TAPMI

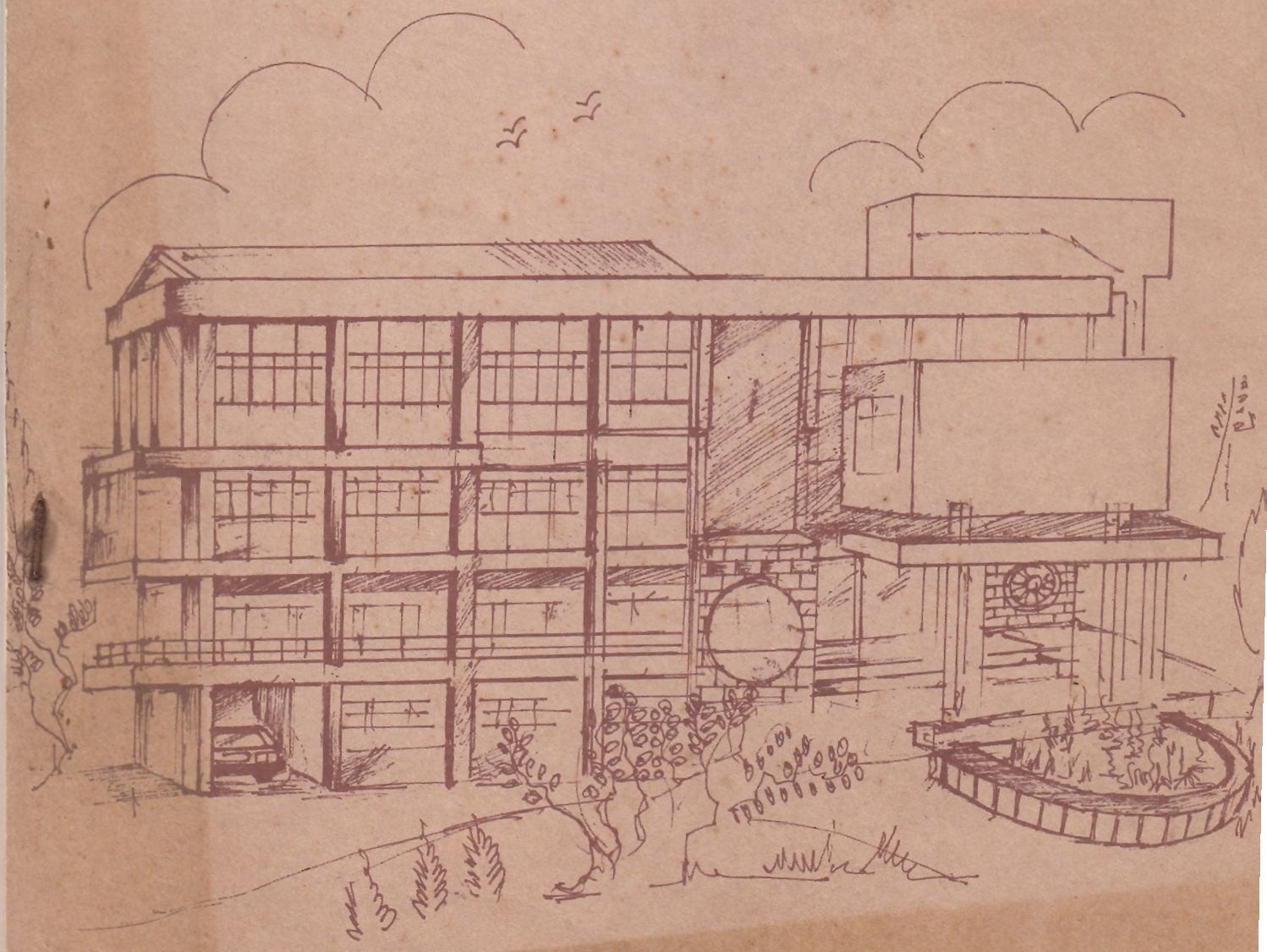
Working Paper Series

No. 1

EXCHANGE RATE POLICY AND INDIA'S EXPORTS IN THE 1980s - SOME EMPIRICAL EVIDENCE

By

GANESH KUMAR N.
Faculty Member



EXCHANGE RATE POLICY AND INDIA'S EXPORTS IN THE 1980s - SOME EMPIRICAL EVIDENCE

By

GANESH KUMAR N.
Faculty Member

TAPMI WORKING PAPER SERIES NO.1
September 1993

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

T.A.PAI MANAGEMENT INSTITUTE
MANIPAL -576 119

EXCHANGE RATE POLICY AND INDIA'S EXPORTS IN THE 1980s - SOME EMPIRICAL EVIDENCE

by

Ganesh Kumar N.
Fellow (IIM-A)

Faculty Member,
T.A.Pai Management Institute

ABSTRACT

This study aimed at finding out the effectiveness of exchange rate policies on India's exports during the period 1980-81 to 1988-89. We have used data relating to 35 export commodity groups at two-digit level of disaggregation to compute the 'price competitiveness factor' of India's exports. The findings of the study revealed that the exports did respond to the changes in price competitiveness factor. After 1986-87, the price competitiveness factor started improving at a fast pace in response to steeper depreciation of the rupee and so did the overall exports in real terms.

ange

EXCHANGE RATE POLICY AND INDIA'S EXPORTS IN THE 1980s -SOME EMPIRICAL EVIDENCE

By

Ganesh Kumar N.*

Export performance of a country depends on price and non-price factors. Price is likely to be the most important factor in determining the competitiveness of exports of developing countries because of the nature of the products (non-differentiated) and competition from other developing countries in such products in the global markets. Price competitiveness arises out of the competitive advantages of countries which may be due to cheap labour, abundant natural resources, superior technology of production etc. However, there is another important aspect which determines the price competitiveness of exports viz. the exchange rate. The question then is, whether exchange rate can be used as a policy tool to give a boost to the exports.

