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Export Structure, Technological Capability and Comparative Performance of India and China in US market[1]

Contemporary trade theories suggest association between technological capability and gains from export. Export structure of India and China with reference to the structure of US import suggests that higher Chinese gains cannot be explained by technological capability. When overall movement of US import is compared with that of shares of India and China, it appears that they have better share of the market during downswing. The trend is most pronounced in case of China. The paper offers an explanation to the paradox by defining X-advantage that gives a country the advantage of downwardly flexible factor price.

Keywords: Asian NIEs, India-China, Technology and Trade, Comparative advantage, Export structure, X-efficiency, X-advantage.

[1] The data has been updated till 2006. There is no significant variation from the conclusion arrived at in this paper.

Introduction

Both India and China are drawing considerable attention as potential economic powerhouse from Asia in the global economy. After opening up China has, however, performed much better than India in accessing world export market. Even a casual look at their respective performance in the US market, the single largest export market for both the countries, reveals that China is far ahead of India in penetrating the US market. Total volume of export to USA from China was $11.86 bn in 1989 and $102.1 bn in 2001. Comparative figures for India are $ 3.28 bn in 1989 and $ 9.71 bn in 2001. In terms of volume China's export grew by 8.61 times and that of India grew only by 2.96 times. The gap has widened from $8.58 bn to $92.49 bn, or 10.8 times during the same period. China's economic performance during last couple of decades has drawn attention of researchers and policy makers all over the world, even though the availability of reliable and comparable economic data is appalling. Global business community, in general, has been showing more faith in the prospect of China than that of India, as it has been reflected in the inflow of foreign direct investment (FDI) in both the countries during last decade[1]. China has been much more a closed and controlled economy than India during the preceding decades. With the onset of globalization China has apparently made good use of its new open door policy than India's effort to get a foothold in the world economy through a lengthy process of liberalization.

India and China's trade with USA can be seen as two developing countries trading in a lucrative developed country market, and therefore offer an interesting case for the ongoing debate in trade theories. What are the factors that can explain the differences in the performance of the two developing countries in a developed country market? The present paper explores the answer to this question in the light of the contemporary debate in international economics. The paper is divided in to five sections. In the second section we take up the theoretical issues related to trade between developing and developed countries and suggest a theoretical perspective built upon the contemporary debate. It is the technological capability of the trading countries that we draw focus on as important determinants of gains from trade. In the third section we try to develop a comparative scenario of technological capabilities of India and China. We do not try to determine the technological capabilities of these countries. Instead we analyze the trade pattern of these countries (in US market) and assert that they reveal enough about their respective technological capabilities. In the fourth section we examine the nature and movement of exports from these countries in US market and encounter a paradox. The paradox is that the share of these countries in US import is insulated over the fluctuations in the growth of US imports. In the last section we try to construct a theoretical outline for a plausible explanation of the paradox. In doing so we use the concept of X-efficiency (a la Leibenstein) and define the existence of X-advantage that determines the relative performance of India and China in the US market. The fifth section presents summary and conclusion.

We have used the data on export to USA for the period 1989 to 2001 from Harmonized Tariff Schedule published by United States International Trade Commission (USITC). Year 1989 has been chosen to capture a bit of pre globalization status of both the countries. The Schedule presents data on US import from different countries for products that are broadly divided in to 22 groups and 98 sub groups (there has been no entry against subgroup no. 77 (kept for future use), making total number of product subgroups to 98). Both the countries have presence in the export of all the 98 product groups.

Developing countries' export to developed country

The problem we have set for ourselves is as follows. Our focus is on the relative performance of China and India in the import market of the USA. We are not concerned about US exports to these countries. Hence we do not enter in to the debate on determinants of the trade patterns between two countries, as it is done in the trade theories. While trying to examine the relative export performance of India and China in the US import market we particularly examine the specific question — if technological superiority is one of the determinants. We, therefore, position our inquiry within the debate on role and impact of technology in trade performance.

