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## THE EXPORT-LED GROWTH MODEL AND ITS APPLICATION IN CHINA\*

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### *Abstract*

The experience of NIEs showed that developing economies could catch up with advanced countries by applying the Export-led Growth Model (ELG). A few years ago, our study on the case of China showed that China was a successful case in applying the ELG. Therefore, ELG can be applied to most developing countries, especially large developing countries because China is the largest developing country in the world. However, there is still a dispute over this model in the literature of development economics. This paper will demonstrate further this idea with new data and answer some critical questions: Is China a good case of ELG and how can we prove it relatively? Can ELG be continued in the face of regionalism and the shrinking world market today? What is the mutual relationship between growth of exports and GNP? Is the size of large developing countries the big obstacle to application of ELG? Is low trade ratio a characteristic of a large country or a Giant?

### *Introduction*

The experience of NIEs provided a successful model of export promotion in the process of catching up with advanced nations. However, economists thought, because of the small size of NIEs, their experience was very limited and could only prove the possibility of smaller developing economies emulating ELG. At the same time, there is no case that can prove whether ELG is suitable to all LDCs, especially large developing economies. This question was given a positive answer in my study on the case of China during 1990-91. There it was shown that not only smaller economies, but also large developing economies, such as China, can apply ELG.<sup>1</sup>

China has been utilizing ELG and succeeding in export promotion. It has sustained seventeen years of high speed economic growth with a 11.1% average annual growth rate of GNP and a 14.8% average annual growth rate of exports. ELG has brought China to eleventh place among countries in world export and seventh place in GNP. The case of China shows

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<sup>1</sup> See Jinjun Xue, Can the Export-led Growth Model be Applied to Large Developing Countries? -The Case of China. Yale University Economic Growth Center Working Paper 637, 1991.

that there is no doubt: ELG can be applied to large developing countries because China is the largest developing country in the world and it has been successful in applying ELG. Since China is generating an economic miracle by practicing export promotion, the case of China is attracting more and more attention from scholars. It is worth doing further study on ELG in China with more detailed empirical analysis, and answering some further theoretical and empirical questions. This paper serves as research towards that goal. We think it will also aid in the advance of stagnant development economics.

### I. *Theoretical Arguments on The Export-led Growth Model*

In developing economies, trade strategy has evolved in three periods. The first, the 1940's-1970's, was characterized by an inward-oriented strategy of Import Substitution. The second, the 1960's to 1970's was characterized by an outward-oriented strategy of Export Substitution. The third period, the 1980's to the present, features a strongly outward-oriented trade strategy and The Export-led Growth Strategy. In recent years, by comparing development experiences within LDCs, some studies show that the Export-led Growth Strategy is more efficient and successful than other models or strategies. In 1987, economists at the World Bank divided trade strategies into four types: (1) Strongly Inward-Oriented Strategy, (2) Moderately Inward-Oriented Strategy, (3) Strongly Outward-Oriented Strategy, and (4) Moderately Outward Oriented Strategy.<sup>2</sup> According to their studies of 41 nations' experiences since the 1960's, nations which practiced an outward-oriented policy had much better performance in economic development than those which followed an inward-oriented policy. The nations that had good performance not only did much better with most indicators of development compared to other nations but also weathered better shocks to the world economy. The best examples are the NIEs. In recent years, Thailand, Malaysia and Indonesia have becoming New Industrializing Countries. Therefore development economists are becoming more and more interested in the experience of NIEs which have defined their model as export promotion strategy or the Export-led Growth Model (ELG) and have suggested that LDCs emulate it.

There are also some disputes over ELG. For example, can ELG continue in the 1990's? Some economists believe that the success of NIEs was based on the cheap labor force and the vast markets of America and Europe. Because labor costs have been rapidly increasing due to the influence of international price competition since the second half of 1980's, the NIEs have lost their low-wage advantage and their export growth has been slowing down. In addition, trade protectionism and regionalism are resurfacing due to the formation of NAFTA and EFTA. Under these influences, it will become more difficult for LDCs, even for NIEs, to expand their export to American and European markets.

Another argument is whether large developing countries can follow the ELG. Professor Perkins and Fenberg stress the differences between large nations and small nations. They argue that only some small countries and areas met with success by ELG, and there is still no case showing that the model can be applied to large countries-- which they stress greatly differ from small countries. They point out especially that ELG cannot be applied in very large countries or the "giants," such as China, India and the former Soviet Union because of their huge

<sup>2</sup> World Bank: World Development Report 1987, pp 82-85.

population, big value of GNP, and smaller trade ratios (according to Perkins and Syrquin's definitions)<sup>3</sup>. Size has two influences on the application of ELG. One is huge population and great domestic demand. Another is the backwardness of the agricultural sector. These features hinder the growth of exports by creating conflicts in the demand for natural resources between the domestic markets and the international markets.

The main difference between large countries and small countries is their size. Size can influence a nation's economic development in the following ways: First is population pressure on the agriculture sector. In large countries, food problems are one of the most crucial issues and agriculture is the most fundamental sector. Therefore, the government's priority in strategic policy is to develop agriculture and satisfy the huge demand for food instead of developing foreign trade. Second is the influence of natural resources on exports. In most large nations, resources, especially in terms of total stock, are so plentiful that these nations can achieve economic development and scale to economies based on their huge domestic markets and great demand for home products without foreign trade. The larger the country, the less necessary it is to traverse national borders in order to gain economic efficiency. The third is the desire for international markets. Large countries cannot satisfy their people with abundant commodities to meet domestic demand and often face a serious shortage of basic commodities. Thus, there is an insufficient supply of goods to sell abroad. As in planned economies, there are not enough incentives to encourage enterprises to compete in the world market because they can sell all of the products in the huge domestic market. Their profit is so high that they hesitate to take international risk. Fourth is the effect of natural resources. Generally speaking, large countries have a variety of natural resources. The rich resources diversify the nation's economy such that the economy can produce most commodities their people need and maintain a high degree of economic self-sufficiency. In this circumstance, the large country faces no serious shortage of resources and can produce commodities for their people with their own resources without relying on exchange of commodities and resources with other countries. In summary, large country is rich in natural resource but poor in commodity supply. Rich resource made it a self-sufficient economy and no great need for exchanging with other country; Poor commodity supply made it no sufficient goods to export to other country. The result is, as Fenberg points out, a low trade ratio in large countries.<sup>4</sup>

