低所得国の産業開発政策とその支援

国際経済学会・関東支部の新春シンポジウム

2012年1月28日

園部哲史（政策研究大学院大学）

OUTLINE

- Failed attempts at import-substituting industrialization in the 1950s – 1970s
  - Aftermath of the failure
  - “Legitimate” policy
- Case of the Pharmaceutical Industry in Bangladesh
  1. Bangladesh
  2. Growth performance
  3. Welfare effects of the growth
  4. History
  5. Growth mechanism
  6. Influences of TRIPS（Agreements on Trade-Related Aspects of Intellectual Property Rights)
- Conclusions

“Legitimate policy”

- Comparative advantage
- Get you prices right, and make markets work
- Let FDIs meet the need for technology transfer
- Knowledge spillovers from MNCs to local firms
- Investment climate

- I would like to introduce a recent, real case in which an import substitution policy led to phenomenal growth of an industry.

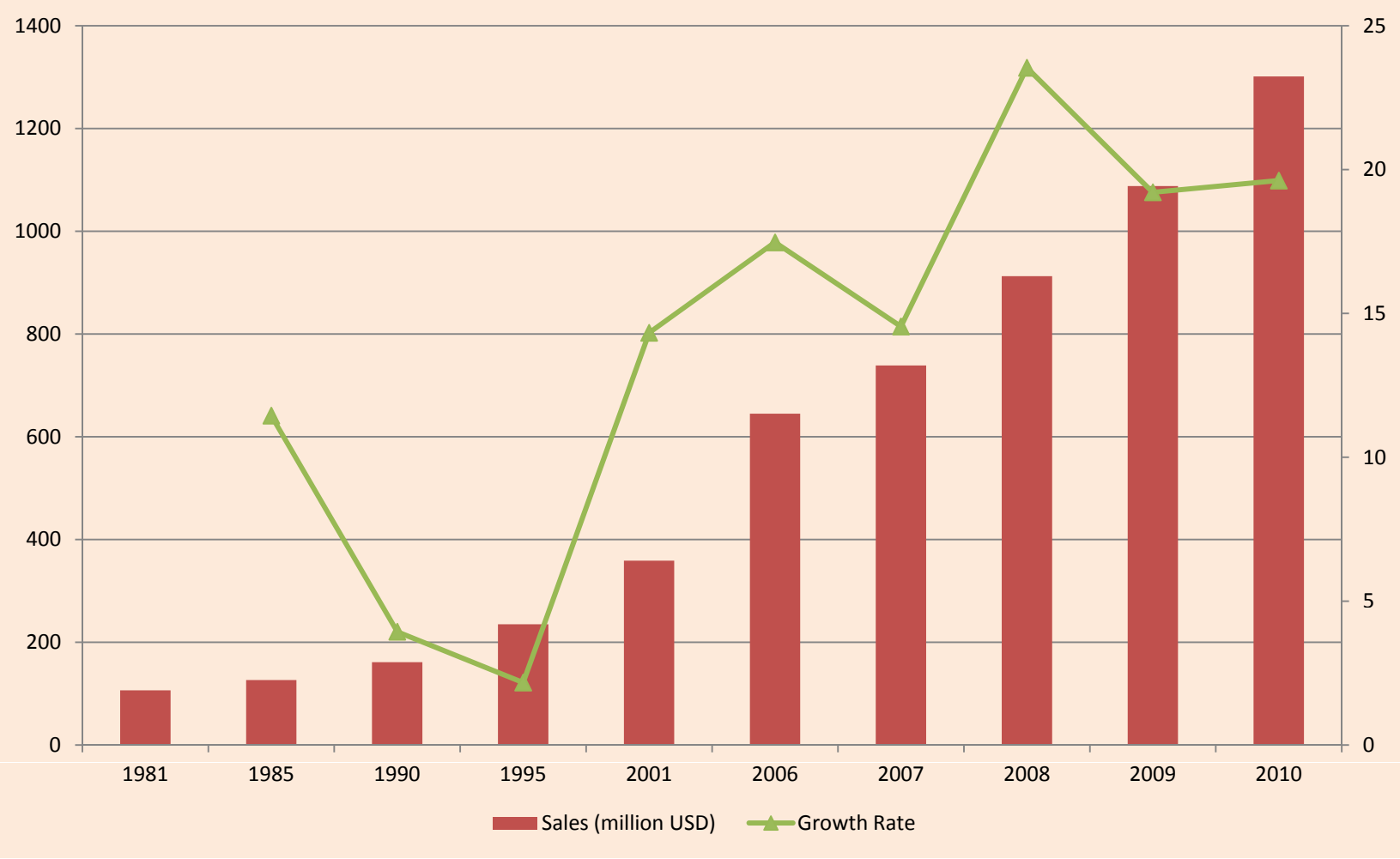
1. Bangladesh

- 98 percent Bengali
- Declared independence in Mar. 1971 from Pakistan and won the independence in Dec. 1971
- Area = 147,570km^2 (94th), Pop. = 142million (9th)
- GDP per capita (nominal) = $640.
- Leading sector:
  - Up to 1980, jute (黄麻、南京袋の原料）was virtually the single exported good.
  - Since then, it has been the export-oriented garment industry, accounting for 75 percent of total export value (Mottaleb and Sonobe, 2011, EDCC)
- According to Transparency International, Bangladesh is one of the most corrupt country.

2. Growth performance

- Early 1980s:
  - There were about 30 firms, including seven MNCs.
  - Production was about $ 100 million.
  - Local production satisfied only 35% of the local demand for drugs. The rest was imported.
- At present:
  - there are 262 registered plants in the industry, of which 166 plants (or155 firms) are in operation including three MNCs (GSK, Sanofi, Novartis)
