



# Towards a New Productionist Theory of Development – with an emphasis on industrial policy

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# Development



# Definitions of Development

- Income
- More than income (e.g., HDI)
- Development used to be about the transformation of the productive structure and the capabilities that support it, and the resulting transformation of the social structure (Hirschman to Rostow; oil-rich countries; Germany vs. Mexico after WWII)
- These days, development is about poverty reduction, provision of basic needs, individual betterment, on the basis of the existing production structure (Millennium Development Goals; Doha 'Development' Agenda; Micro-finance, social policy such as *Opportunidades*)

# Mainstream Understanding of Productive Development

- Based on the notion of comparative advantage (one of the few ideas in economics that is more than a common sense).
- The beauty of the theory is that it shows that even a country with no absolute international cost advantage in any industry may benefit from international trade, by specializing in industries at which it is least bad.
- And as a guide to finding out the best way to maximize a country's current consumption opportunities, given its current endowments, you cannot do better than that.
- However, the theory is far too insufficient a guide to understanding medium-term adjustment and long-term development.

# Problems with the Mainstream

## Understanding of Productive Development

- The assumption of perfect factor mobility leads it to ignore medium-term adjustment costs (“specific assets” of Oliver Williamson).
  - These costs can be incorporated into mainstream trade models, but few mainstream economists have done it, and certainly the recommendations for trade liberalization has usually been given without regard to adjustment costs.
- More importantly, by assuming that there is one best practice technology that everyone can use, it assumes away the very thing that separates a developed country from a developing one, which is the latter’s lack of capability to use, and more importantly generate, sophisticated technologies
  - In this world, if Mexico is not producing BMWs, it is not because it

# Problems with the Mainstream

## Understanding of Productive Development

- The theory of comparative advantage tells you that you should enter an industry which has the capital intensity that is in line with your country's capital-labour ratio.
- However, you cannot do that in practice, because factor accumulation does not happen as an abstract process.
- There are some general-use machines, but most physical capital is accumulated in concrete forms, such as machine tools for car parts industry or textile machines, while human capital is also accumulated either as a mechanical engineer or a chemical engineer.
- So, unless you have accumulated the right types of physical and human capital, you cannot enter and succeed in an industry, even if its capital intensity is right for your country's factor profile.
- This means that you have to enter an industry before you gain comparative advantage in it.

# Problems with the Mainstream

## Understanding of Productive Development

- Complicating the picture even more is the fact that most technological capabilities are accumulated through concrete production experiences, and at that in the forms of 'collective knowledge', embodied in organizational routines and institutional memories.
- Therefore, even if a country has all the right machines, engineers, and workers before it enters an industry (which is not possible anyway, as I have just explained), they still cannot be combined into an internationally competitive firm overnight because they actually need to be put through a learning process before they can acquire all the necessary technological capabilities.
- This process is potentially very lengthy.
  - Britain and the US maintained some of the highest tariff rates in the world for 100, 120 years, during their respective catch-up periods.
  - Japan had to protect and subsidise its car industry for nearly four decades before it could become competitive in the world market.
  - It took the electronics subsidiary of the Nokia 17 years before it made any profit – during this period, it had to be subsidized by its sister companies.

# Beyond Comparative Advantage



# Beyond Comparative Advantage I

- For all these reasons, a country's specialization is what it is only because someone somewhere – maybe a private sector firm, maybe the government, more likely two of them together – made the decision to develop competence in those particular activities.
- Are there really any 'natural' or 'factor-endowment-driven' reasons for the Japanese to be good at making cars and the Finns to be good at making mobile phones?

# Beyond Comparative Advantage II

- Given all this, deviation from one's comparative advantage is not only compatible with, but usually necessary for, industrial upgrading and economic development.
- Of course, this does not mean that you should deviate from your comparative advantage as much as possible.
- You may say that a country should not defy its comparative advantage too much, because the more you deviate from your comparative advantage, the greater the opportunity costs and the risk of failure are.
- Thus seen, there may be some kind of inverted-U relationship between the degree of a country's deviation from comparative advantage and its growth rate.