International trade models deal with trade between two countries. In our case we propose to examine the export performance of two developing countries in the same market of a developed country. We accept the general description of 'Krugman (1979, 1985)' and 'Chimoli (1988)' where trade takes place between innovative and non-innovative countries. The innovative countries are those where new products are produced, and new industries emerge using the highly effective innovation system. In our case it is USA. On the other hand China and India are non-innovative countries in the sense that they acquire technological capabilities through diffusion of technology from the innovative countries (not necessarily from USA) and use the low cost advantage to manufacture standardized products of the matured industry. China and India's trade with USA, therefore, follow the description of product cycle theories of trade '(Hirsch, 1965; Vernon, 1966)'. In this description besides technology, labor is the only factor of production. This rules out the factor proportion as the determinant of trade between two countries (as proposed in Heckscher-Ohlin-Samuelson model). This is also consistent with trade models '(Grossman and Helpman, 1990, 1991)' that use comparative advantage as an endogenous process, as it is in new growth theory '(Romer, 1990)', where innovation is treated as an endogenous factor. Comparative advantage, therefore, is a dynamic process, reflected in the differences in the productivity of labor (the only factor of production) determined by differences in technological capabilities.[2] Together these models indicate one common observation that comparative advantage can be acquired by creating an effective national innovation system, where R&D enhances labor productivity and thereby higher growth and export performance.

It is quite evident that the above observation widens the scope of institutional intervention in creating an effective national innovation system and consequently directing and strengthening national technological capabilities. It is also associated with the prospect of catching-up the developed countries by their less developed counter part through alteration of the comparative advantage. In the neo-Schumeterian framework, imperative is on role of government through appropriate policy formulation and execution.

Policy researchers have pushed the argument a step further. Among a few others, 'Lall (2000)' introduces the role of government to mediate incidents of market failures between firm and country level capabilities. He also adds that, instead of being only functional, the government intervention has to be more pro-active by directing and influencing flow of resources in selective activities. Following 'Reinert (1994)', he argues that it is the policy of gradually building the national capability in more knowledge intensive areas that would ensure competitive gains in international trade. 'Lall (1999: 1772)' tried to broadly identify the technology component in the traded products and relate it to the long-term trade performance of different countries.[3] Results of the exercise broadly corresponded to the hypothesis that,"— a technology-intensive export structure is generally conducive to long-term growth than a low-technology structure".

For the present purpose we use the above proposition in the following way. Instead of between two trading countries, we look at the comparative advantage of India and China in gaining market share in USA. Also we reverse the technology-trade hypothesis, as suggested in the models discussed above. We ask that if higher technological capability is expected to result better export performance, is the opposite also true? Does better export performance mean better technological capability? In case of India and China we encounter a large gap in gains from trade in the US market. Can this gap be explained by the relative technological capabilities of the two countries?

It is to be noted that historically both China and India have controlled economy with strong government role in both economic and R&D affairs. Both the countries, therefore, fulfill Lall's '(Lall, 1999)' condition. In postulating the long-term gains in trade through active government interventions 'Lall (1999)', however, did not take in to consideration the supply constraints that could be faced by a country. The question might not be important if looked from the technological capability side of the problem. If the countries have significantly different technological capabilities (one being significantly superior to other), and not much supply constraints (non-technological) the trade pattern should follow Lall's '(Lall, 1999)' findings. If two countries have similar technological capabilities but different degree of internal supply constraints, it is possible that the gains from trade would be different for the two countries. In the case where two countries are trying to increase their gains of trade from the same market, similar technological capabilities may not ensure the same quantum of gains[4]. Technological capability can ensure entry in to a market, whereas gains in terms of volume are dictated more by internal supply constraints (non-technological) faced by a country. In the subsequent sections we shall argue that much of the gaps in trade performance of India and China has to be explained not in terms of technological capabilities but in terms of internal supply constraints.