  - producing drugs worth US$ 1.3 billion
  - The industry fulfills more than 97% local demand. It has been exporting over 400 medicines to 83 destinations. The export value has grown at 35% per year for the last two decades (World Bank, 2008; BAPI, 2010).
  - The firms carry out no R & D and focus on the production of generic medicines.

Figure 1: Pharmaceutical production in Bangladesh: 1981-2010



Source: Bangladesh Drug Administration , 1992 (Cited in Chowdhury, 2010, pp. 99), IMS Health (Bangladesh) , and The survey 2011

Table 1: Top 10 firms in Bangladesh in the year 1985 and 2010

	Top 10 firms in 1985			Top 10 firms in 2010		
Rank	**Firm's name**	**Sales**	**Owner-ship**	**Firm's name**	**Sales**	**Owner-ship**
1	SQUARE	180	Local	SQUARE	13,049	Local
2	BPI (MAYBAKER)	121	MNC	INCEPTA	6,106	Local
3	GLAXO	120	MNC	BEXIMCO	5,680	Local
4	OPSONIN	102	Local	OPSONIN	3,362	Local
5	PFIZER	84	MNC	ESKAYEF	3,349	Local
6	FISONS	72	MNC	RENATA	3,232	Local
7	GONOSHASTHYA	68	Local	ACME	3,080	Local
8	MSD	60	MNC	A.C.I.	2,866	Local
9	CIBA GEIGY	56	MNC	ARISTOPHARMA	2,701	Local
10	HOECHST	51	MNC	DRUG INT'L	2,581	Local

Source: Author's calculation based on data from IMS Health (Bangladesh)

In 1985, just three years after the proclamation of the new drug policy, the industry was still dominating by multi-national corporations (MNCs) with the presence of seven firms among top 10 firms. The scenario changed over time and there is no MNCs in top 10 firms in 2010.

3. Impacts of the pharma industry's development

- Job creation
  - YES, but not as strong as the garment industry's development
- Income generation
  - YES.
- Product price reduction
  - Profound impacts on price and hence welfare!
- Backward and forward linkages
  - Maybe yes, but no evidence so far.

