support

- Suspension of period of import substitution forced by events in world economy and internal crises in Korea (Park's assassination in 1979)

- Other countries pursuing inward-looking import substitution based policies continued longer, till 1990s