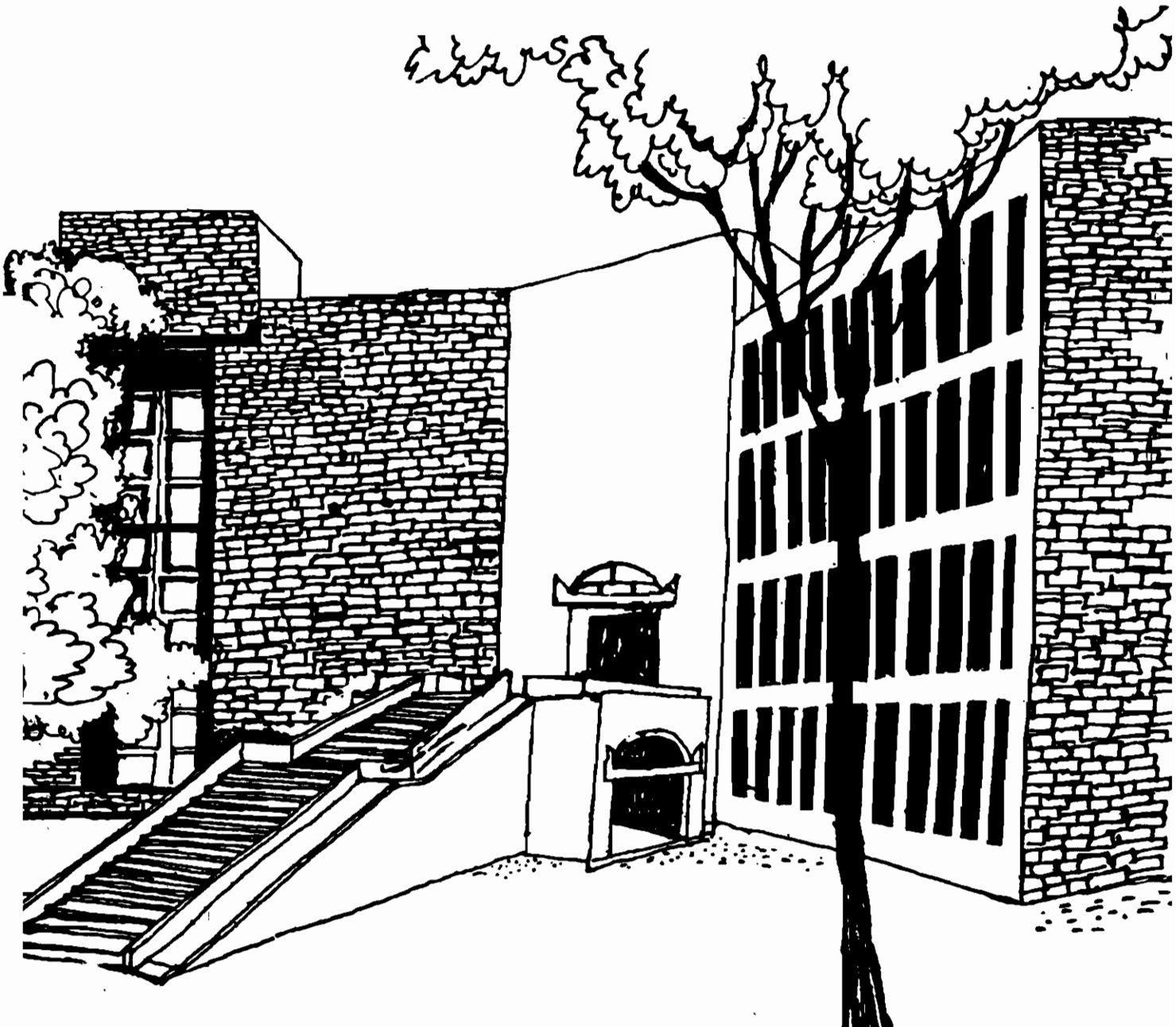




વિદ્યાવિનિયોગાદિકામઃ
IITM
AHMEDABAD

Working Paper




EFFECT OF POLICY ON EXPORT COMPETITIVENESS:
THE CASE OF THE INDIAN GARMENT INDUSTRY

By

D.N. Sen Gupta

W P No.1328
August 1996

WP1328

WP
1996
(1328)

The main objective of the working paper series of the IIMA is to help faculty members to test out their research findings at the pre-publication stage.

INDIAN INSTITUTE OF MANAGEMENT
AHMEDABAD - 380 015
INDIA

PURCHASED

APPROVAL

GRATIS/EXCHANGE

PRICE

ACC NO.

VIKRAM SARABHAI LIBRARY

S. E. M. AHMEDABAD

**EFFECT OF POLICY ON EXPORT COMPETITIVENESS
- THE CASE OF THE INDIAN GARMENT INDUSTRY**

CONTENTS

ABSTRACT

REVIEW OF INDIA'S EXPORT PERFORMANCE

THE INDIAN GARMENT INDUSTRY

POLICY IMPLICATIONS

NOTES

EXHIBITS

1. Garment Exports: World and India
2. Share of Selected Asian Countries in World Exports of Garments
3. Pattern of India's Garment Exports
4. Production, Domestic Consumption and Exports of Garments in India
5. Typical Cost and Price Build up of Garments exported by India
6. Some Major Apparel Tie-ups in India
7. Production of Cloth in India
8. Comparative Installed Capacity, 1990
9. Garment Exports: Determinants of Market Share
10. Garment Manufacture: Relationship between Labour Productivity and Capital-intensity of Manufacture
11. Garment Manufacture: Relationship between Capital-intensity of Manufacture and Total Factor Productivity
12. Fabric Manufacture: Relationship between Labour Productivity and Capital-intensity of Manufacture
13. Fabric Manufacture: Relationship between Capital-intensity of Manufacture and Total Factor Productivity

**EFFECT OF POLICY ON EXPORT COMPETITIVENESS
- THE CASE OF THE INDIAN GARMENT INDUSTRY**

ABSTRACT

India's garment exports have increased quite rapidly in terms of U.S. dollars in recent years. But other Asian exporters have done better.

