“China’s trade in climate smart goods: an analysis of trends and trading patterns”

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CHINA'S TRADE IN CLIMATE SMART GOODS: AN ANALYSIS OF TRENDS AND TRADING PATTERNS

Abstract

Trade and investment have positive effects on economic growth and development, especially for developing countries, where trade openness could play a crucial role to eliminate poverty. But in the same way trade and investment can also harm the environment by producing GHG, pollutions and other environmental negative externalities. Since economic development, trade and environment are elaborately interconnected, it is indispensable to amalgamate environmentally affiliated issues on the development agenda. With expansion of economic activities and trade on the one hand and consequent threats to the environment on the other, the question of environment-friendly trade has emerged as a serious policy agenda in recent years. In that context, trade in climate smart goods (CSGs) is assumed to play a significant role in promoting sustainable development pathway. Given that China's global trade is expanding at an unprecedented scale, the present paper is designed to analyze the trends and trading patterns of China's trade in CSGs with the rest of the world. Based on the collected data covering the period of 1992 to 2016 from UN Comtrade, the analyses indicate that total trade in CSGs by China has been increasing, but its share in total trade volume is still very low. It is understood that China's exports and imports of CSGs are dominated by a few products, namely photosensitive semiconductor devices (854,140), static converters (850,440), articles of plastic and arts of other material (392,690), photovoltaic system controller (853,710), discharge lamps, fluorescent (853,931), parts of electric motors, generators, generating sets and rotary converters (850,300), machine and mechanical appliance (847,989), other lead-acid accumulators (850,720), prism, mirrors and other optical elements unmounted (900,190), cooking appliances and plate warmers (732,111), gears and gearing, other than toothed wheels (848,340), other machinery, plant and equipment (841,989), filtering or purifying machinery and apparatus for gases (842,139), etc. While the major trading partners of China for CSGs are the USA, Japan, India, Malaysia, Germany, Korea Republic, Singapore, Thailand, Vietnam, the Netherlands, Hong Kong, Russia, Brazil, Australia, Pakistan, Israel, among others.

Keywords climate smart goods (CSGs), trends and patterns, trade liberalization

JEL Classification F18, F63, F64, O44

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INTRODUCTION

The Global economy is growing fast and at the same time global inequality is also rising simultaneously. We dream of a world where there will be no poverty and inequality. To create this type of idealistic world, we need to focus on growth and development patterns that are economically, socially and environmentally sustainable. International trade is one of the most important indicators for achieving high economic growth in today's world. On the one hand, by extracting and using excessive natural resources, a country could achieve higher levels of economic growth and development that at the same time also promote higher level of pollutions; on the other hand, high economic growth and development also make people aware of the environment and encourage them to use environmentally preferable goods and services. So trade and the environment have a contradictory relationship.

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Few emerging developing countries like China engage all their efforts and resources to achieve high economic growth. Nowadays, China is considered a global economic giant because of its gigantic economy size and also huge population, wide territory and vast natural resource stock. By the rising share of GDP and trade, China has become more and more integrated into the world economy. China's rapid economic growth mainly depends on increased capital investment, promotion of international trade, a cheap and growing labor force, rich natural resources, and a huge domestic consumer market.

China is a big country consisting of twenty two provinces, five municipalities, four autonomous regions and three special administrative regions. It has a large population, one fifth of the world. Though the Chinese economy has experienced some regional disparity because of its wide territory and large population, this does not affect its economic growth. The economy is growing fast, which is reflected from its vibrant trade performance (Sun et al., 2010). After 1949, the consumption of mineral resources and GDP has expanded 40 times and 10 times, respectively. Throughout the past 50 years, particularly during the last 20 years, the Chinese economy has shown remarkable growth. Its annual average GDP growth rate is 14.98 percent, which makes the country the second largest economy in the world by nominal GDP and the largest economy in terms of purchasing power parity. Its average export growth rate is estimated to be 16.43 percent. If one compares its GDP growth rate and export growth rate, it may be concluded that China's involvement in foreign markets is excessively higher than its own rate of growth (Valadez et al., 2016; Qian, 2012). If this growth process continues, it is projected that China would be the world's largest economy by 2030 in terms of nominal GDP.

Though the Chinese economy has experienced extraordinary economic growth, but at the same time, it is facing severe environmental problems. China's eco-environment is terribly affected by its tremendous economic growth. To mitigate these environmental problems, the government of China has adopted several environmental programs. They have taken environmental protection and sustainable development programs as a national principle and national strategy, respectively. Though the government has been trying hard and taking various initiatives to improve their environmental conditions, but its environmental performance index still ranks lower among other countries in the world (Liu et al., 2010).

China[1] is the producer and consumer of a large quantity of industrial and agricultural products. Among them steel, fertilizers, cement, television sets, food from aquaculture are mentionable. We all are aware that all these products are greatly responsible for CO2 emissions. The rate of growth of these industrial and agricultural sectors is exponential. This exponential growth rate leads to substantial environmental damages in many regions of the country. Agriculture sector is also responsible for extensive environmental pollution, because agricultural production is heavily dependent on the use of fertilizers and pesticides (Wang, 2015). In the current world, China is the largest CO2 emitter and its emissions exceeded the EU's ones in 2003 and the US's emissions in 2005. So it is an urgent need for China to reduce its current level of CO2 emissions. The government of China adopts several measures to protect the environment. Still, in spite of these attempts, production, consumption and transportation of raw materials and products enormously pollute the environment and have led to a variety of environmental challenges (Liu et al., 2010). To reduce this pollution level and achieve sustainable growth and development, the country should follow an environment-friendly development pathway, which generates low environmental pollutions and carbons.

