Shifts in Trade Pattern of China since 1992 to 2012

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Abstract: China's integration into world economy after its accession to WTO has proved a milestone in its economic success. It has emerged as a largest merchandise trade giant surpassing all the countries the in the world. In the present paper, an attempt has been made to measure its openness to foreign trade, role in international trade and the changing trade structure, for that Trade Openness Index, Major Export/Import Category Index, Revealed Comparative Advantage Index have been used. It has been found that from 1970 to 2007, its foreign trade openness has increased ten times. Its export structure has shifted from primary goods to manufacturing goods and import structure has shifted from manufacturing goods to primary products. Its increasing share of export and import in world market has astonished the entire world.

Keywords: China, Shifts, Trade Pattern, WTO

INTRODUCTION

Since last thirty years, China has been enjoying a very high growth rate averaging about ten percent which attracted the attention of world's analysts to inspect the different aspects of Chinese economy. The Chinese economy is world's second largest economy with USD 12.471 trillion in terms of Purchasing Power Parity (PPP) in 2012 after the USA. China established itself as a world's biggest merchandise exporter and second largest importer of goods (WTO). China took many steps of economic reforms to improve its economic performance at universal level but one of the major economic reforms which proved milestone in the path of economic growth of China is its entry to the World Trade Organization (WTO).

A number of studies have been done for understanding the increasing trade relevance of China in international market. Some selective studies have been reviewed here. According to Chunyan et al [1] auto engineering is one of the mainstays in Chinese economy with increasing comparative advantage. The trend of comparative advantage of China's Auto industry gradually increased from minus 0.05 in 1998 to 0.86 in 2009, almost 16 times. They concluded that comparative advantage is the efficiency advantage and a country has a comparative advantage in products of higher efficiency. Akhtar et al analyzed the comparative advantage of the footwear industry in Pakistan at HS two-digits and four-digits level and compared it with China and India in the global perspective for years 1996 to 2006 [2]. At HS-2 level, Pakistan has experienced an

increasing movement in comparative advantage in footwear but RCA index has been seen greater than unity since 2003 and kept on increasing after that. India and China both have been enjoying comparative advantage in footwear sector. China's RCA is greater than one since 1996 but it shows a decreasing pattern from 2001. India experienced RCA with increasing movement since 1996 to 2002 and India still has comparative advantage in this industry but with the decreasing pattern. Shinoj et al have made an attempt to measure the change in RCA trend in major agricultural export products e.g. rice, tea, coffee, spices, of India from 1990 to 2004 and tried to compare it with other Asian countries like China, Vietnam, Indonesia, Thailand, Philippines, Turkey, Sri Lanka and Pakistan[3]. Batra et al assessed the RCA index of India at 2 digit and 6 digit level of HS classification and compared it with China[4]. They studied that the RCA index of India and China for the years 2000 and 2003 for observing the Change in the structure of comparative advantage in 2003. They found that the sectors which are included in top ten according to the value of RCA index are not necessarily able to maintain their position when assessed at 6 digit constituent commodity level. In case of India, except cotton, no other sector that ranks among the top ten retains its position at dis-aggregated level. In case of China, textile, sets, worn clothing is so positioned. Both the nations enjoyed maximum advantage in the category of manufactures chiefly by material followed by agriculture and allied products.

In this paper, keeping the aspect of China's accession to WTO, an attempt has been made to inspect its openness to foreign trade, increasing role in international market and changing trade structure.

RESEARCH METHODOLOGY

The study utilizes the trade dependence index for measuring the openness of the Chinese economy. It is a measure of the importance of international trade in the overall economy. It gives an indication of the degree to what extend an economy is opened to the foreign trade. Its value ranges between 0 to ∞. Zero value of index indicates no trade and infinity shows total dependency of foreign trade. It is defined as follow:

$$TOI = \frac{X + M}{GDP} \times 100$$

Where
TOI = Foreign Trade Openness Index (TOI)
X = Total bilateral export of the country
M = Total bilateral import of the country
GDP = Gross Domestic Product of the country.

To serve the purpose, data have been sourced from UNDATA (United Nationa's Statistical Division) which covers a 43 years period from 1970 to 2012. The annual time series data are based on the constant price of 2005 in USD. To know the sectoral structure of China's foreign trade two more indices have been used in the study as given further.

Major Export/ Import Category Index: to know the sectoral export and import share of China in its foreign trade, major export/ import category index has been used. It addresses the trade profile of an economy by measuring the proportion of total exports/imports of the economy that are accounted for by particular product categories. This is useful for evaluating the sectoral structure of China's trade. The index can be defined as the percentage share of exports of particular product categories of the country to its total exports/imports.
It is as follow:

$$MXC = \frac{x_i}{X} \times 100$$

$$MMC = \frac{m_i}{M} \times 100$$

MXC = Major export category index of the country
x_i = export flow of commodity i from the country to the world
X = Total export flow of the country to the world
MMC = Major import category index of the country
m_i = Import flow of commodity i by the country from the world
M = Total import flow to the country from the world

The value of the index ranges between 0 to 100 percent, a high value indicates greater importance of the product in the export profile of the economy. If no single category accounts for 50 percent or more of total exports, the economy is classified as diversified. The next index is Revealed Comparative Advantage (RCA) index which tells us in which product(s) economy has comparative advantage which is expressed in terms of relative prices in absence of trade. Since these are not seen in practice thus it has been measured indirectly using RCA. The RCA is defined as the ratio of two shares. The numerator shows the share of a commodity export of a country in its total exports and the denominator shows the share of the same commodity or product export of the world in total world export. Thus

$$RCAic = (x_{ic}/X_c)/(x_{iw}/X_w)$$

Where
RCAic = Revealed Comparative Advantage of country c in product/commodity i
x_{ic} = export of commodity i by country c
X_c = total export of country c to the world
x_{iw} = total export commodity i in the world
X_w = total export of the world

$$RCAic = (m_{ic}/M_c)/(m_{iw}/M_w)$$

RCAic = Revealed Comparative Advantage of country c in product/commodity i
m_{ic} = Import flow of commodity in to country c from the world
M_c = Total import flow to country c from the world
m_{iw} = total import flow to the world from all countries in the world
M_w = total import flow to the world from all countries in the world

The value of RCA index varies from 0 to + ∞. If the RCA index for particular industry or product is greater than one, it implies that the country has a revealed comparative advantage in the export/import of that commodity. To serve to the purpose, data have been sourced from http://comtrade.un.org (United Nations Commodity Trade Statistics Database) which cover 21 years period from 1992 to 2012. Goods are defined according to SITC Revision-3. Besides this, for glancing at the role of China in the world trade, percentage share of China's export and import in world's trade has been calculated. For this purpose, data on total merchandise trade have been taken from WTO for a long period of 64 years from 1948 to 2012.