Certain policy-induced structural features of the Indian garment industry have created inefficiencies in the areas of export marketing, production and import supplies. This paper analyses some of these and suggests a few remedies.

The paper¹ argues that policy should enable and encourage large firms to play a more active role in garment exports. This will allow India to exploit the high-volume segments of the world market more fully and appropriate a higher share of the value addition in the export chain. The paper proposes some measures for making the institutional arrangements for production and input supplies more efficient, so that exporters may capitalise on India's comparative advantages and bypass disadvantages. The question of developing constructive linkages between large and small firms is also dealt with in this context.

REVIEW OF INDIA'S EXPORT PERFORMANCE

India's Exports

India's garment exports have increased at 20% p.a. over the last two years, from U.S. \$2.5 billion in 1991-92 to \$3.1 billion in 1992-93 and \$3.7 billion in 1993-94. India's share of world garment exports in 1993-94 is estimated to have been about 2.5%. Since the corresponding figure for all commodities is around 0.6%, India may be said to have a "revealed comparative advantage" in garments. However, India's share of world exports has been hovering around 2% every year since 1982 (see Exhibit-1). Only since 1993 has this figure been reported to have exceeded the 2% mark by a substantial margin. It is, therefore, too early to conclude that a decisive breakthrough has been achieved.

India's Performance vis-a-vis Other Asian Exporters

India's export performance should be assessed in relation to the performance of other Asian countries. Since low wages constitute an important source of competitive advantage in garment exports, Asia's share of world exports has been increasing steadily over the last two decades. In the 80s, even within Asia the advantage has shifted from high wage countries like Japan, Singapore, Korea and Taiwan to low wage countries like China, Indonesia and Malaysia. Hong Kong which is a re-exporting centre is an exception. The increase in India's market share seems to have been less dramatic than that of other low-wage countries like China, Indonesia and Malaysia. Even compared with Sri Lanka, Pakistan and Vietnam who have made spectacular progress from a low base, India's performance has not been very impressive (see Exhibit-2).

World exports of garments (currently about U.S.\$140 billion p.a.) is expected to increase by \$30 billion in 2005, "solely on account of what the Uruguay round has achieved through tariff reductions" and trade liberalisation.² It is believed that most of this increase will accrue to China because other countries are not equipping themselves to handle the kind of volumes that will ensue. While China is gearing itself to meet the needs of the "volume" markets for standard items, India is concentrating on "niche" markets for speciality products.

Alignment with World Export Pattern

India's export pattern is not very well aligned to the pattern of world exports (see Exhibit-3). India is more dependent on quota countries (and therefore the quota system) for her exports than the world as a whole (for a description of the quota system, see page 4). India's unit value realisation is generally much lower than the world average. This is especially so for the free-for-all non-quota items. While 80% of world trade consists of items made from synthetic fibre, 70% of India's exports is cotton-based and this figure is increasing.

THE INDIAN GARMENT INDUSTRY

Need for a Critical Review

To understand the reasons for India's less than satisfactory export performance we need to understand the problems afflicting the Indian garment industry. The two sections that follow deal with the production arrangements. The next two sections deal with the marketing arrangements. The last four sections cover problems relating to input supplies.

Production

There are no data available for production of garments in India. However, indirect estimates can be made by adding exports to estimated domestic consumption (see Exhibit-4). Total production of garments is estimated to have been Rs.173 billion in 1992 of which 46% was exported. Total production of garments in India (at current prices) is growing rapidly. Domestic consumption of garments is growing more rapidly than that of clothing as a whole, because of a shift from tailor-mades to ready-mades. Exports are growing faster than domestic consumption. The increase in the share of exports in total production since 1988 is explained partly by a fall in of the exchange value of the rupee, inflating the export figure in rupee terms.

Production Arrangements

The garment industry in India is dominated by small units. ³ We estimate that are about 25% of the total value of output is accounted for by units registered under the Factories Act (see Exhibit-4). An important reason for this is policy.

Garment manufacture is reserved for small industry. Large units are allowed to set up manufacture only if they export 50 or 75% of their output, depending on the size of their operations (larger units have a higher export obligation). Another problem relates to labour legislation. Not only do large units have to pay minimum wages and cost-of-living related wage escalations, but they are not allowed to retrench easily. The limited access to the domestic market, stiff export obligations and "exit" barriers make it unattractive for large units to set up garment manufacture.

Domestic and Export Marketing - Traditional Arrangements

The preponderance of small manufacturing units has influenced the marketing arrangements also. Traditionally, the domestic market has been dominated by unbranded garments, sold at low prices. For almost all unbranded garments, marketing and production are separated. The small manufacturers do not have the ability to market. The marketers do not find it worth their while to manufacture. This pattern has percolated to export marketing also. About 75% of exports are made by merchant-exporters who obtain orders from overseas importers, get goods made by small units to importers' designs and specifications, and arrange shipment.

From the export point of view, the major drawback of this system is that it leads to very low unit value realisations. We estimate (see Exhibit-5) that although the retail selling price of garments in the importing country is typically eight times the cost of inputs and shipment (i.e. value addition of 700%), only 12% of the value addition accrues to India. A recent article⁴ estimates that 40% of the total value addition accrues to the importing country by way of design charges and another 50% by way of post-import marketing, distribution and financing charges.

