

An Analysis of the Deepening and Broadening of China's Manufacturing Export

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Abstract: Based on the existing research, this paper classifies the related trade data of HS 6-digit codes into the 26 manufacturing industries selected in the paper, and selects 10 representative countries or regions with the largest export from China as China and the target countries of world export, the paper constructs the index of deepening and broadening the export from the industry level, and analyzes the deepening and broadening of China's manufacturing export. The results show that from the multilateral analysis, the market share of China's manufacturing industry is increasing, and the growth of China's manufacturing exports mainly depends on the deepening of exports; from the bilateral level, the Chinese market share of the manufacturing industry in addition to individual decline, and the share of China's manufacturing exports to these countries is mainly due to the contribution of deepening exports.

Introduction

Since the reform and opening up, China's export has achieved rapid growth. During the period of 1981-2007, exports grew at an average annual rate of 17.4%, far higher than the world average of 7.9% over the same period, and the growth rate of China's export In the accelerating, during the period 2000-2007 to 26% annual growth rate of explosive growth. China's total exports in the world rankings jumped from 28th in 1980 to the second in 2007, 2009 is more than Germany to become the world's largest exporting countries.

The rapid growth of China's export trade has aroused the concern of many scholars and has studied it from different angles. Existing studies can be divided into the following three categories: First, the study mainly from the macro level, the main analysis of trade volume growth is determined by the comparative advantage or economies of scale decisions; the second is the analysis of China's export growth in what is special; the third is the use of relevant trade theory to illustrate China's trade problems. The above studies are obviously deficient: these studies are mainly on the growth of total trade analysis, rarely specific to industry-level research, it is not possible to conduct a comprehensive and in-depth analysis of the characteristics of China's exports, that is, without examining the product characteristics such as differences in the quantity and variety of the exported products. In order to fully understand the growth of Chinese manufacturing export trade, it is necessary to ascertain whether the growth of China's manufacturing exports is due to the export of more new products, that is, the expansion of exports, or the export of existing products more quantity, that is, the deepening of exports, which analyzes the source of China's manufacturing export growth and its impact is very important.

The measurement indicators of export deepening and Broadening

On the basis of the Feenstra (1994) study, Hummels and Klenow (2005) decoded the export value of a country in two dimensions: export deepening and export broadening. Hummels and Klenow decompose exports at the national level. According to their decomposition methods, this paper constructs indicators for the deepening and broadening of exports from the industry level

decomposition. The concrete contents are as follows: First of all, to build a measure of a country's level of industry broadening degree of export of the indicators are as follows:

$$EM_{cim} = \frac{\sum_{j \in I_{cim}} V_{wijn}}{\sum_{j \in I_{im}} V_{wijn}} = \frac{\sum_{j \in I_{cim}} p_{wijn} \cdot q_{wijn}}{\sum_{j \in I_{im}} p_{wijn} \cdot q_{wijn}} \quad (1)$$

Where c is the target country of the study (China), w is the reference country (world), and m denotes the destination country of the target country c and the reference country w , that is, the importing country. i denotes the industry, j denotes the product type, EM_{cim} expresses the i -industry broadening degree of export from country c to country m . I_{cim} denotes the set of products j included in i - industry, which export from country c to country m . I_{im} denotes the set of products j included in i - industry, which export from the world to country m . Obviously, I_{cim} is a subset of I_{im} . V_{wijn} represents the total amount of j products in i - industry exported by the world w to the country m . p_{wijn} and q_{wijn} denote the price and quantity of j products in i - industry exported by the world w to the country m . The numerator in equation (1) represents the total amount of exports from industry i to country m in the world of the same kind as the exports of the Chinese i industry, and the denominator represents the total amount of all j exports from the world w to country m . EM_{cim} reflects the degree of coincidence of the product category of export country c to country m and the product category of export industry i from the world to country m . The index ranges from 0 to 1, and the larger the index, the more kinds of products exported to countries, namely, the higher the degree of exports.

