ECONOMIC GROWTH CENTER

YALE UNIVERSITY

P.O. Box 208269
New Haven, Connecticut 06520-8269

CENTER DISCUSSION PAPER NO. 812

LIBERALIZATION AND STRUCTURAL CHANGE: EVIDENCE FROM NEPALESE MANUFACTURING

Kishor Sharma
Yale University and Charles Sturt University (Australia)

April 2000

Note: Center Discussion Papers are preliminary materials circulated to stimulate discussions and critical comments.

Liberalization and Structural Change: Evidence from Nepalese Manufacturing

Kishor Sharma

Charles Sturt University (Australia)

Abstract

The consequences of liberalization on structural changes are examined using data from manufacturing industry in Nepal which is classified as a least developed country. This is important because doubts that liberalization may not solve the problems of low-income developing countries remain strong due mainly to low supply elasticities and the early stage of industrialization. Results suggest some structural changes in manufacturing output and trade orientation. However, no significant improvements were recorded in the overall productivity growth and spatial distribution of manufacturing which appear to be due mainly to the lack of basic infrastructure and the shortage of skilled manpower. Thus, appropriate investment policies, which channel resources to improve human capital and infrastructure, appear to be essential if the potential benefits of liberalization are to be fully achieved.

Key Words: liberalization, import penetration, export intensity, total factor productivity growth, Nepal.

JEL Classification Codes: E13, F13, F14, F43, 041

---

* I am grateful to Professor T. N. Srinivasan for encouraging me in writing this paper. Needless to say all remaining errors are mine.

1 INTRODUCTION

Despite growing literature on the consequences of liberalization only a few studies have examined the impact on industrial structure.[1] These studies focus on the experience of middle income developing countries while studies on low-income developing countries or least developed countries (LDCs) are extremely limited. The experience of the former, however, cannot be generalized to the latter given the lower levels of human capital, physical infrastructure and R&D in LDCs. There is a view that if liberalization programs are introduced at the stage of development it will have a negative rather than positive impact on growth (Kawai, 1994, and Adelman and Morris, 1997). For example, deregulation of financial markets in LDCs may lead to higher interest rates making the cost of investment high. This might discourage new investment and the expansion of existing activities. Measures to control fiscal deficit might lead to a fall in government expenditure on infrastructure projects, further lowering supply elasticities (Stein, 1992).

Doubts have been expressed as to the effectiveness of liberalization in creating a competitive manufacturing sector in LDCs (Taylor 1981, Diaz Alejandro and Helleiner, 1982 and Rodrik, 1992a). First, these countries possess a low level of physical infrastructure, have a shortage of skilled labor and lack efficient institutions. Second, industrialization is in the early stage of development in LDCs and exports are dominated by processed primary products which are price and income inelastic.

[1] These include Yenturk-Coban (1992) for Turkey, Diehl (1995) for Vietnam, Aswicahyono et. al (1996) for Indonesia, Dijkstra (1996) for Nicaragua and Nordas (1996) for South Africa.

Thus, despite liberalization a strong manufacturing sector may not be developed at least in the short-run. Third, since second-hand markets in capital goods are not well developed in LDCs, less efficient sectors may not exit if they are cross subsidized by affiliates in other sectors. Thus, transfer of resources from less efficient to more efficient sectors may not take place and the benefits of liberalization can be easily eroded (Rodrik, 1992b).

In this paper we shed light on this debate by investigating the experience of manufacturing industry in Nepal which has pursued an outward oriented liberal development strategy since the mid 1980s.[2] More specifically, our aim in this paper is to examine what happens to output structure and trade orientation following liberalization?. Will there be any impact on manufacturing productivity?. Will spatial distribution of manufacturing activity change?.[3] We know of no study that examines these issues in the context of LDCs. The lack of clear evidence is not accidental. To examine the effects of liberalization one must make 'before and after' comparisons of a large number of industries using a long time series data. Sufficient data are rarely available for the appropriate countries at the appropriate times. Fortuitously, Nepal has an excellent data set at disaggreated level which allows us to investigate these issues.

---

2 Nepal is a LDC with the per capita income of US$210. Its economy is dominated by the agriculture sector which contributes over 50% to GDP and employs about 90% of the workforce. Manufacturing is in the early stage of development contributing less than 10% to GDP.

3 Liberalization also appears to have an impact on ownership structure, concentration ratio and the size of manufacturing industries. Unavailablity of data, however, does not permit us to examine these issues.

The paper is organised as follows. Following an introduction in section 1, the nature of the policy regime is discussed in section 2. Section 3 develops an analytical framework within which we attempt to conjecture the consequences of liberalization on industrial structure. The empirical findings are presented in section 4. The paper concludes in section 5 with policy recommendations.