At the root of this state of affairs is the "quota" system and the relative bargaining strength of the importer, the merchant exporter and the manufacturer. Several developed countries have put quantitative limits on their imports of garments from developing and East European countries under the Multi-fibre Arrangement which has been permitted by the General Agreement on Tariffs and Trade. These limits or "quotas" are negotiated bilaterally by the importing and exporting countries. They limit export (import) volumes for specified items of garments, but there are no restrictions on value. Items not so specified are "non-restricted" or "non-quota" items.

Since quotas are import restricting, they have the effect of raising prices of goods imported under the quota system in importing countries and yielding a quota "rent"⁵. This rent is shared by the importer, the exporter and the manufacturer, based on their relative bargaining power. The importer is generally in a position to play one small merchant exporter against another and extract a lion's share of the quota rent. On the otherhand, since quotas are in short supply, exporters who have quota entitlements are in a position to extract most of the rent accruing within India. Quotas are transferable and exporters often make profits upfront by selling their entitlements at a premium. The small manufacturer has no bargaining power and gets a low or negative share of the quota rent.

The way quotas are allocated in India facilitates this process. Bulk of the entitlement is based on "past performance" and accrues to the same exporters every year. Since government of India stipulates only minimum prices for the fulfilment of quota obligations and the importer is in a strong bargaining position, the exporter tries to maximise his profits not by getting high prices, but by squeezing the small manufacturer. Government's recent attempts to promote non-quota exports by linking a part of the quota entitlements to the volume of non-quota exports, have aggravated the situation. Non-quota exports are made at cut-throat prices and the losses set off against rent from additional quota entitlements. This puts further pressure on manufacturers' margins. Not surprisingly, attempts to increase manufacturer-exporters' quota entitlements at the expense of past performance entitlements have met with resistance from vested interest groups⁶.

Low manufacturers' margins have naturally meant low investments in plant and equipment, obsolete technology, poor and inconsistent quality and inability to deliver volumes⁷.

Domestic and Export Marketing - Emerging Trends

Recent years have seen some interesting changes in the domestic marketing scene. Some Indian brands, mainly localised and aimed at specific pockets of urban affluence, have existed for some years. But over the last 3-4 years several textile mills have taken advantage of marketing and distribution synergy to advertise and distribute their own brands of ready-made garments nationally⁸. Their success and the opening up of the Indian economy have encouraged a surge of entry of famous foreign brands, targetted at premium market

segments⁹. The foreign brands will be marketed by joint-venture companies formed with Indian partners (see Exhibit-6). Sales of branded ready-made garments are estimated at Rs.45 billion currently¹⁰, representing about a third of all garment sales by value (albeit much less by volume).

At the production level these changes should have a favourable impact. Some of these companies are setting up their own manufacturing facilities. Others will out-source their requirements, but will no doubt engage in constructive vendor development to ensure that different vendors are capable of meeting common volume and quality standards.

At the export end too, there are positive fall-outs. The large companies setting up own manufacture will be obliged to export a large part of their output. All tie-ups with foreign companies involve buy-back arrangements. Several Indian companies are now exporting their own brands of garments as this enables them to increase unit value realisation by internalising some of the value addition at the designing and marketing stages¹¹. This is a promising development, but is yet to gather strong momentum.

Supply of Cotton

India has a comparative advantage in cotton, arising from a vast area under cultivation, low farm wages and natural advantages in growing super-fine cotton. However, the "land-to-tiller" policy has left farm management almost entirely to farmers, leading to poor pre and post harvest technology and management. There are quality problems (e.g. high trash levels and lack of standardisation). Yield per hectare is one of the lowest in the world¹². Since cotton competes with dry crops (like groundnut and coarse grains) which are internationally uncompetitive, there is no incentive to improve productivity. The crop fluctuates widely from year to year, as low prices in a glut year is followed by large scale diversion of land to other crops. In a bad year prices become internationally uncompetitive. To stabilise prices, government operates a price support scheme and allows exports. But these measures have not been very effective, because the benefits accrue more to middlemen than farmers.

Supply of Man-made Fibres

India is uncompetitive in the manufacture of man-made fibres. Indian prices (without duty) are more than double of world prices. Since feedstock is largely imported, its price is

administered by government and kept at a high level. Another problem relates to high capital costs and low domestic demand. Indian plants are one-third to one-tenth the size of fibre plants in China, Korea and Thailand and even these are under-utilised. The market is dominated by a few suppliers who tend to restrict output and charge high prices. Reliance Industries however, have set up plants with global production scales and been able to produce fibres at internationally competitive prices, taking advantage of low labour costs in India¹³. However, the effect of this is yet to be reflected in prices prevailing in India.

Fabric Supply

Many of the problems at the stage of fabric manufacture seem to be policy-induced. Very large units were denied entry into spinning until 1991. On the otherhand, the economies of scale do not permit entry of very small units¹⁴. Consequently, this sector is dominated by medium-sized units.

In weaving, the handloom sector has always been given special privileges by way of reservation of certain products, assured yarn supply at subsidised rates, financial and marketing support, etc. However, by its very nature handloom operations can meet only certain low volume, speciality requirements and its share in total cloth production has been falling steadily (vide Exhibit-7). Until 1985, the mill sector was not allowed to expand. At the same time, labour laws forced them to carry excess manpower at high wage rates. Consequently, there has been extensive sickness in this sector. The vacuum has been filled by the powerloom sector which uses the same obsolete technology as most of the mill sector, pay one-third the wages and are able to lay off workers when there is no demand. One consequence is the emergence of medium-sized process houses to process the grey fabric produced by power-looms, as processing is a relatively capital-intensive business. Two kinds of problems have arisen. One is the poor state of technology¹⁵. Compared with other Asian Countries, India has the lowest proportion of her installed capacity in open-end rotors and shuttle-less looms (see Exhibit-8). The other is a multi-tier, highly fragmented production chain, which probably leads to excessive transaction costs. This impression is reinforced by the success of Reliance Industries which has integrated vertically as a matter of conscious policy¹⁶.