# Beyond Comparative Advantage III

- Having said that, the problem is that it is difficult in practice to know how much is too much.
  - Finland entered the electronics industry (Nokia) in 1960, when its per capita income was 40% that of the US.
  - Japan was giving a big push to the automobile and other capital-intensive industries in the late 1950s and the early 1960s, when its per capita income was less than 20% that of the US.
  - Korea entered the steel industry when its per capita income was 5% that of the US level (in 1968), and at that time using the most capital-intensive production method available at the time, and entered the semiconductor industry when its per capita income was still just 14% that of the US (in 1983).

# Beyond Comparative Advantage IV

- Of course, we could argue that all the above-mentioned countries would have been better off if they did enter these industries later, when their capital-labour ratios were more in line with what were required for these industries.
- So, for example, you could argue that Korea should have entered the steel industry, not in 1968 but in 1988, when its per capita income was around 20% that of the US (even 20% maybe too low, but that is another debate).
- Maybe - but the question is whether Korea's per capita income in 1988 would have been 20% that of the US, had Korea not entered steel, car, shipbuilding, and all the other "wrong" industries in the late 1960s and the early 1970s, when its per capita income was 5-10% that of the US.
- I am talking not just about the higher potential for output and productivity growths in these industries.
- Without these industries maturing into leading export industries between the late 1970s (steel and shipbuilding) and the mid-1980s (automobile), Korea would not have had the foreign exchanges that it needed in order to import advanced technologies necessary for industrial upgrading.

# Industrial Policy



# Theoretical Cases for Industrial Policy I

- Coordination of complementary investments (Big Push)
- Coordination of competing investments through entry regulation, “investment cartels”, and (in declining industries) negotiated capacity cuts
- Policies to ensure scale economies (e.g., licensing conditional upon production scale, emphasis on the infant industries starting to export from early on, state-mediated mergers and acquisitions)
- Regulation on technology imports (e.g., screening for overly obsolete technologies, cap on technology licensing royalties)

# Theoretical Cases for Industrial Policy II

- Regulation on foreign direct investment (e.g., entry and ownership restrictions, performance requirements on local contents technology transfer, export)
- Mandatory worker training (for firms above a certain size)
- The state acting as a venture capitalist and incubating high-tech firms
- Export promotion (e.g., export subsidies, export loan guarantees, marketing help from the state trading agency)
- Government allocation of foreign exchanges, with top priority going to capital goods imports (especially for

# East Asian Industrial Policy and 'Miracle'

- The widespread use of industrial policy in East Asia does not mean that it was the cause of the 'miracle'.
- It is possible that these countries could have grown even faster, had they not used industrial policy.
  - possible that industrial policy is bad for growth but that there were country-specific "countervailing forces" that cancelled out the harmful effects of industrial policy.
- However, the counterfactual is implausible (there are counteractuals and there are counterfactuals)
  - No country has ever grown at higher rate than what the East Asian countries managed during the 'miracle' years, **industrial policy or not?**
- No convincing story based on 'countervailing forces' (culture, Japanese colonialism, Cold War politics)

# Industrial Policy beyond the East Asian 'Miracle' I

- Successful industrial policy experiences in the late 20<sup>th</sup> century are not confined to East Asia
  - **National industrial policies** in France, Finland, Norway, and Austria
  - **Regional industrial policies** in Italy and Germany
  - **Industrial policy under another name** in the US through **government R&D funding**
    - Between the 1950s and the 1980s, the US federal government financed anywhere between 47% and 65% of national R&D spending, as against around 20% in Japan and Korea and around 30% in many European countries, such as Germany or Sweden).

# Industrial Policy beyond the East Asian 'Miracle' II – Trade Policy

- In the 19<sup>th</sup> and the early 20<sup>th</sup> centuries, all of today's rich countries, except for the Netherlands and (before World War I) Switzerland, practised protectionism and other forms of industrial policy.
- Interestingly, Britain and the US – the supposed homes of free trade – had the world's highest levels of tariff protection during their respective catch-up periods.