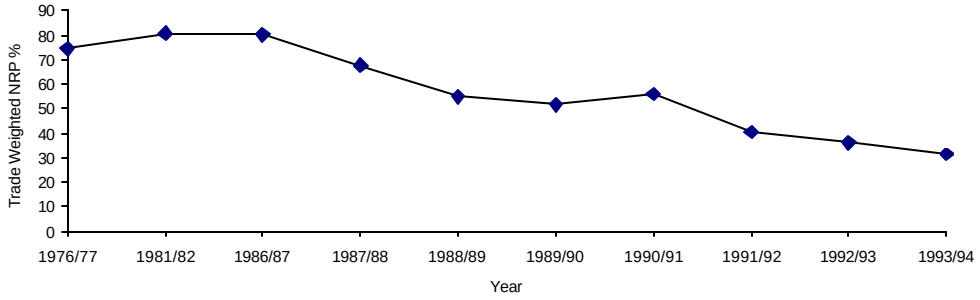
2 NATURE OF THE POLICY REGIME

The evolution of Nepal's trade and industrial policies have passed through three distinct phases during the post-war period, moving from a free trade regime (1923-56) to an increasingly closed, protectionist regime (1956-85) and then towards an open, liberal regime from 1985/86. During the protectionist regime industrial investment was regulated by means of a rigorous licensing system, domestic industries were protected from foreign competition in the forms of high tariffs and quantitative restrictions (QRs) and imports of intermediate inputs were subject to import licensing. Further, there were severe restrictions in the use of foreign exchange and the exchange rate was overvalued. These policy-led distortions created a bias against exports leading to a fall in international reserve, a rise in current account deficit and poor productivity performance in manufacturing by the mid 1980s.[4] Against this background liberalization reforms were introduced in 1985-86. However, due to its land-locked position and open border with India, Nepal pursued a gradual liberalization mainly by dismantling QRs and simplifying

[4] By the mid 1980s export was about 5% of real GDP, current account deficit had reached 4% of GDP, international reserve had fallen to about 1 month worth of imports and the manufacturing capacity was largely unutilized (about 23%). Further, the government's budget deficit had reached about 7% of GDP form less than 1% in the mid 1970s.

the industrial licensing regime.[5] Tariffs- including sales tax, excise duties and additional duties- were gradually reduced and dispersions in tariff rates were narrowed, especially from the late 1980s. Bias against exports was reduced through a real devaluation of the rupee and simplification of export procedures. Furthermore, a number of exportable items enjoyed preferential treatment under the generalized system of preferences (GSP) scheme. Trade weighted nominal rate of protection indicates a substantial fall in protection, from about 80% in the mid 1980s to about 40% by 1993-94 (Figure 1).

Figure 1: Trade weighted nominal protection[6]



Source: Estimated by the author based on data from the Department of Customs and Sales Tax, Kathmandu, Nepal.

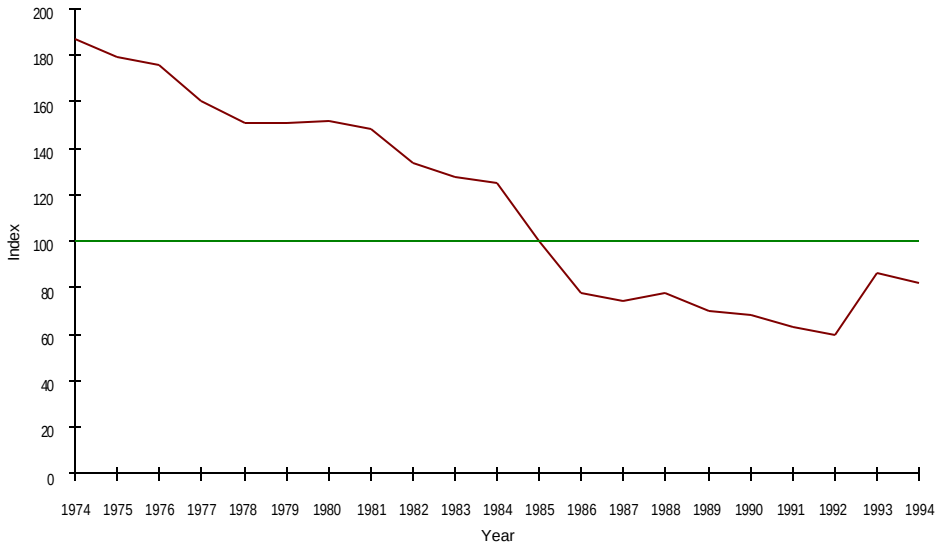
The industrial licensing regime and foreign investment procedures have been substantially liberalized since the mid 1980s.[7] Further, exchange rate has been made market-responsive and commercial banks are allowed to set their own interest rates. The

5 If trade and investment policies in Nepal were more liberal than those in India, massive smuggling would drain Nepal's foreign exchange reserve.

6 According to the Indo-Nepal trade agreements, imports from India are subject to a lower level of restrictions. They attract basic tariffs only, while imports from the rest of the world are taxed using the basic plus additional tariff. Thus, a single trade-weighted NRP is obtained using the trade share of India and the rest of the world. Note that due to the unavailability of the latest input output table we are unable to estimate the effective rate of protection.

real effective exchange rate (REER) index indicates a real devaluation of the Nepalese rupee from the mid 1980s, although there have been year to year fluctuations.[8] Figure 2 presents REER index during 1974 to 1994.

Figure 2: REER Index: 1974-94 (1985=100)



Source: Estimated by the author based on data from the IMF, 1993 and 1994.

Manufacturing sector responded positively to these reforms (Table 1). Its share in GDP rose from 4% in the pre-liberalization period (1980-81-1985-86) to about 7% in the post-liberalization period (1986-87-1993-94), while in the same period the share of

---

7 See Sharma (1999) for a comprehensive analysis of the nature of the policy regime in the past and recent changes.

8 The REER index is calculated using the following formula:

$$REER = \sum_i (RER - index)_i (W_i)$$

where, RER-index refers to the nominal exchange rate adjusted for domestic price changes and in the major trading partners and divided by the base year exchange rate. W_i refers to trade weights of major trading partners, which sum to 1. The following currencies are included in the REER estimates: Indian rupee, Japanese yen, US dollar, German mark, British pound and Singapore dollar.

manufacturing exports in total exports rose from about 36% to about 75%. Table 1 presents the performance of manufacturing since 1974-75.