In response to these questions and in order to find whether ELG can be applied to a large developing country such as China, we did a study and came to the following conclusions: (1) Export led growth can be continued in 1990's. However, there are some necessary conditions. For example, some NIEs are promoting export productivity by reducing labor cost and transferring some labor intensive, low technology, and high energy consuming industries to LDCs while developing their high technology industries. This indicates that NIEs have adjusted their export structure and produced new products in order to create a new export market. (2) It is possible for other non-NIEs to apply the ELG. Non-NIEs can develop exports by using a cheaper labor force and occupying the world market abandoned by NIEs. China, Malaysia, Thailand and Chile are some successful cases. In order to get rapid export growth, the most important step is to expend foreign trade between LDCs and to form a regional trade

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<sup>3</sup> D. H. Perkins and M. Syrquin, Large Countries: The Influence of Size. In H. Chenery and T. N. Srinivasan edited, *Handbook of Development Economics*, Volume 2, 1989.

<sup>4</sup> R. E. Fenberg etc. edited: *Economic Reform in The Three Giants*, 1990, pp 8.

group or join in other free trade zones. In this way, LDCs can reduce their dependence on overly narrow markets and diversify their export destinations. Therefore, there are two options for LDCs to develop exports: One is to adjust export structure and strategy: to produce new, high level, high value-added, high technology manufactured goods, and to create new international markets by competing with other advanced countries with cheaper cost and price of high tech-products. Another option is to produce and export more manufactured products with higher quality.

However, the above idea and the Chinese model have met with some serious challenges since that time. There are still some questions and empirical problems of ELG unsolved in economic development theory, even though China is successfully carrying out the strategy of export promotion:

\*Is China a successful case of applying ELG? How can we define a nation as an ELG? The application of ELG is not only an empirical problem, but also a theoretical problem. We need to provide a theoretical framework and give a clear definition on ELG.

\*How can we show that the economic growth in China or the Chinese model is a kind of ELG? Many scholars have shown interest in this study and have thought that it must be proven through empirical analysis. This paper accomplishes this with newly released data.<sup>5</sup>

\*Can ELG be continued in 1990's, especially in the face of worldwide regionalism and the limitation of the world markets? Laurence Klein points out that ELG could not be continued in the 1990's because of the shrinking market in North America and European countries. Therefore developing countries, including large developing countries would have no chance to emulate the NIEs and Japan.<sup>6</sup>

\*How can we think about the relationship between the growth of exports and the growth of GNP? Is export a motor for promoting GNP growth, or the opposite, is the growth of GNP which stimulates growth of exports? There is an argument on whether Japan is a export-led growth economy. Some scholars, especially some Japanese scholars, disagree with the idea that Japan is a model of Export-led Growth. They believe that the Japanese economy was a kind investment-led economy based on the sustained high growth rate of savings and investments. They believe that the most important engine for growth in the Japanese economy was technological change in growth accounting, although they admit exports played important roles in stimulating economic development. They also wrote that, as for demand, domestic demand was more significant than international markets. Thus, the Japanese economy was propelled by the domestic market, not by foreign investment. Therefore, they conclude that the Japanese economy was an inward-oriented economy, not an outward-oriented economy as most foreign scholars believed.<sup>7</sup>

\*There are obstructions blocking large developing countries from applying ELG. Perkins and Fenberg<sup>8</sup> mention that the greatest hindrance blocking large developing countries from applying ELG is size. The bigger the size, the more difficult it is to emulate ELG.

<sup>5</sup> For example, in comment on my paper, Ryoshin Minami and Tuvia Blumenthal have expressed their doubts about the method of proving the application of ELG in China.

<sup>6</sup> L. R. Klein, Can Export-led Growth Continue Indefinitely? An Asia-Pacific Perspective. *Journal of Asian Economies*, Vol. 1, 1990.

<sup>7</sup> Ryoshin Minami, *Economic Development in Japan*, Macmillan, 1994.

<sup>8</sup> R. E. Fenberg etc., *Economic Reforms in The Three Giants*, 1990, Washington, USA; D. H. Perkins and M. Syrquin, *Large Countries: The Influence of Size*, in H. Chenery and T. N. Srinivasan eds. *Handbook of Development Economics*, Vol. 2, 1989, North Holland.

\*The final question concerns estimation of the shares of export in GNP and trade ratio of China when considering inflation and depreciation of Chinese currency from 1981. My study shows that China's share of export value in total GNP reached 15% in 1989 and 22.1% in 1994, and the share of exports and imports in GNP reached 28.9% in 1989 and 39.4% in 1994. Some critics say that we cannot count on these figures due to the fact of inflation and depreciation of the Chinese Reminbi. It may not be high if we deflate the growth rate of exports and its value, and consider the effect of currency depreciation.

All the above questions will be discussed below. We will study the export-led growth model and its application in China using new data so as to explain whether or not ELG can be emulated by other large developing countries.