Table 2: Changes in retail prices of 10 important drugs in Bangladesh

Product (Generic Name)	Therapeutic Use	Retail Price in USD				Change 1981-2011 (%)
		1981	1991	2001	2011	
Amoxycillin (Cap. 250mg)	Penicillin	0.094	0.068	0.058	0.043	-53.9
Atenolol (Tab. 100 mg)	cardiac diseases	0.330	0.089	0.024	0.018	-94.6
Chloroquine (Tab. 250mg)	Anti-malarials	0.021	0.027	0.021	0.015	-30.8
Diazepam (Tab. 5 mg)	Sedatives 鎮静	0.017	0.005	0.004	0.003	-83.3
Mebendazole (Tab. 100mg)	Worms	0.116	0.019	0.013	0.009	-91.9
Paracetamol (Tab. 500mg)	Analgesics	0.014	0.014	0.010	0.008	-39.8
Rantidine (Tab. 150mg)	Ulcer healing	0.165	0.056	0.037	0.024	-85.4
Rifampicin (Cap. 150mg)	Anti-Tuberculer	0.285	0.095	0.069	0.041	-85.6
Vitamin B complex (Tab)	Vitamin	0.041	0.011	0.008	0.006	-85.8

Source: Authors calculation based on different issues of QIMP and Chowdhury, 2010 pp. 101

Table 3: Price Comparison of Selected Drugs for the Year 2010

Product (Generic Name)	**Prices (in USD)**			
	BGD	IND	INDONESIA	UK
Omeprazole (Cap. 20mg)	0.054	0.080	0.929	0.169
Pantoprazole (Tab. 20mg)	0.042	0.074	1.618	0.623
Paracetamol (Tab. 500mg)	0.009	0.021	0.065	0.053
Azithromycin (cap./tab. 500mg)	0.422	0.514	2.283	4.500
Cefixime susp. (50 ml)	2.438	1.943	9.805	15.522
Mebendazole (Tab. 100mg)	0.010	0.029	1.566	0.334
Atenolol (Tab. 100mg)	0.019	0.065	0.221	0.182
Glibenclamide (Tab. 5mg)	0.004	0.014	0.099	0.046
Chloroquine (Tab. 250mg)	0.016	0.012	0.035	0.090
Rifampicin (Cap. 150mg)	0.044	0.040	0.127	0.284

Source: Authors calculation based on data from different issues of MIMS, CIMS and British National Formulary.

4. History: an import substitution policy

Enactment of The Drugs (Control) Ordinance, 1982

Background = Consumer movement…**essential drugs**… in Canada, US, and Europe

- Sri Lanka (National Formulary Committee, Prof. Senaka Bibile, 1958, 1970), India (the Hathi Committee, 1974)
- In Bangladesh, a committee consisting of eight experts was formed in April, 1982. Out of 4,340 registered products, the committee identified 1,742 drugs as harmful, inappropriately formulated or therapeutically ineffective and banned it.

The committee's policy proposal was adopted swiftly by the government.

Objective = to increase accessibility to life saving drugs through ensuring quality and controlling prices of medicines, eliminating harmful, useless and non-essential drugs from the market.

Policy = to promote local production and to impose restrictions on transfer prices

- Only local firms were allowed to produce antacids and vitamins (16% market share)
- No third party licensing by MNCs
- restricted import of similar drugs which were produced sufficiently by local firms.
- It reduced the prices of essential drugs.

