

An Investigation into the Price, Exchange Rates and Export Movements in Selected Countries and Policy Implications for India

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Abstract

Background/Objectives: Export competitiveness of an economy is determined by exchange rate and price level movements. This paper endeavors to analyze relative price and exchange rate movements in selected Asian countries vis-à-vis India and their implications for trade policy. **Methods/Statistical analysis:** The trends in changes in relative prices, exchange rates and trade are analyzed for years 1993, 2003 and 2013. Unit value index for exports is used to calculate relative price ratios. The relative prices and exchange rates are calculated using simple mathematical equations. Then, the price ratios and exchange rates are compared with export and imports movements of each country vis-à-vis another to assess effects of these movements on trade competitiveness. **Findings:** The study elucidates that the greater the increase in the exchange rate than the increase in the relative price level, the beneficial it is for a country to trade with another country. India's exports to selected five countries reflected an upward trend whenever the depreciation of currency was greater than the upward movements in the price levels. An analysis of percentage changes in price and exchange rates and growth rates of exports and imports also reflects that India experienced a slow growth in exports in all those years when price rise was not compensated equally by exchange rate depreciations. It also indicates that whenever the price rise was compensated by the equivalent or greater depreciation of currency, there was surplus in trade with the competing country. These findings are in tune with fundamental macroeconomic theory of exchange rates and price movements. This analysis clearly indicates that unlike other competing economies India lacks active policy interventions that will help in enhancing export competitiveness through precise exchange rate movements. **Applications/Improvements:** The study puts forward a strong case in favor of an exchange rate policy that brings about the movements in exchange rate in such a manner as to compensate for the changing price level in India.

Keywords: Exchange Rate Movements, Export Competitiveness, Price Level, Trade Policy

1. Introduction

At the macroeconomic level, maintaining a stable exchange rate at an appropriate level is crucial for successful exporting. Discussions on the impact of exchange rate changes on trade flows have frequently emphasized the effects of exchange rate volatility on trade, or the contribution of currency depreciations to the removal of temporary imbalances in a country's current account¹. Especially, on the backdrop of competitive devaluations of currencies by Asian economies including China, it is essential for a country like India to understand the behavior for prices and exchange rates while defining

the export policies. The variations in price levels need to be compensated by equivalent changes in exchange rates to ensure the competitiveness of our exports in international markets. Many Asian economies that followed the model of export led growth strategy have manipulated their exchange rates for gaining competitive advantage in international markets. However, it seems that India never made any conscious efforts to ensure exports competitiveness through variations in exchange rates. On this backdrop, this paper makes an attempt to compare the changes in prices, exchange rates and exports in selected countries and its implications for export competitiveness taking a historical perspective.

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2. Conceptual and Theoretical Underpinnings

In its treatment of the impact of exchange rate changes on international trade flows, the standard international trade theory emphasizes the mechanism that removes temporary imbalances in a country's current account. It shows that a real depreciation of the domestic currency reduces import demand and increases export demand for goods and services, thus restoring current account balance if the sum of the relative price elasticities of export and import demand exceeds unity². The empirical evidence, in general shows that a real depreciation of the domestic currency improves the export competitiveness of the country³. An increase in the relative prices of exportable commodities in a country must be compensated by an equivalent depreciation of currency vis-à-vis the currency of the competitor. If currency depreciation is more than the relative increase in the export prices, then the country will be able to maintain competitive advantage in the exports. It is, therefore, necessary to analyze the export competitiveness of an economy in terms of price changes and consequent exchange rate changes.

Considering the above argument that the exchange rate changes in tune with price changes can improve the export competitiveness of an economy, this paper attempts to find out the relative price and exchange rate movements in selected Asian countries and how these movements have affected the exports and imports among these countries as well as the implications for the exchange rate policy in India. It is necessary to mention that this study exclusively pertains to relation between prices, exchange rates and exports and does not consider the effect of other factors that determine export competitiveness such as demand and supply elasticities of exports and imports, trade policies etc.

