CHINA-FIRST SUPERPOWER IN INTERNATIONAL TRADE WITH HIGH-TECH PRODUCTS

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Abstract

The article tries to make a picture of the last five years of the Chinese international trade with high-technology (HT) products. China is after 2006 the biggest commercial force on the international market for HT products, exceeding EU and USA. Its international trade grew rapidely in the field of exports and more slowly for imports, the ballance sheet going from a negative sold to a positive one from 2007 to 2011 (the analized period of time).

China disposes of a great potential both for export and import and it is one of the most important partners of EU in this field. China exports and imports, in different proportions, mainly computers and office machines, electronics and telecommunications apparatus, scientific instruments, electrical machineries and other HT products, the prospects for the years to come being hardly encouraging.

Keywords: *international trade, high-tech products, research and development, competitiveness*

JEL classification: F14, F17, O30, O33

Introduction

In the two last decades, China imposed itself more and more on the international market of high-technologies (HT), in 2006 being the greater exporter in this field, followed by USA and EU.

According to the WEF - Global Competitiveness Report 2012-2013, China is classified in the second stage of development (efficiency driven) and ranks 29 between 144 states. The Global Competitiveness Index (GCI), is calculated in this study following a sophisticated algorithm, and has 3 sub-indicies and 12 pillars. At the pillars 9 – technological readiness and 12 – innovation (both of them being important for this analysis), China ranks 88 (score 3.5 on a scale from 1 to 7) and, respectively, 33 (score 3.8). Definitely, speaking about China competitiveness in the field of HT products international trade these are not sufficient arguments and the most important factors are the cost and the commercial facilities.

Nowadys, at global level, 15 states (or states groups) summarised approximatelly 97% of total exports and 90% of total imports of HT products on the international market.
These 15 exporters and importers are: China, EU-27, USA, Japan, Singapore, Hong-Kong, Taiwan,Thailand, South Korea, Malaysia, Canada, Switzerland, Philipine, Brasil, India.

In 2011, four economies, together, accounted more than half of HT exports worldwide: China and the EU were the main exporters of HT products, with shares of about 19% and, respectively, 16,5%, followed by USA (about 15%) and Japan (about 7%).

Thus, as early as 2006, according to UN Comtrade SITC Rev. 3, China defined itself as the most important force in the HT products on the global market, heading EU-27 and

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USA.

1. **Evolution of China international trade with high-technology products in the last five years**

Our interest for China is due to the fact that this country is a very important partner for EU, especially in the trade with HT products and, of course, a competitor on the international market; that is why it must be seriously taken into consideration, analyzed and presented.

In UN Comtrade Rev. 3 classification, the HT products encompass 9 groups and 56 sub-groups (see table 1). These commodities have been selected in conformity with research-development intensity (R&D expenditures/total sales).

During the past ten years, the commodities included in high-technologies (HT) groups summarised about 19-22% from the whole value of global trade. Of course there are some value differencies plus or minus between different statistics and studies, because of products groups considered to be part of this category and due to the inclusion or not of some adjacent services.

Table 1. Clasification of HT products accordingly SITS, Rev. 3

Groups of high-technology products	**SITC Rev. 3**
I - Aerospace	7921+7922+7923+7924+7925+79291+79293+(714-71489-71499)+87411
II - Computers – office machines	75113+75131+75132+75134+(752-7529)+75997
III - Electronics – telecommunications	76381+76383+(764-76493-76499)+ 7722+77261+77318+77625+77627+7763+7764+7768+89879
IV - Pharmacy	5413+5415+5416+5421+5422
V - Scientific instruments	774+8711+8713+8714+8719+8721+(874-87411-8742)+ 88111+88121+88411+88419+89961+89963+89966+89967
VI - Electrical machinery	77862+77863+77864+77865+77867+77868+7787+77884
VII - Chemistry	52222+52223+52229+52269+525+531+57433+591
VIII - Non-electrical machinery	71489+71499+7187+72847+7311+73131+73135+ 73142+73144+73151+73153+ (7316-73162-73166-73167-73169) +73312+73314+73316+7359+73733+73735
IX - Armament	891

Source: Eurostat – Statistics in focus 25/2009

As it is known, the principal cause of value differencies in minus of exports versus imports consists, in many cases, in FOB terms for exports and CIF terms for imports. The values of China HT international trade are expressed in US dollars.