1 Climate smart goods are defined as components, products and technologies, which tend to have relatively less adverse impact on the environment. It constitutes low carbon technologies such as solar photovoltaic system, wind power generation, clean coal technologies and energy efficient lighting. These goods and technologies allow for production process that has no or minimum greenhouse gas emission and negative impact on the environment and are at least economically efficient and acceptable. The term "climate smart" was chosen over the previously used classification of climate friendly owing, namely to the fact that many goods and technologies contained within the UNESCAP list are not only friendly to the climate but also contribute to fostering climate smart development by improving adaptive capacity such as by conserving water or by improving access to energy. This study takes into account 64 climate smart goods under HS 6 digit code defined by APEC. The list is arrived by defining concordance series from series of list given by the World Bank, ICTSD, WTO, APEC, and OECD (Mathur, 2011).

Against this backdrop, trade in climate smart goods (CSGs)1 assumes high importance in today's world. The main objective to promote CSGs is to reduce environmental damages. To achieve sustainable growth and development, it is necessary to focus more closely on the trade and investment in climate smart goods and services. A research question of the present paper thus has been to examine China's trade in CSGs, its trends and trading patterns with the rest of the world and draw some policy implications for China and other countries.

1. LITERATURE REVIEW

Number of studies are found to have analyzed the trends and trading patterns of trade in environmental goods (EGs) and climate smart goods (CSGs). But most of them focused on the global and regional trends and trading patterns of EGs and CSGs. UNESCAP (2011) observed the global and regional trends and trading patterns of CSGs. The study showed that in 2002, the percentage share of export and import of trade in CSG increased 2.5 percent and 2.4 percent, and in 2008, the share grew to 2.6 percent and 2.7 percent, respectively. Crowford (2011) discussed the Asia and the Pacific region's trends and trading patterns of CSGs. From the study, it was found that export growth rate of CSGs in the Asia and the Pacific increased to 235 percent; whereas the import grew at 222 percent from 2002 to 2008. The contribution of the top ten CSGs' exports was 96.6 percent of all CSGs exports, where the combined contribution of China and Japan alone was 67 percent. In case of the imports of CSGs, the contribution of the top ten items was 87.4 percent of all CSGs imports.

Viljeon (2012) expressed the trends and trading patterns of trade in EGs in the African regional groups, such as COMESA, EAC and SADC. The findings of the study showed that in 2010, trade in environmental goods by the African regional groups was 2.19 percent of world import and 0.67 percent of world export. Among these regional groups, some countries were dominating the trade in EGs. These countries were South Africa from SADC, Kenya from EAC, and Egypt from COMESA, whose contributions were 97 percent, 49 percent and 67 percent, respectively. Khatun (2012) noticed the scope of EGs trade in the least developed countries (LDC). The study revealed that in 2001, exports and imports of EGs by the LDCs grew at 18.49 percent, and in 2007, the rate increased to 22.40 percent. On the other hand, in 2001 and 2007, global exports and imports of EGs increased to 14.67 percent and 13.58 percent, respectively. This exhibited that global export and import growth rates were much lower than the LDCs' export and import growth rates. The top ten exporters among the LDCs are: Bangladesh, Tanzania, Nepal, Uganda, Liberia, Yemen, Angola, Madagascar, Senegal and Myanmar. The importers are: Angola, Sudan, Zambia, Ethiopia, Myanmar, Tanzania, Senegal and Congo. Jha (2008) found that the trade in environmental goods accounted for one fifth of the global markets, while ICT (2014) observed that in 2011, the global markets for EGs reached $ 866 billion and projected that in 2020, it would be $1.9 trillion. Kuriyama (2012) found that from 2002 to 2010, APEC's exports and imports of potential environmental goods grew at an average rate of 13.3 and 11.6 percent per year, respectively.

Duy (2010) revealed that in developing countries, trade liberalization would be harmful to the environment. According to the study, the unrestrained environmental regulation in most developing countries is one of the main reasons behind this environmental hazard through trade. As environmental regulations are more stringent in the developed countries, so it is economically more viable for the developed country investors to transfer their pollution-intensive industries to the investment hungry developing countries. As a result, pollution level generally is increasing in the poor developing countries. Zhang (2011) talked about trade liberalization of environmental goods, but focused on the market creation of environmental goods in developing countries. According to Zhang, in most of developing countries, market for environmental goods is not big enough to trade concern. Trade liberalization of environmental goods has no significant impact if the market is not sufficient. So it is necessary to create a market for environmental goods in developing countries. The study also opined that fewer products, which are harmful to the environment,

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should be banned and the list of climate-friendly goods which is universally agreed should be introduced. Antweiler et al. (2001) showed that trade liberalization has positive impact on the environment. According to the study, trade liberalization reduces the level of pollution, whereas other studies, such as Dasgupta et al. (2002) examined that developing countries' trade liberalization has no significant positive impact on the environment.