When the exchange rate is freely determined by the market forces under free trade, the question of using exchange rate as policy to promote exports does not arise. But if a country is following fixed exchange rate regime and there are restrictions on trade, the exchange rate may not reflect the 'realistic' value[1] of the domestic currency. The degree of distortion depends on the degree of intervention in trade and foreign exchange markets. The developing countries have tried to maintain their currency at values which are higher than realistic values due to various

---

*Faculty member at T.A.Pai Management Institute, Manipal.

[1] This term implies a value which is closer to the equilibrium exchange rate under a free trade regime.

reasons. These aspects are outside the scope of this study. If domestic currency is overvalued the exports are likely to suffer. During the 1980s, many developing countries faced severe problem on the Balance of Payments (BoP) front on account of low growth of exports. One of the major components of the IMF funded economic reforms programmes to correct these imbalances is devaluation of the currency and establishing a more realistic exchange rate. There are many economists who have questioned the use of exchange rate (ER) policy as a measure to correct the BoP problems.

Exchange Rate Policy of India

Export sector started gaining importance in the economy since the early 1970s when it was felt that unless measures are taken to boost exports India will continuously run into BoP problems. As far as the means adopted to achieve this objective go, it has been essentially through subsidies and other non-exchange related policies. However in the 1980s, particularly after 1985, the government has taken recourse to ER policies to give fillip to the external sector (Graph-1). Despite these efforts, exports as a proportion to GDP stood at 6.2 per cent for 1990-91 (CMIE, 1992). The new government at the Centre initiated far reaching economic reforms since July 1991, which included movement away from the regime of fixed and unrealistic exchange rate to more flexible exchange rate regime. It all began by devaluing the currency in two steps during July 1991, following it up with partial rupee convertibility in 1992-93 budget and, subsequently making rupee fully convertible in the 1993-94 budget. Perhaps, the government was guided by the experience of the 1980s in its decision to move to a regime of fully floating rupee. It is necessary to ascertain

whether the experiment of the 1980s in terms of steeper rupee depreciation against major currencies has really helped in giving a boost to the exports.

Effect of Rupee Depreciation on Exports: A Micro-View

How does rupee devaluation influence exports? This question is examined from the view point of a firm. An exporter's decision to sell in the foreign markets depends on two factors: i) whether his price is competitive in the US markets when compared to the competitors, and ii) the relative profitability of selling in the domestic market vis-vis the foreign markets. These are determined by the price of product in the international market and the exchange rate of the Indian rupee vis-a-vis the foreign currencies.

To understand the mechanics from a firm's point of view, we take the case of a leather article (say, hand bag) exporter to the US market. In the illustration that follows, we compare the price competitiveness of an Indian exporter of this product over the period 1980 to 1993. In the table below we give the mechanics of price competitiveness under different exchange rate regimes. In this process we have made use of some assumptions which are close to reality. The major assumptions made here are: i)the dollar price of the product in the U.S. market increased at the rate of 2% p.a. during 1990-1993; ii)the domestic price of the product increased at the rate of 7% p.a throughout the period 1980-1 to 1990-91 (the average inflation rate for the period), at 13% for 1991-92, at 9% for 1992-93 and likely to increase at 6% during 1993-94.

Table : Mechanics of Price Competitiveness Under Different Exchange Rate Regimes

Year (1)	Domestic price Rs. (2)	Exchange rate (Rs./US $) (3)	Dollar equivalent of domestic price (4) = (2)/(3)	Competitor's price (price in US market (5)
1980-81	80	7.91	10.11	6.00
1990-91	157	17.94	8.75	7.31
1991-92	178	24.47	7.27	7.46
1992-93	194	28.40	6.83	7.61
1993-94	205	31.30	6.55	7.66

Note:

1. Exchange rate of rupee for the years 1980-81, 1990-91 and 1991-92 were obtained from CMIE, Basic Statistics Relating to Indian Economy, Aug.,1993. The exchange rate for 1992 is weighted average of open market rate (Rs.30.0/$) and official exchange rate (Rs.26/$).
2. Exchange rate for 1993-94 is assumed to be Rs.31.3/$.
3. For the year 1992, Official exchange rate = 26.0 and Market exchange rate = Rs.30.0/$.

The dollar equivalent of domestic price which was higher ($10.11) than the price in the US market ($6) in 1980-81, became lower ($7.27) than international price ($7.46) during 1991-92. The price competitiveness has further improved during 1992-93 and 1993-94. From the above illustration it becomes evident that, the product which was not competitive till 1990-91 has become competitive thereafter. There is an incentive for the exporter to sell in the U.S. market now. He will earn more rupees per item sold in the U.S market than the domestic market if he is able to sell at a price which is greater than dollar equivalent of domestic price.

The above example is based on arbitrarily chosen domestic and

international prices. If the initial (1980-81) gap between dollar equivalent and international prices is smaller than the one we have chosen, price competitiveness would be attained even before 1991-92.

However, it appears that if exports have to respond in a big way, the price competitiveness has to be attained simultaneously in many products. When competitiveness improves marginally due to steady small incremental depreciation of rupee, only a few products will become competitive in the global market. Substantial improvement in price competitiveness will not come by steady incremental dose of devaluation. Improvement in competitiveness is unlikely to be achieved by cost reductions overnight, that too in several products together[2]. Thus the only alternative is to correct the imbalance in exchange rate in one go or through series of cautious corrections at short intervals as was done by Government since July 1991. When many products become competitive, stability in overall exports will also be attained because export basket will become more diversified.

Objective of the Study

This paper aims at exploring whether Indian experience of the 1980s lends credence to the view that exchange rate influences exports.