3. Methodology

The data for the relative export prices as well as the bilateral exchange rates is collected from International Financial Statistics Yearbook⁴ for different years. Since the unit value index of exports of manufacturing goods are not readily available separately for developing countries, the study uses the unit value index of overall exports. The data for exports and imports values is collected from International Trade Statistics Yearbook⁵ Volume I for different years.

The study pertains to selected Asian countries including India, China, Malaysia, Indonesia, Singapore and Thailand representing the Newly Industrialized Economies (NIEs) from East and South East Asia. The study considers time period from 1993 to 2013 as this is the period when India introduced and implemented trade reforms while the Asian countries experienced the financial crisis and reemerged from the crisis. For analyzing the trends in changes in relative prices, exchange rates and exports and imports, the study considers three years- 1993, 2003 and 2013.

The methodology used is quite simple. The relative price ratios between the selected Asian countries have been calculated by using the unit value index for exports in each country. For instance, the relative price ratio between India and Malaysia has been calculated as

$$P_{xi} / P_{xm},$$

where P_{xi} indicates price of exports in India and P_{xm} indicates price of exports in Malaysia. Similarly, the values of relative exchange rates for each country have been calculated in order to analyze the exchange rate changes in one country vis-à-vis that in another country. If the relative exchange rate is greater than the relative price ratio, then the country concerned has advantageous position in terms of exports. Thus, for example,

$$ER_{im} > P_{xi}/P_{xm},$$

then i has advantageous position in terms of exports in relation to m .

where,

ER_{im} is exchange rate between India and Malaysia

P_{xi}/P_{xm} is the price ratio between these two countries.

Then these price ratios and exchange rates have been compared with the exports and imports of each country to another country in the selected group of countries. Greater the value of relative prices greater should be the relative exchange rate between two countries to gain the price competitiveness⁶. If we could find out whether exchange rate has moved in accordance with relative price changes and resulting changes in exports and imports between selected countries, it will be possible to analyze the extent of price competitiveness of exports as well as role of exchange rates in attaining that.

4. Inferences

The following tables reflect the exchange rate changes, relative price changes and export-import movements during 1993, 2003 and 2013 in relation with that in each of the selected Asian countries.

Table 1 reflects the relative price ratios, exchange rates and trade between the selected countries and India

Table 1. Relative Export Prices, Exchange Rates and India's Trade with Selected Asian Countries (1993, 2003 and 2013)

Table 1. Relative export prices, Exchange Rates and Indonesia's and Malaysia's Trade with Selected Countries

Indonesia				
	Exports (Million US\$)	Imports (Million US \$)	Price Ratio	Exchange Rate Ratio
1993	234.9	119.7	0.82	0.015
2003	325.6	958.8	1.61	0.005
2013	1332.6	2617.7	0.78	0.004
Malaysia				
	Exports	Imports	price	Exchange Rate Ratio
1993	247.3	249.9	1.02	11.86
2003	447.1	2024	1.09	11.33
2013	1084.1	2299	0.95	10.58
Thailand				
	Exports	Imports	price	Exchange Rate Ratio
1993	357.3	57.2	1.23	1.2
2003	449.6	327.8	1.02	1.14
2013	901.4	865.9	0.96	1
Singapore				
	Exports	Imports	Price	Exchange Rate Ratio
1993	752	626.9	0.59	18.82
2003	672.7	1534.4	1.01	25.48
2013	4000.6	2651.4	1.1	23.8
China				
	Exports	Imports	Price	Exchange Rate Ratio
1993	279.1	302	0.76	5.29
2003	538.8	1286.7	1.05	5.21
2013	5615.9	7098	1.07	4.86

Source: Calculations on the basis of data from International Financial statistics yearbook and International Trade statistics Yearbook, for 1993, 2003 and 2013.