## II. *An Empirical Study on The Application of ELG in China*

China is the largest developing country with the largest population, the third largest in geographical area and the seventh in terms of GNP. It is a giant according with some characteristics mentioned by Fenberg. For example, China's average annual GNP growth rate was about 5.5% and export value was less than 100 million US dollars, ranking twenty-eighth in total world export in 1978. It was clear that China was an inward-oriented economy seventeen years ago. However, China has been carrying out the open door policies and reform, and growing very rapidly since 1978. The sources of China's rapid economic growth are varied, but we believe export expansion has played a very important role. Our empirical analysis will prove that China has been becoming a outward-oriented economy since 1987. Needless to say, this rapid economic growth has been led by exports.

### 1. **From An Inward Oriented Economy to An Outward Oriented Economy**

China's foreign trade has been growing very rapidly since 1981. We can see from Table 1 that China's total value of trade was just under 40 billion US dollars, the trade ratio was 8.2%, and trade share as percentage of GNP was about 14% in 1981. Export value was 18 billion dollars, about 1% of the total value of world exports, ranking China twenty-eighth among exporting countries. However, by 1994, China's total value of foreign trade reached 236 billion US dollars, the trade ratio topped 22.2%, and the share of exports and imports as a percentage of GNP was 39.4%. At the same time, China's export value was 121 billion dollars, export shares reached 2.6%, and China climbed to eleventh place in world exports.

In the classification of the trade strategies, one of the most interesting patterns is the outward-oriented economy. We can easily find some of these characteristics in China's economy: higher trade ratio and trade share of GNP. By comparison, China's trade ratio and trade share of GNP are nearly the same as, or even higher than those defined as outward-oriented economies such as Bazil, Kenya, Chile, Malaysia, Thailand and Turkey. In comparing China with other large trade countries, China's trade ratio is 22.2%, much higher than the 1993 figures of 12.87% in the United States and 7.8% in Japan. We can easily get the impression that China has already become a large trading country.

On the criteria to an outward-oriented economy, the neutralization of trade barriers is an important target. China has satisfied this criteria in recent years. First, China has been

TABLE 1. TRADE RATIO OF CHINA

Unit=Millions of US Dollars, % of

Year	GDP Values	Export Values	Import Values	GNP Growth	Growth Rate as Percentage of		Trade Ratio
					Export	Import	
1980	252,230	18,271	19,500	6.6			
1981	264,340	21,560	21,566	4.9	18.0	10.3	8.2
1982	260,400	21,875	19,009	8.8	1.5	-11.9	7.9
1983	274,630	22,226	21,390	10.2	1.6	12.5	7.9
1984	281,530	24,822	26,150	14.5	11.7	22.3	9.1
1985	265,530	27,327	42,526	12.7	10.1	62.5	13.2
1986	271,880	31,148	43,172	7.9	14.0	1.5	13.7
1987	293,380	39,542	43,392	9.4	26.9	0.5	14.7
1988	372,320	47,540	55,251	26.9	20.3	27.3	13.8
1989	417,830	52,538	59,140	12.2	10.5	7.0	13.4
1990	438,720	62,000	53,350	5.0	18.1	-9.8	13.4
1991	369,651	71,840	63,790	8.0	15.7	19.6	19.4
1992	506,075	84,940	80,610	13.6	18.3	26.4	16.8
1993	425,315	91,760	103,950	13.4	8.0	29.0	21.6
1994	544,600	121,040	115,690	11.8	31.9	11.2	22.2
Average				11.1	14.8	14.9	

Source: World Bank, World Development Report, 1983, 94; Chinese Statistical Press, Statistical Yearbook of China, 1994.

\*Trade Ratio is Numerical Value of Export Value over GNP.

successful in keeping balance on effective protection rates of imports and exports since 1987. In 1988, China reformed its trade system and implemented the "Export Contract Responsibility System," which loosened the central government's control over exports and imports. Under this policy, firms and individuals were given more rights to decide the price of their product and how many products they should produce. From the beginning of 1991, China reduced subsidies for exports and implemented a new trade policy in which all trading companies were asked to reduce their own costs and benefits. Through this, China's effective protection rate of exports will be reduced and the total effective protection rate will be neutral. This is an obvious feature of a strongly outward-oriented economy.

Trade liberalization is an important step toward an outward-oriented economy. China's international trade has become more and more liberalized in recent years since the reform of the trading system and outside pressures such as the GATT (WTO) conditions. From 1987, China has practiced a export promotion strategy and sharply reduced the central government's control over foreign trade. The most important steps of the reform have been: increased freedom to decide on imports and exports, reduction of subsidies to exports, giving firms more rights to pricing in order to compete in international markets, allowing export firms to have a certain percentage of foreign exchange, demanding that firms reduce costs and benefits by themselves, reducing some import quotas and custom duties, and changing the foreign exchange system from a ratio keeping system to a free exchange system in 1994. During the period of 1990-94, the Chinese government issued more important policies to liberalize its export sector in order to fit with the needs of reentering GATT. From 1993 and 1994, China began liberalizing its foreign exchange rate to match it to the international markets. At the same time, it began to eliminate most preferential policies for foreign investment and joint venture factories. These are some of those important policies NIEs had experienced during

TABLE 2. DEPRECIATION RATE OF CHINESE YUAN TO US DOLLARS

Base = Buying Price

Year	Dollar	Yuan	Depreciation rate %	Export value millions of US \$	Growth rate of export %
1980	1	1.53		18,120	
1981	1	1.74	13.70	22,010	8.6
1982	1	1.92	10.30	22,320	1.9
1983	1	1.98	3.20	22,230	1.4
1984	1	2.80	41.40	26,140	12.1
1985	1	3.30	14.30	27,350	14.0
1986	1	3.72	16.30	30,940	26.9
1987	1	3.72	0.00	39,440	20.1
1988	1	3.72	0.00	47,520	8.6
1989	1	4.72	26.90	52,540	18.1
1990	1	4.72	0.00	62,060	15.7
1991	1	5.30	10.40	71,840	18.3
1992	1	5.50	3.70	84,940	15.7
1993	1	5.74	4.40	91,760	8.1
1994	1	8.54	48.40	121,040	31.9