Scope of the Study

The study pertains to the period 1980/81 to 1988/89. This period

---

[2] There is also the question as to why would a producer go in for such improvements if there is no pressure to reduce costs and the domestic market is able to absorb the product at higher price in a sheltered environment.

was chosen because of the following considerations - a) data relating to quantum index at two-digit level is not available for all the 35 commodity groups selected for the period before 1980/81, b) the base year has been changed to 1979/80 from the earlier base period of 1970/71. Hence for whatever groups data relating to quantum indices are available for the earlier period, it is not comparable with the more recent period because of changes in the composition of the basket c) the ER policy has really been effectively used only during the 1980s, d)Data relating to export indices were not available for the years subsequent to 1988/89 at the time this research was carried out.

It may be noted that this period is devoid of any major external shock as far as Indian economy is concerned. The second oil shock had been over and gulf war broke out in 1990. Thus it provides ideal data set to examine the effect of price competitiveness on exports. However, the period chosen resulted in a major constraint that the number of observations (n=9) is too small for robust conclusions. Thus the results can only be considered broadly indicative and not conclusive.

Methodology and Database

The standard function for exports [see for example, Dornbusch and Fischer (1987, pp.187-192)] is as follows:

$X = f(R, Y_f)$

[X =exports, R = Effective Exchange Rate and Y_f = foreign income].

As mentioned earlier, the number of observations is small and hence econometric techniques may not help us to arrive at sound

conclusions. Further more, in estimating the export demand functio for exports one can not ignore the export supply function. I export demand function is estimated using the observed quantity an price over a time period in isolation from the export supply function it can result in identification problems. But a simultaneous equation system will further reduce the degrees of freedom to meaningless levels in our case. Thus we do not want to venture into any exercise of estimating the export demand functions here. Hence we only examine the whether India's exports are responsive to changes in price factors from simple tabular and graphical analysis of trends and growth rates of the exports and changes in ERs.

The problem with analysing the price responsiveness only through aggregate data on exports and exchange rates is that i) We ignore the differences between the various categories of exports. It is possible that the primary exports behave differently when compared to manufactured exports and, ii) The real exchange rates take into account only the overall inflation in the economy. It is a fact that only a small proportion of total commodities produced are traded in the international market (exports constitute only 6.2 % of GNP). It is possible, due to various reasons, that the price of some export commodities may increase at a much faster rate than others. The exporters will not sell these products at a price below their cost in the international markets lest they should make losses. This high price will adversely affect the exports of such commodities.

What we have done is to compute the 'price competitiveness factor'

(PCF) of India's exports at two-digit level to gain insights into the effectiveness of India's ER policy during 1980s. There exist 35 commodity groups at two-digit level for which data relating to quantum and unit value indices are available on a consistent basis for the period 1980-81 to 1988-89. The PCF is defined as follows:

$$(1) \quad PCF_i = \frac{P_w}{PX_i} * XNEER$$

Where, PCF_i is the price competitiveness factor of commodity group i, P_w = unit value index of total world imports; PX_i is the unit value index of export of i^{th} commodity group, XNEER is the export-weighted nominal effective exchange rate.[3]

An increase in PCF implies that our exports have become more competitive and it is likely to lead to an improvement in the export performance. A worsening PCF will lead to poor export performance. Ideally, in equation (1) above one would have liked to use import price of the corresponding product category in the world market. However, such data which matches India's classification is difficult to get. To that extent equation (1) may not be the true reflection of the real competitiveness.

The data relating to the export-weighted nominal exchange rate and the unit value index of world imports are for the calendar year and that of index of exports is on a financial year basis. This in a way helps to take into account the lagged response of exports to

---

[3]Data sources for the variables used in the study are explained at the end of the text.

exchange rate changes[4]. For example, the exports of 1986-87 financial year will be compared with the exchange rate of calendar year 1986. This in effect implies that we are trying to find out the response of exports to ER changes with a lag of 1 quarter.

Results and Discussion

The data reported in Table-1 gives us some clue to as to how the exports have behaved during the 1980s. What we are interested in here is the exports in real terms (quantum index). The quantum of exports was growing at slow rate during the early 1980s, the lowest growth rate was -7.9 % during 1985-86. Since 1986-87, growth rate picked up to over 8 % p.a. If we look at the data on real effective exchange rate (REER) (Table-2, Graph-1), we find that during 1986-87 to 1988-89, the REER has increased at a faster rate, when compared to the earlier period. Though the annual percentage change in REER during 1983-84 was negative (Table-2) which corresponds with the negative growth of quantum of exports (Table-1), there is nothing in the data in Table-2 to suggest that the large negative growth of exports (both in quantum and rupee terms) during 1985-86 was due to lack of price competitiveness of India's exports. This brings us to the question of price competitiveness of india's exports at a more desegregated level.

In Table-3 we report the PCFs of India's exports, measured as per equation (1) of the previous section, at 2-digit level of disaggregation for the period 1980-81 to 1988-89. In all, there are 35 commodity groups. The commodities 1 to 18 are primary products

---

[4] The famous J-curve hypothesis regarding the response of balance of trade to devaluation of currency suggests that exports typically take time to respond to changes in exchange rates.

and 19 to 35 are manufactured products. The PCFs are pictorially shown in Graphs 2 through 7 for better analysis. What is clear from the graphs is the following : The years 1983-84 to 1985-86 are the years during which the PCFs had been the lowest for most of the commodity groups. We present the year-wise frequency of minimum PCFs in Table-4. Out of the total 35 commodity groups, 28 had their least PCFs during the three year period 1983-84 to 1985-86; 14 were in 1985-86 alone. And, out of the 17 manufactured product groups, 14 had their lowest PCFs during 1983-84 to 1985-86, with 9 groups showing the least PCF in 1985-86 alone. This finding is particularly assumes importance because the share of manufactured exports has always been over 50 % during the period and was about 59 % during 1985-86 (see Table-4). The PCFs have considerably improved for most of the products after 1986-87 as indicated by Graphs 2-7.