Table1: Indicator of manufacturing performance: 1974-75 to 1993-94

Year	GDP (Rs Million)	Average annual growth in GDP	Value of Mfg. Output (Rs Million)	Average annual growth in Mfg. Output	Mfg. As a % of GDP	Mfg. Exports (Rs Million)	Mfg. Exports % of total Exports
1974-75	16571	-	664	-	4.0	139	15.6
1975-76	17300	4.0	686	3.3	4.0	127	11.0
1976-77	17822	3.0	759	10.6	4.2	157	13.1
1977-78	18607	4.4	749	-1.3	4.0	164	16.6
1978-79	19048	2.4	727	-2.9	3.8	241	21.6
1979-80	18606	-2.3	746	2.6	4.0	275	30.0
1980-81	20158	8.3	774	3.7	3.8	293	24.6
1981-82	20920	3.8	839	8.4	4.0	191	19.0
1982-83	20297	-3.0	878	4.6	4.3	242	35.5
1983-84	22262	9.7	1026	16.8	4.6	361	37.4
1984-85	23630	6.1	1063	3.6	4.5	642	42.8
1985-86	24645	4.3	1281	20.5	5.2	844	56.1
1986-87	26276	6.6	1607	25.4	5.2	722	55.8
1987-88	28802	9.6	1817	13.1	5.3	1038	63.1
1988-89	31914	10.8	1806	-0.6	4.9	1177	76.9
1989-90	34362	7.7	2052	13.6	4.9	1421	82.7
1990-91	36784	7.7	2500	21.8	5.4	1855	79.3
1991-92	37025	0.6	3276	31.0	8.8	2844	81.2
1992-93	39766	7.4	3517	7.3	8.9	3525	84.3
1993-94	43255	8.7	3902	10.9	9.0	3925	88.6
1974-75-1979-80		2.3	-	2.5	4.0	-	17.9
1980-81-1985-86		4.9	-	9.6	4.4	-	35.9
1986-87-1993-94		7.3	-	15.3	6.6	-	74.7

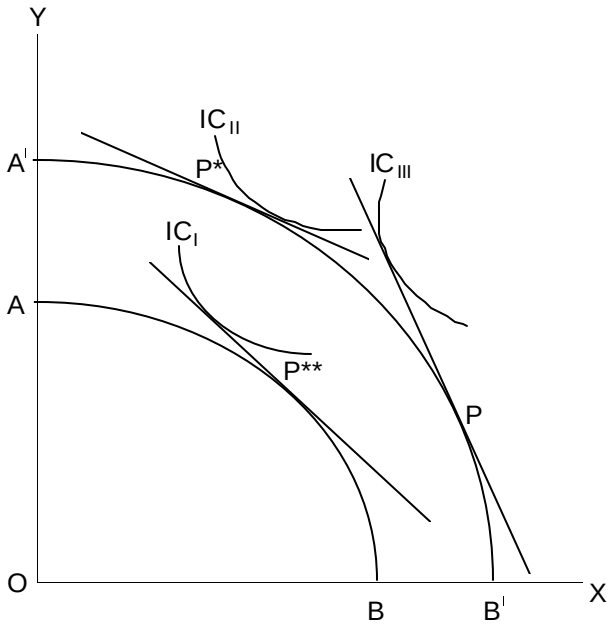
Note: The GDP deflator (1974-75=100) was used. Period growth rates are annual average.

Sources: GDP and manufacturing output data from the Ministry of Finance (1990-91 and 1994-95), export data from the NRB, various issues.

3 Analytical Framework

It is well known that protection distorts resource allocation by attracting resources away from productive sectors towards the rent-seeking and directly unproductive activities.[9] This results in the lower level of output and welfare than what could have been achieved in the absence of protection as shown in Figure 3.

Figure 3: Effects of protection on production and resource allocation



A'B' in the above figure is the production possibility curve of a country which shows the maximum limit of commodities X (exportable product) and Y (import substitution product) that can be produced in the absence of protection. Supposing that this nation enjoys a comparative advantage in commodity X.

[9] For excellent reviews see Little et. al (1970), Krueger (1987), Bhagwati and Srinivasan (1983 and 1988), and Srinivasan and Bhagwati (1999).

In the absence of protection the relative commodity price would be determined at P which determines the optimum level of production. At this point resources are efficiently utilized and the welfare is maximized.[10]

Now assume that tariffs and QRs are imposed on the imports of commodity Y and the tariff inclusive price is P*. Since commodity Y is protected from external competition, it attracts resources away from commodity X (exportable sector), leading to a fall in exportable output which is typically a labor intensive sector in developing countries. The decline in exportable output (commodity X) on the one hand, and the higher prices for the locally produced import substitution goods (commodity Y) on the other hand, result in the lower level of welfare as the nation now consumes at a lower indifference curve (i.e., IC_{II}). Frequently the more significant cost of protection is seen because of the loss of potential output either due to rent seeking behavior to receive preferential treatment or to the negative incentive effects which induce x-inefficiency. These effects can push the production possibility curve inward from A'B' to AB, leading to a further decline in welfare as the nation now consumes at the lowest indifference curve (i.e., IC_{I}). Protection also reduces efficiency by shielding domestic market from external competition, and restricting access to imported inputs and technologies (Srinivasan and Bhagwati, 1999). However, Rodrik (1992a, 1992b), argues that there are no reasons to believe that protection discourages productivity improvement. In fact it is import liberalization according to him that retards productivity growth by shrinking the domestic firm's sales and reducing incentives to invest in technological effort. Thus, whether liberalization

10 This is because by exchanging X for Y the nation ends up consuming at the highest indifference curve (i.e., IC_{III}).

really improves efficiency in LDCs is ambiguous and must be examined empirically. Bhagwati (1988:39) notes that:

> Although the arguments for the success of the export promotion strategy based on economies of scale and X-efficiency are plausible, empirical support for them is not available.