**Table 1. Average Tariff Rates on Manufactured Products for Selected Developed Countries in Their Early Stages of Development**  
(weighted average; in percentages of value)<sup>1</sup>

	18202	18752	1913	1925	1931	1950
Austria <sup>3</sup>	R	15-20	18	16	24	18
Belgium <sup>4</sup>	6-8	9-10	9	15	14	11
Canada <sup>5</sup>	5	15	n.a.	23	28	17
Denmark	25-35	15-20	14	10	n.a.	3
France	R	12-15	20	21	30	18
Germany <sup>6</sup>	8-12	4-6	13	20	21	26
Italy	n.a.	8-10	18	22	46	25
Japan <sup>7</sup>	R	5	30	n.a.	n.a.	n.a.
Netherlands <sup>4</sup>	6-8	3-5	4	6	n.a.	11
Russia	R	15-20	84	R	R	R
Spain	R	15-20	41	41	63	n.a.
Sweden	R	3-5	20	16	21	9
Switzerland	8-12	4-6	9	14	19	n.a.
United Kingdom	45-55	0	0	5	n.a.	23
United States	35-45	40-50	44	37	48	14

# Industrial Policy beyond the East Asian 'Miracle' II

- Many countries explicitly allowed patenting of foreigners' inventions.  
(Britain, the Netherlands, USA, France, Austria)
- In the 19<sup>th</sup> century, the Germans mass-produced fake 'Made in England' products.
- Switzerland (1907) and the Netherlands (1912) refused to protect patents until the early 20<sup>th</sup> century (Swiss pharmaceutical, Philips).
- The US refused to protect foreigners' copyrights until 1891 (refused to protect copyrights for materials printed abroad until 1988).

# Industrial Policy beyond the East Asian 'Miracle' II

- US (19<sup>th</sup> century)
  - regulated FDI in finance, shipping, mining and logging.
  - especially in banking; only American citizens could become directors in a national (as opposed to state) bank and foreign shareholders could not vote in AGMs
- Japan (Korea and Taiwan to a lesser extent)
  - virtually banned foreign direct investment until the 1980s
- Finland
  - classified all firms with more than 20% foreign ownership as “dangerous enterprises”
  - no foreign bank branches until the early 1980s

# Industrial Policy beyond the East Asian 'Miracle' II

- Important in Germany (textile, steel) and Japan (steel, shipbuilding) in the early days
- Extensively used in France, Finland, Austria, Norway, Taiwan, and Singapore in the post-WWII period
  - Singapore: 22% of GDP (Singapore Airlines and others)
  - Taiwan: 16% of GDP
  - France: Renault, Alcatel, St. Gobain, Usinor, Thomson, Thales, Elf Aquitaine, Rhone-Poulenc
  - Other examples: POSCO (Korea), EMBAER (Brazil)