Source: Statistical Yearbook of China 1994.

their trade liberalization and are important features of an outward-oriented economy. This answered the incentive question in export sectors under a planned economic system-- if government had a good policy and gave firms more decision rights, firms and individuals could do very well on exports, as Taiwan did during 1960's-1980's. The depreciation of foreign exchange played very an important role in promoting exports. China devalued its foreign exchange rate many times since 1981. For example (See Table 2), the ratio of US DOLLARS to Chinese Renminbi (RMB) yuan, was one dollar to 1.53 yuan in 1980, 5.29 in May of 1991, 5.7 in 1992 and 8.54 in the mid 1994. The depreciation stimulated China's export growth.

Some point out that China's trade ratio and share of foreign trade should not be as high as it is now if we consider the effects of currency depreciation and the higher inflation. However, since every country experienced currency depreciation, we do not think it would be of value for us to study their model. For example, Taiwan experienced rates of depreciation as high as 100% in the 1960's. On the other hand, it is true that China has suffered increasing inflation, but data shows its average inflation rate was less than 5% during the 1980's. High inflation is a phenomenon of recent years. We are studying China's high growth with the same data without deflating GNP, so it is reasonable to do the research with same criteria. Therefore, we believe that depreciation and inflation have no big influence on our results.

## 2. The Application of ELG in China

There are four main criteria for defining a economy as an ELG. (1) trade ratio; (2) the shares of export values in the total world export value; (3) the Strongly Outward Oriented Economy; and (4) the structural changes of exports and economy. We will study the application of ELG in China by the above criteria.

We will see from data that China is fitting with the above criterias. China's share of export in total world exports was 0.92-- ranked fourteenth in 1989. In 1994, the same share reached 2.6%, ranked eleventh among all trading countries, followed Hong Kong and surpassing



TABLE 3. CHINA'S SHARES AND RANKING OF EXPORT IN THE TOTAL WORLD EXPORT  
Billions US Dollars, %

Year	Total world Export	China's Export	China's share of Export as % of Total World Export	China's Ranking in the World
1980	1993.9	18.27	0.92	28
1981	1974.5	20.89	1.06	21
1982	1853.5	21.82	1.12	18
1983	1811.9	22.20	1.23	17
1984	1943.6	24.42	1.26	19
1985	1957.8	25.92	1.32	16
1986	2110.0	27.04	1.28	18
1987	2450.0	34.72	1.42	17
1988	2683.0	40.60	1.43	16
1989	2898.9	52.54	1.80	15
1990	2879.5	62.60	2.10	14
1991	2758.5	71.84	2.10	14
1992	2716.9	84.94	2.20	13
1993	2848.6	91.76	2.50	12
1994	2862.8	121.04	2.60	11

Source: World Bank, World development Report 1995; Statistical Yearbook of China 1994.

South Korea. China's average annual growth rate of exports from 1981 to 1994 is 14.8%, much higher than that of Japan, Singapore, and South Korea. This is the reason why we believe China is an export-led economy-- if we believe Singapore, Taiwan, and South Korea were export-led economies.

The economic performance during 1981-1994 has proved that China demonstrated some obvious features of an outward-oriented economy, even some characteristics of strongly outward-oriented economy. I can conclude based on the above analysis, that China has been becoming a strongly outward-oriented economy, like South Korea and Singapore. For example, in 1989 the trade ratio of Singapore was 134.2%, it was much higher than China. In 1993, however, Taiwan's was 38.3%, South Korea's was 24.8%, nearly as the same as China's. So China is becoming a strongly outward-oriented economy from a moderately outward-oriented economy if we admit NIEs are a kind of strongly outward-oriented economy. We think this is an important characteristic or pattern of ELG.

The case of a high trade ratio in China also tells us that it is not necessary for large countries to have a low trade ratio. We think Mr.Fenberg's idea was correct 20 years ago but it is not true now and should be changed.

Another significant point is that China's case shows that there are still a lot of room for developing countries in the international market. Facing trade protectionism and growing regionalism, the world market is not shrinking but expanding due to the efforts of most countries and strategic change in the developing world. This fact answers the question posed by Klein.

### 3. A Test of the Coefficient Between Growth of Exports and GNP

In order to prove whether China is a typical case of ELG, we should answer the question of the relationship between exports and GNP. In other words, we have to prove if exports are

TABLE 4. COEFFICIENT OF THE GROWTH OF EXPORT AND GNP IN CHINA  
PERCENTAGE CHANGES AS PREVIEWS YEARS

Year	Growth Rate of GNP	Growth Rate of Export	Coefficient of Export & GNP	Growth rate of Import	Coefficient of Import & GNP
1980	6.6	32.9	1.85	27.7	
1981	4.9	18.6	1.84	8.5	1.35
1982	8.8	1.9	0.31	-12.6	-1.17
1983	10.2	1.4	0.15	12.9	1.10
1984	14.5	12.1	0.93	21.6	1.15
1985	12.7	10.1	0.90	63.9	1.64
1986	7.9	14.1	1.28	1.5	0.20
1987	9.4	26.9	2.20	0.5	-0.30
1988	11.2	20.1	1.24	27.4	1.37
1989	3.9	8.6	1.58	5.4	1.24
1990	5.1	18.1	1.79	-9.8	-1.40
1991	8.0	15.7	1.32	19.6	1.57
1992	13.6	18.3	1.11	26.4	1.25
1993	13.4	8.0	0.8	29.0	1.30
1994	11.8	31.9	1.4	11.2	0.98
Average	9.5	15.9	1.2	13.6	0.52

Note: The Coefficient is the ratio of the logarithms of import growth rate or export growth rate divided by the logarithm of GNP growth rate.