India – Indonesia: The table reflects that during 1993, the price ratio between India and Indonesia was quite low reflecting the low level of inflation in India as compared to that in Indonesia while the exchange rate between the two countries was also low reflecting the appreciated Rupee vis-à-vis Indonesian Rupiah. But the trade between

the two countries shows that the exports from India in that year exceeded the imports from Indonesia. One of the reasons behind this can be possibly explained as the exchange rate appreciation of Indian rupee in relation with Indonesian Rupiah was much lower than that in case of other currencies such as Baht or Singapore Dollar. This gave India some price advantage for increasing her exports to Indonesia. In 2003, however, the relative prices increased to a great extent as compared to that in 1993, while the exchange rate did not move accordingly. There was further appreciation of rupee and it obviously resulted into greater imports from Indonesia than the exports. In 2013, there was again decline in the relative price ratio accompanied by slight appreciation of exchange rate. But due to the appreciation of rupee the decline in the price level did not get reflected into greater exports to Indonesia.

India – Malaysia: In 1993, the price ratio in India was higher and the exchange rate was also high reflecting depreciation of rupee. But this favorable exchange rate movement did not get reflected into exports and imports as the imports from Malaysia were slightly higher than the exports from India in this year. The depreciation of rupee could not get reflected into higher exports to Malaysia due to increased competition from Indonesia for exports in this market on account of greater depreciation of rupiah. In 2003, there was further increase in the price levels while the exchange rate was slightly appreciated. The movements in exports and imports reflected these changes as imports moved up at quite a faster rate than the exports. In 2013, however, there was decline in relative price level but there was also an appreciation of the exchange rate resulting into greater imports than exports.

India – Thailand: The year 1993 witnessed an increase in relative prices in India as compared to Thailand, which was compensated by the depreciation of Rupee, though somewhat less than the increase in relative prices, leading to greater exports and lower imports for India. In 2003 again the exchange rate, though somewhat appreciated, was greater than the price ratio, thus leading to surplus trade balance for India. In 2013, there was further decline in price ratio along with appreciation of rupee. However, as the relative exchange rate was greater than the relative price ratio, India again exported more than what she imported from Thailand.

India – Singapore: As the price ratio was quite low and the exchange rate was much greater than the price

ratio, in 1993 India experienced a surplus trade with Singapore. In 2003, the relative prices increased in India and there was also increase in the relative exchange rate. But the percentage change in exchange rate was lower than the increase in the relative prices and it resulted into trade deficit for India. In 2013, again there was rise in price ratio associated with slight appreciation of rupee, but India's exports to Singapore surpassed the imports from the country as the exchange rate was still greater than the relative price ratio between India and Singapore.

India – China: In 1993, prices in India were lower than the prices in China and the exchange rate was also greater the relative price ratio. But India could not gain from these positive price-exchange rate movements and imports from China remained greater than the exports to China. The possible reason for deficit trade with China on

the background of lower prices and depreciated exchange rate can be explained in terms of China's trade with other countries and their relative price and exchange ratios. Indonesia and Malaysia experienced greater advantage in terms of lower relative prices as well as depreciated currencies than in case of India and thus India could not increase her exports to Chinese market on account of the price competition from these two countries. In 2003 as well as in 2013, there was an increase in the prices along with an appreciation with rupee leading to trade deficit in both the years for India.

The Tables 2, 3 and 4 reflect the relative prices and exchange rate movements along with export-import changes in each of the selected Asian countries.