There are also a few studies that found a mixed impact of trade liberalization on the environment. Among them, Dean (1999) is mentionable. The study observed that trade liberalization has some direct and indirect effects on the growth of carbon emission. On the one hand, trade liberalization is expected to harm the environment in developing countries because of lax environmental regulations and also trade liberalization may improve the environment through Environmental Kuznets Hypothesis (EKH).

From the literature review, it has been observed that trade liberalization of environmental goods is expected to be beneficial for both developed and developing countries. Most of the research works conducted on CSGs and EGs represent global and regional trends and trading patterns. No research work is found to conduct trends and trading patterns of trade in CSGs in the context of China. The present paper deals with this very objective to assess and understand trends and trading patterns of climate smart goods of China.

2. RESEARCH METHODOLOGY

Data obtained for this paper were analyzed by using descriptive statistical techniques. To analyze the trends and trading patterns of trade in climate smart goods of China with the rest of the world, the paper used usual descriptive statistical techniques, i.e. tables and graphical presentations, percentages and ratios, etc. Data were collected covering the period of 1992 to 2016 (25 years). All observations were annual and at HS 6-digit level. Data on trade were extracted from the UN Comtrade and UNCTAD sites. Total exports and imports of climate smart goods are measured in thousands of US dollars. On the other hand, total exports and imports of all goods are measured in millions of US dollars at 6-digit level.

3. FINDINGS AND DISCUSSIONS

3.1. Trends of trade in climate smart goods by China with the rest of the world

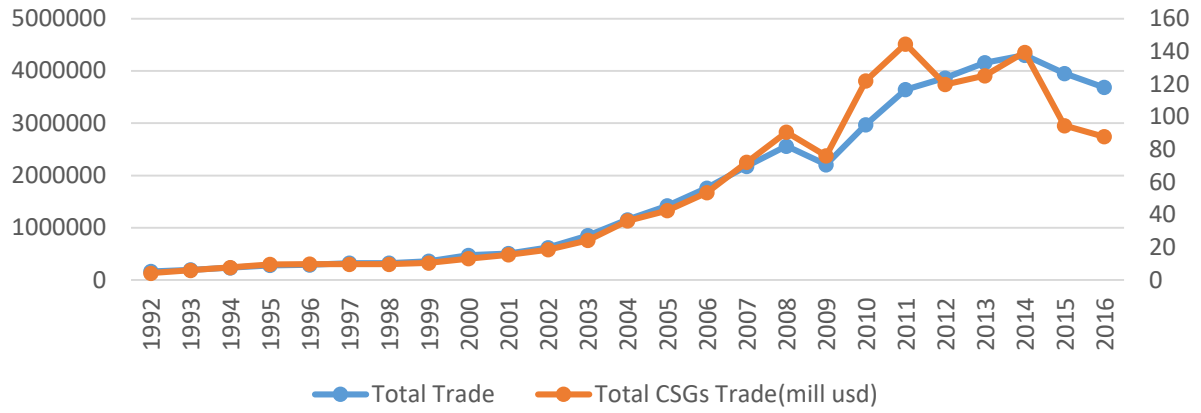
After the execution of the trade opening policy in 1978, China has been firmly expanding its international trade. In the last twenty years, annual growth rate of China trade volume was 18.1 percent. In 1978, it was $ 20.64 billion and in 2008, it stood at $ 2.56 trillion. In 1980s, the share of total exports of primary and manufactured goods accounted for 50.3 percent and 49.7 percent, respectively, while in 2008, the share was 5.4 percent and 94.6 percent, respectively (Sun et al., 2010).

Table 1 above shows that over the time Chinese trade volume has been increasing. In 1992, the total trade volume of all goods by China was $ 165,540 million that reached $ 3,685,557 million in 2016. In case of CSGs, one can see that in 1992, the total trade in CSGs was $ 4.17 million, while in 2016, it went up to $ 87.74 million. Though the volume of CSGs is increasing over time, but its percentage share in total trade is still very limited.

China is now considered as the largest manufacturer in the world. Though, China holds the top trader position in merchandize trade in the world, its contribution to world merchandize trade has declined for the first time since 1996. China's share in world merchandize trade has fallen from 12.2 percent in 2015 to 11.8 percent in 2016 (World Trade Statistical Review, 2017). As shown in Figure 1, total trade of China was increasing until 2014; but in 2015 and 2016, the rising trend turned slightly downward. In case of CSGs trade, the upward trend was observed till 2008, but after that, the movement has been quite fluctuating and later made a shift towards a declining trend in 2015 and 2016.

In 1979, 1980 and 1985, China's trade balance with the rest of the world was negative. It was $ –2.0, $ –1.4 and $ –15.3 billion, respectively. After 2000, it was always positive and the volume of trade was getting bigger day by day. In 2000, it was only $24.1 billion, which in 2017 reached $ 489.2 billion (Morrison, 2018). From Table 2, it can be seen that

Source: Authors' calculation based on UNCTAD, UN Comrade, August 2016.



Note: Base for overall exports was considered from the left to right (along the X-axis), while for climate smart goods, it's been right to left in the figure.

Figure 1. Total trade and total CSGs trade in China (USD mln)

Table 1. China's total trade and trade in climate smart goods (USD mln)

Source: Authors' calculation based on data collected from UNCTAD, UN Comrade, August 2016.