Export structure and assessment of technological capability

'Lall (1999)' tried to assess the technological Capability (TC) of a country by assessing the technology content of the export of that country. For achieving that he did not suggest any methodology and relied more on general belief about the technology content of a product. So if there are products like 'Tractor' and 'hand plough' it was not difficult to assert that the technology content was higher in the former. But such distinction only possible when products are as distinct and commonly known as Tractor and hand plough. The same is not possible for 98 product groups, where products are not as distinctly specified as Tractors and hand ploughs. Again to compare each other for all 98 product groups with technological details would be too massive a task for the present paper.

For the present purpose we have approached the question of TC in a different way; mainly based on the export structures of the countries with reference to the imports by USA. Our basic contention is the following: a) If a country 'A' is able to satisfy the import demand of country 'B', it reveals a particular TC of 'A' vis-à-vis import demand of 'B'. b) If country B's import demand can be ranked from most priority to least priority goods, and if country A's export to B shows largest share of most priority imports of B, then it is revealed that 'A' has the ability to fulfill B's priorities. c) If there are two countries A1 and A2, both exporting to B, and their respective export structures reveal that A1 can cater to the priorities better than A2, then we can suggest that A1 has higher TC than A2.

The word 'priority' is used here in a very loose sense, only to mean the most demanded import, and is calculated by the ratios (*mi/M*)'s, where *mi*'s are imports of *i*-th commodity and *M* is the total import by USA in a particular year. (*mi/M*)'s are then compared with (*Ixi/mi*)'s and (*Cxi/mi*)'s, where *Ixi*'s and *Cxi*'s are Indian and Chinese export of *i*-th commodity respectively to USA. (*mi/M*)'s are ranked in descending order and corresponding ranks are derived for both (*Ixi/mi*)'s and (*Cxi/mi*)'s. Rank correlations between (*mi/M*)'s and (*Ixi/mi*)'s; and (*mi/M*)'s (*Cxi/mi*)'s are calculated for all 98 product groups for the years 1989 to 2001 to assess the respective TC of India and China to fulfill the priorities of US imports. The rank correlation coefficients thus derived are presented in table 1. Table 1 also presents the similar calculations for top 20 (for *mi/M*'s with *i*'s 1 to 20 having 82% and 84.62% share of US import in 1989 and 2001 respectively), and bottom 20 (for *mi/M*'s with *i*'s 89 to 98 having 0.95% and 0.74% share of US import in 1989 and 2001 respectively). The coefficients at the last column of the table 1 supplements the assessment of the TC suggested in the first two columns.

Table 1: Rank correlations for revealed TC

Year	Coefficient of the rank correlation between								
	(mi/M) and (Cxi/mi)			(mi/M) and (Ixi/mi)			(Cxi/mi)and (Ixi/mi)		
	All 98	Top 20	Bottom 20	All 98	Top 20	Bottom 20	All 98	Top 20	Bottom 20
1989	-0.20	-0.01	-0.01	0.10	-0.04	0.21	0.38	0.30	0.20
1990	-0.13	0.01	0-.35	-0.02	-0.13	-0.01	0.33	0.30	0.20
1991	-0.11	-0.20	-0.31	-0.01	-0.20	0.13	0.37	0.40	0.25
1992	-0.06	0.03	-0.27	0.04	0.20	-0.01	0.36	0.23	0.42
1993	-0.08	-0.01	-0.25	-0.01	-0.20	0.20	0.39	0.34	0.38
1994	-0.08	-0.03	-0.32	0.00	-0.15	0.20	0.32	0.35	0.21
1995	-0.04	-0.13	-0.23	-0.01	-0.21	0.06	0.32	0.36	0.15
1996	-0.04	-0.04	-0.39	-0.05	-0.12	-0.01	0.31	0.40	0.17
1997	-0.06	-0.03	-0.26	-0.02	-0.10	0.01	0.31	0.41	0.18
1998	-0.04	-0.10	-0.31	0.01	-0.14	0.17	0.30	0.32	0.22
1999	-0.05	-0.18	-0.31	0.00	-0.29	0.31	0.26	0.40	-0.01
2000	-0.06	-0.24	-0.43	-0.01	-0.33	0.25	0.25	0.36	-0.20
2001	-0.04	-0.25	-0.40	-0.01	-0.19	0.19	0.24	0.40	-0.20