**Kamenev**

**Lenin**

**Trotsky**



Lenin



**Regulation**

**Market**

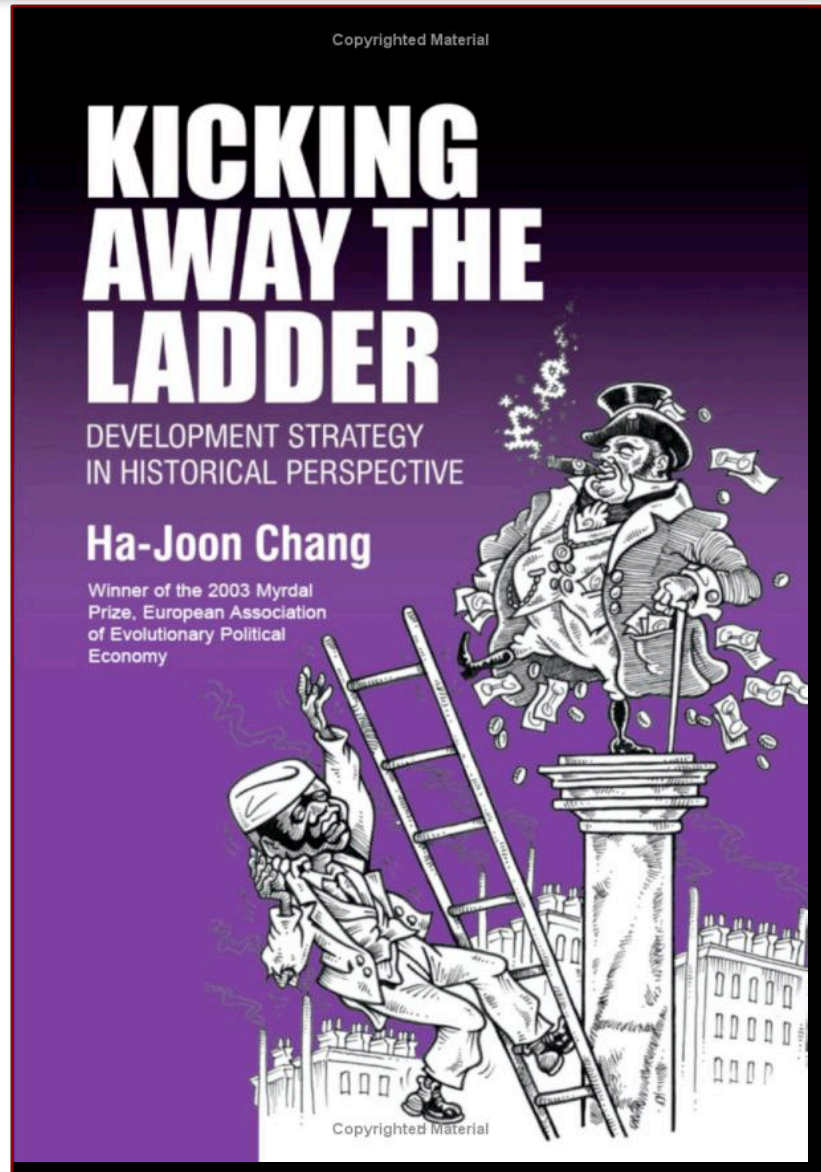
**Protection**



Market



# Kicking away the ladder



# Bad Samaritans

'Probably the world's most  
effective critic of globalization'  
MARTIN WOLF, *FINANCIAL TIMES*

'Lucid, deeply informed'  
NOAM CHOMSKY

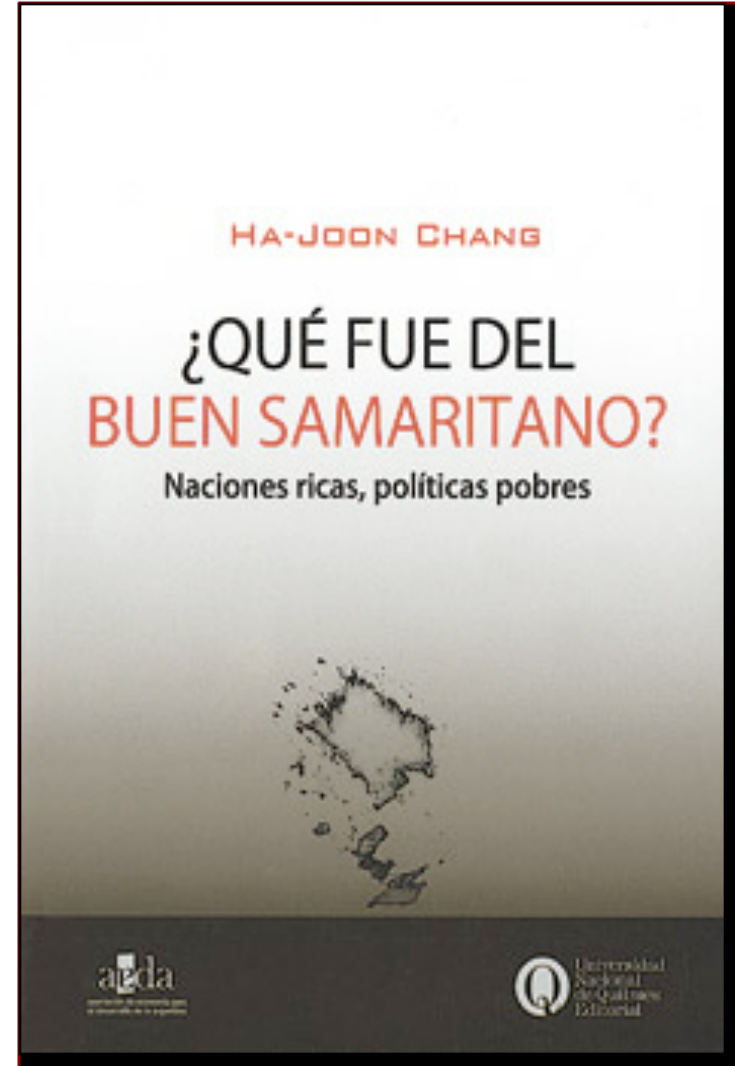
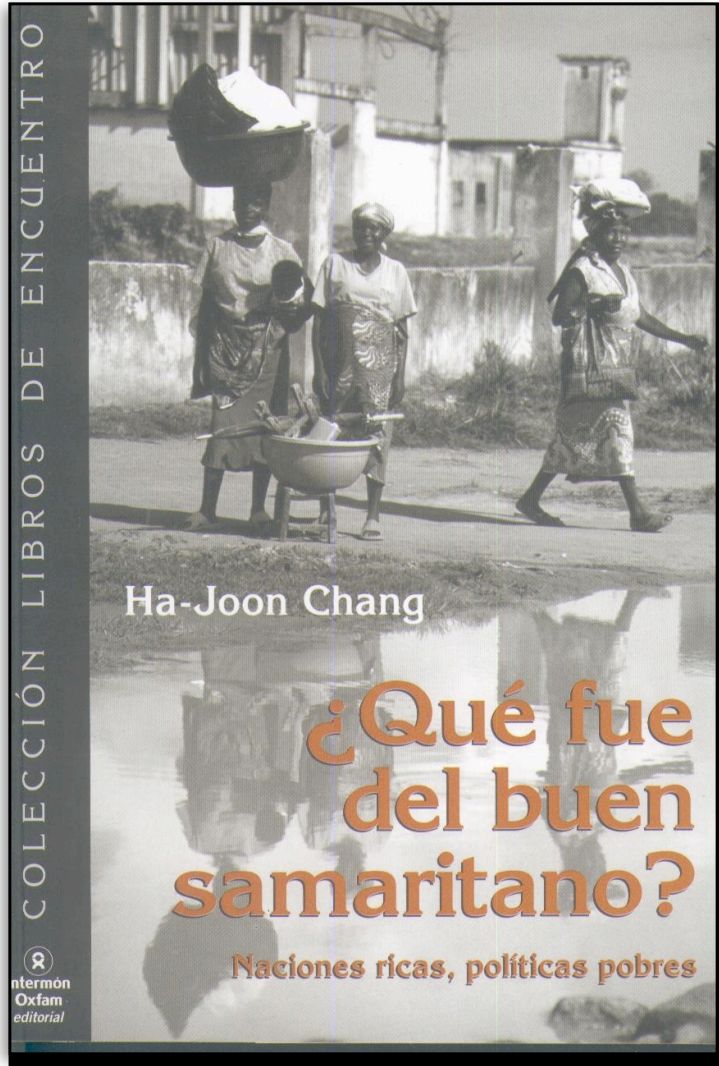