Second, to build a measure of a country's industry-level indicators of the degree of deepening exports, with the following formula:

$$IM_{cim} = \frac{\sum_{j \in I_{cim}} V_{cijm}}{\sum_{j \in I_{cim}} V_{wijn}} = \frac{\sum_{j \in I_{cim}} p_{cijm} \cdot q_{cijm}}{\sum_{j \in I_{cim}} p_{wijn} \cdot q_{wijn}} \quad (2)$$

V_{cijm} represents the total amount of j products in i - industry exported by the country c to country m . p_{cijm} and q_{cijm} denote the price and quantity of j products in i - industry exported by the country c to the country m . IM_{cim} denotes the deepening degree of the i - industry exports from country c to country m . The numerator represents the sum of all the products exports from country c to country m , and the denominator indicates the total amount of exports from industry i to country m in the world of the same kind as the exports of the Chinese i industry, This indicator measures the proportion of export of country c to world exports in countries c and the common export category of the world to country m , Since the country c is included in the world w , this proportion is a value between 0 and 1, the greater the proportion, it shows that China in the same types of products on the export of more trade, that is, the higher the degree of export deepening.

Define the exports share S_{cim} of the country c industry i exports to the country m to the world w industry i exports to m are as follows:

$$S_{cim} = \frac{\sum_{j \in I_{cim}} V_{cijm}}{\sum_{j \in I_{im}} V_{wijn}} = \frac{\sum_{j \in I_{cim}} p_{cijm} \cdot q_{cijm}}{\sum_{j \in I_{im}} p_{wijn} \cdot q_{wijn}} \quad (3)$$

S_{cim} reflecting country c exports of a particular industry to the share of all countries in the country m market.

Combining (1), (2) and (3) three formulas, the following formula can be obtained:

$$S_{cim} = \frac{\sum_{j \in I_{cim}} V_{cijm}}{\sum_{j \in I_{im}} V_{wijn}} = \frac{\sum_{j \in I_{cim}} V_{wijn}}{\sum_{j \in I_{im}} V_{wijn}} \times \frac{\sum_{j \in I_{cim}} V_{cijm}}{\sum_{j \in I_{cim}} V_{wijn}} = EM_{cim} \times IM_{cim} \quad (4)$$

The above formula shows that in the country m market, the state c exports of an industry's share to

total exports of all countries can be decomposed into two kinds of sources: First, the state c exports more types of products, that is, export of the broad, and second, the country c with the world's common export product categories on the export of a greater number of exports deepened. Thus, a country export more product categories than before, and export are broadening, or that a country exports a greater quantity of similar products than it did before, that is, a deepening of export, can promote the development of a country's exports.

Find the differential at the two ends of the equation (4) available:

$$\Delta S_{cim} = \Delta EM_{cim} \times IM_{cim} + EM_{cim} \times \Delta IM_{cim} \quad (5)$$

In equation (5), both sides are divided by S at the same time, and combined with (4), we can get:

$$\frac{\Delta S_{cim}}{S_{cim}} = \frac{\Delta EM_{cim}}{EM_{cim}} + \frac{\Delta IM_{cim}}{IM_{cim}}$$

$$\text{which is } g_{scim} = g_{emcim} + g_{imcim} \quad (6)$$

The above formula shows that in the market of country m , the growth rate of a certain country's export market share can be decomposed into the sum of the growth rate of the export broadening and deepening. According to (6) can be analyzed the growth rate impact of export broadening and deepening to the exports market share. So as to analyze the growth of export trade of a certain industry in country c is mainly to rely on export broadening or deepening.

Data selection and source description

Through equation (1), (2) calculate the the indices of export broadening and export deepening in China's manufacturing sector. Select the world as the reference, select the 10 most representative of China's exports to China and the world's export target countries, that is, the importing countries, they are the United States, Hong Kong, Japan, Korea, Germany, the Netherlands, the United Kingdom, Singapore, Russia and India. China and the world's exports to the data of these 10 representative countries or regions is in accordance with the Harmonization Code System Code classification of 6-digit code products, product range is a product belonging to the manufacturing sector, are selected belong to the manufacturing sector 4221 kinds of 6-bit code classification products. The corresponding relationship between the manufacturing industry and the HS-coded product category in the national economic industry classification refers to the method of Sheng Bin (2002). However, Sheng Bin only assembles the HS code 4-digit commodity trade data into the industry. Based on this, the trade data of HS code 6-bit horizontal classification related products were assigned to the 26 manufacturing industries selected in the paper (see Appendix A). The sum of all countries in the COMTRADE database on behalf of the world, summed up by HS code 6-digit classification of products exports, the value of the product as the world's exports, and then assemble the required sub-sectors world exports. As the COMTRADE database contains the vast majority of trading countries, it is feasible to use these countries as world representatives. In order to eliminate the difference of trade data between the two countries, the paper uses the selected 10 representative countries or regions to import data from China and the world to represent the export data of China and the world to these countries, and its reference to the harmonization of data standards. Trade data for all 6-digit classified products are available from the United Nations COMTRADE database. The selected years are 2001 and 2007¹.