Source: Statistical Yearbook of China 1994.

an engine for all economic growth.

The growth of exports and the growth of GNP has a mutual relationship. We definitely cannot say that any growth of GNP is induced by exports. However, in the case of China, it is obvious that exports has a very strong coefficient with the growth of GNP. Economic indicators in Table 4 show that, export growth rate and GNP growth rate are closely correlated during 1981-1994. The average coefficient of correlation between export growth and GDP growth is 1.25. This is a very high coefficient. It means export growth made a great contribution to GNP growth. China's economic growth rate, mainly GNP or average annual growth rate, was 5.5% from 1965-1979. At the same time, export growth rate was about 6%. These indicators doubled in recent years. From 1981-1994, China's annual growth rate of GNP reached 11.1%, and annual growth rate of exports reached 14.8%. The coefficient of export growth rate and GNP growth rate is much higher than the coefficient of import growth rate and GNP growth rate (1.25:0.54). This means export growth rate has higher correlation with GNP growth rate than that of import growth rate with GNP growth rate. We can clearly see this kind of correlation: GNP growth rate would be higher if export growth rate was higher; GNP growth rate would be lower if export growth rate was lower. Even in 1990, when China suffered economic breakdown, GNP growth rate is 5.1%, much lower than 1988's 11.4%, but the export growth rate was still very high-- 18.1%. It would be worse if exports did not have a 18.1% growth rate. If we consider other sources of economic growth, the contribution of exports to GDP growth is about one-fourth. In other words, about four percentage points of export growth rate can generate one point percentage of GDP growth.<sup>9</sup>

<sup>9</sup> See A. Maizel, *Export and Economic Growth of Developing Countries*. Cambridge University Press, 1968; D. Healey, *Foreign Capital and Export in Economic Development: The Experiences of Eight Asian Countries*. Economic Record, September, 1973.

TABLE 5. CHINA'S TRADE SHARES AS PERCENTAGE OF GNP

Unit=Millions US Dollars, %

Year	GNP Values	Export Values	Import Values	Shares as % of GNP Export	% of GNP Import	Shares of Export & Import in GNP
1982	274,214	26,142	19,919	9.5	7.3	16.8
1983	293,496	26,528	21,686	9.0	7.4	16.4
1984	299,479	30,881	27,798	10.3	9.3	19.6
1985	291,106	31,615	42,789	10.9	14.7	25.6
1986	281,531	35,236	43,828	12.5	15.6	28.1
1987	304,336	44,124	44,407	14.5	14.6	29.1
1988	371,620	53,539	56,881	14.4	15.3	29.7
1989	416,295	57,997	62,239	13.9	15.0	28.9
1994	600,708	121,040	115,690	20.1	22.2	39.4

Source: IMF, World Tables 1990-91, 1993-94; Chinese Statistical Press, Statistical Yearbook of China 1994.

As Table 1 and 5 tell us, China has a higher share of foreign trade in GNP. The share of foreign trade value as a percentage of GNP value was 16.8 in 1982 and reached 39.4% in 1994. This means foreign trade value counted for over one-third in GNP. Therefore we can say the growth of foreign trade, especially the growth of exports, contributed over one-third to the total growth of GNP.

Export-led growth is obvious in some Special Economic Zones and Coastal Cities along the southeast Sea of China. In the coastal area of Guang Dong, the annual growth rate of exports was above the nationwide average. It resulted in a higher GNP growth for many years. Therefore we can conclude that China successfully practiced ELG.

Export growth played a very important role in the economic development of China. One important role was to encourage saving and capital accumulation. As we know, exports can create foreign exchange. We can increase our domestic saving and accelerate capital formation if we use foreign exchange to import capital goods from abroad. The capability of expanding savings scale and capital formation level is dependent on the scale of exports. Another function of exports is to create potential economic growth. Exports supply new materials and production equipment to firms and generate more production capability. Thus, exports make it possible to achieve a higher economic growth rate in the future.

Exports also generated huge domestic demand for new products and better living standards. China is a great country in terms of population. Exports did not decrease but increased demand because exports created foreign exchange and made it possible for Chinese to get more necessary products. Meanwhile, exports changed the structure of Chinese living, so that Chinese could reduce the consumption of traditional commodities and increase consumption of new products. This change reduced shortages of some traditional necessary products. China's case shows that EGL can create new domestic demand and market rather than restrict them.

Rapid increase in exports also improved living standards. China's per capita GNP increased from 290 US dollars in 1980 to 470 US dollars in 1992. As for depreciation of the exchange rate, the difference of real purchasing power, price difference, subsidies, different consumption content and other factors, China has made some progress in living standard since its reform and opening. This achievement not only is a rapid GNP growth rate, but also is the great improvement in some social indicators. For example, China's Human Development

Index (HDI) is 0.716, ranked it number sixty-two in the world in 1990. China became one of the few countries that GNP growth rate reached over 10% during 1981–94.<sup>10</sup>

#### 4. The Growth of Exports And Changes In Economic Structure

Klein has defined the criterion for ELG . He writes that only a country whose economic structure has changed into a manufacturing economy can be called an ELG. We can see that accelerating exports are changing China's economic structure and gradually satisfying Klein's criteria. In 1982, China's share of agriculture product as a percentage of total National Income was about 40%; In 1993, however, agriculture shares dropped sharply to 19%, and the share of industry and others (construction and services) as percentage of GNP reached 81%. Another change is sector structure. In rural areas, peasants produce more and more agricultural goods to export under the Family Production Responsibility System; Rural or village industries produced about one-third of export products. In urban areas, firms are innovating management and production methods with advanced foreign technology and new equipment. In the export sector, firms have transformed their primary manufacturing to high technology, high quality, high value-added manufacturing. Events have occurred in China in recent years just as Klein said in his recently published paper:

“It is clear that large-scale manufacturing transport a country to an advanced stage of economic development, and only in extraordinary cases will it be possible for countries to make the best economic advancement through a concentration on primary commodity markets. Manufacturing production and some (sophisticated) services must be produced in quantities large enough for export in order for the country to become an economy that delivers a high standard of living for its citizens.”