Thus it is fairly clear that India lost its price competitiveness considerably during the period 1983-4 to 1985-86. The deterioration started in the year 1983-84 and became the worst during 1985-86. Among the manufactured exports which constituted about 59% (1985-86) of total exports, most had their least PCF during 1985-86. No wonder then that the year 1985-86 showed the lowest annual growth rate (-7.9 % in quantum terms) during the entire period. The data, thus, neatly falls into three periods based on our analyses of PCFs above. These are:

1980-81 to 1981-82 (period of worsening PCF)

1983-84 to 1985-86 (period of worst PCF)

1986-87 to 1988-89 (period of fast improving PCF)

In Table-5, we report the frequency of minimum average PCF for the three periods 1980-81 to 1982-83, 1983-84 to 1985-86 and 1986-87 to 1988-89. The data in Table-5, reasserts our finding that price competitiveness was least during the period 1983-84 to 1985-86. Out of 35 commodities 31 had their minimum average PCF during the period 1983-84 to 1985-86.

If ER policy as a tool to promote exports is effective, then according to the above classification, we must expect the overall exports to behave as follows: a) period of stagnant/low growth of exports (1980-81 to 1983-84); b) period of very low/negative growth of exports and; c) period of high growth of exports. This is what exactly we find in Table-6.

The frequency of maximum average PCF in Table-5 suggests that the period 1980-81 to 1982-83 should not have substantially different growth rates when compared to the period 1986-87 to 1988-89. But the essential difference is that period 1980-81 to 1982-83 shows a steady deteriorating PCF as can be seen in Graphs 2-7. Whereas, for the period 1986-87 to 1988-89, the PCFs show an increasing trend, particularly in the years 1986-87 and 1987-88. It is realistic to expect the exports to grow at a slower rate, if not at a negative rate, during a period of deteriorating PCF when compared to that during improving PCF. However, the year 1988-89 showed alarming tendency of the competitiveness tapering off after the gains during the two previous years.

However, before we make a firm statement on price responsiveness of exports to exchange rate changes, it is necessary to examine the

behaviour of another important variable - foreign income, which is also expected to have significant influence on our exports. For the above three periods the data regarding the growth of world real income and growth of real income of industrial countries is also given in Table-6. The industrial countries' income is reported separately because most of India's exports were to the developed countries. It is clear from Table-6, that the growth of foreign income behaved independently of the growth in our exports. Thus, we can now be reasonably confident in our statement that India's exports did respond to price changes during the 1980s.

It must be noted that the substantial improvement in the export competitiveness of exports during the period 1987-88 to 1988-89 essentially came from the depreciation of rupee (refer Graph-1). Thus, in summary, we can say that the policy of correcting the imbalances in the ERs has improved the price competitiveness of our exports and led to faster increase of our exports during the late 1980s.

Conclusions

In this study, we tried to find out the effectiveness of ER policies on India's exports during the 1980s. The findings of the study is to be interpreted by keeping in mind the major limitation of small number of observations. Because of the limited number of observations, the standard export demand and supply functions can not be estimated and used to arrive at econometrically sound conclusions. However, the evidence points towards the fact that the exports did respond to the steady depreciation of rupee during the 1980s. After 1986-87, the price competitiveness factor started

improving at a faster pace in response to steeper depreciation of the rupee and so did the exports.

These findings would suggest that convertibility of the rupee which resulted in de facto devaluation would result in faster growth of exports for the current year (1993-94). And, the results for the first four months of 1993-94 justify this. Exports have grown by over 27 per cent in dollar terms during the April-July 1993-94 when compared to the corresponding period of 1992-93. Some people might argue that the observed increase in exports is due to the delayed realization of export proceedings. The exporters who were expecting the rupee to be made fully convertible on in the budget 1993-94 delayed the realization of their export proceeds of 1992-93 in order to book higher profits. We doubt whether this argument can stand in light of fact that month after month the growth rate of export continues to be over 25 per cent in dollar terms. The explanations for the spurt in growth of exports apart, export activity seems to be more buoyant than ever before is a fact which is reported in major business magazines and dailies.

[Inspiration for this paper came from the lectures of Prof.B.H.Dholakia, of I.I.M., Ahmedabad and subsequent discussion I had with him. I am thankful to Prof.R.H.Dholakia of I.I.M., Ahmedabad and Prof. B.K.Hegde of TAPMI, Manipal for useful comments]

Data Sources

The data for the study has been obtained from the following sources:

a) CSO, **Statistical Abstract of India** (quantum and unit value indices of India's exports),

b) UN, **Trade Year Book** (unit value index of world imports),

c) IMF, **International Financial Statistics** (for data on real GNP -World and industrial countries) and

d) Author's doctoral thesis (1993), **Exports and Economic Growth in India - An Empirical Investigation** ,submitted to I.I.M., Ahmedabad (export weighted nominal and real effective exchange rates).

References

CMIE, (1992), **Foreign Trade Statistics of India, 1986-87 to 1990-91, and April-January 1992**, May, Bombay.

Dornbusch R. and S.Fischer, (1987), **Macro Economics**, McGraw Hill, New York etc.

Ganesh Kumar N., (1993), **Exports and Economic Growth in India - An Empirical Investigation**, Unpublished doctoral thesis, submitted to I.I.M., Ahmedabad.

Table 1. India's Exports (Quantum Index and Rs.)