Year	Total trade of China (USD mln)	Total CSG trade of China (USD mln)	Percentage share of CSGs in China's total trade
1992	165,540	4.179314	0.002525
1993	195,703	5.964864	0.003048
1994	236,643	7.793006	0.003293
1995	280,859	9.569515	0.003407
1996	289,991	9.852235	0.003397
1997	324,981	9.690658	0.002982
1998	324,017	9.712441	0.002998
1999	360,719	10.45541	0.002898
2000	474,227	13.12613	0.002768
2001	509,651	15.50102	0.003041
2002	620,766	18.61649	0.002999
2003	850,988	24.33611	0.00286
2004	1,154,555	36.25539	0.00314
2005	1,421,906	42.48327	0.002988
2006	1,760,439	53.51042	0.00304
2007	2,176,572	72.0655	0.003311
2008	2,563,260	90.5642	0.003533
2009	2,207,535	76.06731	0.003446
2010	2,974,001	122.0048	0.004102
2011	3,641,865	144.5406	0.003969
2012	3,867,119	119.7172	0.003096
2013	4,158,995	125.1324	0.003009
2014	4,301,526	139.4091	0.003241
2015	3,953,034	94.56186	0.002392
2016	3,685,557	87.74277	0.002381

except for 1993, China's total trade balance was positive and the volume of trade was getting larger, year after year. But when it comes to Chinese trade in CSGs, one can see that total trade in CSGs was negative from 1992 to 2007. But from 2007 till date, trade balance in CSGs is positive.

World export of manufactured goods has been increasing from the last several decades. In 2006, it was $ 8 trillion and in 2016, it was $ 11 trillion (World Trade Statistical Review, 2017). China's exports of merchandize goods also took a massive upward trend. It went up from $ 14 billion in 1979 to $ 2.3 trillion in 2017 (Morrison, 2018). China's export baskets were mostly concentrated with the products such as: chemical industry, light industry, machinery and equipment and other products. The share of industrial products in China has increased, which was 24 percent in 1995 and 45 percent in 2014. The annual average participation rate of chemical, light, machinery and other products industries were 6 percent, 19 percent, 45 percent and 30 percent, respectively. Among these industrial products, machinery and equipment industry hold the top positions and their share was 45 percent (Valadez, 2016). Figure 2 shows the similar trends here too with both export and import of CSGs increased over time.

In case of import, in 1979, China's import was $ 18 billion and in 2017, it stood at $ 1.8 trillion. In 2017, China's major merchandize import items were electrical machinery and equipment, mineral fuel, nuclear reactors, ores, slag and ash, plastics,

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Table 2. China's trade balance with the rest of the world (USD mln)

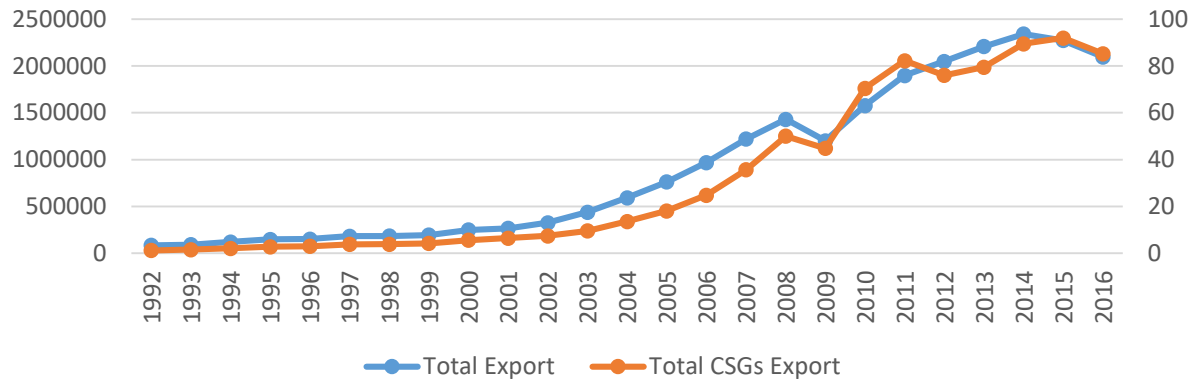
Source: Authors' calculation based on UNCTAD, UN Comrade, August 2016.

Year	Overall trade balance			CSGs trade balance		
	Export	Import	Trade balance	Export	Import	Trade balance
1992	84,940	80,600	4,340	1.215567	2.963747	–1.74818092
1993	91,744	103,959	–12,215	1.521068	4.443796	–2.92272766
1994	121,006	115,637	5,369	2.079856	5.71315	–3.63329325
1995	148,780	132,079	16,701	2.77026	6.799256	–4.02899641
1996	151,048	138,943	12,105	3.002843	6.849392	–3.8465485
1997	182,792	142,189	40,603	3.829612	5.861046	–2.0314341
1998	183,712	140,305	43,407	3.90467	5.807771	–1.90310107
1999	194,931	165,788	29,143	4.226473	6.228932	–2.00245857
2000	249,203	225,024	24,179	5.591494	7.534634	–1.94314043
2001	266,098	243,553	22,545	6.448662	9.052361	–2.60369933
2002	325,596	295,170	30,426	7.444746	11.17174	–3.72699895
2003	438,228	412,760	25,468	9.588003	14.74811	–5.16010761
2004	593,326	561,229	32,097	13.60538	22.65001	–9.04463571
2005	761,953	659,953	102,000	18.09562	24.38766	–6.29203982
2006	968,978	791,461	177,517	24.79447	28.71595	–3.92148384
2007	1,220,456	956,116	264,340	35.67362	36.39188	–0.7182659
2008	1,430,693	1,132,567	298,126	50.03681	40.52738	9.50942561
2009	1,201,612	1,005,923	195,689	44.82114	31.24617	13.57497547
2010	1,577,754	1,396,247	181,507	70.51956	51.48527	19.03429213
2011	1,898,381	1,743,484	154,897	82.2799	62.26068	20.01922295
2012	2,048,714	1,818,405	230,309	75.99867	43.71853	32.28014171
2013	2,209,005	1,949,990	259,015	79.53367	45.59868	33.93499426
2014	2,342,293	1,959,233	383,060	89.51329	49.89583	39.61746022
2015	2,273,468	1,679,566	593,902	91.94684	2.615025	89.33181334
2016	2,097,632	1,587,925	509,707	85.28531	2.457456	82.82785386