- The Table 2 (A) for Indonesia reflects that Indonesia experienced surplus in trade balance with all the

Table 2. Relative export prices, Exchange Rates and Indonesia's and Malaysia's Trade with Selected Countries

(A)Indonesia					(B)Malaysia				
	Exports (M. US \$)	Imports (M. US \$)	Price ratio	Exchange rate ratio		Exports (M. US \$)	Imports (M. US \$)	Price ratio	Exchange rate ratio
India					India				
1993	119.60	335.40	1.22	68.45	1993	209.70	397.80	0.98	0.08
2003	923.90	275.50	0.62	182.42	2003	2038.20	530.00	0.92	0.09
2013	2170.50	1102.40	1.28	222.25	2013	3002.80	1009.70	1.05	0.09
Malaysia					Thailand				
1993	585.99	517.41	1.24	812.10	1993	1695.00	1133.80	1.21	0.10
2003	1335.90	605.60	0.67	2067.14	2003	2757.80	2467.20	0.94	0.10
2013	3016.00	1681.90	0.87	2352.34	2013	6040.50	5788.60	1.01	0.09
Thailand					Singapore				
1993	467.66	235.35	1.50	82.43	1993	10208.30	6949.00	0.58	1.59
2003	812.70	933.40	0.63	207.75	2003	13973.40	9160.90	0.93	2.25
2013	1976.20	2771.50	1.23	222.25	2013	18993.90	11703.40	1.15	2.25
Singapore					China				
1993	3371.98	1793.27	0.72	1288.33	1993	1203.10	1096.90	0.74	0.45
2003	4930.50	2525.90	0.62	4648.02	2003	2317.80	2138.60	0.96	0.46
2013	5999.00	4800.40	1.40	5289.29	2013	8460.20	10339.50	1.12	0.46
China					Indonesia				
1993	1249.49	935.98	0.92	362.34	1993	543.40	717.00	0.80	0.00
2003	2008.90	1242.20	0.65	949.84	2003	1231.10	1756.80	1.49	0.00
2013	4604.70	4101.30	1.37	1080.88	2013	3072.90	4193.80	0.82	0.00

countries and for almost all the years on account of highly depreciated currency, except for the years 2003 and 2013 with Thailand and 1993 with India, when the country had deficit in trade. It must be noted that in 2003 and 2013 India had surplus trade with

Thailand on account of high relative exchange rate. The depreciation as well as price advantage vis-a-vis Thailand was greater in India as compared to that in Indonesia reflecting the trade pattern with Thailand in both these countries.

- In case of Malaysia (Table 2 (B)), the country had surplus trade with India (2003, 2013), Thailand (2003, 2013), Singapore (1993, 2003, 2013) and China (1993, 2003) on account of the favorable exchange rate movements as well as relative prices, while for rest of the years it had deficit in trade with the selected countries as exchange rate changes could not compensate for increase in relative prices. In case of Indonesia the country had a deficit trade for all the three years as the exchange rates was at a lower level than the relative prices.
- Singapore (Table 3(A)) had surplus trade with India (1993, 2003, 2013), Malaysia (2003, 2013) and Thailand (1993, 2013) mostly due to lower prices.

However, the country was facing deficit in trade with Malaysia (1993), Thailand (2003), Indonesia (1993, 2003, 2013) and China (1993, 2003 and 2013) as a result of high relative prices along with highly appreciated exchange rate.

- China (Table 3 (B)) witnessed trade surplus with India (1993, 2003 and 2013), Thailand (1993) and Indonesia (1993, 2003) mostly as a result of comparatively lower relative prices. The deficit in trade with Malaysia (1993, 2003, 2013), Thailand (2003, 2013), Indonesia (1993, 2003, 2013) and Singapore (2013) was mainly on account of lack of changes in the exchange rate in accordance with the changes in the relative prices.