Year	Exports Quantum Index(QI)	Exports in Rs. Crores	Growth Rates (Annual) of Exports	
			QI	Rs.
1979-80	106.2	6418	-	-
1980-81	108.1	6711	1.79	4.57
1981-82	110.1	7806	1.85	16.32
1982-83	116.7	8803	5.99	12.77
1983-84	113.0	9771	-3.17	11.00
1984-85	120.8	11744	6.90	20.19
1985-86	111.3	10895	-7.86	-7.23
1986-87	121.3	12452	8.98	14.29
1987-88	140.0	15674	15.42	25.88
1988-89	152.1	20302	8.64	29.53

Source: CMIE, Basic Statistics Relating to Indian Economy, Various Issues.

Table 2. Export Weighted REER and NEER

Year	XNEER	XREER	Annual % Change	
			XNEER	XREER
1979	102.6858	101.4752	-	-
1980	100.0000	100.0000	-2.62	-1.45
1981	101.6106	101.1980	1.61	1.20
1982	101.8182	103.9640	0.20	2.73
1983	104.8702	102.9702	3.00	-0.96
1984	111.7208	107.3048	6.53	4.21
1985	119.3892	114.1955	6.86	6.42
1986	145.3606	132.1401	21.75	15.71
1987	165.0612	142.4650	13.55	7.81
1988	186.0004	151.8587	12.69	6.59

Source: Ganesh Kumar N., (1993), **Exports and Economic Growth in India- An Empirical Investigation**, unpublished doctoral thesis, submitted to I.I.M., Ahmedabad.

Note: XNEER and XREER respectively stand for export-weighted nominal effective exchange rate and export-weighted real effective exchange rate.

Table 3 . Price Competitiveness Factor at Two-Digit Level of Disaggregation

Commodity Groups (two-digit level)	1980-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89
1 Meat & Meat Prep.	1.1159	1.0150	0.9458	0.8373	0.8678	0.8670	0.9436	1.1648	0.9600
2 Fish & Fish Prep.	1.2043	0.9828	0.8349	0.8373	0.8560	0.8039	0.8214	1.1527	1.0702
3 Cereals	1.2804	1.0068	0.9102	0.6842	0.6802	0.6567	0.8130	1.0594	0.8737
4 Vegetables	1.1925	1.0584	0.9763	0.9070	0.9391	0.9826	0.9908	1.0396	1.0858
5 Fruits and Nuts	0.8751	0.7242	0.8647	0.9070	0.7490	0.6945	0.6863	0.8725	0.8947
6 Coffee	1.1159	1.4234	1.1753	1.0786	0.9755	1.0363	0.8906	1.9515	1.5752
7 Tea	1.2940	1.3174	1.2480	0.8614	0.6876	0.8395	0.9608	1.5032	1.3979
8 Spices	1.6218	1.7442	1.3756	1.1190	0.9185	0.7712	0.8257	0.8557	1.1589
9 Oil cake	1.1368	1.1057	1.1005	0.9578	1.0574	1.1636	1.2385	1.4170	1.1897
10 Tobacco & Tobacco Prod.s	1.0958	0.9987	0.8901	0.8201	0.8225	0.8290	0.9726	1.4261	1.1470
11 Raw Cotton	1.8155	1.4569	1.1640	1.1512	1.0848	1.1337	3.3729	3.0476	1.1834
12 Textile Fibres & Waste Excl. Cotton	1.1809	1.4742	1.2878	0.7530	0.5772	0.8902	1.1009	1.3905	1.0858
13 Min. Excl. Coal Petro	1.0396	0.8367	1.0088	0.8315	0.7720	0.7452	0.6804	0.8794	1.0030
14 Iron Ore and Concentrates	0.9731	0.8721	0.7249	0.6961	0.7490	0.7248	0.8616	1.1771	1.1470
15 Ores & concentrates of Base metals	0.9285	0.9751	0.7614	0.8315	0.7768	0.6599	0.4555	1.1709	0.6162
16 Crude Animal & veg. Mat.	1.2164	0.7551	0.8772	0.9002	0.7626	0.6733	0.7887	0.7917	0.7146
17 Coal	0.8389	0.6552	0.4766	0.5543	0.4749	0.4737	0.5338	0.8557	0.6336
18 Petro. Prods	0.6470	0.7460	0.9241	0.6204	0.5568	0.5818	1.0361	1.4081	1.2855
19 Leather & Leather Manu.	0.6302	0.8783	0.8349	0.7345	0.6765	0.6113	0.6217	0.7593	0.6903
20 Textile Yarn	0.9889	0.9241	0.9458	0.9354	0.8445	0.7667	1.1164	1.3992	1.0121
21 Cotton Fabrics Woven	1.7628	0.9987	0.9034	0.9070	0.8739	0.8395	0.8758	0.8003	0.7382
22 Text. Fibres Other than Cotton	1.4655	1.0320	0.9608	1.1738	1.0574	0.7248	1.0097	1.2224	1.1128
23 Made up Articles of Text. Mat.	1.0308	1.3460	0.9532	0.8614	0.6802	0.7580	0.9786	1.1709	1.0213
24 Floor Coverings	0.9970	1.0768	0.9923	0.8036	0.8279	0.7209	0.8300	0.8557	0.7686
25 Non-Metallic Manu.	1.0958	0.9241	0.8235	0.7437	0.7274	0.7537	0.7695	1.0494	0.8017
26 Iron & Steel	0.7240	0.8845	0.7912	0.6961	0.8066	0.8008	0.8389	0.8623	0.7146
27 Non-ferrous Metals	0.9889	0.8974	1.0173	0.9814	0.8389	1.0049	1.0639	0.8209	0.9320
28 Manu of Metals	1.1058	0.8974	0.8407	0.8201	0.8118	0.8843	0.9786	1.3087	2.6008
29 Non-Electrical M/c	1.1696	1.1466	0.9608	0.8373	0.8334	1.1636	0.8047	1.1014	0.9600
30 Telecom Recording/Reproducing Equip	0.7508	0.9241	0.6725	0.6140	0.5908	0.4481	0.5392	0.7342	1.1589
31 Electrical M/c	1.4834	1.0584	0.9842	0.9977	1.1235	0.9407	1.0711	2.3419	1.6945
32 Transp. Equip	1.0670	0.8660	0.8125	0.7085	0.7402	0.7896	1.4816	1.7798	1.5533
33 Apparel	1.2804	1.0320	0.9608	0.8869	0.8739	0.8558	0.8856	1.1236	0.9559
34 Footwear	1.0670	1.0495	0.9312	0.7982	0.7359	0.6567	0.6661	0.9155	0.7904
35 Misc. Manu. Articles	0.8814	0.5055	0.5429	0.4677	0.4295	0.3779	0.4804	0.6867	0.6637

Note: Refer text for computation of the price competitiveness factors.