Source: Constructed from Harmonized Tariff Schedule, USITC for 1989–2001

The salient observations from the table are as follows. For all commodities together China shows a steadily decreasing magnitude of negative coefficients, while in case of India it is fluctuating but negative correlations of very small magnitude. It appears that neither India nor China has strong presence in the most important US market. The small magnitude of the negative coefficient means that none of these countries' TC has much relevance for the US market. However, There is a declining trend in the magnitude. China has over the years arrived at where India has been for decades. In case of top 20 US import, both India and China show gradually increasing magnitude of negative rank correlations; with more fluctuations in case of India. This means that both the countries (more so in case of China) yet to make any strong dent in the most important US import market. While China shows an increasing

magnitude (as high as 0.43 in the year 2000) of negative correlations for bottom 20 of US imports India has maintained considerably high magnitude of positive correlations. It implies that while least important US imports are becoming more important exports for China, Indian exports of least important US imports remained less important. Last 3 columns of the table 2 shows the comparative ranks of the shares of India and China in the ranked (in terms of share in the total) US imports. We have somewhat declining positive correlation when all commodities are taken together. The countries, it appears, are moving away from each other in terms of their revealed strength in the US market. The result can be explained if we look at the coefficients for top and bottom 20 of ranked US imports. For top 20, the magnitude of the positive coefficients is steadily increasing and that for the bottom 20 is steadily decreasing to become negative from positive values till 1999. This implies that both the countries are trying to strengthen their presence in the most important US market and moving away from each other for the least important US market, where China is clearly surging ahead.

Together it is evident from the table 1 that for top 20 US imports both the countries show similar trends of strengthening their respective positions. It is the bottom 20 market that India has apparently ignored while China has strengthened its position. Given the fact that the top 20 US imports share about 85 %, and bottom 20 shares only meager 0.74%, we can assert that both the countries reveal more or less similar technological capabilities, and they differ mainly in their export strategies to US market.

The table 1 compares product group wise share of China and India in US imports. We have examined another set of relationships comparing (*mi/M*)'s with (*Cxi/CX*) and (*Ixi/IX*); where, CX and IX are total exports to USA from China and India respectively, showing share of the *i*th export of India (China) in the total export from India (China) to USA. We try to examine how far the ranked (*mi/M*)'s match with the corresponding ranks of (*Cxi/CX*) and (*Ixi/IX*). We also examine the match between ranks of (*Cxi/CX*) and (*Ixi/IX*) corresponding to the ranks of (*mi/M*)'s. The result of the rank correlation coefficients is presented in table 2.

Table 2: Rank correlations between product group wise shares of US import with the corresponding shares in exports of India and China

Year	Coefficient of the rank correlation between		
	(mi/M) and (Cxi/CX)	(mi/M)and (Ixi/IX)	(Cxi/CX) and (Ixi/IX)
1989	0.49	0.50	0.59
1990	0.52	0.48	0.53
1991	0.54	0.49	0.56
1992	0.57	0.52	0.57
1993	0.60	0.51	0.59
1994	0.61	0.58	0.58
1995	0.62	0.56	0.59
1996	0.63	0.56	0.59
1997	0.63	0.58	0.60
1998	0.66	0.56	0.59
1999	0.66	0.59	0.60
2000	0.66	0.61	0.62
2001	0.67	0.62	0.62

Source: Constructed from Harmonized Tariff Schedule, USITC for 1989–2001

Table 2 shows that both the countries have more or less similar trade patterns with USA. Commodities that are important in US imports are gradually becoming most important exports for both the countries. Between them also we see the similar pattern. Product groups that constitute important part of Indian export are also gradually becoming important in Chinese exports. The observations from table 2 supplement the findings from table 1 that both the countries through their respective export structures in the US market reveal similar technological capabilities.