organic chemicals, oil seeds and copper, etc. Of these items, electrical machinery and equipment held the top position and its contribution was 25.5 percent of total import value of China (Morrison, 2018). From Figure 3 it can be found that the total imports of China were increasing until 2013. After 2013, they slightly declined. In the case of trade in CSGs, an increasing trend was observed till 2007. In 2011–2012, the import trend of trade in CSGs was quite higher than in the previous year. But, after that it started to fall. Some surprising situations were observed in 2015 and 2016. Imports of CSGs fell drastically during these years.

China's export basket of CSGs consisted of manufactured goods, of which electrical and electronic

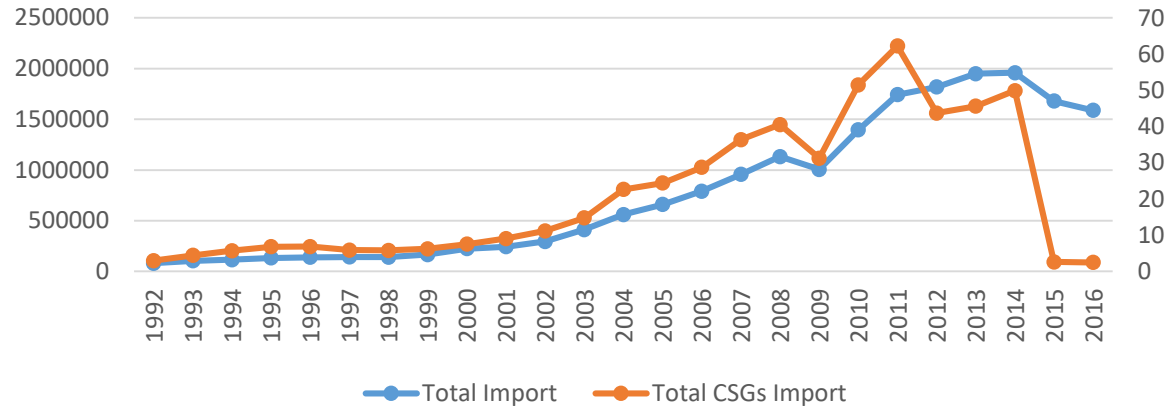
Source: Authors' calculation based on UNCTAD, UN Comrade (2010), August 2016.



Note: Base for overall exports was considered from the left to right (along the X-axis), while for climate smart goods, it's been right to left in the figure.

Figure 2. China's export values with the rest of the world (USD mln)

Source: Authors' calculation based on UNCTAD, UN Comrade, August 2016.



Note: Base for overall imports was considered from the left to right (along the X-axis), while for climate smart goods, it's been right to left in the figure.

Figure 3. China's import values with the rest of the world (USD mln)

machinery and equipment and clothing textiles and footwear, furniture, plastic products, ceramic, motors and generators, and integrated circuits are the most important. Agricultural products, chemicals and fuels were also significant export items. On the other hand, most important import items of China are electrical machinery and equipment, mineral fuel, nuclear reactors, ores, slag and ash, plastics, organic chemicals, oil seeds and copper, etc. In 2017, China's exports and imports increased to 6.7 percent and 17.4 percent, respectively (Morrison, 2018).

From Figure 4 it can be observed that total export value was more than the total import value of China. This indicates a strong performance of Chinese economy during this period. By comparing the total export and import values with the total CSGs export and import values, one can see that the contribution of CSGs was very poor compared to total export and import volumes of China for the period. As China is the biggest CO2 emitter, so the country needs to take some initiative to reduce its emission levels. It should also focus on expanding its trade in CSGs with the rest of the world.

3.2. Patterns of trade in CSGs between China and the rest of the world

China's significant amount of export value for the top ten climate smart goods are coming from few countries such as the USA, Germany, Japan, Brazil,

Source: Authors' calculation based on UNCTAD, UN Comrade, August 2016.