Since 1985 a number of mills have embarked on modernisation, but most of them are concentrating on exports which demand better quality and offer higher unit prices. The industry as a whole, however, is yet to undergo comprehensive restructuring, in the absence of a coherent exit policy for terminally sick mills.

Imported Inputs

Inputs for garment production (e.g. fabric, trimmings, embellishments, labels, tags, stickers, etc.) are on the negative list of imports. Imports of these are allowed (free of duty) for export production against an "advance" licence. But the lead time from ordering to delivery is about 90 days. There are delays at every stage, in obtaining a licence, in getting supplies, in getting customs clearance, etc. The cycle time from ordering to delivery for most other Asian exporters is 30 to 40 days.

POLICY IMPLICATIONS

Policy Issues

Policy should address itself to the following questions:

- 1) What kind of export marketing arrangements should we have?
- 2) How do we upgrade manufacturing technology?
- 3) How do we ensure that input supplies do not erode export competitiveness? In particular,
 - a) How do we maximise our natural advantage in cotton?
 - b) How do we overcome our competitive disadvantage in man-made fibres?
 - c) How do we create an efficient fabric manufacturing base?

Marketing Arrangements

The marketing arrangements should be capable of increasing volumes and at the same time pushing up unit value realisations. This will require a major entry into high-volume markets for standard products and internalisation of some of the value addition at the design and marketing stages. This, however, will not happen, unless large firms play a much bigger role in the export of garments.

One way of getting large firms involved in garment marketing in general and garment exports in particular is by creating a synergy between domestic and export markets. This can be done

by allowing large firms, Indian and foreign, free access to domestic markets, as long as they produce and/or source their supplies locally and export a part of their sales. The lure of the domestic market will persuade them to export. They will be able to use their designing, branding and distribution strengths to push high value exports. They will also be able to diversify their business risks.

This need not put the small merchant-exporters out of business. They can continue to concentrate on low-value, low-volume "niche" markets, while large exporters target "volume" markets for standard products.

There is need for greater co-operation and co-ordination between exporters, large and small, so that there is no cut-throat competition and unsustainably low prices. The state has to play an important role in ensuring this. The current approach is to fix minimum prices for quota exports. Clearly, this will not be enough in a quota-free world. Even now, this is not enough for non-quota exports. Government must play a more active co-ordinating role, like its counter-parts in East Asian countries.

A long term export policy cannot obviously be built around the quota system. However, we still have 10 years to go before it is dismantled. Until then, it should be made to work to our long term advantage. It is worth examining for example, if highest quota allocations should not be made to exporters who are able to get best prices for their exports.

Production Arrangements

Analysis of cross-country data on garment manufacture indicates the following:

- 1) Countries that have managed to keep labour productivity high and wage rates low have succeeded in enjoying high shares of world garment exports. Both factors are important (see Exhibit-9).
- 2) Not surprisingly, there is a strong positive relationship between labour productivity and capital-intensity of production (see Exhibit-10).
- 3) Capital-intensity increases not only labour productivity, but also total factor productivity (or overall efficiency of production, see Exhibit-11).
- 4) There is some, albeit weak, evidence that overall efficiency also increases with the size of the establishment (see Exhibit-11).

In view of the above, as well as their importance in the context of export marketing, large firms should not be denied entry at the production end also. They should be allowed to undertake garment manufacture, whether or not for exports. However, since our suggestion is that they should not be allowed to sell locally without some exports, there will be an export obligation unless they wish to produce for others. The large firm will thus have a choice between setting up own manufacture and creating backward linkages with small or medium-sized vendors. Either way, there will be an upgradation of technology.

Since low wages and freedom of exit are important sources of competitive advantage, the latter approach is likely to become quite popular. If the backward linkages are strong and effective, this approach could also become quite optimal by combining high labour productivity and low wages, the recipe for competitive success. Policy should encourage such arrangements. At the same time, it should ensure that the buyer-vendor arrangements work to the benefit of all, including India's exports. On one hand, the buyer should be able to enforce quality, delivery, volume and productivity standards, as agreed. On the other hand, the vendor should get financial, technical and managerial inputs and a fair return on his capital, including an investible surplus for upgradation and enhancement of production facilities.

Large versus small is an emotive subject in India. By advocating freedom of entry for large units, we are only keeping the door open for technology upgradation through self-manufacture, if necessary. But in the garment business where low and flexible wage bills are more important than economies of scale, outsourcing will probably become more common, leading to co-operation, rather than competition, between large and small firms.

Input Supplies

To be able to exploit India's comparative advantage in cotton fully, we should encourage contract farming in cotton, an arrangement which has worked quite well for some other commodities like tomato, cocoa and tobacco. Mills should be encouraged and enabled to contract for the purchase of cotton directly from farmers at guaranteed prices and provide technical know-how, farm inputs, quality control and finance to farmers. In return, the farmers should be put under obligation to sell their crop to the mills at the agreed prices. This will improve farming technology, land yield and farm incomes; stabilise prices and crops by removing

uncertainty about the future; and reduce middlemen's profits. The main problem in implementing such a scheme is resistance from vested interests and government, especially at the state level, has to play a vital role in breaking this resistance.

Analysis of cross-country data on fabric manufacture suggests three things. Labour productivity is strongly associated with capital-intensity of manufacture (see Exhibit-12). Increase in capital-intensity also increases total factor productivity (see Exhibit-13). There is also a positive association between the size of establishments and total factor productivity (i.e. economies of scale, see Exhibit-13).