## **BAD SAMARITANS**

**THE GUILTY SECRETS  
OF RICH NATIONS  
& THE THREAT TO  
GLOBAL PROSPERITY**

**HA-JOON CHANG**

# ¿Qué fue del buen samaritano?



# Industrial Policy beyond the East Asian 'Miracle' III

- Developing countries had best growth performance when they used industrial policy more extensively – they grew much faster during the ‘bad old days’ of import substitution in the 1960s and the 1970s than during the ‘age of imperialism’ or during the more recent neo-liberal period.



**Table 2. Historical Rates of Economic Growth by Major Regions during and after the Age of Imperialism (1820–1950)**  
(annual per capita GDP growth rate, %)

<b>Regions</b>	<b>1820-70</b>	<b>1870-1913</b>	<b>1913-50</b>	<b>1950-73</b>
<b>Western Europe</b>	0.95	1.32	0.76	4.08
<b>Western Offshoots*</b>	1.42	1.81	1.55	2.44
<b>Japan</b>	0.19	1.48	0.89	8.05
<b>Asia excluding Japan</b>	-0.11	0.38	-0.02	2.92
<b>Latin America</b>	0.1	1.81	1.42	2.52
<b>Eastern Europe and former USSR</b>	0.64	1.15	1.5	3.49
<b>Africa</b>	0.12	0.64	1.02	2.07
<b>World</b>	0.53	1.3	0.91	2.93

\*Australia, Canada, New Zealand, and the USA.