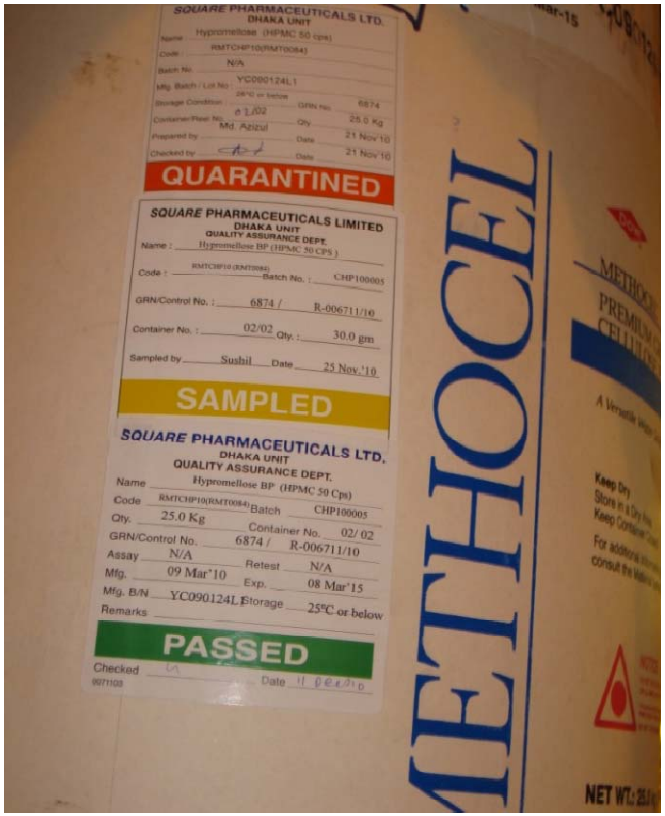
We know this policy. It is called '**rent extraction**' extensively argued in the early 1980s, especially by Brander and Spencer, in the literature on strategic trade policy. Such a policy is good for the national welfare but not for the trade partner's welfare.

Reaction from major donors and MNCs = menace and threats

With Dr. Zafarullah Chowdhury

A machine washes machines

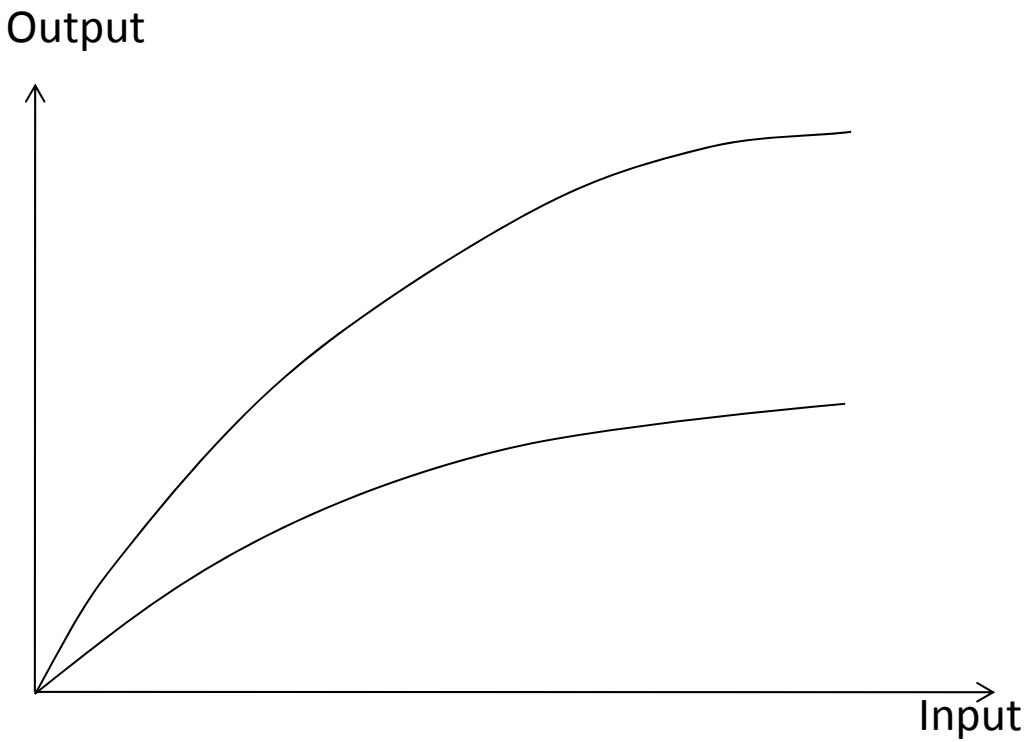
- Storage of materials



4 (conti). Historical reasons for the development – Human Capital

- Presence of high education producing experts
  - Pharmacy education in the Dhaka University started as early as 1964.
  - Other relevant disciplines like chemistry, bio-chemistry, microbiology, engineering education were also there.
- Learning from MNCs
  - There were seven MNCs operating in the country.
  - Unlike many other developing countries, particularly other LDCs, there were a number of highly educated local employees who were promoted to important positions, such as production manager and factory manager, in MNCs.
  - They could absorb technologies and management knowledge from MNCs.