The policy implications seem to be as follows. Given the poor state of technology of fabric manufacture in India, there is clearly an urgent need for an initial dose of capital inputs to clear the technological backlog. Both mills and powerlooms should benefit equally from an initial dose of capital inputs and technology upgradation. However, for mills this will not translate automatically into productivity gains and cost reduction unless there is manpower reduction through the formulation of a suitable "exit policy" and wage flexibility. The former may be a time-consuming process. On the other hand, technology upgradation in powerlooms could yield immediate benefits, in terms of both productivity and quality improvement. This will also minimise costs by combining productivity with low wages.

One way of modernising powerlooms would be to assist them directly, on an individual or a co-operative basis. Another approach could be to give incentives to large marketers of garments, whether or not engaged in garment manufacture, to establish constructive backward linkages with powerlooms and help them with finance, technical know-how, human resources development and assured markets for their output.

It is unlikely that India can become competitive in the production of man-made fibres in the near future, in view of high feedstock prices and uneconomic production scales. We need to correct this weakness if we wish to exploit the large world market for synthetic fibre based garments. Here the only feasible solution in the short term is to liberalise imports. Two questions arise: should imports be liberalised at the fibre or the fabric stage, and should imports be liberalised for all production, whether or not meant for exports. Since India has a potential competitive advantage in fabric manufacture, we should import fibres, rather than fabric. However, imported fibres should be made freely available, at low rates of duty, for all production. At the fibre stage there will be greater competition, leading to greater efficiency and lower costs. There will probably be

some shake out, but the surviving units will become more competitive. At the fabric stage, domestic markets will expand, more producers will "learn" how to make good synthetic fabrics and India will emerge as a competitive producer of such fabrics.

NOTES

- 1) The author thanks Conference Board, Canada, for funding the research for this paper. He is also indebted to Profs. N.S. Siddharthan and B.N. Goldar of Institute of Economic Growth, Delhi, for their valuable comments on an earlier draft.
- 2) For a fuller discussion, see Bibek Debroy, "Working out the Right Weave", Economic Times (Ahmedabad), 8 August 1994.
- 3) For detailed information on production aspects see Ila Kantilal, The Apparel Industry in India, NICTAS (Ahmedabad 1990), pp. 3-23.
- 4) See "Cutting the Coat According to the Market", Economic Times (Ahmedabad), 3 December 1994.
- 5) For a theoretical discussion of the price-raising effect of quotas, see D.B. Keesing and M. Wolf, Textile Quotas against Developing Countries, Thames Essay No.23, Trade Policy Research Institute (London 1980), pp.105-107.
- 6) For example, the Economic Times article of 3 December 1994 (op cit) talks about how exporters wanted Non-quota Entitlements raised at the expense of not Past Performance Entitlements but Manufacturer-exporter's Entitlements.
- 7) For a critical evaluation of the state of garment-making technology in India, see M. Radhakrishnan, In-depth Study of Indian Apparel Industry (Bombay Textile Research Institute 1988), 99 pages; and S.R. Khanna, "India's Export Apparel Industry," Textile Outlook International, 1988, No.8, July 8-28, 21 pages.
- 8) Some popular brands launched by mills are: Park Avenue (Raymond Woollen Mills), Trendz (Mafatlal Mills), Vivaldi (Bombay Dyeing), Classic (JCT), Flying Machine and Arrow (Arvind Mills). The earliest of these was Park Avenue. For a description of how the brand was launched, see Business India, May 11-24, 1992, pp.104.
- 9) For more information, see "On the Cutting Edge", India Today, May 15, 1994 (pp.125-139) and "Enter the Body Drapers", Business India, May 11-24, 1992, (pp.126-128).
- 10) India Today (op cit), p.125.
- 11) Some of the successful Indian brands in export markets and Zodiac (Zodiac Clothing Co.) Lerros and Tribe (Pearl Global), 3K (Ashoka Exports) and Bianca Maria (KBSH).

- 12) Yield per hectare in India is 250 kg., compared with 800 kg. in China, Russia and Mexico, 1450 kg. in Israel and 700 kg in the U.S.A. The world average is about 500 kg.
- 13) In end 1993, the European Community slapped an anti-dumping duty on Reliance Industry's staple fibre exports. An international firm of consultants estimates that Reliance's conversion costs for polyester yarn are \$403 per tonne, compared with \$762 in Europe, \$650 in the U.S. and \$575 in East Asia. For more details, see "Thinking Global, Acting Local", Economic Times (Ahmedabad), 12 August 1994.
- 14) The minimum economic size for a spinning unit is two blow room lines which have to be matched by 24,000 spindles.
- 15) For a critical review of the present state of technology in weaving and spinning, see S.R. Khanna (op cit) and M. Radhakrishnan (op cit).
- 16) Economic Times of 12 August 1994 (op cit) gives an account of Reliance Industry's integration strategy.

VIKRAM SARABHAI LIBRARY
INDIAN INSTITUTE OF MANAGEMENT
VASTRAPUR, AHMEDABAD-380015

Exhibit-1

Garment Exports: World and India

(Million U.S. \$)

	World	India	India's share (%)
1982	34,671	723	2.08
1983	35,085	694	1.98
1984	40,010	800	2.00
1985	42,579	880	2.07
1986	55,843	917	1.64
1987	71,665	1470	2.05
1988	77,137	1441	1.87
1989	91,845	1986	2.16
1990	109,006	2211	2.03
1991	120,758	2204	1.83
1992	133,828	2804	2.10

Notes:

1. Source: United Nations, International Trade Statistics Year Book (various issues).
2. Above figures relate to commodities falling under SITC code Nos.842, 843, 844, 845 and 846.
3. The figures for India are similar to, but not identical with, those published by the Apparels Export Promotion Council(AEPC), Government of India. AEPC's figures of India's exports in 1992 are:2883 including woollen knitwear and 2848 excluding woollen knitwear.