Table 3. Relative export prices, Exchange Rates and Singapore's and China's Trade with selected countries

Singapore					China				
	Exports (M. US \$)	Imports (M. US \$)	Price ratio	Exchange rate ratio		Exports (M. US \$)	Imports (M. US \$)	Price ratio	Exchange rate ratio
India					India				
1993	949.80	668.70	1.70	0.05	1993	302.00	279.10	1.32	0.19
2003	2504.70	739.30	0.99	0.04	2003	1286.70	538.80	0.95	0.19
2013	4139.70	2759.80	0.91	0.04	2013	7098.00	5615.90	0.93	0.21
Malaysia					Malaysia				
1993	10494.70	14041.03	1.73	0.63	1993	704.40	1083.60	1.35	2.24
2003	18985.00	17285.90	1.08	0.44	2003	1673.30	3605.60	1.04	2.18
2013	27051.00	24775.90	0.87	0.44	2013	8086.00	18174.70	0.89	2.18
Thailand					Thailand				
1993	4215.30	3515.80	2.09	0.06	1993	750.50	601.50	1.62	0.23
2003	5038.40	5247.50	1.01	0.04	2003	1435.20	2780.40	0.97	0.22
2013	7678.40	6651.80	0.88	0.04	2013	5801.60	11540.50	0.90	0.21
Indonesia					Indonesia				
1993	1793.27	3371.98	1.39	0.00	1993	691.70	1468.60	1.08	0.00
2003	2525.90	4930.50	1.60	0.00	2003	1779.10	3050.90	1.54	0.01
2013	4800.40	5999.00	0.71	0.00	2013	6256.40	7215.60	0.73	0.00
China					Singapore				
1993	1900.10	2401.50	1.29	0.28	1993	2245.30	2645.80	0.78	3.56
2003	3921.00	5695.80	1.04	0.20	2003	4502.20	4061.10	0.96	4.89
2013	15249.10	16060.80	0.98	0.20	2013	12687.60	13994.40	1.03	4.89

- Thailand experienced surplus trade with Singapore (1993, 2003), Indonesia (2013), China (2013), and Malaysia (2013) mostly due to decline in price levels case of Singapore and Indonesia while due to increase in exchange rate in case of China and Malaysia. The

deficit in trade with Singapore (2013), Indonesia (1993, 2003), China (1993, 2003) Malaysia (1993, 2003) and India (1993, 2003, 2013) was on account of higher price levels in Thailand¹ that was not compensated by equivalent depreciation of Thai Baht.

Table 4. Relative export prices, Exchange Rates and Thailand's Trade with selected Countries

India	Thailand			
	Exports (Million US \$)	Imports (Million US \$)	Price ratio	Exchange rate ratio
1993	73.9	522.6	0.82	0.83
2003	372.1	453.5	0.98	0.88
2013	865.9	901.4	1.04	1.00
Singapore	Exports	Imports	Price	ER
1993	4457.7	2969.6	0.48	15.63
2003	5068.5	2981.5	0.99	22.37
2013	6651.8	7678.4	1.14	23.80
Indonesia	Exports	Imports	Price	ER
1993	202.3	512.2	0.67	0.0121
2003	969.4	1104.5	1.59	0.0048
2013	2771.50	1976.20	0.81	0.0045
China	Exports	Imports	Price	ER
1993	538.7	1090.5	0.62	4.40
2003	1861.2	2495	1.03	4.57
2013	11540.5	5801.6	1.11	4.86
Malaysia	Exports	Imports	Price	ER
1993	1039.9	1674	0.83	9.85
2003	2122	2511.5	1.07	9.95
2013	4193.8	3072.9	0.99	10.58

Source: Calculations on the basis of data from International Financial statistics yearbook and International Trade statistics Yearbook, for 1993, 2003 and 2013.

Thus, Table 4 bring out the relation between exchange rates, relative prices and trade between the selected countries. The greater the increase in the exchange rate than the increase in the relative price level, the beneficial it is for a country to trade with another country. However, a closer look at the percentage growth rates in exports and imports in relation with percentage changes in exchange rates movements and relative price movements between 1993 and 2013 will give us further idea about the trends in exports and imports vis-à-vis that in exchange rates and relative prices and how exchange rate movements play a crucial role in determining the growth rate of exports

and imports. The results of such an analysis of growth rates of the abovementioned variables over a period will differ from the analysis of actual values in different years and thus will provide us an insight into the issue price competitiveness of India vis-à-vis selected Asian countries.