The Deepening and Broadening of China's Manufacturing Export

Contribution of export broadening and export deepening on the multilateral level. First, select the 10 representative countries or regions (China, Hong Kong, Japan, Korea, Germany, the Netherlands, the United Kingdom, Singapore, Russia and India) as the representative of China's

¹As the COMTRADE database of non-subscription users can not bulk download, access to data difficulties, 10 representative countries or regions from China and the world's two-year import data has more than 160,000, so the book only two years of data As a sample.

exports, In 2004-2008, China's exports is the largest to these 10 countries or regions ,in 2002-2008, China's exports to these 10 countries or regions accounted for 67% of the total global exports. Secondly, on the multilateral level, the author analyzes the changes of market share of China's manufacturing industry in the 10 representative countries or regions deepening and broadening of exports, and the deepening and broadening of export contribution to China's export market share change. As can be seen from Table 1, China's 26 manufacturing industries in these 10 countries showed a growing market share, the industry average share from 14% in 2001 to 20% in 2007, among them, the export market share of the fastest-growing industry is C25, compared to 2001, the share increased by 20% in 2007; More than 10% market share growth in the industry: C4, C5, C7, C9, C10 and C24. In addition to a slight decline in C2 and C3 market share, and C13's market share remained unchanged, other industries have increased market share. In analyzing the growth of Chinese manufacturing market share in the overall market of these countries, it is because of whether more product categories are exported to them (export broadening) or to export more of the original product categories (export deepening), found that China's manufacturing market share growth is mainly derived from the contribution of deepening exports. From China's manufacturing sector in 2007 than in 2001 increased market share growth source, the average growth of 99% from export deepening, only 1% of the growth is derived from the export broadening. Where is C2, C3, C12 and C23 and so on four industries due to the reduction of export products, so the contribution of export broadening negative, mainly by the role of deepening exports; only C13 export broadening contribution is large, 30%. Second, the contribution of C11 and C26 to export broadening are 13% and 8%, respectively. The contribution of the other industries to export broadening are very low. The contribution of export deepening in six sectors (C4, C5, C9, C10, C24 and C25) of the seven sectors with the market share increased by more than 10% is 100%, while the contribution of export broadening is 0 , another industry (C7) the contribution of export deepening is 99.5%, while the contribution of export broadening is 0.5%. Obviously, the growth of China's manufacturing exports mainly depends on the deepening of exports.

Table 1 China's manufacturing export deepening and broadening and its contribution

	2001			2007			2001—2007 contribution (%)		
	Broadening	Deepening	Market share(%)	Broadening	Deepening	Market share (%)	Market share	Broadening	Deepening
C1	0.9385	0.0703	6.6	0.9389	0.0795	7.5	100	0.3	99.7
C2	0.9664	0.0343	3.3	0.9950	0.0218	2.2	100	-8.8	108.8
C3	0.9780	0.0268	2.6	1.0000	0.0226	2.3	100	-16.8	116.8
C4	1.0000	0.2772	27.7	1.0000	0.3899	39.0	100	0.0	100.0
C5	1.0000	0.3099	31.0	1.0000	0.4623	46.2	100	0.0	100.0
C6	0.9999	0.5164	51.6	1.0000	0.5849	58.5	100	0.0	100.0
C7	0.9961	0.1595	15.9	1.0000	0.2882	28.8	100	0.5	99.5
C8	0.9785	0.0275	2.7	0.9999	0.0659	6.6	100	1.5	98.5
C9	1.0000	0.1100	11.0	1.0000	0.2240	22.4	100	0.0	100.0
C10	1.0000	0.5599	56.0	1.0000	0.7162	71.6	100	0.0	100.0
C11	0.9746	0.0298	2.9	1.0000	0.0349	3.5	100	13.2	86.8
C12	0.9865	0.0396	3.9	0.9736	0.0775	7.5	100	-1.4	101.4
C13	0.9785	0.0080	0.8	1.0000	0.0084	0.8	100	30.2	69.8
C14	0.9999	0.1152	11.5	1.0000	0.1980	19.8	100	0.0	100.0
C15	1.0000	0.0477	4.8	1.0000	0.1346	13.5	100	0.0	100.0
C16	1.0000	0.2118	21.2	1.0000	0.2330	23.3	100	0.0	100.0
C17	1.0000	0.1815	18.1	1.0000	0.2578	25.8	100	0.0	100.0
C18	0.9854	0.0365	3.6	1.0000	0.1345	13.5	100	0.5	99.5
C19	1.0000	0.0481	4.8	1.0000	0.0651	6.5	100	0.0	100.0
C20	1.0000	0.1689	16.9	1.0000	0.2639	26.4	100	0.0	100.0
C21	0.9823	0.0417	4.1	0.9962	0.0880	8.8	100	1.3	98.7
C22	0.9984	0.0304	3.0	1.0000	0.1272	12.7	100	0.1	99.9
C23	0.9943	0.0118	1.2	0.9817	0.0307	3.0	100	-0.8	100.8
C24	1.0000	0.2107	21.1	1.0000	0.3253	32.5	100	0.0	100.0
C25	0.9999	0.1220	12.2	1.0000	0.3208	32.1	100	0.0	100.0
C26	0.9788	0.1363	13.3	1.0000	0.1693	16.9	100	8.2	91.8