Table 3: Product wise correlation coefficients between India and China's shares in the US import (1989–2001)

Range of correlation coefficient	Product groups (Nos.)	Share of Indian export	Share of Chinese export	Share in US import
Above 0.8	22	13.48	50.75	42.96
0.8–0.6	14	5.58	5.68	15.32
0.6–0.4	19	40.02	11.79	21.89
0.4–0.2	08	18.22	9.90	4.45
0.2–0.0	11	5.03	12.87	6.97
Sub total	74	82.33	90.99	91.59
0.0...-0.2	8	7.99	2.69	3.28
-0.2...-0.4	8	2.25	1.25	1.11
-0.4...-0.6	6	2.87	.76	1.58
-0.6...-0.8	2	4.55	4.30	2.45
Below -0.8	–	–	–	–
Sub total	24	17.66	9.00	8.42
Total	98	100	100	100

Source: Constructed from Harmonized Tariff Schedule, USITC for 1989–2001

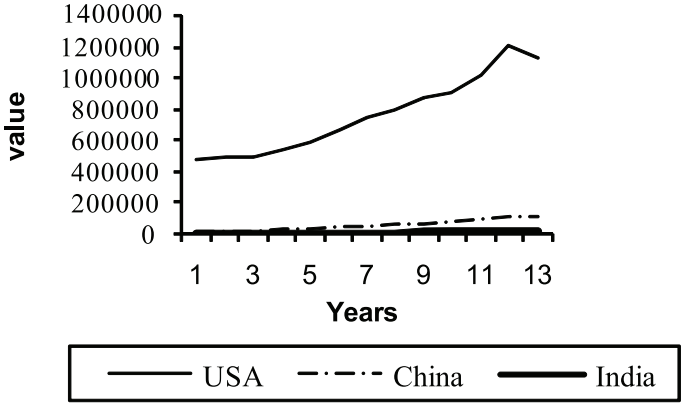
Another supplementary observation is given in table 3, where we have presented the correlation between $(Cxi/mi)_t$ and $(Ixi/mi)_t$, where values of $_t$'s are years from 1989 to 2001. There are 74 product groups for which coefficients are positive. These product groups together constitute 82.33% of Indian exports to USA, 90.99% of Chinese exports to USA and 91.59% of US import from these countries. The positive correlation coefficients for these 74 product groups indicate that there is enough room for both the countries in the markets of these products, and one country is not encroaching upon the shares of another. This implies that the countries have similar technological capabilities to serve the same market[5]. Negative coefficients are there for 24 product groups, where changes in one country's share are associated with the opposite changes in the share of the other country. Such product groups constitute only 8.42% of the US market, and about 18% and 9% for Indian and Chinese export respectively to US market. This 8.42% of US market is mainly constituted of bottom 20 product groups in terms of their share in the US imports. We have shown in the earlier tables that in this market China has made determined inroads, and Indian export remained more or less indifferent.

From table 1, 2 and 3 we derive that the technological capabilities of India and China, measured in terms of their respective ability to serve the US market, do not show any significant difference from each other. The widening gap of volume of export that China has achieved over India, therefore, cannot be attributed to any superior technological capability of China. In the next section we try to examine certain characteristics of the trends in share of these countries in US import.

IV
Relative performance of India and China: The paradox

Technological capabilities being the same let us examine the export performance of both the countries in terms of volume. Figure 1 shows the dollar value of US import and Indian and Chinese export to USA over 1989 to 2001. India's export to USA looks quite flat while China's has risen quite steadily during the period. While China's share in US import has increased from 5.22 % in 1989 to 12.02 % in 2001, India's has been 1.27 % to 2.03 % during the same period.