FINDINGS AND DISCUSSION
Foreign trade openness of China 1970-2012

Before adopting the reform and opening up policy in 1978, China's economy was a State governed economy. The State used to enjoy benefits and bear up losses as well. China's foreign trade was governed by Government but since the reform and opening up policy was started, Chinese economy has been becoming more and more opened and global integrated economy. In 1970, the total value of China's foreign trade of goods

and services was only 8.46 billion and its TOI was very low, only 7.1 percent. As the result of economic reforms and opening up policy, its foreign trade has been growing very rapidly. The value of China's foreign trade reached USD 43.89 billion in 1980 and 129.32 billion in 1990. On the eve of its entry to WTO in 2001 China's foreign trade was USD 769.467 billion with 49.5 percent of TOI. China's entry to the WTO accelerated its foreign trade. In 2012, China's foreign trade reached USD 2.93 trillion with 63.9 percent TOI.

Fig-1: China's Trade Openness Index: 1970 to 2012 (Source: Calculation is based on United Nation's Statistics Division data)

After the liberalization of foreign trade system and exchange rate regime in 1978 China had been enjoying a substantial export growth averaging 13.6 percent per year from 1980 to 2000, for higher than the world average of 5.9 percent over the same period [5-6]. China's share in total merchandise export of the world has been increasing continuously. In 1950, it was 0.89 percent but after the reforms it caught speed and reached 0.98 percent in 1980 and 3.9 percent in 2000 after entry to the WTO, a great surge has been observed in its export. In 2000, China was the seventh largest international exporter after the USA, Germany, Japan, France, UK and Canada. China surpassed all the developed and export giant countries like UK, France, Germany, the USA , Japan etc. after becoming the member of WTO; whereas the other faster growing emerging economies like Brazil, Indonesia, Singapore, India, South-Africa etc. are creeping to increase their share of merchandise export between 1 to 3 percent. In 2002, China overtook EU with 5.01 percent share in world merchandise export. China surpassed France in 2003, Japan in 2004, the USA in 2007 and Germany in 2009 (see Figure 2).
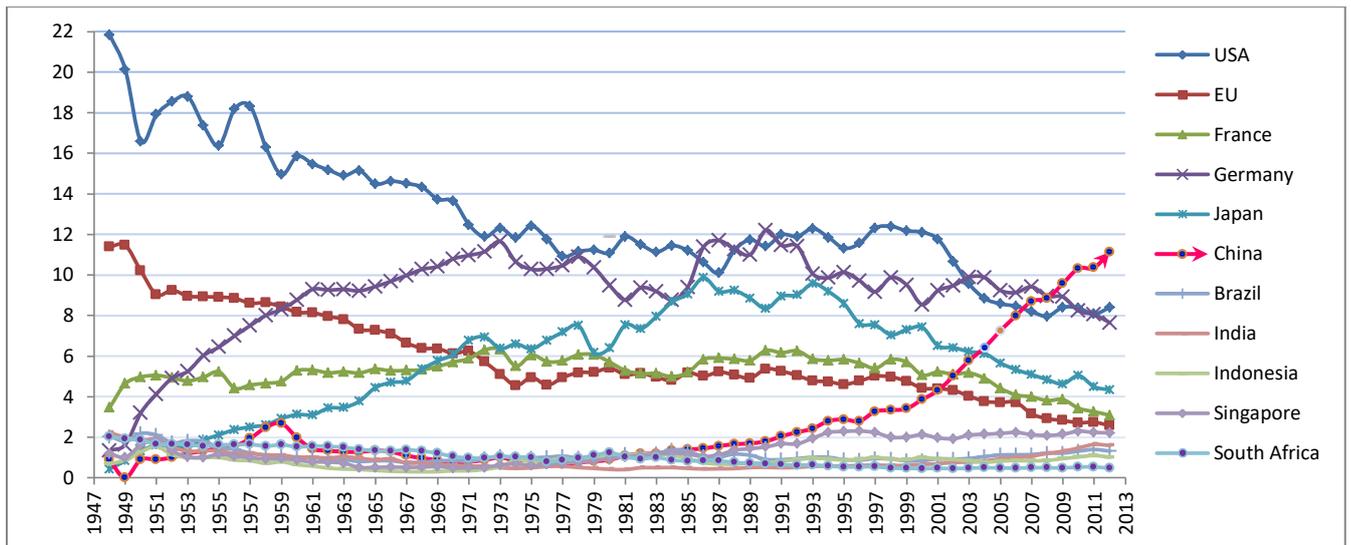
Fig- 2: Export share of Major Developed and Developing countries in Total Merchandise Export of the World since 1948 to 2012 (Source: Appendix 1A)