Klein believes the necessary condition of transforming a country from a low income agriculture economy to a high income industrial economy is the shift from an agriculture economy to an industrial economy. The sufficient condition for an export-led growth economy, then, is the shift from “mainstream large-scale manufacturing” to “large-scale high quality manufacturing.”

Klein then divides manufacturing into two types: large-scale Quantity Manufacturing and large-scale High Quality Manufacturing. Following this idea, I believe that a country can achieve rapid economic development and improve its living standard only when its export content mainly becomes manufactured goods. A country can become a great trading country only when its exports become mainly High Quality Manufactured Goods. At this case, we can identify a country as the “Export-led Growth Model.”<sup>11</sup>

China's economy can be identified as an ELG according to Klein's criterion. We can see from Table 6, 7 and 8 that China's export structure was quite reasonable in 1993: total exports of primary products fell to 19% exports of manufactured goods reached 81%. Also, in Table 7, total imports of primary products fell to 16% and total imports of manufactured goods (mainly machinery and transport equipment) reached 85%. Naturally, China is following EGL, becoming a typical export-led growth economy. Not only has the trade structure of

<sup>10</sup> See United Nations Development Program: Human Development Report, 1990, pp 128; The Economist Book of World Vital Statistics, 1990, London.

<sup>11</sup> Larence R. Klein, Can Export-led Growth Continue Indefinitely? An Asian-Pacific Perspective. *Journal of Asian Economics*, Vol. 1, 1990.

TABLE 6. STRUCTURE OF MERCHANDISE EXPORT OF CHINA  
PERCENTAGE SHARES OF MERCHANDISE EXPORT

Year	1980	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90	'93
Fuels, metals, Minerals	25	24	26	22		25	14	14	10	11	8	6
Other primary Commodities	28	23	20	21		21	22	16	17	19	18	13
Machinery and transport equipment	5	5	6	6		6	16	4	4	7	9	16
Other manufactures	26	27	34	32		48	48	66	69	63	18	65
Textiles and clothing	16	21	15	19		24	24		24	25	25	31
Total primary product									30	28	26	19
Total									70	71	74	81

Source: World Development Report 1995; Statistical Yearbook of China 1994.

TABLE 7. Structure of MERCHANDISE IMPORT OF CHINA  
PERCENTAGE MERCHANDISE IMPORT

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1993
Food	15	16	23	15		10	7	3	2	4	3
Fuels			1	1			1	2	2	3	6
Other primary commodities	29	20	18	18		13	5	11	16	10	7
Machinery & transport equipment	27	27	17	19		27	31	39	41	31	42
Other manufacture	29	37	41	47		50	56	46	49	47	43
Total primary product									18	20	16
Total manufacture									82	80	85

Source: World Development Report 1995.

China changed in keeping with the definition of ELG, but also the whole economic structure of China has been changing into an industrialized economy. Table 8 gives us a clear picture of advanced countries in the process of industrialization. It shows China is following the same course that advanced economies used.

### III. Some Theoretical Analysis on the Chinese Model

China's case shows that EGL can apply to large or even giant developing countries. But this does not mean that all developing countries or all giants can meet with success by following EGL. China's experience shows that this model must also be accompanied by some necessary conditions or policy reform.

TABLE 8. A COMPARISON OF ECONOMIC STRUCTURES OF SOME COUNTRIES AND AREAS IN 1993

Countries	Agriculture % of GDP	Industry % of GDP	of which Manufactures as % in Total Industry	Services etc., % of GDP
China	19	48	38	33
India	31	27	15	41
Bangladesh	30	18	10	52
Brazil	11	37	20	52
Australia	3	29	24	67
Germany	1	38	27	61
USA*	3	34	25	63
Japan	2	41	24	57
Sri Lank	25	26	15	50
Indonesia	19	39	22	42
Thailand	10	39	28	51

Source: World Development Report 1995.

\* 1990 data.

### 1. China's Experience: Export-led Growth Without Surplus Product

In the early literature of development economics, Myint studied the possibility of expanding international trade between LDCs and Developed Countries (DCs). His model was called "the Vent for Surplus."<sup>12</sup> Its main idea is that a poor country with a surplus of labor or product can develop international trade with other countries by its surplus in primary products. The poor country can improve its economic growth and welfare by expanding exports of surplus products. This theory had some progress by comparing itself to the classical theory of comparative advantage and the Hecksher-Ohlin theory of resource endowment which stress production specialization and labor division. But Myint's theory cannot explain why LDCs can develop foreign trade under the condition of no surplus product or shortage of domestic products. According to his theory, a country cannot develop its exports if it has no surplus of products or resources. In that case, it is impossible for a country lacking a surplus resource but facing huge domestic demand to export its necessary product.