Figure 1: Total US import and corresponding Indian and Chinese export during 1989–2001

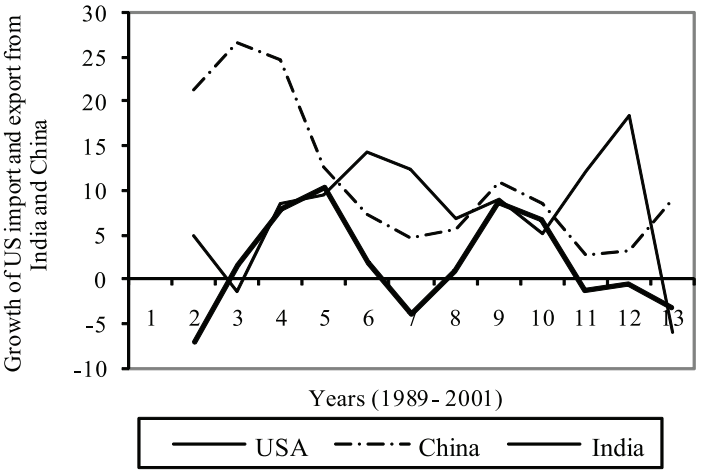


Source: Constructed from Harmonized Tariff Schedule, USITC for 1989–2001

In figure 2 annual growth of US import is plotted against the same for Chinese and Indian export to USA. It is interesting to note that the growth pattern of both the countries closely matches each other up to 2000, and they show exactly opposite trends after 2000. Again during the period of matching trends in export growth both India and China show trends opposite to the growth of US import.

In figure 3 annual growth of US import is plotted against the Indian and Chinese share in US import. It is interesting to note that along the fluctuations of growth of US import China could steadily increase its share. India also did achieve the same, albeit at much lower rates.

Figure 2: Annual growth of US import and Indian and Chinese export to USA (1989–2001)

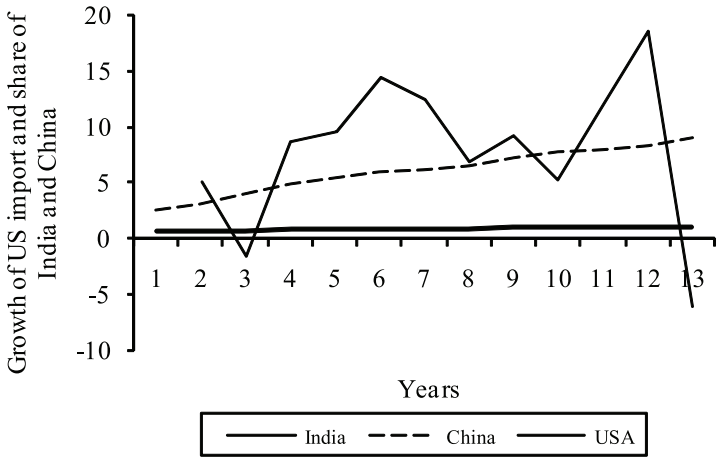


Source: Constructed from Harmonized Tariff Schedule, USITC for 1989–2001

The figure 3 suggests that both India's and China's share of the US import are to a great extent insulated from the rise and fall of the US imports. In other words, we observe a paradox that both the countries' share in US import is up when there is a fall in the growth of US import.

The paradox is also evident from table 4 where we present the correlations between movement of US import and shares of India and China in that for the years 1989–2001.

Figure 3: Growth of US import and share of Chinese and Indian export to USA (1989–2001)



Source: Constructed from Harmonized Tariff Schedule, USITC for 1989–2001

Table 4: Correlations between US imports and exports from India and China (1989–2001)

Correlation between	India	China
Total US import and exports to USA from	0.995	0.994
Growth of US import and share of exports from	0.114	-0.49
Growth of US import and share of exports (with one year lag) from	0.41	-0.104