It has been argued that liberalization- by removing a bias against exports and allowing resource allocation in line with the nation's comparative advantage- increases exportable output and export intensity (Krueger, 1987 and Bhagwati, 1988). However, there is a view that due to low supply elasticities in LDCs liberalization may not improve export performance (Stein, 1992 and Mosley, 1993). Supply elasticities may be low due to infrastructure bottlenecks, shortage of skilled labor or the lack of efficient institution. In this context it is not clear whether liberalization really improves export intensity in LDCs. Likewise, the impact of liberalization on import penetration is ambiguous. If increased competition, and greater access to imported inputs and technologies make domestic industries competitive then the import penetration would fall, otherwise not. Thus, whether liberalization increases or reduces import penetration depends on the competitiveness of import competing sector.

There is no prior knowledge as to the effects of policy liberalization on spatial distribution of industries in LDCs. It can be argued that manufacturing industries in these countries are heavily concentrated in capital cities and/ or relatively developed regions due to better infrastructure facilities, relatively high purchasing power, adequate supply of skilled manpower and benefits of agglomeration. The tendency to locate in capital

cities is further aggravated by the restrictive policy which requires frequent contact with bureaucrats to secure import licenses. However, need to contact bureaucrats substantially reduces with the liberalization in policy environment which might motivate new firms to locate in other regional centers and cities. Since other regional centers might not have well-developed infrastructure and adequate supply of skilled manpower, new firms may still tend to locate in capital cites and/ or relatively developed regions despite policy reforms. Thus, the impact of liberalization on the spatial distribution is ambiguous and must be investigated empirically.

4 EMPIRICAL FINDINGS

In this section, based on the analytical framework discussed above, the consequences of liberalization on industrial structure in Nepal are examined. The main sources of data are the Manufacturing Censuses and the Annual Surveys of Manufacturing Establishments conducted by the Central Bureau of Statistics (CBS). These Censuses and Surveys report data on the value of production, number of people employed, intermediate inputs used, stock of fixed capital, depreciation and the wage bill for establishments employing ten or more people by regions. However, some adjustments were made in the data set because data were not available in the same classification for all the years. Manufacturing price index was used to deflate the data.

(a) ***Output Structure***

Until the mid 1980s manufacturing output was dominated by import substitution (IS) industries, while the output share of export-oriented (EO) industries was nominal.[11] This appears to be due to a bias in favor of IS industries during the restrictive trade regime. However, with the pursuit of an outward oriented policy there has been a change in the composition of manufacturing output. Output share of export-oriented industries has increased from 13% in the mid 1980s to 28% in 1993/94 while the output share of IS industries has fallen (from 87% to about 72%) in the same period (Table 2). Table 2 presents decomposition of manufacturing output according to the market orientation.

Table 2: Decomposition of manufacturing output according to the nature of market-orientation (% share): 1972-73 to1993-94

	1972 - 73	1976 - 77	1981 - 82	1986 - 87	1987 - 88	1988 - 89	1989 - 90	1990 - 91	1991 - 92	1993 - 94
IS Industries	96.26	99.40	93.78	87.10	86.04	82.48	80.11	75.10	66.90	71.70
EO Industries	3.74	0.60	6.22	12.89	13.96	17.52	19.89	24.90	33.10	28.30
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Author's calculation based on data from the CBS, various issues.

Decomposition of output according to the orientation of manufacturing indicates an increase in output share of the labor intensive sector from about 31% in the mid 1980s

[11] Following Nishimizu and Robinson (1984) industries are classified as either export-oriented industries which export more than 10% of total production, or import-substituting industries which import more than 10% of total domestic supply (ie, imports plus domestic production minus exports).

and to 41% by 1993/94 (Table 3).[12] This increase in output share of the labor intensive sector is attributed to a change in incentive structure that encouraged exports of carpets and garments which are labor intensive. Nepalese experience, hence, provides some support for the view that liberalization promotes labor intensive industries in LDCs and thereby increases income of the country's abundant factor.

Table 3: Manufacturing output by orientation % share: 1972/73-1993/94

	1972 -73	1976 -77	1981 -82	1986 -87	1987 -88	1988 -89	1989 -90	1990 -91	1991 -92	1993 -94
Resource intensive	85.19	88.5	82.30	51.51	51.34	45.36	44.53	45.52	42.58	41.31
Labor intensive	12.62	10.56	11.75	30.99	30.69	32.59	35.21	38.48	42.55	41.5
Specialised supplier	-	-	-	1.00	3.16	2.75	2.65	1.69	1.78	2.80
Scale intensive	2.19	0.77	5.21	15.72	14.08	18.71	16.70	13.65	12.44	14.06
Science based	-	0.17	0.23	0.78	0.74	0.59	0.91	0.66	0.65	0.33

Source: Author's calculation based on data from the CBS, various issues.