Note: See Appendix A for industry codes and industry classification. The table shows the market share of the market share from 2001 to 2007 after the growth rate of standardized income.

Source: Author calculated from the United Nations COMTRADE database data.

Contribution of export broadening and export deepening at the bilateral level. This section will analyze whether China's export growth for 10 major export partners (regions) is due to broadening and export deepening from bilateral level. Taking China's single export partner country (region) as the research object, Comparative analysis of China's manufacturing industry in 2007 in this target country's market share changes to 2001, Can be drawn in addition to some of the decline in market share of individual industries, the overall increase in state. China's manufacturing industry in various countries in the market share of the source of change, that is, the contribution of export broadening and deepening are shown in Table 2. In the Hong Kong market, in addition to C13 and C23 market share changes mainly rely on the contribution of export-broad, and C11's export-broad contribution is relatively high, the other sectors of the export deepening contribution more than 90%. In Singapore, apart from C2 and C23, the market share of other industries changes mainly by export deepening. In the Indian market, the change in the market share of China's manufacturing industry, although still mainly by the contribution of export deepening, but in most sectors of the export broadening contribution is positive. In the Japanese market, China's manufacturing industry has five sectors of the export broadening contribution more than 20%, 90% of the rest industry market share changes from the contribution of deepening exports. In the Korean market, China's manufacturing market share changes are generally derived from the deepening exports, many of the industry's contribution to the export broadening are negative. In the US market, in addition to C2, C3, C13, C19 and C26 and other industries contribute significantly more than the export deepening, other industries are relying on export broadening contribution. In the Russian market, there are ten sectors contribution of the export broadening to be more obvious, other industries market share growth of more than 90% from export deepening. In the export of the Netherlands, there are eleven sectors export broadening contribution to be more obvious. Other sectors contribute mainly to market share changes through the contribution of deepening exports. In the UK market, the contribution of export-broad is very prominent, there are seven industry export broadening contribution to the market share of more than 50%. In the German market, there are seven sectors that contribute more than 10% of their export broadening, and other sectors are mainly affected by changes in export market share in deepening exports. The above analysis shows that although China's manufacturing industry in the country's market share growth source, due to industry and market differences are different, on the whole, however, China's manufacturing sector's share of exports to these countries is mainly due to the contribution of deepening exports.

Table 2 Contribution of China's manufacturing industry to the export deepening and broadening of various countries (1) (unit:%)