Source: Constructed from Harmonized Tariff Schedule, USITC for 1989–2001

In table 4, gross export of both the countries, as expected, is highly positively correlated with that of US import. Interesting coefficients are, however, returned for growth of import and export. With the growth of US imports the share of both the countries shows strikingly different relations. While it is positive correlation of very small coefficient for India, for China it is considerably high negative correlation. The same relations with one-year lag data improves the coefficient for India, while in case of China it is still negative with much lower coefficient. The last two rows of the table 4 appear to be containing the basic characteristic differences between two countries in their respective exports to USA. The small but positive coefficient for share of Indian export in relation to growth of US import suggests some kind of insulation of Indian export to USA. It indicates that Indian export industries are generally unable to take the advantage of the upward trend of the US import. At the same time it is also not greatly affected by the downswing in the US import. Again with one year lag the coefficient improves. This suggests the time needed for adjustment in resource allocations to respond to changes in the US market. In case of China comparatively high negative correlation coefficient suggests that somehow China is able to take advantage of the downswing in the US import, and at the same time has similar time lag for responding to upswings.

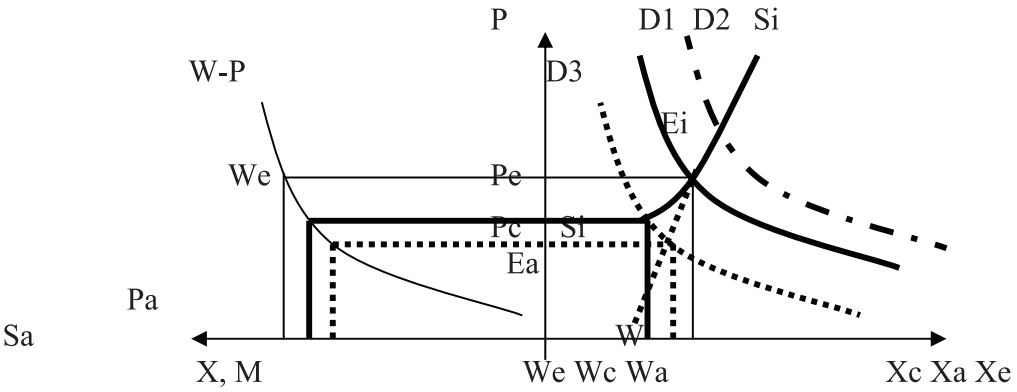
Time lag that is needed to readjust the resource allocation can be called the supply constraints faced by a country. We observe that both the countries have similar supply constraints. On the other hand the ability to take advantage of the downswing in a market (by increasing market share) means ability to keep prices lower in tandem with declining demand. It is in this respect we see that India and China differ very significantly. It appears that this is what explains the huge gap in the volume of exports to USA by India and China. To understand how does it work we try to graphically examine the paradox stated above in the next section.

V
Explaining the Paradox

There are two sides of this paradox. One side is the rising share in the import when there is a general decline in the growth of US import. The other side is the movement of share in import when US import is rising. We shall like to explain the first side as the ability of the country to supply a product at lower price when others have left the market

facing a downtrend in price as a result of falling demand. The other side of the paradox surfaces when the market revives. The same country may not find it easy to hold on the market share facing supply constraint, where as many countries, which had left the market earlier, would come back riding on rising prices. The graphical representation of the argument is presented in figure 4.

Figure 4: Downwardly flexible factor prices and trade performance



In figure 4, at the right side of the X-axis we measure export (X) and import (M), and price at the Y-axis. At the left side we present the wage- price relationship. Si-Si is the international supply curve for export and D1 is the demand curve for import. The horizontal part of the Si-Si curve shows that the price cannot go beyond Pc — that is the critical price beyond which there would not be any export offered in the international market. When demand pattern is depicted by D1, the equilibrium is at Ei, for export (=import) Xe, at a price Pe, and wage level We. If demand curve shifts to D3 hitting the Si-Si at Pc (the critical price), export declines to its critical value Xc and wages go down to Wc. Within this scenario, if country A can mange to reduce the wage further to Wa, and set a new supply curve Si-Sa, for a new equilibrium Ea, it can take away market from others and also can raise the total supply in the international market at a new price Pa.