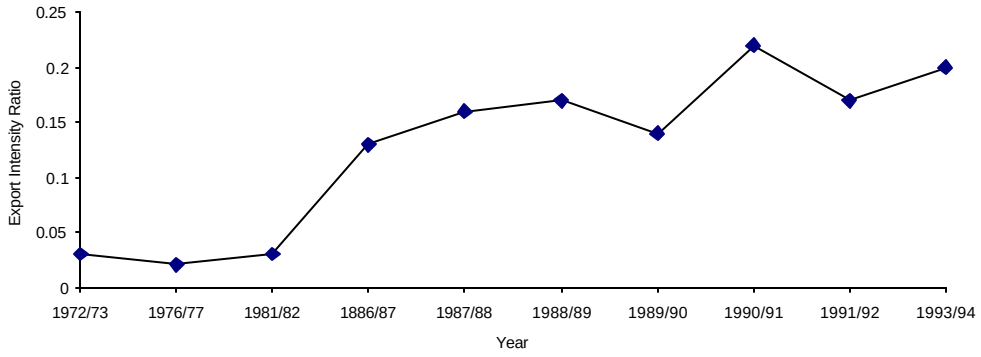
The resource intensive sector experienced a fall in output share after the policy liberalization due mainly to the removal of QRs in beverage and tobacco, and non-metallic mineral products. The scale intensive sector experienced impressive growth in output until the early 1980s, although its share has fallen in recent years. Output share of the science-based sector has been fluctuating, while a new sector producing specialised supplies has emerged following the liberalization in trade and investment policies.

[12] Industries are classified into resource intensive, labor intensive, specialised supplier, scale intensive and science-based industries using the OECD classification. Resource intensive industries include: food, beverages and tobacco, wood products, petroleum refining, non-metallic mineral products and non-ferrous metal. Labor intensive industries are: textiles, jute manufacturing, carpets, apparel and leather, metal products and other manufacturing. Specialised supplier industries include: non-electric machinery, electric machinery, communications equipment and semiconductors, while scale intensive industries are: paper and printing, chemicals excluding drugs, rubber and plastics, iron and steel, ship building, motor vehicles and other transport equipment. Science-based industries include: computers and office equipment, pharmaceutical and scientific instruments. See Nordas (1996).

(b) Trade Orientation

There has been a rise in export intensity and a fall in import penetration following the liberalization program. Export intensity, defined as the export to output ratio at 1992-93 constant prices, rose sharply in the post-liberalization period, providing some support for the notion that liberalization results in higher export intensity. As shown in Figure 3, the ratio increased from less than 0.05 by the early 1980s to about 0.20 by 1993-94.

Figure: 3 Export intensity of manufacturing: 1972-73 to1993-94



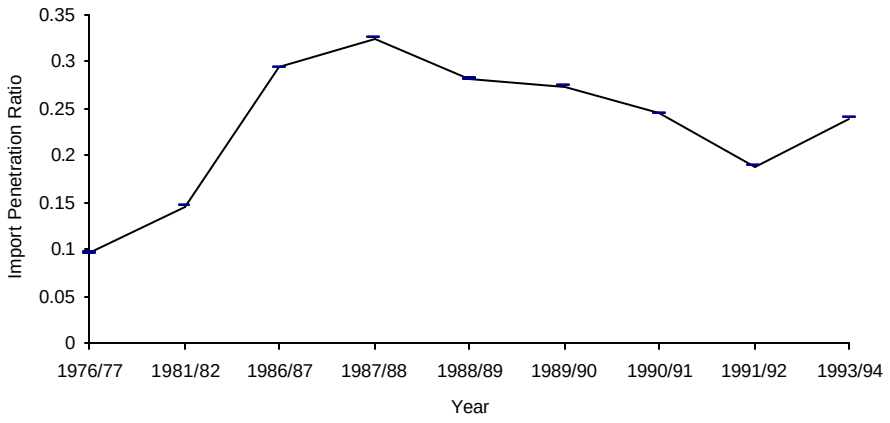
Sources: Author's calculation based on data from the CBS and NRB.

As discussed elsewhere (Sharma, 1999) within EO industries, export intensity is high in the carpet, readymade garments, jute products and leather sub-sectors. Since the mid 1980s their export intensity further increased. Note that higher export intensity in these sub-sectors is not so much due to low wages but appears to be due to the lucrative export incentives under the GSP scheme. It is interesting to note that despite a rise in export intensity in the post-liberalization period productivity growth in EO industries as a whole declined substantially (more about this in the next section). There has been a substantial

fall in export intensity in the carpet sub-sector from the early 1990s due mainly to the boycott of Nepalese carpets in the European and American markets on the grounds of use of child labor. Export intensity in jewellery rose sharply from the early 1990s contributed by the liberalization of silver imports and the simplification of export procedures.

With regard to import penetration, there has been a fall since 1988-89, although year to year figures show some fluctuations.[13] Figure 4 shows trends in import penetration.

Figure 4: Import penetration in manufacturing: 1976-77 to 1993-94



Source: Author's calculation based on data from the CBS and NRB.