Table 4. Year-wise Frequency of Minimum Price Competitiveness Factor

Year	Frequency of Min. PCF		Share of Manufactured Exports to Total Exports
	Total	of Which Manufg. Products	
1980-81	0	0	59.34
1981-82	0	0	59.25
1982-83	0	0	51.84
1983-84	7	2	50.99
1984-85	7	3	53.01
1985-86	14	9	58.60
1986-87	5	1	62.91
1987-88	1	1	69.36
1988-89	1	1	74.32

Note: Columns 2 and 3 were derived from Table-3. The last column has been computed based on the data on exports at single digit level. It is the proportion of exports in commodity groups ITC - Rev.2 codes 5-8 (manufactured exports) to total exports (ITC-Rev.2 codes 0 to 8).

Table 5. Period-wise Frequency of Average PCFs

Period	Frequency of Average PCF	
	Minimum	Maximum
1980-81 to 1982-83	0	19
1983-84 to 1985-86	31	0
1986-87 to 1988-89	4	16

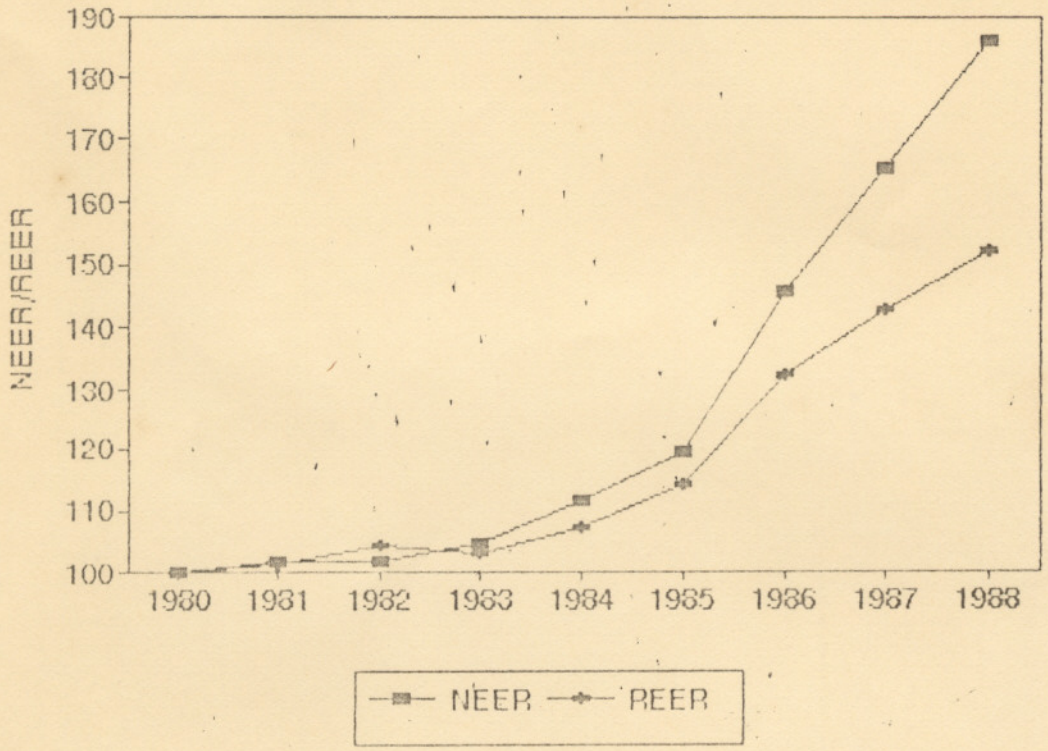
Note: Obtained from Table-3.

Table 6. Growth Rates of Exports and Foreign Income

Period	Growth Rates of Exports		Growth Rate of Real GNP	
	Quantum Index	Rupees	World	Industrial Countries
1980-81 to 1982-83	3.83	13.57	0.96	0.62
1983-84 to 1985-86	-0.76	5.44	4.22	4.17
1986-87 to 1988-89	11.31	24.44	3.97	3.88