Exhibit-2

Share of Selected Asian Countries in World Exports of Garments

(Percentages)

	1992	1988
Hong Kong	14.03	14.07
China	11.33	7.84
Korea	3.87	8.89
Indonesia	2.31	1.02
India	2.10	1.87
Thailand	1.93	2.36
Malaysia	1.34	0.76
Singapore	1.31	1.59
Bangladesh	0.99	1.13
Sri Lanka	0.82	0.54
Pakistan	0.82	0.63
Philippines	0.60	0.55
Japan	0.39	0.69
Vietnam	0.26	0.03

Source: United Nations, International Trade Statistics
Year Book.

Exhibit-3**Pattern of India's Garment Exports**

	90/91	91/92	92/93	93/94
<u>Exports to Quota Countries as % of Total Exports</u>				
India	75.8	73.1	76.9	72.9
World	71.1	71.0	71.9	--
<u>Unit Value Realisation (India) (US \$ per piece)</u>				
Quota Items	4.55	3.98	4.31	4.24
Non-quota Items	3.41	2.83	2.78	3.38
<u>Fibre-wise Exports (%) (India)</u>				
Cotton	65.0	69.7	73.3	--
Synthetics	34.0	29.8	25.1	--
Woollens	1.0	0.5	1.6	--

Notes:

1. India's figures are from Apparel Export Promotion Council, Handbook of Export Statistics.
2. World figures are from United Nations, International Trade Statistics Yearbook.

Exhibit-4

**Production, Domestic Consumption and Exports of
Garments in India**

(Rs. Billion)

	Pvt. Cons. Exp. on clothing	Dom. Cons. of Garments	Export of Garments	Prodn. of Garments (b)+(c)=	Prodn. of Garments by regd. sector	(b) as % of (a)	(c) as % of (d)	(e) as % of (d)
	(a)	(b)	(c)	(d)	(e)	(a)	(d)	(d)
1980	102.2	10.2	-	-	-	10	-	-
1981	110.5	12.3	6.5	18.8	6.4	11	35	34
1982	125.8	15.8	6.3	22.1	7.5	13	29	34
1983	146.4	19.2	6.4	25.8	8.9	13	29	27
1984	162.0	21.0	8.5	29.5	8.4	13	29	29
1985	190.0	30.7	10.7	41.4	11.0	16	26	27
1986	211.9	34.7	13.2	47.9	11.9	16	28	25
1987	229.3	46.1	18.6	64.7	15.6	20	26	24
1988	262.7	52.9	21.5	74.4	18.8	20	29	25
1989	304.3	68.2	31.2	99.4	28.0	23	31	28
1990	337.0	81.4	43.8	125.2	32.0	24	35	25
1991	345.7	85.1	53.6	138.7	NA	25	38	NA
1992	363.3	92.6	79.5	172.1	NA	26	46	NA

Notes:

- Data on (a) are from Central Statistical Organisation, Government of India, National Accounts Statistics (various issues) and relate to fiscal years.
- Data on (b) are available upto 1987 from Government of India, Textile Committee, Market Research Division's reports on "Consumer Purchases of Textiles". Estimates for 1988 to 1992 have been obtained by regressing the 1980 to 1987 data of (b) against (a). The regression output is:

$$\ln(b) = -5.67 + 1.73 \times \ln(a)$$

$$r^2 = 0.99, \text{ "t" value of } \ln(a) \text{ coefficient} = 21.6.$$
- Data on (c) are from Apparel Export Promotion Council, Handbook of Export Statistics (various issues).
- Data on (d) are from Central Statistical Organisation, Government of India, Annual Survey of Industries (various issues) and relate to fiscal years.

Exhibit-6

**Typical
Cost and Price Build up of Garments exported
by India**

(Indices, Ex-factory price = 100)

1.	Fabric	55
2.	Other inputs	8
3.	Labour Costs	17
4.	Manufacturer's mark-up	20

5.	Ex-factory price	100
6.	Exporter's margin	50

7.	F.O.B. price	150
8.	Shipment costs (by air)	25
9.	Importer's margin and post-shipment financing and marketing charges	625

10.	Retail price in importing country	800
11.	Value added in India (3)+(4)+(6)	87
12.	Value added abroad (9)	625

13.	Total value added	712

Source: Trade Estimates

Exhibit-6

Some Major Apparel Tie-ups in India

Indian Company	International Company	Product Category	Estimated Project Size (in Rs.crore)
DCM	Benetton, Italy	knits and Casual Wear	35
KB&T	Marzotto, Italy	Mens Suits	50
(Own Subsidiary)	Levi Strauss (USSA)	Denim Apparel	Not known
Arvind Mills	VF Corp (Lee: USA)	Denim Apparel	15
Arvind Mills	Cluett Peabody (USA)	Shirts	15
Stencil	Devanlay/Lacoste	Knitwear	12
Mafatlal Group	La Peria (Italy)	Shirts, other apparel	15
Mafatlal Group	Schiesser (Germany)	Lingerie	12
Mafatlal Group	IGF Holdings (Italy)	Workwear	10
Niryat Exports	Samsung (Korea)	Men's Suits	20
Sh.E Exports	Samsung (Korea)	Men's Suits	20
Thapar Group	Triumph (Germany)	Lingerie	15
Gokaldas Images	Rifle (Italy)	Denim Apparel	10
(No Partner)	Capital Mercury (USA)	Shirts	12
Triveni Engineering	Esprit (USA)	Casual Wear	Not known
Raymonds	Marzotto (Italy)	Fabric, Classic Menswear	Not known
Spenta	Lonati (Italy)	Socks	8
VIL (Digjam)	Haggar (USA)	Classic Trousers	6
Mothercare	VF Corp (Healthtex)	Children's Garment	10
Mothercare	VF Corp (Vanity Fair)	Lingerie	Not known
Intercraft/Dalmia	MEXX (Netherlands)	Casual Apparel	Not known
Parasrampur Group	Not known	Household Text	60
Parasrampur Group	European Partner	Socks	10

Source : "On the Cutting Edge", India Today, May 15, 1994.