There are two possible explanations for a fall in import penetration since 1988-89. First, liberalisation appears to have made import competing industries competitive due to

13 Import penetration of the *i th* industry in the *t* th year is defined as:

$$\frac{TM_{it}}{TQ_{it} + TM_{it} - TX_{it}}$$

where, TM ,TQ and TX refer to total value of imports, output and exports respectively (at constant 1992-93 prices).

increased access to imported intermediate inputs and technologies whose access were restricted earlier. As access to imported inputs and technologies increased manufacturing capacity utilization improved, leading to an improvement in competitiveness, measured as productivity growth, from -1.13% per annum in the pre-liberalization period to 6.21% p.a. in the post-liberalization period (more about this in the next section). Second, with the liberalization in India from the early 1990s incentives for smuggling of imported goods into India have been reduced, leading to a decline in imports of luxury goods for subsequent (illegal) exports to India.

The sectorwise analysis indicates a fall in import penetration in (i) textiles, (ii) radio and TV, (iii) electric appliances, (iv) structural metal, and (v) leather and leather products from the mid 1980s. With the exception of soft drinks, import penetration is minimal in the highly protected sectors (distilled products, beer, cigarettes, plastic products and soap).[14] There have been huge fluctuations in import penetration in the food producing sub-sectors, such as vegetable fats, canned fruits, confectionery and other food items, which appear to be due mainly to the fluctuations in domestic supply. While import penetration in carpets has fallen, it is substantially high in garments, probably due to increasing reliance on imports of lower quality garments for domestic consumption.

(c) Total Factor Productivity Growth

Total factor productivity (TFP) growth can be estimated either in value added terms or in gross output terms. There are serious conceptual problems against the former approach

[14] The table is not presented here but can be obtained from the author.

(see Nadiri, 1970, and Nishimizu and Robinson, 1984), hence in this study productivity growth is estimated using the latter approach in which intermediate inputs are treated as a separate factor input. This approach becomes important in the context of trade liberalization because the availability (or scarcity) of intermediate inputs does have a strong impact on sectoral productivity growth.

Following Gollop and Jorgenson (1980), TFP growth is defined using the Tornquist index number formula:

$$VT^{i} = \{InY_i(T) - InY_i(T-1)\} - \{\bar{VL}^{i}[InL_i(T) - InL_i(T-1)] + \bar{VK}^{i}[InK_i(T) - InK_i(T-1)] + \bar{VM}^{i}[InM_i(T) - InM_i(T-1)]\} \qquad \text{(Eq. 1)}$$

$$(i = 1, 2.....n)$$

where :

VT^{i} = total factor productivity growth in ith industry
Y_i = total output in ith industry
L_i = total labour input in ith industry
K_i = total capital input in ith industry
M_i = total intermediate inputs in ith industry
T = time

$\bar{VL}^{i}$ = average value share of labour in i th industry
$\bar{VM}^{i}$ = average value share of intermediate inputs in i th industry
$\bar{VK}^{i}$ = average value share of capital in i th industry
n = number of subsectors

Results indicate an absolute fall in overall productivity growth overtime but more in the pre- than in the post-liberalization period (-0.96% vs -0.41% per annum). The continued

fall in productivity growth indicates that liberalization alone does not guarantee higher productivity growth in a LDC like Nepal in the absence of efficient physical infrastructure and skilled labor. Table 4 presents growth in output, weighted factor inputs and TFP growth in the pre- and post-liberalization periods.

Table 4: Growth in output, weighted factor inputs and TFP in the pre-and post-liberalization periods

	Pre-liberalization (1972-73-1986-87)			Post-liberalization (1987-88-1993-94)		
	EO Industries	IS Industries	Total Mfg	EO Industries	IS Industries	Total Mfg
Output growth	12.23	0.68	1.72	16.98	8.99	10.83
Weighted material input	5.07	-0.012	0.05	11.86	0.92	7.09
Weighted capital Input	3.60	1.29	2.17	10.95	1.06	3.53
Weighted labor Input	0.11	0.53	0.46	0.12	0.80	0.62
TFP growth	3.45	-1.13	-0.96	-5.95	6.21	-0.41

Source: Estimated by the author based on data from the CBS, various years.

In the pre-liberalization period productivity growth was higher in EO industries but not in the post-liberalization period (Table 4). In the latter period productivity growth in EO industries declined from about 3% to -6 % per annum. This is attributed to higher export incentives under the GSP scheme which did put real pressure to improve efficiency. Shortage of skilled labor resulting from the boom in carpet and garment exports may also be a contributing factor.[15] In the post-liberalization period productivity performance of IS

15 With the liberalization in trade and investment policy carpet and garments dominated Nepal's exports. The number of firms engaged in these two industries increased from 244 in 1987-88 to 1,407 in 1991-92. Over 60% of these firms had migrated from India to take advantage of Nepal's GSP quotas. As a result, there was a rapid increase in the employment of female workers who did not have required skills. The number of female workers in carpet and garments industries increased from 10,988 in 1987-88 to 31,227 in 1991-92, but in the same period number of people trained in these two industries declined from 1,499 to 1,073. This appears to have lowered the average skill base of the work force, leading to poor productivity performance.

industries improved substantially from about -1% to 6% per annum which appears to be due to greater external competition, and increased access to better technologies and imported inputs. As access to imported intermediate inputs increased capacity utilisation improved, leading to productivity growth in these industries.[16] Among IS industries, productivity growth was higher in the least protected industries in the earlier period, with the exception of distillery and fruit canning, while lower in the highly protected industries. Productivity performance of the footwear industry which was privatized in the early 1990s improved substantially (7% annually), supporting the notion that privatization improves productivity performance (Appendix 1).