Table 5. Percentage changes in Relative Prices, Exchange rates, exports and Imports in India vis-à-vis selected Asian countries between 1993 and 2013.

Country	Export growth (%)	Import growth (%)	% change in relative prices	% change in relative exchange rates
Indonesia	5.67	21.87	0.96	0.31
Malaysia	4.38	9.20	0.94	0.89
Thailand	2.52	15.14	0.79	0.83
Singapore	5.32	4.23	1.87	1.26
China	20.12	23.50	1.42	0.92

Source: Calculations on the basis of data from International Financial statistics yearbook and International Trade statistics Yearbook, for 1993, 2003 and 2013.

The Table 5 reflects the exports and imports growth rates in India in relation with each of the selected countries and the movements in the relative prices changes as well as exchange rates changes during 1993 to 2013. The major points that need consideration are:

- During 1993 to 2013, the growth in India's exports was less than the growth in imports from Indonesia, Malaysia and China. The reason is quite clear from the table that the percentage change in relative prices was greater than the percentage change in exchange rates. The exchange rate changes could not compensate for the rise in the prices resulting into disadvantage in terms of export growth.
- In case of Indonesia the growth in price ratio was much faster than the growth in exchange rate. The obvious result is that the imports grew at 21.87% while exports growth rate was just 5.67%.
- The percentage change in relative price ratios between India and Malaysia was greater than the percentage change in exchange rates again resulting into greater imports growth than the export growth.
- In case of Thailand, though the exchange rate changes were somewhat greater than the changes in relative prices during 1993 to 2013, the export growth was much lower than the import growth. It must be noted that during this period all the countries, except for

Singapore, experienced lower export growth than import growth with Thailand though the relative exchange rate depreciation was greater than the relative price increases. One of the major reasons behind such a trend is that the major sources of imports for Thailand are Japan, European Union and NAFTA and to some extent ASEAN (Ministry of Foreign affairs, Thailand). Thus though there has been greater depreciation of relative exchange rates with Thai Baht, this could not get reflected into increased exports to Thailand from the selected economies.

- India's export growth rate surpassed the growth rate of imports with Singapore though the percentage change in exchange rate depreciation was lower than the change in relative export prices.
- Trade with China shows that the growth in imports was greater than growth in exports as a result of greater percentage increase in relative prices over and above the percentage increase in relative exchange rate.

5. Policy Implications

The focus of the analysis was to find out the price competitiveness of selected countries in relation with exchange rates and trade movements. In most of the cases, it was observed that the upward movement in exchange rates, surpassing the increases in the relative prices, has resulted into greater exports than imports. What is notable is the fact that India has experienced lower export growth rate than the imports growth rate due to the appreciated value of the currency vis-à-vis the currencies of the selected countries.

It also indicates that in case of India whenever the price rise was compensated by the equivalent or greater depreciation of currency, there was surplus in trade with the competing country. However, in most of the cases the relative prices were greater than the exchange rates reflecting the price disadvantage for India leading to greater imports than exports. The relation between relative prices, exchange rates and trade indicates that India needs

to maintain the exchange rate level in such a manner that it would compensate for the changes, specifically increase, in the relative price ratio. This clearly brings out the case for an exchange rate policy that will take care of the price changes in the country in order to provide price competitiveness to our exporters and improve our trade performance in relation to our Asian counterparts.

6. Concluding Remarks

The analysis of relative price ratios, relative exchange rate movements and export-import movements reflect that though in terms of real values the exports from India to some of the selected countries were greater than the imports on account of price competitiveness, the growth rates of exports between 1993 to 2013 from India to most of selected countries were less than import growth rates as the depreciation of Indian rupee was much lower than the price rise in India as compared to that in the selected countries. Thus, there is case in favor of an exchange rate policy that brings about the movements in exchange rate in such a manner as to compensate for the changing price level in India.

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