Source: World Bank, United Nations

# Table 3. Per capita GNP Growth Performance of the Developing Countries,

	1960-70 (%)	1970-80 (%)	1960-80 (%)
<b>Low-income countries</b>	<b>1.8</b>	<b>1.7</b>	<b>1.8</b>
Sub-Saharan Africa	1.7	0.2	1.0
Asia	1.8	2.0	1.9
<b>Middle-income countries</b>	<b>3.5</b>	<b>3.1</b>	<b>3.3</b>
East Asia and Pacific	4.9	5.7	5.3
Latin America and the Caribbean	2.9	3.2	3.1
Middle East and North Africa	1.1	3.8	2.5
Sub-Saharan Africa	2.3	1.6	2.0
Southern Europe	5.6	3.2	4.4
<b>All Developing Countries</b>	<b>3.1</b>	<b>2.8</b>	<b>3.0</b>
<b>Industrialised Countries</b>	<b>3.9</b>	<b>2.4</b>	<b>3.2</b>

Source: World Bank, United Nations

# Table 4. Per capita GDP Growth Rates of the Developing Countries, 1980–2000

	<b>1980-90 (%)</b>	<b>1990-20 (%)</b>	<b>1980-2000 (%)</b>
<b>Developing Countries</b>	<b>1.4</b>	<b>2.0</b>	<b>1.7</b>
East Asia and Pacific	6.4	6.0	6.2
Europe and Central Asia	1.5	-1.8	-0.2
Latin America and the Caribbean	-0.3	1.7	0.7
Middle East and North Africa	-1.1	1.2	-0.1
South Asia	3.5	3.7	3.6
Sub-Saharan Africa	-1.2	-0.2	-0.7
<b>Developed Countries</b>	<b>2.5</b>	<b>1.7</b>	<b>2.1</b>

Source: World Bank, United Nations

# Table 5. Annual per capita GDP growth rates

	<b>'Bad Old Days' 1960-80 (%)</b>	<b>'Brave New World' 1980-2004 (%)</b>
<b>All Developing Countries</b>	<b>3.0</b>	<b>2.2</b>
Latin America and the Caribbean	3.1	0.5
Sub-Saharan Africa	1.6	-0.3

Source: World Bank, United Nations

# Industrial Policy beyond the East Asian 'Miracle' IV

- If industrial policy was not confined to East Asia in the late-20<sup>th</sup> century, it becomes even more difficult to downplay its role in East Asia by resorting to some region- and time-specific “countervailing forces”.
- Given the history of today’s rich countries, a good industrial policy may be a necessary, although not sufficient, condition for economic development.
- If industrial policy is so bad, how is it that in every era, the fastest growing economies happen to be those with a strong industrial policy? – Britain during the mid-18<sup>th</sup> century and mid-19<sup>th</sup> century, the US, Germany, and Sweden during the late 19<sup>th</sup> and the early 20<sup>th</sup> century, East Asia, France, Finland, Norway, and Austria in the late 20<sup>th</sup> century, and China today.

# Lessons from the Industrial Policy Debate

- Does targeting work? ('picking winners')
- Can the state "beat the market"?
- Political economy questions
- Bureaucratic capabilities problem
- Performance measurement
- The role of export
- Changing global environment.

# Targeting

- In a world with scarce resources, targeting is inevitable.
  - In such a world, every policy choice you make, however “general” it may look, has discriminatory effects that amount to targeting (no such thing as R&D subsidies that supports all industries equally or “general” engineers or infrastructure that benefit every industry).
- Moreover, it is not true that less targeted policies are necessarily better (cf. social policy)
- The debate should be on whether we should target, but on the optimal degree of targeting for different purposes.

# Can State “Beat the Market”?

- The state has frequently beaten the market.
  - e.g., Japanese auto industry, Korea’s POSCO, Brazil’s EMBRAER
- More importantly, many (although not all) of the “superior” decisions made by the state were made not because the government officials were omniscient or cleverer than businessmen but because they could look at things from a national and long-term point of view, rather than sectional, short-term point of view.
- Therefore, instead of debating whether the state can beat the market, we should be debating how to improve the quality of state decisions.

# Political Economy

## Questions 1

- Successful industrial policy requires “political” conditions – the commitment of the leadership to economic development, the coherence of the state machinery, and the ability of the state to discipline the recipients of its supports.
- When considering that many developing countries are run by flawed leaders presiding over a politically weak and internally fragmented state, it seems difficult to imagine how industrial policy, even if it were “correct”, can be implemented well in a developing country.
- **But we should not let the best be the enemy of the good.**
- In the real world, successful countries are the ones that have managed to find “**good enough**” **solutions to their political economy problems** and went on to implement policies, rather than sitting around bemoaning the imperfect nature of their political system.