(d) Spatial Distribution

There has not been any change in the spatial distribution of manufacturing following the liberalization program. The tendency to locate in relatively developed regions continued even after the policy reforms. This is reflected in the rising value added share of the central development region- which is more developed than any other regions in Nepal. The value added shares of the eastern and western development regions- which are relatively less developed- have continuously fallen, while there has not been any rise in the value added share of the least developed mid-western and far-western development regions. It appears that liberalization has little influence on the spatial distribution of industries in a LDC like Nepal in the absence of adequate supply of skilled manpower and efficient infrastructure in the less developed regions. Table 5 reports spatial distribution of manufacturing industries during 1972-73 to 1993-94.

---

16 It should be noted that the level of manufacturing capacity utilization is still below 50% due

Table 5: Spatial distribution of manufacturing industries by region, % of value added: 1972-73 to 1993-94

Year	Eastern Dev. Region	Central Dev. Region	Western Dev. Region	Mid-Western Dev. Region	Far-Western Dev. Region
1972-73	28.36	48.26	18.50	2.02	2.78
1976-77	26.76	46.70	15.39	9.19	1.90
1981-82	26.09	49.30	16.38	3.77	4.40
1986-87	18.50	65.68	9.48	4.05	2.57
1987-88	19.65	67.15	7.00	2.72	3.47
1988-89	16.57	71.06	6.54	2.92	2.91
1989-90	15.53	73.11	6.54	2.71	2.08
1993-94	14.26	71.72	9.04	2.83	2.13

Source: Calculated by the author based on data from the CBS, various issues.

Concentration of manufacturing in the central development region has encouraged internal migration to the major cities, particularly Kathmandu and Birgunj, worsening urban congestion and pollution problems.

5 CONCLUSIONS

Despite low level of supply elasticites and an early stage of industrialization, liberalization appears to have some impact on industrial structure in a LDC like Nepal. The results indicate some structural changes in manufacturing output and trade orientation following the liberalization program but no significant improvements were recorded in productivity growth and spatial distribution of manufacturing. Export intensity rose significantly, despite poor productivity performance of export oriented industries in the post-liberalization period. This appears to be due to the lucrative export

mainly to the shortage of electricity supply.

incentives under the GSP scheme which did not put real pressure to improve efficiency. Shortage of skilled labor may also be a contributing factor. While export incentives may be an effective tool for export promotion in a LDC like Nepal, excessive incentive may have a negative effect on productivity performance. Thus, the nature and magnitude of incentives must be evaluated on a regularly basis to ensure the overall effectiveness of the incentive regime. Import penetration fell following liberalization which appears to be due mainly to an improvement in competitiveness in IS industries and a fall in imports for smuggling to India.

The impact of liberalization on the overall productivity growth has been nominal. Productivity had been declining prior to liberalization and this continued to be the case even after the liberalization. But a marginal improvement was detected in the latter period in that the rate of decline in productivity was controlled after the liberalization. There were no signs of improvements in spatial distribution of industries and the tendency to locate in relatively developed region(s) continued even after the policy liberalization. It appears that liberalization alone, in the absence of better physical infrastructure and adequate supply of skilled workers, fail to encourage manufacturing in the less developed regions and improve productivity growth significantly.

Appendix 1: TFP Growth in the pre- and post-liberalization periods by industry

	TFP growth in pre-liberalization period (%)	TFP growth in post-liberalization period (%)	Improvement (+) or Fall (-) in TFP growth
Dairy Products	2.2	0.5	-
Canning/preserving Fruits	-24.1	7.0	+
Vegetable Fats	-2.9	7.5	+
Grain Mill Products	-1.1	2.7	+
Bakery Products	-0.5	1.6	+
Sugar	0.1	-0.2	-
Cocoa & Confectionery	2.2	-1.4	-
Mfg. of Food Products, nec	5.5	5.4	-
Animal feeds	-3.6	-1.6	+
Distilleries	0.3	4.9	+
Beer	na	2.3	na
Soft Drinks	na	-3.9	na
Bidi Manufacturing	-0.8	0.3	+
Cigarette Manufacturing	na	0.6	na
Tobacco Manufacturing	na	-3.0	na
Spinning/Weaving & Textile	1.1	-0.1	-
Non-wearing Textile	na	-1.5	na
Knitting Mills	-0.1	3.8	+
Carpet & Rugs	3.8	-5.1	-
Jute Manufacturing	1.5	-5.3	-
Wearing Apparel. Except Footwear	11.3	-4.3	-
Leather & Leather Products	na	2.1	na
Footwear Manufacturing	0.3	7.1	+
Saw Mills	0.0	11.1	+
Wood Cork Pro., nec	na	7.8	na
Wooden Furniture	-4.6	-1.6	+
Paper & Paper Products	1.7	7.8	+
Printing	-2.7	-0.1	+
Drug & Medicine	-6.2	0.8	+
Soap	6.7	-4.8	-
Chemical Products, nec	3.8	-9.6	-
Rubber Products	-4.7	1.1	+
Plastic Products	2.5	0.2	-
Structural Clay	-3.2	2.3	+
Cement	11.3	-4.8	-
Non-metallic Mineral Pro.	na	7.8	na
Iron & Steel	3.0	1.7	-
Metallic Furniture	-2.5	-6.0	-
Structural Metal Products	na	-3.8	na
Non-mach. Fabricated Metal	0.2	0.8	+
Radio & TV	na	7.2	na
Electric Apparatus	na	6.2	na
Jewellery	-9.4	5.0	+
Other Manufacturing, nec	-5.3	-2.1	+
Total Manufacturing	-1.0	-0.4	+

Source: Sharma (1999) na = not available

References

Adelman, I. and Morris, C. T. (1997), "Development History and Its Implications for Development Theory", *World Development*, 25, pp. 831-840.