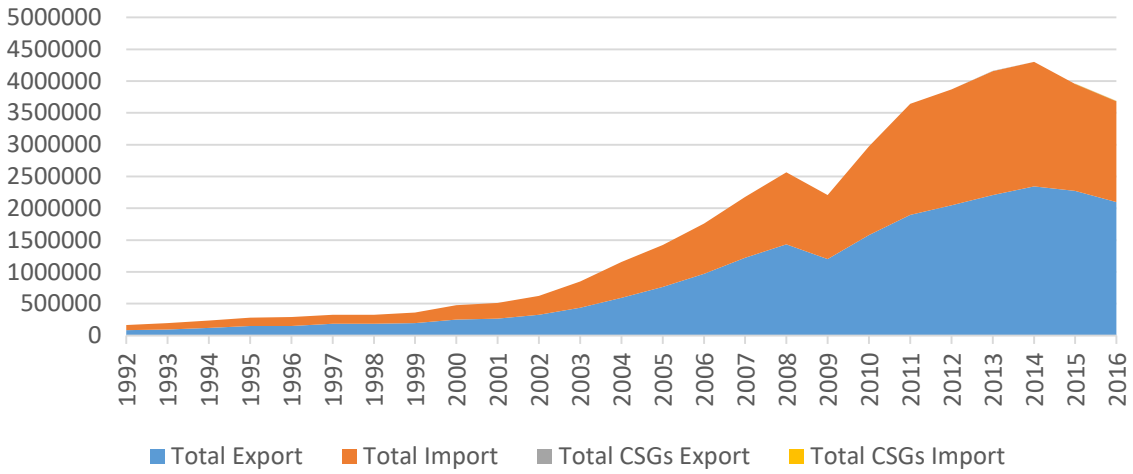


Figure 4. A comparison of China's total trade with trade in CSGs (USD mln)

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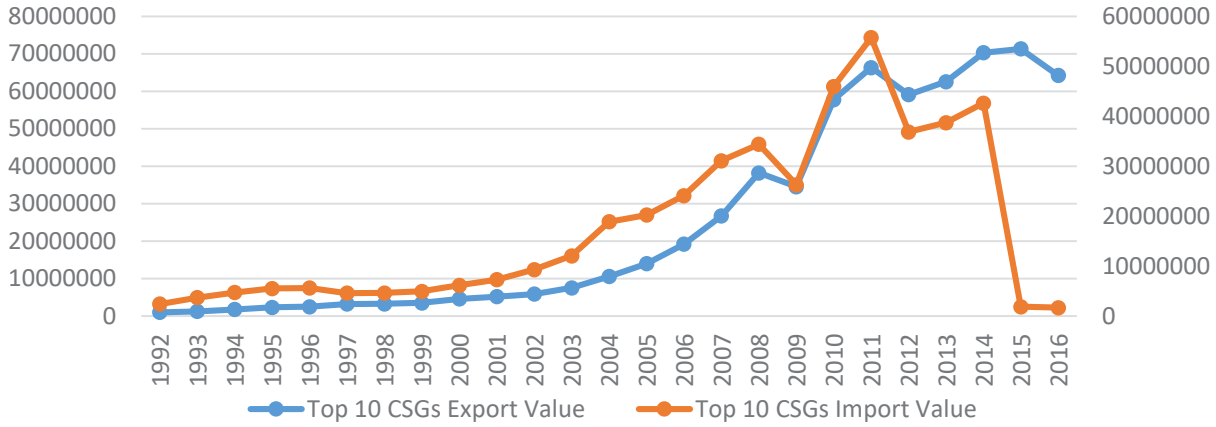
Source: Authors' calculation based on UNCTAD, UN Comrade, August 2016.



Note: Base for overall imports was considered from the left to right (along the X-axis), while for climate smart goods, it's been right to left in the figure.

Figure 5. Export and import values of the top ten CSGs by China (USD thousand)

Mexico, Australia, Senegal, Malaysia, Korea Republic, the Netherlands, Pakistan, Hong Kong, Russia, Vietnam, and Israel. Beside these countries, there are many other countries also from where China earns a huge amount of export value, namely Lithuania, Belgium, Bulgaria, Turkey, Thailand, Bangladesh, etc. In the case of import, the scenario is quite different. China's imports of the top ten climate smart goods are highly concentrated on the developed and a few emerging developing countries, such as Germany, Japan, the USA, Sweden, Malaysia, India, Thailand, Mexico, Philippines, Korea Republic, etc.

Figure 5 shows a smooth rising trend in the export value of the top ten CSGs. But in case of import, the trend increased smoothly till 2008, but after that no specific trend was observed. It drifted a bit till 2014 and then plummeted. The reason may be the government's trade policy and environmental awareness among the Chinese people and the government. To expand the use of CSGs in their daily life, instead of importing, they might have focused more on increasing their domestic production of CSGs.

Figure 6 shows that from 1992 to 2016, those CSGs that were frequently exported from China and