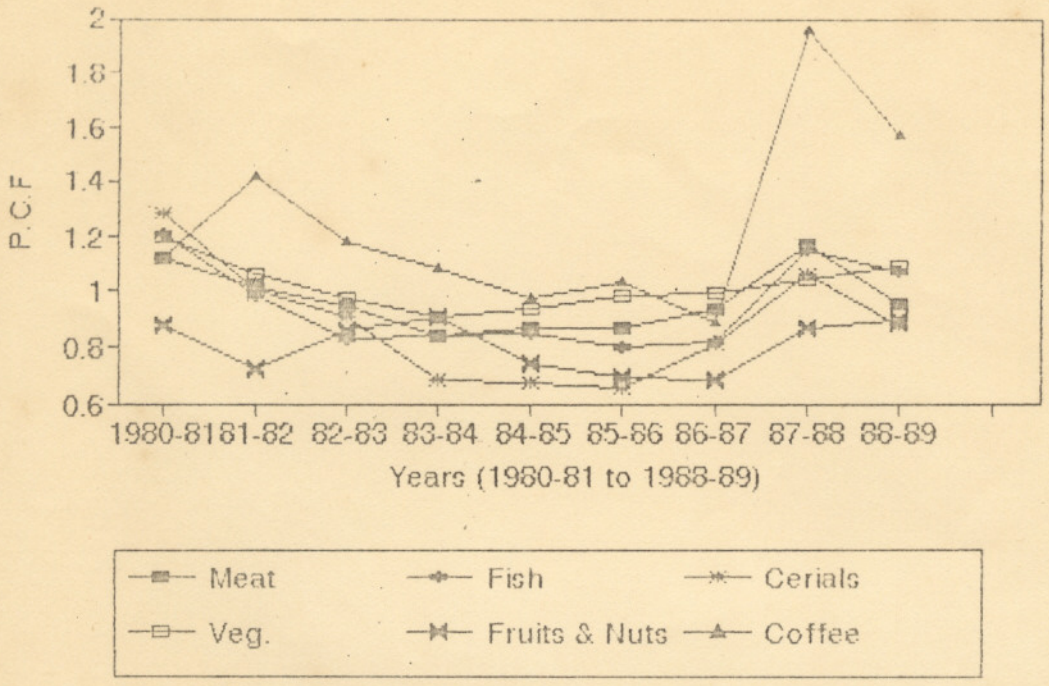
Note: Above growth rates were computed using semi-log trend equation of the form $\ln Y_t = a + b.t + u$

GRAPH 1 . REER AND NEER (1980 TO 1988)