However, the Chinese model shows that even a country having no surplus product facing a certain level resource shortage (for example, a shortage of oil, machinery, manufactured goods, or minerals) can still expand its international trade-- exporting parts of its shortage resources in exchange for more necessary goods that are most needed in some sectors. For example, China has shortage problems of refined oil, high tech-machinery and manufactured goods, some kinds of minerals ,etc. However, China exports great amounts of crude oil, manufactured goods (including textile products and electronic products) and machinery to other countries in exchange for foreign products China most needs in order to achieve rapid economic growth. This kind of exchange has helped China to strengthen its manufacturing and export sector. In this case we think that poor countries can, by the way of export promotion, accelerate economic development and make rapid progress in living standard.

<sup>12</sup> H. Myint, *An Analysis to Economic Backwards*. Oxford Economic Papers, June 1954.

## 2. Chinese Trade Patterns: Exporting Labor Intensive Products with Medium Technology

Another related international trade theory connected with the Myint model which should be reconsidered is pattern of trade. In the theory of factor endowment, Heckscher and Ohlin believe that the base of two countries' trade is their factor endowments: the country that has rich resource should specialized in resource intensive production; The country with rich capital resources should produce capital intensive goods. According to this theory, LDCs should produce primary products or labor intensive products and exchange these goods for developed country's capital intensive goods. However, this theory has been criticized by W. Leontief. He found, according to his study of trade inflows, the United States and some developed countries did not follow the rule: the United States exports mostly labor intensive products and imports mostly capital intensive products. Later, many economists proved the Leontief paradox by empirical studies. In my study, I found that China imports most capital intensive products and exports capital intensive products such as manufactured goods and high technology labor intensive products. China clearly did not follow the Heckscher-Ohlin rule. However, the Leontief paradox cannot explain China's case either, because China not only imports capital intensive products but also exports capital intensive products. We can see from Table 7 and 8 that China is a country with rich natural resources and surplus labor, but 81% of China's exports are manufactured goods and only 19% are primary goods. 85% of China's imports are manufactured goods and only 16% are primary goods. Among these manufactured goods, some are High Value Added Manufactured Goods, Capital Intensive Goods or Medium Technology Labor Intensive Products such as machinery, computers, electronic products (TV, telephones, radios, cassette players), and textile products. Some of these products, especially joint-venture factory manufactured goods, are produced with a cheaper labor force and high technology. This kind of Medium Technology and Labor Intensive Product is more competitive in the international market. That is one of the secrets of China's success in export promotion. The Chinese model shows that developing countries or large developing countries can expand exports with a mixture of a cheaper labor force and higher technology introduced from industrialized countries. The necessary condition is the production and export of High Value Added, Medium Technology and Labor Intensive manufactured goods. We can call this kind of model, in terms of international trade theory, the Chinese Model or Medium Technology Labor Intensive Export Pattern. Based on the above analysis and conditions, I think that this model can apply to most developing countries and some large developing countries.

## 3. Chinese Model: A Giant with Rapid Export Growth and Economic Development

The arguments over whether or not large developing countries can apply ELG are focused on two questions: resources and agriculture. Some economists think that it is difficult to encourage large countries to develop international trade because they have sufficient natural resources such that they can produce most commodities their people needed and rely have a self-sufficient economy. In fact, this is not true. First, in modern society, a country cannot produce every kind of product its people needed without any international exchange, even if it is rich in resources. This is due to the fact that every country has a certain level of production

division and some production has been specialized for some historical or natural reason. Needless to say, small countries, even if relatively large, cannot produce all goods for the nation. Second, large countries have rich resources, but this does not mean that a country can deploy its natural resources and use it by themselves. Large countries have rich resources but often lack technology and machinery to deploy those resources. So it is still necessary for resource rich countries to expand international trade with other countries in order to exchange for necessary goods the domestic economy needs. Fourth, a nation's economic growth would be faster if it exchanged goods with other countries according to comparative advantage theory. China is a large country with rich natural resources (in terms of total amount). It has successfully exported some products (even some products needed in domestic markets) to the world market, and received back products that are most needed to deploy its natural resources and strengthen industry.

The biggest problem related to exports in large countries is agriculture. Large countries have large population which means that food supply is the most important target. Here two questions can be raised: (1) What is the priority of economic development in all sectors? (2) What is the relationship between exports and agriculture? In many developing countries, governments treated agriculture as a priority development sector due to population pressure. Unfortunately, those nations that paid great attention to agriculture and concentrated most resources on agriculture did not solve fundamental food problems-- partly because agriculture could not be developed only by developing the agriculture sector. On the other hand, those countries that focussed on industrialization before agriculture modernization did not solve food problems either. Only those countries that maintained a general balance between development of industry and agriculture did better in industrialization and agriculture transformation. Large countries with great population should develop agriculture first by agricultural reform and developing agriculture related industry. But this does not mean that the industry is unimportant. Actually, a nation's agriculture can be developed only when its industry is strong enough to support the basic needs of agriculture. Only then can a nation's industry be developed-- after its basic food problem has been solved. This is the case of China. China reformed its agriculture after 1978 and supplied basic food to their people. In 1984, most of the population in China had enough food to eat. Since then, China began to reform its industry based on continuous good harvests and its industry has grown very fast. In return, accelerating industrialization promoted agriculture development. In the first half of 1980's, China gave some priority to its industry sector, but still took agriculture as the first priority. Simultaneously, China paid great attention to developing agriculture by developing related industries. One successful example is the development of rural industry in agriculture sector. Rural industry contributed a lot to agriculture production, innovation of agriculture technology, increase of agriculture productivity, absorption of surplus labor force in the agricultural sector, and promotion of peasant's living standards. Meanwhile, rural industry contributed two-fifth of the total value of national industry. China's case shows that agriculture can be developed if the nation maintains balanced growth in agriculture and industry.