	Hong Kong			Singapore			India			Japan		
	Market share	Broadening	Deepening	Market share	Broadening	Deepening	Market share	Broadening	Deepening	Market share	Broadening	Deepening
C1	100	-20	120	100	-74	174.4	100	62.2	37.8	100	24.9	75.1
C2	100	-1.6	102	100	4582	-4481.8	100	-2.9	102.9	100	19.8	80.2
C3	100	-32	132	100	0.7	99.3	100	98.7	1.3	100	-1	101
C4	100	-0.2	100	100	0.9	99.1	100	7.6	92.4	100	3.7	96.3
C5	100	0	100	100	0.2	99.8	100	-81.8	181.8	100	0	100
C6	100	0.2	99.8	100	1	99	100	0.1	99.9	100	0.3	99.7
C7	100	1.7	98.3	100	1.9	98.1	100	12.3	87.7	100	-0.8	101
C8	100	0.2	99.8	100	5.6	94.4	100	0.8	99.2	100	3.5	96.5
C9	100	0	100	100	0.8	99.2	100	16.2	83.8	100	0.1	99.9
C10	100	0	100	100	0	100	100	1.5	98.5	100	0.2	99.8
C11	100	44.6	55.4	100	1.3	98.7	100	112.4	-12.4	100	26.2	73.8
C12	100	2.3	97.7	100	17.4	82.6	100	13.8	86.2	100	5.6	94.4
C13	100	190	-90	100	5.9	94.1	100	13.9	86.1	100	0	100
C14	100	-0.2	100	100	1.1	98.9	100	1.4	98.6	100	29.8	70.2
C15	100	9.4	90.6	100	0.5	99.5	100	0.3	99.7	100	2	98
C16	100	0	100	100	0.7	99.3	100	0.3	99.7	100	1.3	98.7
C17	100	-0.2	100	100	4.2	95.8	100	1.9	98.1	100	3.3	96.7

C18	100	0	100	100	3.4	96.6	100	2	98	100	52.6	47.4
C19	100	-0.2	100	100	-30	130	100	7.2	92.8	100	5.4	94.6
C20	100	0.1	99.9	100	0.3	99.7	100	3.4	96.6	100	0.8	99.2
C21	100	0.7	99.3	100	3.3	96.7	100	4.9	95.1	100	2.4	97.6
C22	100	1.4	98.6	100	0.8	99.2	100	3.2	96.8	100	3.4	96.6
C23	100	228	-128	100	91.1	8.9	100	11.6	88.4	100	20.9	79.1
C24	100	-0.3	100	100	0.4	99.6	100	1.5	98.5	100	0.7	99.3
C25	100	0.4	99.6	100	0	100	100	0.3	99.7	100	0.2	99.8
C26	100	1.2	98.8	100	18.9	81.1	100	6.7	93.3	100	25.4	74.6

Note: See Appendix A for industry codes and industry classification. The table shows the market share of the market share from 2001 to 2007 after the growth rate of standardized income.

Source: Author calculated from the United Nations COMTRADE database data.

Table 2 Contribution of China's manufacturing industry to the export deepening and broadening of various countries (2) (unit:%)

	Korea			the United States			Russia		
	Market share	Broadening	Deepening	Market share	Broadening	Deepening	Market share	Broadening	Deepening
C1	100	-76	176	100	9.1	90.9	100	1.4	98.6
C2	100	-20	120	100	106	-6.1	100	-141.7	241.7
C3	100	1.5	98.5	100	29.4	70.6	100	—	—
C4	100	1.6	98.4	100	0.7	99.3	100	7.8	92.2
C5	100	0	100	100	0	100	100	0.1	99.9
C6	100	-0.3	100	100	0.1	99.9	100	2.6	97.4
C7	100	0.1	99.9	100	6	94	100	8.1	91.9
C8	100	1.1	98.9	100	1.4	98.6	100	36	64
C9	100	0.1	99.9	100	0	100	100	2.3	97.7
C10	100	0.9	99.1	100	0	100	100	0.3	99.7
C11	100	-4.7	105	100	-3.9	104	100	7.1	92.9
C12	100	8.6	91.4	100	0.3	99.7	100	56.2	43.8
C13	100	13.6	86.4	100	47.7	52.3	100	18.7	81.3
C14	100	-6.7	107	100	9.9	90.1	100	45.6	54.4
C15	100	0.7	99.3	100	0	100	100	1.4	98.6
C16	100	5.7	94.3	100	0	100	100	-3854.3	3954.3
C17	100	1.4	98.6	100	2.3	97.7	100	37.6	62.4
C18	100	5.6	94.4	100	9.1	90.9	100	121.5	-21.5
C19	100	-2.2	102	100	30.3	69.7	100	58.4	41.6
C20	100	0.8	99.2	100	1.3	98.7	100	14.2	85.8
C21	100	4.4	95.6	100	3.7	96.3	100	9.1	90.9
C22	100	2.9	97.1	100	1.1	98.9	100	6.3	93.7
C23	100	-0.7	101	100	2.4	97.6	100	110	-10
C24	100	0.1	99.9	100	3.5	96.5	100	4.1	95.9
C25	100	0.1	99.9	100	0.1	99.9	100	0.4	99.6
C26	100	6.3	93.7	100	15.1	84.9	100	2381.6	-2281.6

Note: Same as above. "-" means that since 2001 there is no Chinese industry exports to the country data, it can not be calculated. The table shows the market share of the market share from 2001 to 2007 after the growth rate of standardized income.