Instead of world's largest exporter, China established its identity as the giant importer of goods in international trade. Surpassing all the developed countries except the USA, China became the second largest importer of the world in 2012.
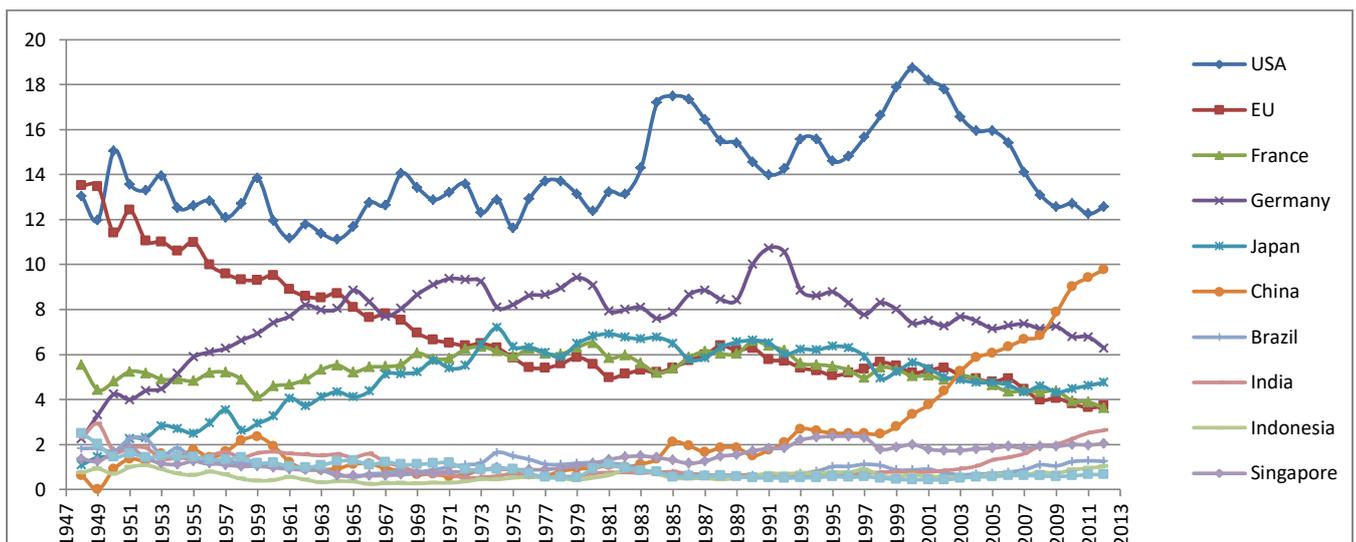
Fig-3: Import share of Major Developed and Developing countries in Total Merchandise Import of the World since 1948 to 2012 (Source: Appendix 1B)

In 1950, China's share in total merchandise import of the world was not very notable. But since the opening up policy and reforms in 1978 was started, it started catching the eyes of the world. In 1970, China's share of goods import in the world was 0.69 percent with value of USD 2.28 billion. In 1980, it reached 0.96 percent and 1.5 percent in 1990. By 2000, it surpassed almost all the emerging economies like Singapore, Brazil, India, South-Africa, Indonesia. After becoming the member of the WTO in 2001, it started surpassing most of the developed countries. First of all it surpassed three major import giants like Japan, France and EU in 2003 with 5.25 percent share in the total goods import of the world and became the second largest

merchandise importer of world after the USA in 2012 (see Figure 3).

The Foreign Trade Structure of China

Now it would be better to know that what kind of structural change China has experienced in its foreign trade during its reform period, in what sectors it gained comparative advantage on aggregated level at digit-1 level of SITC Rev. 3.

China's Export of Goods and RCA 1992-2012

It has been identified that trade structure of China in goods has changed. China's export structure of commodity has been shifting from primary products to manufactured goods since 1992 to 2012. Since the

adaptation of economic reforms and opening up policy, China has been promoting its foreign trade on all fronts. The European Union, the USA, Hong-Kong China, Japan, Korea, Brazil, India and Russia have become China's major trade partners. The share of primary products in total merchandise export of china has been decreasing continuously. It decreased from 20 percent in 1992 to 4.9 percent in 2012. The share of manufactured products has been increasing very sharply.

In 1992 it was about 79.5 percent and it reached 95 percent of total commodity export of China in 2012. Machinery and transport equipment (7) has played a greater role in China's export. Its share in total commodity export of China has increased over time. In 1992, it was 15.5 percent and increasingly it reached 47.1 percent in 2012. The share of chemical and related products, n.e.s. (5) remains almost same while in the share of manufactured goods classified chiefly by material(6) and miscellaneous manufactured articles(8), a declining trend has been observed. Although both the sectors (6,8) have been enjoying comparative advantage in export since 1992 to 2012 with a constant trend. But chemicals and related products (5) have been facing disadvantage since 1992. A very important consequence has been noticed regarding the export of machinery and transport equipment that after becoming the member of the WTO, China started gaining comparative advantage in export of these products. Before entering the WTO China was facing comparative disadvantage in this sector, although, this disadvantage has been decreasing continuously and the share of this sector in the total export has been increasing. In case of export of primary products, China enjoyed comparative advantage in food and live animal by 1994 after that it had to face increasing disadvantage in this sector. In export of crude material, inedible, except fuels (2), mineral fuels, lubricants and related material (3), animal and vegetable oils, fats and waxes(4) and SITC-9 have never enjoyed comparative advantage from 1992 to 2012. Besides this, their comparative disadvantage increased over time. The shares of textile yarn and related products (65), footwear (85), clothing and apparel (84) which used to comprise a great part of manufactured exports of China have decreased over time while the shares of other industrial machineries and parts (74), office machines and data processing machines (75), telecommunications and sound recording apparatus (76) have increased rapidly over time.