Aswicahyono, H. H., Bird, K. and Hill, H. (1996), "What Happens to Industrial Structure When Countries Liberalise? Indonesia since the Mid 1980s", *Journal of Development Studies*, 32, pp. 340-363.

Bhagwati, J. N. (1988), "Export-Promoting Trade Strategy: Issues and Evidence", *World Bank Research Observer*, 3 (1), pp. 27-58.

Bhagwati, J. and T. N. Srinivasan (1983), "Trade Policy and Development" in R. Dornbush and J. A. Frenkel (eds.), *International Economic Policy Theory and Evidence*, Baltimore: John Hopkins University Press.

Bhagwati, J. and T. N. Srinivasan (1988), "Revenue Seeking: A Generalisation of Theory of Tariff", *Journal of Political Economy*, 88, pp. 1069-1087.

Central Bureau of Statistics (CBS), *Census and Annual survey of Manufacturing Establishments*, various issues, Kathmandu, Nepal.

Diaz-Alejandro, C. and Helleiner, G. (1982), *Handmaiden in Dress*, Washington, D. C.: Overseas Development Council.

Diehl, M. (1995) Structural Change in the Economic Transformation Process: Vietnam 1986-93, *Economic System*, 19, pp.147-182.

Dijck, P. (1990), "Transforming the Trade and Industrialisation Regime in Developing Countries", in M. P. Van Dijck and H. Secher Marcussen (eds.), *Industrialisation in the third World: The Need for Alternative Strategies*, London: Frank Cass.

Dijkstra, A. G. (1996), "The Impact of Structural Adjustment Programs on Manufacturing: Lessons from Nicaragua", *World Development*, 24, pp. 535-547.

Gollop, F. M. and Jorgenson, D. W. (1980), "U.S. Productivity Growth by Industry 1947-73", in J. W. Kendrick and B. N. Vaccara (eds.), *New Development in Productivity Measurement and Analysis*, Chicago: Chicago University Press.

International Monetary Fund (IMF), *International Financial Statistics*, Washington D.C., various issues.

Kawai, H. (1994), "International Comparative Analysis of Economic Growth: Trade Liberalisation and Productivity Growth", *Developing Economies*, 32, pp. 373-397.

Krueger, A. O. (1987), *Foreign Trade Regime and Economic Development: Liberalisation Attempts and Consequence*, Cambridge: Ballinger Publishing.

Little, I., Scitovsky, T. and Scott, M. (1970), *Industry and Trade in Some Developing Countries A comparative Study*, London: Oxford University Press.

Ministry of Finance, *Economic Survey*, various issues, Kathmandu, Nepal.

Mosley, P. (1993), "Structural Adjustment: A General Overview, 1980-89", in V. N. Balasubramanyam and Sanjaya Lall (eds.), *Current Issues in Development Economics*, London: Macmillan.

Nepal Rastra Bank (NRB), *Quarterly Economic Bulletin*, various issues, Kathmandu, Nepal.

Nishimizu, M. and Robinson, S. (1984), "Trade Policies and Productivity Change in Semi-industrialized Countries", *Journal of Development Economics*, 16, pp. 177-210.

Nordas, H. K. (1996) "South African Industries-Catching up or Falling Behind?", *Journal of Development Studies*, 32, pp. 715-733.

Rodrik, D. (1992 a), "The Limits of Trade Policy Reform in Developing Countries", *Journal of Economic Perspectives*, 6, pp. 87-105.

Rodrik, D. (1992 b), "Closing the Technology Gap: Does Trade Liberalisation Really Help?" in G. K. Helleiner (ed.), *Trade Policy, Industrialisation and Development: New Perspectives* , Oxford: Claredon Press.

Rodrik, D. (1992c), "Conceptual Issues in the Design of Trade Policy for Industrialisation", *World Development*, 20, pp. 309-319.

Sharma, K. (1999), *Trade Liberalisation and Manufacturing Performance in Developing Countries: New Evidence from Nepal*, New York: NOVA Science publishers.

Sharma, K., S. Jayasuriya and E. Oczkowski (2000), "Trade Liberalization and Productivity Growth in Nepalese Manufacturing Industries", *Oxford Development Studies* (forthcoming).

Srinivasan, T. N. and J. Bhagwati (1999) *Outward-orientation and Development: Are Revisionists Right?*, Economic Growth Centre, Yale University, Discussion Paper No. 806.

Stein, H. (1992), "Deindustrialisation, Adjustment, the World Bank and the IMF in Africa", *World Development*, 20, pp. 83-95.

Taylor, L. J. (1981), "IS-LM in the Tropics: Diagrammatic of the New Structuralist Macrocritique", in W. R. King and S. Weintraub (eds.), *Economic Stabilisation in Developing Countries*, Washington D. C.: Brooking Institution.

Yenturk-Coban, N. (1992), "Industrial strategies, foreign trade regimes and structural change in Turkey 1980-88", in Jean-Marc Fontaine (ed.), *Foreign trade reforms and development strategy*, London: Routledge.