Exhibit-7**Production of Cloth in India**

		Share (%) of		
	Production (Billion Metres)	Mills	Powerlooms	Handlooms
85/86	12.5	27	47	26
86/87	13.0	25	48	27
87/88	13.0	23	50	27
88/89	20.0	14	66	20
89/90	20.6	13	68	19
90/91	22.9	11	70	19
91/92	22.6	11	71	18
92/93	25.0	8	71	21
93/94	25.9	8	71	21

Source: Government of India, Ministry of Textiles,
Annual Reports (various issues).

Exhibit-6

Comparative Installed Capacity, 1990

('000 nos.)

	Spindles	Open-end Rotors	Shuttle Looms	Shuttle-less Looms
China	38000	400	850	16
India	26647	67	57	6
Pakistan	5445	72	72	15
Indonesia	4500	60	120	140
South Korea	3648	38	30	55
Taiwan	3678	151	18	41

Source: Bibek Debroy, "Working Out the Right Weave", Economic Times (Ahmedabad), 8 August 1994.

Exhibit-9

Garment Exports: Determinants of Market Share

('000 US \$ p.a.)

	Wage Rate/ Employee (a)	Value added/ Employee (b)	Share of World Exports (%) (c)
Indonesia	0.61	1.87	2.31
Sri Lanka	0.51	2.07	0.82
Philippines	1.08	2.23	0.60
India	0.89	2.45	2.10
Thailand	1.54	3.81	1.93
Malaysia	2.38	4.31	1.34
Singapore	7.17	11.62	1.31
Korea	5.78	13.15	3.67
Australia	13.76	25.72	0.03
Japan	14.69	28.47	0.39
Sweden	16.08	28.49	0.24
Canada	16.23	29.77	0.28

Regression Outputs:

1. $(c) = 1.907 - 0.095 \times (a)$

$r^2 = 0.31$, "t" value of (a) coefficient = 2.12

2. $(c) = 1.58 - 0.861 \times (a) + 0.427 \times (b)$

$r^2 = 0.47$

"t" value of (a) coefficient = 1.84

"t" value of (b) coefficient = 1.65

Notes:

1. The data on wage rate/employee and value added /employee have been calculated from country-wise data relating to manufacture of "wearing apparel" for 1990, as appearing in United Nations, Industrial Statistics Yearbook, Volume-1: General Industrial Statistics. The value figures in domestic currency have been converted into US dollars by applying the relevant exchange rates.
2. The EEC countries have been omitted here because their market shares include intra-EEC trade and are protected.
3. Market shares are a function of a whole host of other factors like past market shares (which change only slowly over time), bilateral ties, etc. In view of this the r^2 of 0.47 in the second regression output is not bad.
4. For the second regression output, a "t"-value of 1.81 and above is significant at a confidence level of 95%.

Exhibit-10

**Garment Manufacture: Relationship between
Labour Productivity and Capital-intensity of Manufacture**

('000 U.S. \$)

	Value added per employee (a)	Capital stock per employee (b)
Indonesia	1.87	5.73
Sri Lanka	2.07	12.57
Philippines	2.23	7.21
India	2.45	9.45
Thailand	3.81	15.12
Malaysia	4.31	26.69
Chile	8.77	15.91
Singapore	11.62	74.73
Greece	13.13	20.16
Korea	13.15	72.69
Netherlands	21.17	64.35
Spain	23.04	74.21
U.K.	23.04	97.93
Australia	25.72	64.59
Italy	26.80	65.82
Japan	28.47	273.82
Sweden	28.49	93.16
Canada	29.77	125.03
Germany	41.39	217.36

Regression Output:

$$\text{Ln}(a) = -0.778 + 0.847 \times \text{Ln}(b)$$

$$r^2 = 0.85, \quad "t" \text{ value of } \text{Ln}(b) \text{ coefficient} = 9.65$$

Notes:

1. Data source are the same as for Exhibit-9.
2. Capital stock has been calculated by capitalising capital's share of value added. This has been done by using the prevailing long term bank lending rate in each country. The assumption is that the ratio of return on and cost of capital is the same in all countries.

Exhibit-11

Garment Manufacture: Association of Total Factor Productivity with Capital-intensity of Manufacture and Size of Establishment