China's Import of Goods and RCA 1992-2012

In past 21 years, China's import structure has changed fundamentally. Its imports shifted from manufacturing sector to primary sector. The share of primary products in total imports of China was 15.79 percent in 1992 which became 34.22 percent in 2012 and share of manufactured products which was estimated 82.8 percent in 1992 and 85.7 percent in 1993 has decreased to 61.3 percent in 2012. Nevertheless, the share of manufactured goods remains higher than the share of primary products over the period in total merchandise imports of China. Crude material, inedible, except fuels (2), mineral fuels, lubricants and related materials (3) are those primary sector products whose share in total goods import of China has been observed increasing in last twenty years. Despite this, shares of food and live animal (0), beverages and tobacco (1), and animal, vegetable oils, fats and waxes (4) have decreased over time as primary products. The share of manufactured goods classified chiefly by material (6) has declined sharply from 23.9 percent in 1992 to 8 percent in 2012. The share of chemical products and related products n.e.s. has been noticed decreasing slowly. The share of machinery and transport equipment (7) and miscellaneous manufactured articles (8) increased slowly from 1992 to 2007 but after that a gradual decline has been seen during the period of global recession or financial crunch from 2008 to onward. The share commodities and transaction included in SITC-9 has increased in total goods import of China from 2008 to 2012. Oils seeds and oleaginous fruits (22), crude rubber (23), cork and wood (24), pulp and wastes (26), metallic ferrous ores and metal scarp (28) and petroleum products (33) are main of primary products which comprise a big part in primary products import of China. The share of crude rubber (23), textile fibers and their wastes (26) and fixed vegetable oils and fats has decreased over time in total primary products import of China. The shares of oil seeds and oleaginous fruits (22), metallic ferrous ores and metal scarp (28), coke and briquettes (32) and petroleum products (33) have been increasing since 1992 to 2012 in total primary imports of China. Likewise, the shares of organic chemicals (51), plastic in primary form (57), office machines and automatic data processing machines (75), electrical machinery, apparatus and appliances (77) and professional and scientific instruments (87) have been decreasing in total manufactured imports of China since 1992 to onward. The share of leather and dressed fur skin (61), paper and textile yarn (64,65), iron and steel (67), specialized machinery, metal working machinery, telecommunication and sound recording apparatus, other transport equipment (72, 73, 76, 79) and miscellaneous manufactured articles (89) have been observed decreasing during the same period. Glimpsing on Table 2, it is observable that manufactured goods (6), machinery and transport equipment (7) are major import categories of china. The share of mineral fuels, lubricants (3) have increased also, although China has never experienced revealed comparative advantage has been decreasing over time. China enjoyed comparative advantage in the import of machinery and transport equipment (7) from 1992 to 2012 except the years 1997, 1998. China has also gained revealed comparative advantage but in the import of chemical and related

products (5) and manufactured goods (6) but it had to face disadvantage after 2007 and 2003 respectively.

Table 1: China's Major Export Categories and Revealed Comparative Advantage: 1992 to 2012

C C	0- Food and live animals		1-Beverages and tobacco		2-Crude materials		3-Mineral fuels, lubricants		4-Animal and vegetable oils, fats and waxes		5-Chemicals and related products		6- Manufactured goods classified chiefly by material		7- Machinery and transport equipment		8- Miscellaneous manufactured articles		9-not classified elsewhere in the SITC	
Years	MXC	RCA	MXC	RCA	MXC	RCA	MXC	RCA	MXC	RCA	MXC	RCA	MXC	RCA	MXC	RCA	MXC	RCA	MXC	RCA
1992	9.78	1.28	0.85	0.65	3.69	0.92	5.52	0.79	0.16	0.39	5.12	0.55	19.00	1.20	15.54	0.40	39.85	2.93	0.48	0.21
1993	9.16	1.23	0.98	0.80	3.32	0.88	4.48	0.66	0.22	0.53	5.04	0.56	17.87	1.15	16.64	0.43	41.91	3.06	0.39	0.12
1994	8.28	1.13	0.83	0.66	3.40	0.88	3.36	0.55	0.41	0.80	5.15	0.55	19.19	1.24	18.09	0.46	41.03	3.06	0.27	0.09
1995	6.69	0.93	0.92	0.80	2.93	0.72	3.58	0.64	0.30	0.55	6.11	0.63	21.67	1.34	21.11	0.53	36.44	2.86	0.23	0.07
1996	6.77	0.95	0.89	0.75	2.67	0.71	3.93	0.53	0.25	0.52	5.88	0.62	18.87	1.22	23.38	0.59	37.25	2.93	0.12	0.04
1997	6.06	0.89	0.57	0.50	2.29	0.62	3.82	0.58	0.35	0.70	5.59	0.59	18.84	1.24	23.91	0.59	38.36	2.95	0.20	0.06
1998	5.77	0.88	0.53	0.48	1.91	0.57	2.82	0.50	0.17	0.31	5.61	0.57	17.67	1.17	27.32	0.65	38.19	2.91	0.00	0.00
1999	5.37	0.87	0.40	0.37	2.01	0.65	2.39	0.34	0.07	0.15	5.32	0.54	17.06	1.19	30.18	0.71	37.12	2.85	0.09	0.03
2000	4.93	0.92	0.30	0.33	1.79	0.58	3.15	0.31	0.05	0.15	4.85	0.54	17.07	1.26	33.15	0.81	34.51	2.81	0.21	0.05
2001	4.80	0.83	0.33	0.35	1.57	0.52	3.16	0.33	0.04	0.13	5.02	0.52	16.47	1.22	35.66	0.88	32.74	2.60	0.22	0.05
2002	4.49	0.78	0.30	0.31	1.35	0.46	2.59	0.28	0.03	0.08	4.71	0.45	16.26	1.19	39.00	0.97	31.07	2.48	0.20	0.05
2003	4.00	0.70	0.23	0.25	1.15	0.38	2.54	0.26	0.03	0.06	4.47	0.42	15.75	1.16	42.85	1.09	28.77	2.33	0.22	0.05
2004	3.18	0.60	0.20	0.24	0.98	0.31	2.44	0.23	0.02	0.06	4.44	0.42	16.96	1.21	45.21	1.16	26.36	2.24	0.19	0.04
2005	2.95	0.57	0.16	0.19	0.98	0.30	2.31	0.19	0.04	0.09	4.69	0.44	16.95	1.22	46.23	1.21	25.48	2.21	0.21	0.06
2006	2.65	0.54	0.12	0.16	0.81	0.24	1.83	0.13	0.04	0.10	4.60	0.45	18.04	1.29	47.10	1.26	24.56	2.23	0.24	0.06
2007	2.52	0.49	0.11	0.15	0.75	0.21	1.71	0.13	0.03	0.06	4.95	0.47	18.05	1.25	47.36	1.28	24.34	2.22	0.18	0.04
2008	2.29	0.43	0.11	0.14	0.79	0.22	2.22	0.13	0.04	0.07	5.54	0.53	18.34	1.34	47.11	1.37	23.43	2.28	0.12	0.03
2009	2.71	0.43	0.14	0.15	0.68	0.20	1.70	0.13	0.03	0.05	5.16	0.45	15.38	1.22	49.19	1.44	24.88	2.15	0.14	0.02
2010	2.61	0.45	0.12	0.16	0.74	0.18	1.69	0.12	0.02	0.05	5.55	0.50	15.79	1.21	49.51	1.44	23.89	2.20	0.09	0.02
2011	2.66	0.46	0.12	0.16	0.79	0.18	1.70	0.10	0.03	0.05	6.04	0.56	16.83	1.28	47.55	1.46	24.16	2.27	0.12	0.03
2012	2.54	0.42	0.13	0.16	0.70	0.16	1.51	0.11	0.03	0.04	5.54	0.50	16.31	1.27	47.12	1.38	26.05	2.30	0.07	0.01