There are some contradictions between agriculture and exports because resources are limited in most developing countries. Even in large countries, resource shortages pose a serious problem. China cannot supply enough capital, technology, machinery and agriculture goods to its agriculture sector. However, it still invested lot capital in its export industries and exported great amounts of resources and products that are needed in agriculture. In some years, this



hurt agriculture and led to a reduction in agriculture output. That is one reason for the slowdown in agriculture productivity in recent years. But in normal situations, export expansion does not hurt agriculture but helps it. Since 1987, China has carried out export promotion strategy and achieved great success in the export sector. Meanwhile, agriculture benefitted greatly from exports. For example, exports increased China's import capability so that China could import more advanced agriculture machinery, chemical products and technology for reforming its traditional agriculture. In addition, the other hand, export stimulated the development of rural industries. In 1990, the export value of rural industries counted for about one-fourth of the value of total national exports. The export of agricultural manufactured goods had increased along with the increase of total exports in recent years. Based on this analysis, we can see that exports frequently have a positive effect on agriculture. So large countries can develop their exports with the help of agriculture, or rather, large countries can develop the agriculture sector with the help of exports.

#### **4. The Advantage of the Chinese Model: Better Capability in Adjusting to Outside Shocks**

Since China is a large developing country or giant, China's case has some differences from other LDCs or NIEs. One most important difference is that China can adjust to outside shocks. China has rich resources, so it can be "self-sufficient" in some sectors, avoiding some international shocks to prices and economic growth. In 1980's, many western countries suffered from a deep recession, but China achieved a 13.7% GNP growth rate during that period. In recent years, some NIEs have lost their advantage of cheap labor, but China still holds its advantage of cheaper labor because China is a large country-- investors can find plentiful supplies of cheap labor in Central China or Northwest China, even though the labor cost has been going up rapidly in some areas (for example, Special Economic Zones and Coastal Cities). This is an advantage of a large country. In this case, I believe, the large developing country not only can follow the Export-led growth model, but also have some advantages: the mixture of cheap labor force and medium technology, the mixture of dependence on international markets and independence from international markets (a degree of self-sufficiency), the mixture of huge, stable domestic markets for investment and consumption and limited, small, unstable international markets for investment and consumption. These advantages make large countries more flexible than small countries in responding to international shocks.

#### **5. China's Trade Pattern: Diversified Trade Destinations**

Another important feature of the Chinese model is the diversity of its trading partners. According to data in 1989, most of China's exports flowed into LDCs, counting for 58.7%. China has more than 100 trading partners in the world, although Hong Kong, Japan and the United States are its major trading partners (see Table 9). Thus, the Chinese model is different from the model of NIEs which relied heavily on exports to the American market. NIEs are dependent on the United States: there would be an earthquake in the NIEs if there was an economic volcano eruption in the United States. The NIEs economies would be much worse off if The United States had a recession and their exports would be reduced greatly if the United States had a big trade deficit. However, China's exports do not rely wholly on

TABLE 9. MAIN TRADE PARTNERS OF CHINA IN 1993

Millions of US Dollars, % of

Ranking	Countries and Areas	Total Foreign Trade Values	Export Shares	Export Value	% of Shares	Import Values	Import Shares	Balance
	Total	195,713	100.0	91,763	100.0	103,950	100.0	-12188
1	Japan	39,033	19.9	15,779	17.2	23,253	22.4	-7474
2	Hong Kong	32,537	16.6	22,064	24.0	10,473	10.1	11591
3	USA	27,652	14.1	16,964	18.5	10,688	10.3	6276
4	Taiwan, China	14,395	7.4	1,462	1.6	12,933	12.4	-11471
5	Germany	10,008	5.1	3,969	4.3	6,040	5.8	-2071
6	Korea, Rep.	8,220	4.2	2,860	3.1	5,360	5.2	-2500
7	Russia	7,679	3.9	2,692	2.9	4,987	4.8	-2206
8	Singapore	4,891	2.5	2,245	2.4	2,646	2.5	-401
9	Italy	4,042	2.1	1,305	1.4	2,737	2.6	-1433
10	Australia	3,010	1.5	1,061	1.2	1,949	1.9	-888

Source: Japanese Trade Association, Trade of Japan and the World 1994.

American markets even though the United States is its third largest trading partner. Table 9 shows that China's export destinations in 1993 have been diversified to many countries. Most export goods flowed into Asian countries even though more and more are flowing into industrialized countries. Export flow to the United States was 9.9% in 1989 but fell to about 7% in 1994. The 7% figure would be less if were to take out the amount of re-exports from China to Hong Kong (and other countries and areas) and from Hong Kong to the U.S. We can see that the American market is very important to China's exports; American markets contributed greatly to China's exports and its effect is much bigger than its real value of trade. However, this does not mean that China would not expand its exports without American markets. China now is developing trade relationships with most LDCs and DCs, including European countries. In this way, China's export destinations will be diversified further. Thus, American markets will not be the only important destination for China's exports. The Chinese model shows that it would be easier for large countries to avoid this kind of shock if the country diversified its trade destinations.

China has achieved some progress in export promotion, but some problems remain. First, agriculture productivity has been going down for many years because the government has paid too much attention to exports and paid little attention to agriculture in recent years. China should adjust its export strategy a little bit. Second, China's level of exports is still low compared with advanced countries and NIEs. China should improve its trade stature and export more high technology, high value-added and high quality products to become a new industrialized country. Third, China's export system, especially pricing system, should be reformed further in order to integrate into the international system. Fourth, China should improve its quality of export products and reduce its production costs in order to compete in the world market. Finally, some trade problems such as trade balances with other countries, shortage of foreign exchange in export enterprises, import quotas, etc., should be solved as soon as possible.

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