Source: Authors' calculation based on UNCTAD, UN Comrade, August 2016

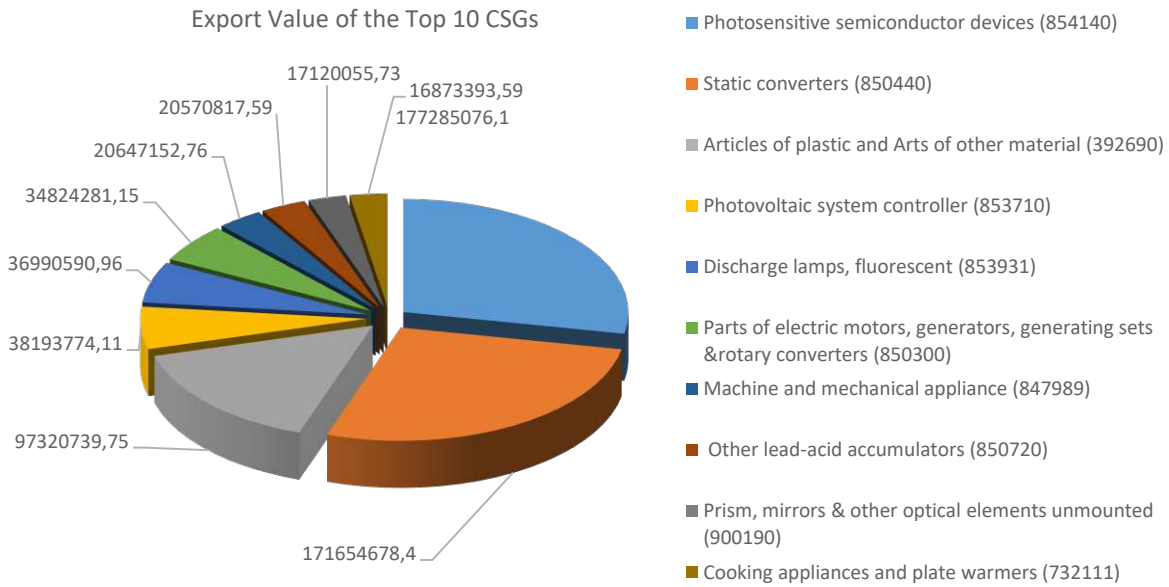


Figure 6. Year-wise export values (in thousand, USD) of the top ten CSGs by China (1992 to 2016)

Source: Authors' calculation based on UNCTAD, UN Comrade, August 2016

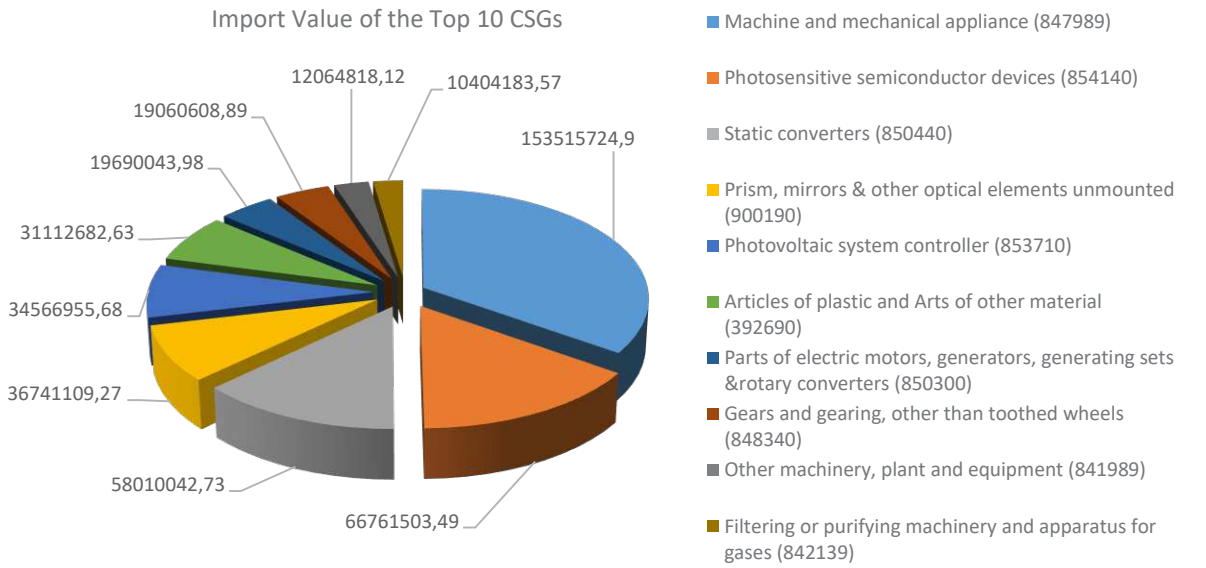


Figure 7. Year-wise import values (in thousand, USD) of the top ten CSGs by China (1992 to 2016)

held the larger shares and earned higher trade values were items like photosensitive semiconductor devices (854,140), static converters (850,440), articles of plastic and arts of other material (392,690), photovoltaic system controller (853,710), discharge lamps, fluorescent (853,931), parts of electric motors, generators, generating sets and rotary converters (850,300), machine and mechanical appliance (847,989), other lead-acid accumulators (850,720), prism, mirrors and other optical elements unmounted (900,190), cooking appliances and plate warmers (732,111), etc. Among these ten items, photosensitive semiconductor devices, static converters and articles of plastic and arts of other material took the top positions and held the major shares in export values. Their combined export value was 446260494.3 thousand USD. The remaining products' shares were 185220065.9 thousand USD.

Figure 7 shows that from 1992 to 2016, those CSGs that were frequently imported by China and held the larger shares and earned higher trade values were machine and mechanical appliance (847,989), photosensitive semiconductor devices (854,140), static converters (850,440), prism, mirrors and other optical elements unmounted (900,190), photovoltaic system controller (853,710), articles of plastic and arts of other material (392,690), parts of electric motors, generators, generating sets and rotary converters (850,300), gears and gearing, other than toothed wheels (848,340), other machinery, plant and equipment (841,989), filtering or purifying machinery and apparatus for gases (842,139), etc. Of these ten items, machine and mechanical appliance took the top positions and held the major shares of import value, which is 153515724.9 thousand USD. Photosensitive semiconductor devices and static converters took the second and third position, respectively. The combined import value of these three items were 278287271.1 thousand USD. The remaining products' share was 163640402.1 thousand USD.