Source: Calculation is based on UN COMTRADE statistics

C C stands for commodity code. Detail description of commodity codes has been given in Appendix 2

Table 2: China's Major Import Categories and Revealed Comparative Advantage: 1992 to 2012

C C	0- Food and live animals		1-Beverages and tobacco		2-Crude materials		3-Mineral fuels, lubricants		4-Animal and vegetable oils, fats and waxes		5-Chemicals and related products		6-manufac-tured goods classified chiefly by material		7- Machinery and transport equipment		8-Miscella-neous manufactured articles		9-not classified elsewhere in the SITC	
Years	MMC	RCA	MMC	RCA	MMC	RCA	MMC	RCA	MMC	RCA	MMC	RCA	MMC	RCA	MMC	RCA	MMC	RCA	MMC	RCA
1992	3.90	0.51	0.30	0.27	7.16	1.53	4.43	0.48	0.65	1.72	13.88	1.50	23.92	1.53	38.17	1.07	6.86	0.49	0.73	0.30
1993	2.12	0.29	0.24	0.22	5.23	1.16	5.60	0.63	0.48	1.26	9.36	1.04	27.44	1.78	42.85	1.18	5.99	0.43	0.69	0.23
1994	2.71	0.37	0.06	0.06	6.43	1.39	3.49	0.45	1.57	3.53	10.49	1.12	24.29	1.55	44.52	1.19	5.81	0.43	0.64	0.23
1995	4.64	0.65	0.30	0.31	7.69	1.63	3.88	0.53	1.97	3.89	13.10	1.32	21.78	1.36	39.86	1.06	6.14	0.48	0.65	0.23
1996	4.09	0.57	0.36	0.36	7.70	1.80	4.95	0.58	1.22	2.68	13.04	1.36	22.61	1.50	39.45	1.04	6.04	0.47	0.54	0.18
1997	3.02	0.45	0.22	0.23	8.43	2.03	7.24	0.85	1.18	2.60	13.55	1.41	22.63	1.52	37.07	0.96	5.99	0.46	0.66	0.22
1998	2.70	0.40	0.13	0.13	7.64	2.01	4.83	0.75	1.06	2.12	14.37	1.45	22.16	1.46	40.53	1.00	6.03	0.45	0.54	0.19
1999	2.18	0.34	0.13	0.13	7.68	2.17	5.38	0.75	0.82	1.93	14.50	1.47	20.71	1.45	41.92	1.02	5.84	0.44	0.83	0.29
2000	2.11	0.39	0.16	0.19	8.89	2.55	9.17	0.89	0.43	1.39	13.42	1.44	18.57	1.36	40.84	1.02	5.63	0.45	0.77	0.19
2001	2.04	0.35	0.17	0.18	9.09	2.67	7.17	0.72	0.31	0.99	13.18	1.31	17.22	1.27	43.94	1.12	6.19	0.48	0.69	0.18
2002	1.77	0.30	0.13	0.14	7.70	2.35	6.53	0.70	0.55	1.47	13.22	1.24	16.43	1.21	46.42	1.19	6.71	0.52	0.53	0.14
2003	1.44	0.25	0.12	0.13	8.27	2.47	7.07	0.69	0.73	1.73	11.87	1.08	15.48	1.15	46.72	1.22	8.00	0.63	0.31	0.09
2004	1.63	0.30	0.10	0.11	9.86	2.74	8.55	0.76	0.75	1.81	11.67	1.08	13.18	0.96	45.05	1.18	8.93	0.74	0.27	0.07
2005	1.42	0.27	0.12	0.15	10.64	2.98	9.69	0.71	0.51	1.36	11.78	1.08	12.30	0.91	44.01	1.19	9.22	0.79	0.30	0.10
2006	1.26	0.25	0.13	0.17	10.51	2.85	11.25	0.77	0.50	1.33	11.00	1.05	10.98	0.81	45.11	1.24	9.01	0.81	0.26	0.07
2007	1.20	0.23	0.15	0.19	12.33	3.09	10.99	0.78	0.78	1.85	11.24	1.04	10.76	0.76	43.16	1.20	9.13	0.82	0.26	0.07
2008	1.24	0.23	0.17	0.23	14.72	3.53	14.94	0.86	0.94	1.79	10.51	0.99	9.46	0.71	39.02	1.17	8.61	0.83	0.39	0.09
2009	1.47	0.24	0.19	0.22	14.00	3.66	12.33	0.86	0.77	1.50	11.14	0.94	10.71	0.87	40.60	1.19	8.45	0.73	0.33	0.07
2010	1.55	0.27	0.17	0.23	15.18	3.38	13.54	0.88	0.65	1.26	10.70	0.93	9.40	0.75	39.38	1.14	8.11	0.75	1.32	0.34
2011	1.65	0.29	0.21	0.28	16.34	3.35	15.82	0.90	0.67	1.13	10.36	0.92	8.62	0.68	36.19	1.11	7.31	0.71	2.84	0.75
2012	1.94	0.35	0.24	0.32	14.83	3.26	17.22	0.92	0.73	1.29	9.82	0.89	8.04	0.70	35.94	1.10	7.46	0.72	3.78	0.94

Source: Calculation is based on UN COMTRADE statistics

C C stands for commodity code. Detail description of commodity codes has been given in Appendix 2

CONCLUSION

After adopting the opening up policy and economic reforms in 1978, China experienced multidimensional growth in its economy. These economic reforms helped China to establish itself as most surging power in the world economy. After becoming the member of WTO, China surpassed almost all the developing countries in international trade. It earned an identity of world's largest merchandise exporter and second largest importer after the USA. China has been becoming more and more open to foreign trade since 1970 but its entry to WTO boosted it as an accelerator. Its commodity export structure shifted from primary products to manufactured goods and import structure shifted from manufactured to primary products.