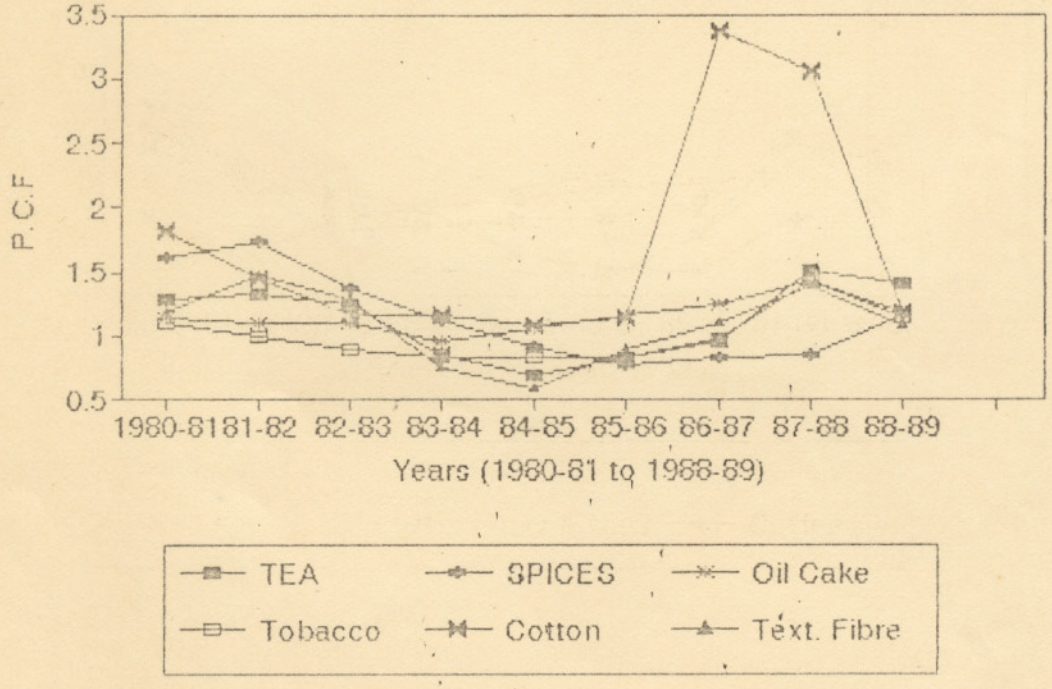
PRICE COMPETITIVENESS FACTOR

GRAPH 2



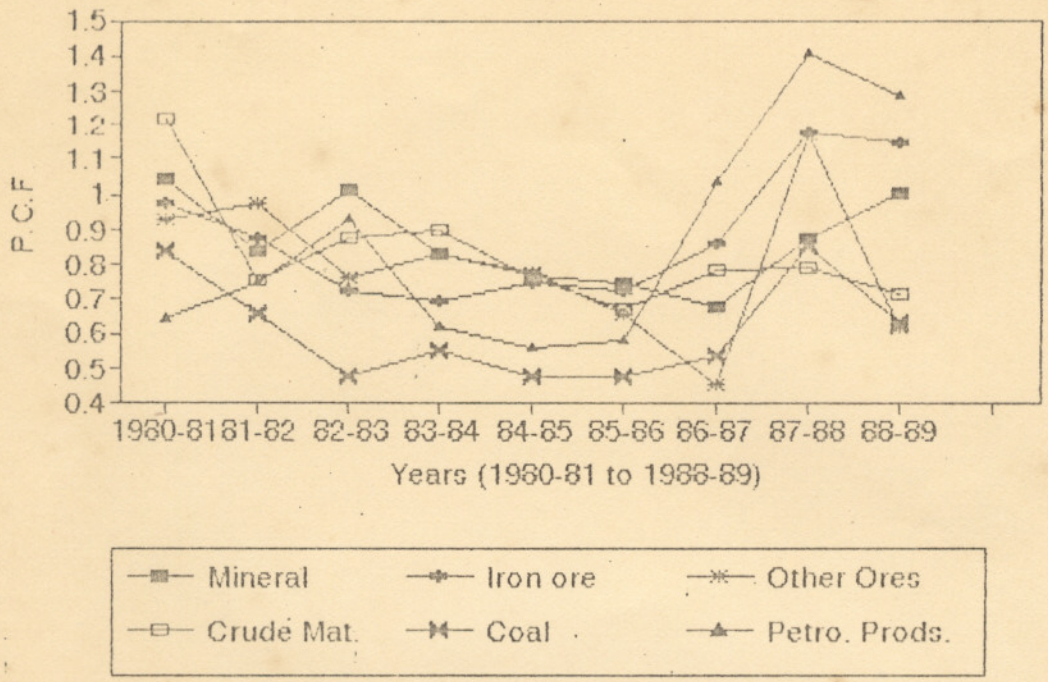
PRICE COMPETITIVENESS FACTOR

GRAPH 3



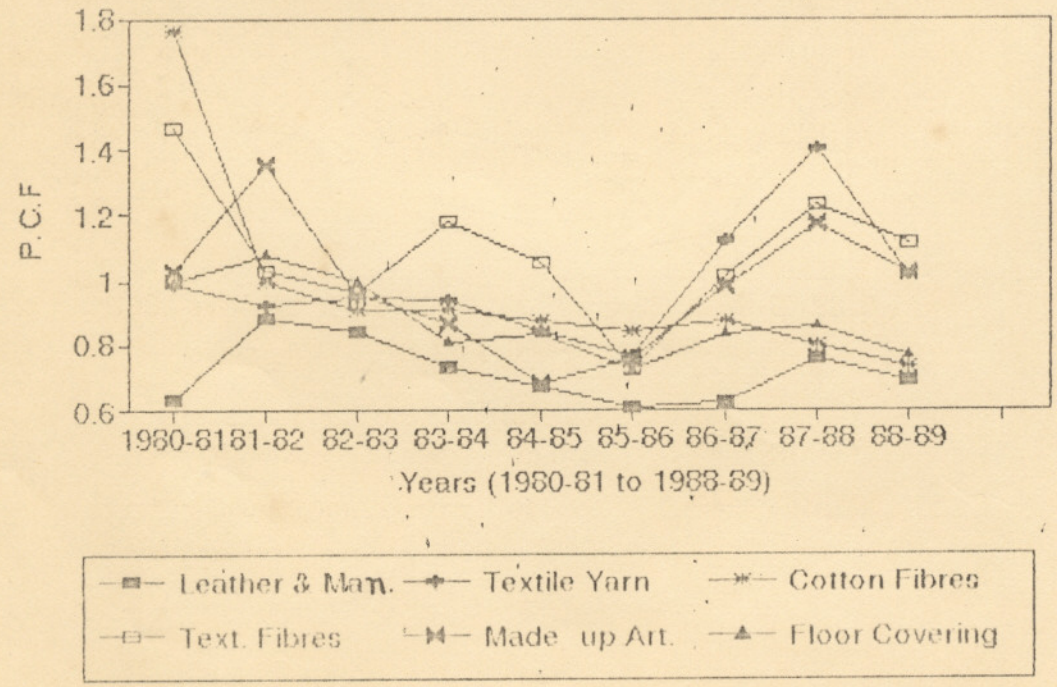
PRICE COMPETITIVENESS FACTOR

GRAPH 4



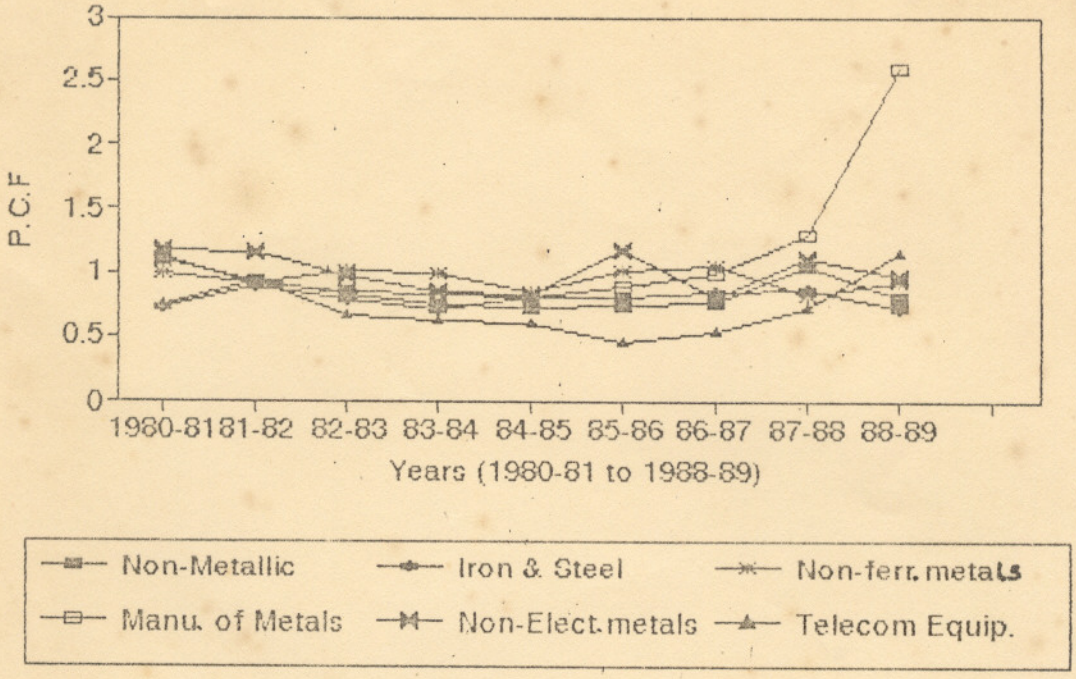
PRICE COMPETITIVENESS FACTOR

GRAPH 5



PRICE COMPETITIVENESS FACTOR

GRAPH 6



PRICE COMPETITIVENESS FACTOR

GRAPH 7