5. Growth mechanism



1. The Drug Ordinance in 1982 boosted heavy investments by rich traders exporting Jute.
2. A number of new firms were established and poached managers, pharmacists, engineers and skilled workers from MNCs.
3. An increasing number of pharmacists were trained at the university.
4. Firms continued with aggressive absorption of knowledge from abroad and with the provision of various training opportunities for workers and managers.
5. Knowledge spillovers (through alumni relationship in one place) are active.

Note that points 2 to 5 are nothing but the familiar endogenous growth story.

i

Table 4: Entrepreneurs' academic background

Average years of schooling	16.1
with PhD (%)	5.2
with Master degree (%)	60.7
with Bachelor degree (%)	27.1
with schooling 12 years or less (%)	7.1
with prior work experience in pharmaceutical MNCs (%)	21.3
Number of interviewed entrepreneurs	155

Source: The 2011 survey

Table 5: Employment size, experts, and training received

	2001	2006	2010
(a) Employee details			
Total no. employees	375.9	457.6	603.2
No. pharmacists	7.9	11.6	16.8
No. chemists, microbiologists, engineers	9.0	12.0	15.7
No. MBAs	2.5	5.9	10.9
No. employee with work experience in MNCs	8.2	9.9	9.5
(b) Employee training			
No. employees received training in Bangladesh	40.7	78.1	113.6
No. employees received training in abroad	0.8	1.1	2.7
Total no. employees received training	41.5	79.3	116.4
Expenditure on training (1,000 USD)	5.2	10.1	19.2
Expenditure on training (% of sales revenue)	0.3	1.1	0.9
No. firms	85	121	153

Source: The survey 2011

Table 6. Geographical concentration

Greater Dhaka	102 (66%)
Dhaka city area	30
Narayangonji and Norshingdi	32
Gazipur and Tongi	40
Chittagong	9
Others	44

122 firms have their headquarters or at least liaison offices in Dhaka city.

6. TRIPS

- TRIPS (Agreements on Trade-Related Aspects of Intellectual Property Rights)

  - 20 years patent protection for pharmaceutical products (January 1, 1996);

  - Relaxation for 49 LDCs until beginning of 2016.

- Being one of the LDCs, Bangladesh enjoys this special treatment, and it is the only country that has capacity to produce and export a large variety of drugs. No other LDSc are taking advantage of the special treatment.
- Can the drug industry in Bangladesh continue to grow after 2016?
  - Probably yes.
    - Patents have already expired for most drugs produced in Bangladesh
    - Even in the case of new drugs, if they are already being produced by Bangladeshi producers, they are exempt from royalty payment.
  - As to the extension of the special treatment, only Bangladesh is vocal.

Conclusions

- Advocates of import substituting industrialization policies assumed that import substituting industries are ‘infant industries,’ which would grow into ‘adult industries’ if protected.
- The history indicates that the assumption was wrong.
- On the other hand, technology borrowing or learning from abroad has always proved to be important for successful industrial development, as the growth theory predicts.
- Thus, a common view is that an industry would grow only if it has ability to learn technology and management from abroad.
- The pharmaceutical industry in Bangladesh acquired that ability, thanks to the establishment of the Faculty of Pharmacy at Dhaka University.
- Thus, MNCs would have expanded their operation sizes, if it had not been for the 1982 drug ordinance.
- The 1982 drug ordinance in Bangladesh was a import-substituting policy and a rent-extraction policy.