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Appendix 1A
Export share of Major Developed and Developing countries in Total Merchandise Export of the World since 1948 to 2012

Years	USA	EU	France	Germany	Japan	China	Brazil	India	Indonesia	Singapore	South Africa
1948	21.84	11.39	3.47	1.36	0.44	0.90	2.04	2.23	0.68	1.19	2.02
1949	20.12	11.46	4.64	1.64	0.85	0.00	1.83	2.00	0.88	1.02	1.93
1950	16.58	10.20	4.97	3.21	1.33	0.89	2.19	1.85	1.29	1.62	1.86
1951	17.91	9.03	5.05	4.14	1.61	0.90	2.11	1.91	1.54	1.88	1.65
1952	18.54	9.25	4.93	4.92	1.55	1.00	1.73	1.52	1.14	1.32	1.67
1953	18.79	8.96	4.78	5.25	1.52	1.21	1.83	1.31	1.00	1.03	1.64
1954	17.37	8.93	4.96	6.03	1.87	1.32	1.80	1.34	1.00	1.01	1.57
1955	16.38	8.91	5.22	6.45	2.12	1.48	1.50	1.33	1.00	1.16	1.63
1956	18.19	8.85	4.42	7.00	2.38	1.57	1.41	1.20	0.88	1.07	1.63
1957	18.31	8.61	4.58	7.51	2.51	1.94	1.22	1.21	0.84	1.00	1.65
1958	16.29	8.63	4.66	8.01	2.61	2.48	1.13	1.11	0.72	0.93	1.57
1959	14.95	8.43	4.76	8.31	2.93	2.69	1.09	1.12	0.79	0.95	1.63
1960	15.85	8.16	5.28	8.78	3.12	1.98	0.98	1.02	0.65	0.87	1.53
1961	15.47	8.14	5.31	9.30	3.11	1.43	1.03	1.02	0.58	0.79	1.57
1962	15.18	7.95	5.18	9.26	3.44	1.34	0.85	0.98	0.48	0.78	1.55
1963	14.90	7.81	5.23	9.29	3.47	1.29	0.90	1.04	0.44	0.72	1.50
1964	15.14	7.32	5.17	9.22	3.79	1.28	0.81	0.97	0.41	0.51	1.41
1965	14.49	7.27	5.36	9.43	4.45	1.35	0.84	0.89	0.37	0.52	1.34
1966	14.63	7.10	5.28	9.69	4.70	1.29	0.84	0.94	0.33	0.53	1.32
1967	14.51	6.65	5.30	9.98	4.79	1.10	0.76	0.74	0.31	0.52	1.38
1968	14.33	6.39	5.33	10.28	5.36	0.97	0.78	0.73	0.30	0.53	1.32
1969	13.73	6.37	5.49	10.42	5.77	0.88	0.83	0.66	0.31	0.56	1.21
1970	13.64	6.13	5.71	10.80	6.09	0.73	0.86	0.64	0.35	0.49	1.05
1971	12.47	6.24	5.88	10.97	6.78	0.79	0.82	0.58	0.35	0.50	0.98
1972	11.88	5.72	6.31	11.15	6.94	0.88	0.95	0.58	0.42	0.52	0.98
1973	12.31	5.11	6.32	11.65	6.38	1.01	1.07	0.50	0.55	0.63	1.05
1974	11.84	4.55	5.51	10.64	6.60	0.85	0.95	0.47	0.88	0.69	1.03
1975	12.41	4.95	6.05	10.28	6.36	0.88	0.99	0.50	0.81	0.61	1.00
1976	11.77	4.57	5.73	10.30	6.78	0.70	1.02	0.56	0.86	0.66	0.79
1977	10.92	4.95	5.77	10.47	7.19	0.67	1.07	0.57	0.96	0.73	0.88
1978	11.16	5.19	6.07	10.90	7.51	0.76	0.97	0.51	0.89	0.78	0.98
1979	11.23	5.21	6.07	10.36	6.17	0.82	0.92	0.47	0.94	0.86	1.10
1980	11.09	5.41	5.70	9.48	6.41	0.89	0.99	0.42	1.08	0.95	**1.25**
1981	11.88	5.09	5.29	8.76	7.54	1.09	1.16	0.41	**1.11**	1.04	1.03
1982	11.49	5.15	5.14	9.37	7.35	1.19	1.07	0.50	1.18	1.10	0.94
1983	11.14	4.96	5.14	9.18	7.96	1.20	1.19	0.50	1.15	1.18	1.00
1984	11.45	4.80	4.99	8.78	8.68	1.34	**1.38**	0.51	1.12	1.23	0.88
1985	11.20	5.18	5.20	9.41	9.07	1.40	1.31	0.47	0.95	1.17	0.83
1986	10.62	5.01	5.84	11.38	9.86	1.45	1.05	0.44	0.75	1.05	0.86
1987	10.10	5.22	5.90	11.70	9.19	1.57	1.04	0.45	0.68	1.14	0.84
1988	11.24	5.06	5.85	11.27	9.23	1.66	1.17	0.46	0.68	1.37	0.76
1989	11.74	4.92	5.79	11.01	8.84	1.70	1.11	0.51	0.72	1.44	0.72
1990	11.41	5.37	6.28	12.21	8.34	1.80	0.91	0.52	0.74	1.53	0.68
1991	11.99	5.26	6.17	11.46	8.95	2.05	0.90	0.50	0.83	1.68	0.66
1992	11.90	5.04	6.26	11.42	9.02	2.25	0.95	0.52	0.90	1.68	0.62
1993	12.29	4.79	5.86	10.05	9.58	2.43	1.02	0.57	0.97	1.96	0.64
1994	11.85	4.74	5.79	9.87	9.18	2.80	1.01	0.58	0.93	2.24	0.58
1995	11.32	4.61	5.83	10.13	8.58	2.88	0.90	0.59	0.88	**2.29**	0.54
1996	11.57	4.78	5.65	9.71	7.60	2.80	0.88	0.61	0.92	2.31	0.54
1997	12.32	5.01	5.40	9.17	7.53	3.27	0.95	0.63	1.01	2.23	0.55