Table 2 Contribution of China's manufacturing industry to the export deepening and broadening of various countries (3) (unit:%)

	Netherlands			United Kingdom			Germany		
	Market share	Broadening	Deepening	Market share	Broadening	Deepening	Market share	Broadening	Deepening
C1	100	1.4	98.6	100	51.1	48.9	100	-7.8	108
C2	100	-141.7	241.7	100	154	-54	100	-27	127
C3	—	—	—	100	-71	171	—	—	—
C4	100	7.8	92.2	100	4.4	95.6	100	4.3	95.7
C5	100	0.1	99.9	100	0	100	100	0	100
C6	100	2.6	97.4	100	0.6	99.4	100	0.8	99.2
C7	100	8.1	91.9	100	2.5	97.5	100	1.1	98.9
C8	100	36	64	100	26.6	73.4	100	32.3	67.7
C9	100	2.3	97.7	100	0.3	99.7	100	0.1	99.9
C10	100	0.3	99.7	100	0	100	100	0.4	99.6
C11	100	7.1	92.9	100	101	-1.4	100	-3.4	103
C12	100	56.2	43.8	100	66.3	33.7	100	10.4	89.6

C13	100	18.7	81.3	100	1.6	98.4	100	-12	112
C14	100	45.6	54.4	100	24.4	75.6	100	21.7	78.3
C15	100	1.4	98.6	100	4	96	100	1.3	98.7
C16	100	-3854.3	3954.3	100	-37	137	100	14.5	85.5
C17	100	37.6	62.4	100	5	95	100	6.1	93.9
C18	100	121.5	-21.5	100	54.3	45.7	100	20	80
C19	100	58.4	41.6	100	55.5	44.5	100	196	-96
C20	100	14.2	85.8	100	6.7	93.3	100	5	95
C21	100	9.1	90.9	100	8.7	91.3	100	5	95
C22	100	6.3	93.7	100	5.9	94.1	100	2.3	97.7
C23	100	110	-10	100	52.4	47.6	100	3.1	96.9
C24	100	4.1	95.9	100	3.2	96.8	100	2.9	97.1
C25	100	0.4	99.6	100	0	100	100	0.1	99.9
C26	100	2381.6	-2281.6	100	4.7	95.3	100	82.8	17.2

Note: Same as above . "-" means that since 2001 there is no Chinese industry exports to the country data, it can not be calculated. The table shows the market share of the market share from 2001 to 2007 after the growth rate of standardized income.

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Appendix A: The Correspondence Table of Manufacturing Industry Code and Industry Classification

Industry code	Industry name
C	Manufacturing
C1	Food processing and manufacturing industry
C2	Beverage manufacturing industry
C3	Tobacco industry
C4	Textile industry
C5	Textile and garment, shoes, hats manufacturing industry
C6	Leather fur and feather industry
C7	Timber processing and furniture manufacturing industry
C8	Papermaking and paper products industry
C9	Printing and record medium reproduction
C10	Cultural, educational and sporting goods
C11	Petroleum refining and coking
C12	Chemical raw materials and chemical products manufacturing industry
C13	Pharmaceutical manufacturing industry
C14	Chemical fiber industry
C15	Rubber product industry
C16	Plastic product industry
C17	Non - metallic mineral products industry
C18	Black metal smelting and rolling processing industry
C19	Non-ferrous metal smelting and rolling processing industry
C20	Fabricated metal products
C21	Ordinary machinery manufacturing industry
C22	Special equipment manufacturing
C23	Transportation equipment manufacturing industry
C24	Electrical machinery and equipment manufacturing industry
C25	Communication equipment computers and other electronic equipment manufacturing industry
C26	Instrumentation and cultural office machinery

References

- [1] Sheng Bin. Political and Economic Analysis of China's Foreign Trade Policy. Shanghai People's Publishing House, 2002.
- [2] Feenstra, R.C. (1994), "New Product Varieties and the Measurement of International Prices," American Economic Review 84(1):157-77.
- [3] Hummels, D. and P. Klenow, (2005), "The Variety and Quality of a Nation's Exports", American Economic Review, 95(3), 704–23.
- [4] Hummels, D., Ishii, J. and Yi, K.-M. (2001), "The nature and growth of vertical specialization in world trade", Journal of International Economics 54(1), 75–96.