In 1992, China's overall export was $ 84,940 million and in 2016, it stood at $ 2,097,632 million, whereas, its import was $ 80,600 million in 1992 and in 2016, it was $ 1,587,925 million. The volume of export is higher than that of import. In 1992, China's CSGs export and import were $ 1.21 and $ 2.96 million, respectively, and in 2016, it was $ 85.28 and $ 2.45 million, respectively. The volume of exports of CSGs was much higher than that of the imports of CSGs. Though the total volume of merchandize export and import and the volume of export and imports of CSGs were found to be increasing, but the shares of CSGs' export and import values were quite negligible compared to total export and import value.

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Source: Authors' calculation based on UNCTAD, UN Comrade, August 2016

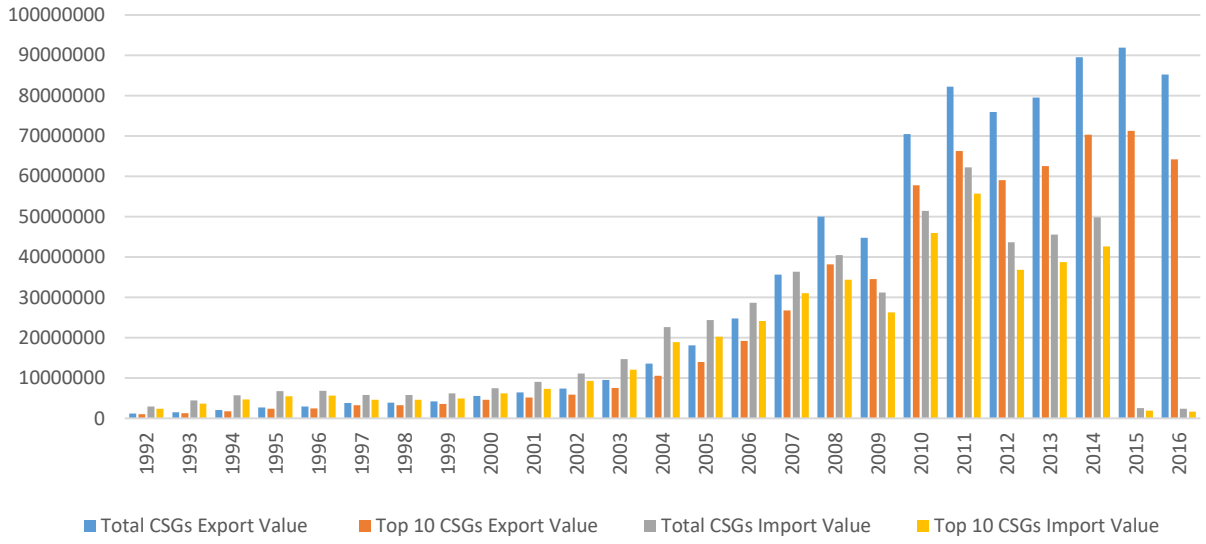

Figure 8. Comparison between total CSGs EX-IM Values and top ten CSGs EX-IM values (in thousand, USD) in China for the study period

CONCLUSION AND IMPLICATIONS

Figure 8 compares the share of total volume of export and import of CSGs with the shares of the top ten CSGs. From the figure, one can see that initially, that means from 1992 to 2003, the share of both export and import values of CSGs were very negligible and the share of export and import values of the top ten CSGs were also negligible. Since 2004, the share of export and import values of climate smart goods and share of the top ten CSGs increased continuously. But after 2007, the share of the total CSGs' export value and the share of the top ten CSGs' export value have increased much higher than the share of the import value of the CSGs and the top ten CSGs import value. In 2015, the share of import of CSGs and the share of the top ten CSGs' import values fell drastically and continued till 2016. The reason behind this sudden fall may be attributed to increasing environmental awareness among the Chinese government and its people and their pro-active initiatives in the front of policy, production and consumption of more CSGs.

The main objective of this article has been to observe the trends and trading patterns of trade in climate smart goods between China and the rest of the world. By using descriptive statistics, the paper found that in case of trade in climate smart goods by China, an increasing trend had been observed for the period of 1992 to 2008, but after 2008, no specific trend was found; it was quite fluctuating. More specifically, in case of import of climate smart goods by China, an increasing trend had been observed from 1992 to 2008, but after 2008, it was quite fluctuating and surprisingly fell, quite drastically during 2015 and 2016. But in the case of export of CSGs, a smoothly increasing trend was observed. It is understood that China's exports and imports of climate smart goods are largely characterized by the presence of both developed and developing countries as its trading partners. It is also found that although China's exports and imports of the top ten CSGs are almost the same category, but the diversity within a broad category of products (at 6 digit level) is clearly visible in its trade in CSGs. It is also clear that the country exports of CSGs are far higher than its imports, mainly because of its consciousness on the possibility of producing more such commodities locally and also its increasing demand for CSGs for numerous adaptation and mitigation measures that the country has been adopting in recent years quite in an aggressive manner.

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