1998	12.40	4.98	5.83	9.88	7.05	**3.34**	0.93	0.61	0.92	2.00	0.48
1999	12.18	4.76	5.70	9.51	7.31	**3.41**	0.84	0.62	0.90	2.01	0.47
2000	12.11	4.42	5.07	8.54	7.42	**3.86**	0.85	0.66	1.01	2.13	0.46
2001	11.77	4.40	5.22	9.23	6.51	**4.30**	0.94	0.70	0.93	1.97	0.47
2002	10.67	**4.31**	5.11	9.48	6.42	**5.01**	0.93	0.76	0.91	1.93	0.46
2003	9.55	4.03	**5.17**	9.90	6.22	**5.77**	0.96	0.78	0.84	2.11	0.48
2004	8.84	3.77	4.90	9.87	**6.13**	**6.43**	1.05	0.83	0.77	2.15	0.50
2005	8.58	3.72	4.41	9.24	5.66	**7.25**	1.13	0.95	0.83	2.19	0.49
2006	8.46	3.72	4.09	9.14	5.33	**7.99**	1.14	1.00	0.85	2.24	0.48
2007	**8.19**	3.15	3.99	9.42	5.09	**8.70**	1.15	1.07	0.84	2.13	0.50
2008	7.97	2.92	3.81	8.95	4.84	**8.85**	1.22	1.21	0.86	2.09	0.50
2009	8.41	2.83	3.86	**8.92**	4.63	**9.57**	1.22	1.31	0.95	2.15	0.49
2010	8.37	2.72	3.43	8.24	5.04	**10.32**	1.32	1.48	1.03	2.30	0.53
2011	8.08	2.74	3.26	8.05	4.49	**10.36**	1.40	1.65	1.10	2.24	0.54
2012	8.40	2.58	3.09	7.65	4.34	**11.13**	1.32	1.60	1.02	2.22	0.47

Source: calculation is based on WTO statistics database (Time series on international trade).

Appendix 1B

Import share of Major Developed and Developing countries in Total Merchandise Import of the World since 1948 to 2012

Years	USA	EU	France	Germany	Japan	China	Brazil	India	Indonesia	Singapore	South Africa
1948	13.03	13.50	5.55	2.26	1.10	**0.62**	1.82	2.30	0.75	1.36	2.50
1949	11.97	13.46	4.43	3.32	1.44	**0.00**	1.83	2.92	0.92	1.25	2.01
1950	15.05	11.41	4.80	4.23	1.51	**0.91**	1.70	1.70	0.69	1.67	1.44
1951	13.55	12.42	5.24	3.99	2.26	**1.36**	2.26	1.86	0.99	1.87	1.60
1952	13.30	11.06	5.17	4.39	2.30	**1.27**	2.25	1.85	1.08	1.39	1.42
1953	13.94	11.01	4.90	4.48	2.83	**1.59**	1.55	1.37	0.90	1.16	1.49
1954	12.52	10.61	4.89	5.17	2.70	**1.45**	1.84	1.41	0.71	1.11	1.47
1955	12.62	10.99	4.83	5.89	2.50	**1.75**	1.32	1.37	0.64	1.27	1.44
1956	12.83	9.98	5.19	6.11	2.96	**1.43**	1.13	1.52	0.79	1.18	1.34
1957	12.08	9.58	5.20	6.27	3.54	**1.68**	1.23	1.66	0.66	1.10	1.34
1958	12.71	9.33	4.88	6.63	2.64	**2.18**	1.18	1.43	0.47	1.03	1.42
1959	13.83	9.30	4.14	6.94	2.93	**2.35**	1.12	1.62	0.39	1.04	1.17
1960	11.96	9.51	4.59	7.42	3.28	**1.93**	1.07	1.68	0.42	0.97	1.19
1961	11.16	8.90	4.67	7.70	4.06	**1.22**	1.02	1.60	0.56	0.91	1.02
1962	11.79	8.58	4.89	8.20	3.73	**0.91**	0.98	1.56	0.43	0.87	0.98
1963	11.37	8.52	5.33	7.97	4.11	**0.88**	0.91	1.51	0.32	0.85	1.08
1964	11.11	8.72	5.52	8.04	4.34	**0.93**	0.69	1.57	0.37	0.62	1.25
1965	11.68	8.10	5.22	8.85	4.11	**1.13**	0.55	1.43	0.35	0.62	1.29
1966	12.75	7.64	5.44	8.33	4.37	**1.14**	0.69	1.58	0.24	0.61	1.10
1967	12.64	7.81	5.46	7.70	5.12	**0.95**	0.73	1.22	0.28	0.63	1.22
1968	14.06	7.52	5.56	8.05	5.15	**0.82**	0.85	1.02	0.28	0.66	1.11
1969	13.41	6.95	6.05	8.67	5.23	**0.67**	0.79	0.77	0.27	0.71	1.11
1970	12.88	6.65	5.81	9.10	5.74	**0.69**	0.87	0.65	0.30	0.75	1.17
1971	13.21	6.52	5.83	9.37	5.39	**0.58**	1.01	0.66	0.30	0.78	1.19
1972	13.59	6.39	6.24	9.33	5.51	**0.66**	1.10	0.51	0.36	0.78	0.91
1973	12.30	6.48	6.34	9.23	6.45	**0.88**	1.18	0.54	0.46	0.86	0.87
1974	12.88	6.29	6.15	8.09	7.19	**0.90**	1.65	0.60	0.45	0.97	0.91
1975	11.61	5.85	5.92	8.22	6.34	**0.87**	1.49	0.70	0.52	0.89	0.91
1976	12.91	5.43	6.25	8.62	6.33	**0.65**	1.34	0.55	0.55	0.88	0.71
1977	13.70	5.40	6.03	8.66	6.09	**0.61**	1.13	0.57	0.53	0.89	0.54
1978	13.70	5.58	6.02	8.97	5.89	**0.82**	1.11	0.58	0.49	0.96	0.56
1979	13.12	5.88	6.32	9.42	6.48	**0.92**	1.17	0.58	0.43	1.04	0.53
1980	12.38	5.57	6.50	9.06	6.81	**0.96**	1.20	0.72	0.52	1.16	0.94
1981	13.23	4.97	5.85	7.94	6.92	**1.07**	1.17	0.75	0.64	1.33	1.11
1982	13.13	5.13	5.96	8.00	6.77	**0.99**	1.09	0.76	0.87	1.45	0.95