The question is whether the supply curve Si-Sa again goes back to Si-Si once the market revives accompanying rises in prices to Pc and further up? With rise in demand followed by rise in prices, there will be room created for the idle capacity of those who had left the market. Country 'A' therefore, does not gain anything by keeping prices lower than the ruling prices. At the same time country 'A', that had already expanded the capacity when prices were below critical level, might not find it easy to expand the capacity further to capture the larger share of the rising demand. There would be substantial time lag in mobilization and allocation of resources for creation of new capacities by 'A'. These two factors together will re-establish the supply curve Si-Si.

As we can see from figure 4, gains of country 'A' depend on its ability to control the factor market in such a way that the factor prices are downwardly flexible. In a non-H-O world where governments carefully develop technological capabilities in complex technologies for long-term gains from international trade, the difference in trade performance between two

countries having similar technological capabilities would depend on the abilities of the respective countries to offer comparative lower price in the international market. Other things remaining the same, lower prices either has to be sustained by price subsidy or by appropriate administrative measures to create a factor market where factor prices (wages) are downwardly flexible. If we rule out considerable price subsidy in the WTO (post-GATT) world, the comparative performance would largely depend upon the degree of downward flexibility of factor prices (wage) enjoyed by respective countries. The degree of downward flexibility of the factor prices enjoyed by a country is actually determined by the political and administrative control of the factor market. This has been called here X-advantage or can be called administrative advantage. The country that can successfully make use of the X-advantage to dictate the factor prices and direct the resource allocation would be able to sail through and even better its share through the ridges and troughs of international market.

Summary and conclusion

We have looked in to comparative advantage of India and China for examining their performance in US market where China is way ahead of India. From trade theories where technology is treated as an endogenous factor, general expectation is that better export performance is to be associated with better technological capabilities. We have tried to assess technological capabilities by correlating the ranks of the share of a product group (import) in the total US import with the shares of India and China in the respective product groups. Our expectation has been that any significant differences in technological capabilities between India and China would be reflected in their respective trade patterns in the US market. Various correlations, however, reveal following aspects.

There is not any notable difference in the export patterns of India and China in US market, either in terms of share in US import or in terms of share in their own export to USA. While both the countries show a trend of strengthening their presence in the top 20 product groups (in terms of share in the total US import) US import, the only significant difference is seen in the case of bottom 20 product groups (having the lowest or negligible share in the total US import) where China shows a trend of increasing presence while India shows the trend of ignoring that market.

For the 82 % of Indian product and 91 % of Chinese products there is no competition between the two countries in the 92 % of the US market.

These observations indicate that the structure of their exports in the US market do not reveal any notable difference in their technological capabilities. We, therefore, postulated that while entry in to the international market is enabled by technological capability, the volume gain, once technological capabilities are comparable, depends on comparative advantage of downward flexibility of factor prices. If we consider labour as the only factor of production, this would imply the ability to keep wages downwardly flexible. We have described this advantage as X-advantage enjoyed by a country over others. We call it X-advantage because the exact nature and dynamics of this advantage is not known and an investigation in to that is beyond the scope of present paper.

Drawing the attention, away from export structure, to long-term trend of share of India and China in US import and comparing them with the growth of US import we discovered a paradox that both the countries are quite insulated from the highs and lows of US import

and also they appear to have better share of the market during downswing of the market. Again the trend is most pronounced in case of China compared to a very feeble trend for India. We have tried to graphically present how X-advantage can explain the paradox and suggest that it is not technological capability but presence of higher degree of X-advantage that can explain superlative export performance of China over India in the US market.

Notes

There are, however, sceptical views that point out overestimation of FDI flow in China.

[2] Technological capabilities, according to neo-Schumpeterian understanding, in turn are the outcome of national innovation system (Lundvall, 1992; Nelson, 1993; Rosenberg, 1982).

[3] Methodologically Lall had examined the technology content of the exportable and related those with the performance in the international market.

[4] Libenstein had explained the difference in efficiency of two firms with the same technology in terms of 'X-efficiency' — a term coined by him to capture the organizational attributes of firms' production system.

[5] The US market for these 74 product groups show the characteristics of a perfectly competitive market (for India and China), where, other things being the same, countries can sell as much at ruling price.

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