	Capital/ employee ('000 US\$)	Capital's share value added (ratio)	Value added/ employee ('000 US\$)	Value added/ estab- lish- ment ('000 US\$)	Value added/employee- deviation from the mean					
	A	B	C	D	E = Ln(A/ \bar{A})	F = 0.5 $\times (B+\bar{B})$	G = Ln(D/ \bar{D})	H = Ln(C/ \bar{C})	I = E \times F	J = H-I
Indonesia	5.73	0.677	1.87	289	-2.522	0.585	-1.019	-2.170	-1.475	-0.695
Philippines	7.21	0.514	2.23	28	-2.293	0.504	-3.354	-1.994	-1.156	-0.838
India	9.45	0.636	2.45	143	-2.022	0.565	-1.723	-1.900	-1.142	-0.758
Sri Lanka	12.57	0.754	2.07	598	-1.737	0.624	-0.292	-2.068	-1.084	-0.984
Thailand	15.12	0.595	3.81	733	-1.552	0.544	-0.089	-1.458	-0.844	-0.614
Chile	15.91	0.695	8.77	1443	-1.501	0.594	0.589	-0.625	-0.252	0.267
Greece	20.16	0.352	13.13	442	-1.264	0.423	-0.595	-0.221	-0.535	0.314
Malaysia	26.69	0.449	4.31	862	-0.984	0.471	0.073	-1.335	-0.463	-0.872
Australia	64.59	0.465	25.72	657	-0.100	0.479	-0.154	0.451	-0.048	0.499
Italy	65.82	0.333	26.80	1495	-0.081	0.413	0.624	0.492	-0.033	0.525
Korea	72.69	0.560	13.15	477	0.018	0.527	-0.518	-0.220	0.009	-0.229
Spain	74.21	0.400	23.04	385	0.039	0.447	-0.733	0.341	0.017	0.324
Singapore	74.73	0.383	11.62	858	0.046	0.438	0.068	-0.343	0.020	-0.363
Netherlands	84.35	0.310	21.17	135	0.167	0.402	-1.781	0.257	0.067	0.190
Sweden	93.16	0.436	28.49	1043	0.266	0.465	0.264	0.554	0.124	0.430
U.k.	97.93	0.437	23.04	558	0.316	0.465	-0.362	0.341	0.147	0.194
Canada	125.03	0.455	29.77	1066	0.561	0.474	0.286	0.598	0.266	0.332
Germany	217.36	0.437	41.39	3406	1.114	0.465	1.447	0.927	0.518	0.409
Japan	273.82	0.484	28.47	572	1.344	0.489	-0.337	0.553	0.657	-0.104
Mean	71.40	0.493	16.38	801	0	0.493	0	0	0	0

Regression Output:

1. $J = 0.06 + 0.31 E$

$r^2 = 0.45$, "t" value of E coefficient = 3.71

2. $J = -0.01 + 0.24 G$

$r^2 = 0.22$, "t" value of G coefficient = 2.22

Notes:

1. Data sources are the same as for Exhibits 9 and 10.
2. A translog production function with constant returns to scale has been assumed to calculate total factor productivity figures.

Exhibit-12

Fabric Manufacture: Relationship between Labour Productivity and Capital-intensity of Manufacture

('000 U.S. \$)

	Value added per employee (a)	Capital stock per employee (b)
Australia	30.74	85.45
Canada	34.13	158.94
Germany	43.44	227.61
Indonesia	2.70	9.46
Italy	38.13	120.62
Japan	45.62	517.80
Malaysia	7.70	68.40
Philippines	2.11	5.90
Singapore	17.07	173.06
Spain	19.97	67.94
Sri Lanka	1.68	9.90
Sweden	41.36	182.73
Thailand	5.19	25.14
U.K.	23.75	106.27

Regression Output:

$$\ln(a) = -0.932 + 0.846 \times \ln(b)$$

$$r^2 = 0.88, \quad "t" \text{ value of } \ln(b) \text{ coefficient} = 9.61$$

Note:

Data sources and methods of calculation are the same as for garments, except that the data relate to "textile spinning, weaving, etc." for 1988.

Exhibit-13

Fabric Manufacture: Association of Total Factor Productivity with Capital-intensity of Manufacture and Size of Establishment

	Capital/ employee ('000 US\$)	Capital's share value added (ratio)	Value added/ employee ('000 US\$)	Value added/ estab- lish- ment ('000 US\$)	Value added/employee- deviation from the mean					
	A	B	C	D	E = $\frac{1}{n} \sum \ln(A_i/A)$	F = $\frac{1}{n} \sum \ln(B_i/B)$	G = $\frac{1}{n} \sum \ln(D_i/D)$	H = $\frac{1}{n} \sum \ln(C_i/C)$	I = E x F	J = H-I
Philippines	5.90	0.45	2.11	546	-3.009	0.51	-1.071	-2.380	-1.545	-0.235
Indonesia	9.46	0.77	2.70	413	-2.557	0.67	-1.351	-2.124	-1.713	-0.421
Sri Lanka	9.90	0.73	1.68	132	-2.511	0.65	-2.491	-2.598	-1.632	-0.976
Thailand	25.14	0.73	5.19	2339	-1.580	0.65	0.283	-1.480	-1.127	-0.453
Spain	67.94	0.42	19.97	461	-0.585	0.49	-1.241	-0.133	-0.237	0.154
Malaysia	68.40	0.64	7.70	1215	-0.579	0.60	-0.271	-1.186	-0.347	-0.739
Australia	85.45	0.51	30.74	1503	-0.356	0.54	-0.659	0.299	-0.152	0.491
U.K.	108.27	0.46	23.25	967	-0.178	0.51	-0.530	0.341	-0.170	0.111
Italy	120.62	0.43	38.13	2561	-0.974	0.47	0.512	0.514	-0.035	0.549
Canada	158.94	0.50	34.13	2109	0.265	0.53	0.280	0.403	0.140	0.263
Sweden	182.73	0.59	41.36	2258	0.404	0.58	0.348	0.595	0.224	0.261
Germany	227.61	0.44	43.44	5400	0.524	0.50	1.220	0.644	0.212	0.332
Japan	517.30	0.57	45.62	721	1.446	0.57	-0.793	0.592	0.824	-0.131
Mean	122.01	0.56	22.81	1594	0	0.56	0	0	0	0

Regression Outputs:

1. $J = 0.88 + 0.28 E$

$r^2 = 0.52$, t^* value of E coefficient = 3.47

2. $J = 0.04 + 0.35 G$

$r^2 = 0.43$, t^* value of G coefficient = 2.87.

Notes:

1. Data sources are the same as for Exhibit 12.
2. A translog production function with constant returns to scale has been assumed to calculate total factor productivity figures.