# Political Economy

## Questions II

- In order to take the debate forward, we have to improve our understanding of issues like:
  - (i) how effective **political visions** can be formed and deployed to inspire various individuals and groups to act in a concerted manner
  - (ii) how to **build nations and communities** out of groups that may have very long history of hostility and mistrust
  - (iii) how to work out **social pacts** and build lasting coalitions behind them
  - (iv) how to **partially accept but improve the customs and organisational routines in the bureaucracy**
  - (v) how to **minimise socially harmful lobbying and bribing** while **maximising the flows of information** between the states and the private sector

# Bureaucratic Capabilities I

- No basis for the assumption that industrial policy is more difficult than other policies.
- Industrial policy does not require sophisticated knowledge of economics is unwarranted.
  - The industrial policy-makers of East Asia were not economists (lawyers in Japan and Korea, engineers in Taiwan (and China today), and what little economics they knew was usually the “wrong” kind – Marx, the German Historical School, Schumpeter.
- High-quality bureaucracies are not as impossible to build as people think.
  - Countries like Korea and Taiwan started out with lousy bureaucracies.

# Bureaucratic Capabilities II

- There is also “learning-by-doing” in policy.
  - Without trying out “difficult” policies, capabilities cannot be improved.
- The fact that something is “difficult” cannot be a reason not to recommend it.
  - After all, developing countries are routinely told to adopt “best practice” or “global standard” institutions used by the richest countries, when many of them clearly do not have the capabilities to effectively run such institutions.

# Performance Measurement

- Performance targets should be clearly specified and the reporting requirements on them announced at the outset.
- The targets should be set in consultation with the business community.
- Targets need to be revised along the way, but too much flexibility should be avoided, as government flexibility can be abused by lobbying groups
- In industries where export is possible, **export performance** should be given a high status as a performance measure, as they are far less open to manipulation.
- Policy-makers need to pay more attention to the **trends in performance indicators**, rather than their absolute levels at any give point of time.

# Importance of Export-related Policies I

- Economic development is impossible without good export performance.
- But, saying that export is the key to economic development is not to say that developing countries should liberalise their trade.
- Export success requires significant industrial policy **even for comparative advantage-conforming industries**, as export markets have high fixed costs of entry, which smaller firms and farmers may not be able to bear.

# Importance of Export-related Policies II

- Direct export subsidies (but banned by the WTO, except for the LDCs).
- State **marketing help** (JETRO, KOTRA, the Danish agricultural marketing boards in the early 20<sup>th</sup> C).
- **Risk-sharing** through loan guarantees for exporters and insurance for payment defaults.
- **Help with meeting quality standards** through export product quality control, advice on sanitary and python-sanitary requirements, subsidised extension services.
- Indirect help through legal and financial **supports for co-operative arrangements** among exporters.

# Changing Global Environment I

- Changes in global business environment
  - Increasing importance of FDI
  - Increasing industrial concentration
- Changes in global rules of trade and environment
  - WTO
  - Bilateral trade and investment agreements

# Changing Global Environment II

- Importance of FDI has increased, but not as dramatically as is often claimed.
- Industrial policy (e.g., performance requirements) not as important for FDI decision as market factors (size, growth), infrastructure, quality of labour
- Business concentration has increased, but it goes up and down.
- “Chopping up” of value chains can open new opportunities.

# Changing Global Environment III

- WTO rules not as restrictive as believed, although under pressure to be further narrowed.
  - Tariffs allowed
  - Emergency tariffs (sectoral surge, overall BOP problems)
  - Subsidies for environment, agriculture, R&D, regional policies, and (for LDCs) export allowed de jure or de facto
  - TRIPS constraining but not for older technologies
  - TRIMS constraining but performance requirements for local labour, technology transfer, R&D, etc. allowed.
- Bigger constraints are aid/loan conditionalities and bilateral/regional trade/investment agreements
- All these rules are 'man-made' and can be changed if deemed necessary.

# Bibliography

For further details, see my books, *Kicking Away the Ladder*, *Bad Samaritans*, and my recent paper, 'Industrial Policy: Can we go beyond an unproductive confrontation?', a Plenary Paper for the ABCDE (Annual World Bank Conference on Development Economics) 2009, Seoul, South Korea, 22-4 June, 2009, which can be downloaded from: <http://www.econ.cam.ac.uk/faculty/chang/recent.htm>