1983	14.28	5.30	5.60	8.09	6.69	**1.13**	0.89	0.74	0.87	1.49	0.84
1984	17.20	5.20	5.18	7.60	6.76	**1.36**	0.76	0.76	0.69	1.42	0.79
1985	17.49	5.41	5.37	7.87	6.48	**2.10**	0.71	0.79	0.51	1.30	0.56
1986	17.33	5.73	5.87	8.65	5.78	**1.94**	0.71	0.70	0.49	1.16	0.59
1987	16.44	5.98	6.14	8.85	5.85	**1.67**	0.64	0.65	0.50	1.26	0.59
1988	15.50	6.39	6.03	8.45	6.32	**1.86**	0.54	0.65	0.45	1.48	0.63
1989	15.40	6.18	6.03	8.43	6.55	**1.85**	0.62	0.64	0.51	1.55	0.58
1990	14.56	6.28	6.60	10.02	6.63	**1.50**	0.63	0.66	0.62	1.72	0.52
1991	13.99	5.78	6.38	10.73	6.52	**1.76**	0.63	0.56	0.71	1.82	0.52
1992	14.27	5.71	6.17	10.53	6.01	**2.08**	0.60	0.61	0.70	1.86	0.51
1993	15.57	5.40	5.61	8.84	6.23	**2.68**	0.71	0.59	0.73	2.20	0.52
1994	15.56	5.29	5.55	8.61	6.21	**2.61**	0.82	0.61	0.72	2.32	0.53
1995	14.59	5.06	5.48	8.78	6.36	**2.50**	1.02	0.66	0.77	2.36	0.58
1996	14.82	5.18	5.31	8.28	6.30	**2.50**	1.03	0.68	0.77	2.37	0.54
1997	15.66	5.36	4.97	7.77	5.90	**2.48**	1.12	0.72	0.89	2.31	0.57
1998	16.62	5.65	5.42	8.30	4.94	**2.47**	1.07	0.76	0.62	1.79	0.51
1999	17.89	5.49	5.33	8.00	5.23	**2.80**	0.87	0.79	0.56	1.88	0.45
2000	18.73	5.18	5.04	7.39	5.64	**3.35**	0.87	0.77	0.65	2.00	0.44
2001	18.19	5.30	5.07	7.50	5.38	**3.76**	0.90	0.78	0.58	1.79	0.44
2002	17.80	5.40	4.88	7.27	5.00	**4.38**	0.74	0.84	0.57	1.73	0.43
2003	16.56	**5.08**	**5.07**	7.68	**4.87**	**5.25**	0.65	0.92	0.54	1.73	0.51
2004	15.94	4.92	4.92	7.48	4.75	**5.86**	0.69	1.04	0.57	1.81	0.56
2005	15.94	4.78	4.64	7.15	4.75	**6.07**	0.71	1.31	0.70	1.84	0.57
2006	15.39	4.92	4.35	7.28	4.65	**6.35**	0.77	1.43	0.65	1.92	0.63
2007	14.10	4.45	4.40	7.36	4.34	**6.67**	0.88	1.60	0.65	1.84	0.62
2008	13.09	3.97	4.33	7.15	4.60	**6.83**	1.10	1.94	0.77	1.93	0.61
2009	12.56	4.06	4.39	**7.25**	4.32	**7.87**	1.05	2.01	0.73	1.92	0.58
2010	12.70	3.81	3.94	6.80	4.48	**9.01**	1.24	2.26	0.87	2.00	0.61
2011	12.25	3.64	3.89	6.78	4.62	**9.42**	1.28	2.51	0.95	1.98	0.66
2012	**12.56**	3.71	3.62	6.28	4.76	**9.78**	1.25	2.63	1.02	2.04	0.67

Source: calculation is based on WTO statistics database (Time series on international trade).

Appendix 2

Description of commodities with their codes (Standard International Trade Classification, Rev.3, digit-1 level)

Code	Description
TOTAL	**Name**: All Commodities
	Description: All Commodities
0	**Name**: Food and live animals
	Description: Food and live animals
1	**Name**: Beverages and tobacco
	Description: Beverages and tobacco
2	**Name**: Crude materials, inedible, except fuels
	Description: Crude materials, inedible, except fuels
3	**Name**: Mineral fuels, lubricants and related materials
	Description: Mineral fuels, lubricants and related materials
4	**Name**: Animal and vegetable oils, fats and waxes
	Description: Animal and vegetable oils, fats and waxes
5	**Name**: Chemicals and related products, n.e.s.
	Description: Chemicals and related products, n.e.s.
6	**Name**: Manufactured goods classified chiefly by material
	Description: Manufactured goods classified chiefly by material
7	**Name**: Machinery and transport equipment
	Description: Machinery and transport equipment
8	**Name**: Miscellaneous manufactured articles
	Description: Miscellaneous manufactured articles
9	**Name**: Commodities and transactions not classified elsewhere in the SITC
	Description: Commodities and transactions not classified elsewhere in the SITC