Gradually, China gained its status as one of the largest manufacturing centers in the world, creating companies of any kind, from the very simple commodities makers, like garments or toys, to networking gear manufacturers, which successfully used their low cost advantage to compete against companies from the most developed countries.

But, in the HT industries, in particular, not only low the labour cost constitutes the outstanding advantage. ”*Some firms have started to combine their low wage advantage with sophisticated end-to-end strategies by ramping up competencies in important areas in the value chain, including research and development, manufacturing and supply chain management, marketing and strategy. The competitive advantages of those industries include*

low cost structures, a pool of highly skilled engineers and scientists, a sophisticated science and technology infrastructure, a growing domestic market with enormous potential, and a cluster of related high-tech industries that benefit each other"[24].

One example reflecting the extension that Chinese HT research and development took in the last 20 years is the Chengdu Hi-tech Zone, one of the six pilot zones of "The World's First-Class Technology Park Initiatives" sponsored by the Ministry of Science and Technology. In this zone there are 29,163 companies, many of them being firms with investments from foreign corporations. Here, there are manufacturers producing microelectronics- oriented IT industry, including software, Traditional Chinese Medicine (TCM) - centered bio-pharmaceutical industry, the precision machinery manufacturing industry and many other HT producing units. In all, about 500 companies with activity in high-technology field are registered here[25].

The result of the outstanding China's HT production is also, of course, the increase of international trade in this domain. We must emphasize that during the crisis period, China HT products international trade developed quite well, without major disturbances.

In the period 2007-2011, China exports of HT products grew from 338.4 billion $ to 511.7 billion $, that is with 51.2% (see table 2). As for imports, in the same interval, their increase was by 8.8%, from 397.3 billion $ to 432.3 billion $. The balance sheet of China international trade with HT products was negative in 2007 and positive in 2011.

Table 2. China international trade with HT products, 2007-2011, in billion $

Groups of high-technology products	**Export value**		**Growth**	**Import Value**		**Growth**	**Balance sheet Export - Import**	
	2007	**2011**	**2011/2007 +/-, %**	**2007**	**2011**	**2011/2007 +/-, %**	**2007**	**2011**
I - Aerospace	0.9	2.1	133.3	11.1	14.8	33.3		
II - Computers – office machines	139.9	185.1	32.3	36.7	44.7	21.8		
III - Electronics – telecommunications	151.4	243.5	60.8	182.2	254.6	39.7		
IV - Pharmacy	3.2	6.1	90.6	1.7	5.1	-28.2		
V - Scientific instruments	28.7	46.1	60.6	62.6	85.7	36.9		
VI - Electrical machinery	6.7	15.1	125.4	95.6	13.3	-86.1		
VII - Chemistry	6.3	11.3	79.4	3.3	6.1	84.8		
VIII - Non-electrical machinery	1.2	2.3	91.7	4.1	7.8	90.2		
IX - Armament	0.1	0.1	-	0	0	-		
Total	**338.4**	**511.7**	**51.2**	**397.3**	**432.3**	**8.8**	**-58.9**	**79.4**

Source: Calculations based on UN Comtrade data

[24] Leiming Bian, The China Advantage – A Competitive Analysis of Chinese High-Tech Industries, Massachusetts Institute of Technology, September 2005

[2]A first-class hi-tech industrial development park, updated 2013-03-22, in China Daily.com.cn

2. Structure of China HT products international trade

China was in 2011 between the first five international exporters of HT products in the following groups and sub-groups of these products:

-The group II - ***Computers – office machines –*** sub-group 75997;

-The group III - ***Electronics – telecommunications –*** sub-groups 6381, 7722, 77261, 77627, 7763;

-The group IV – ***Parmaceutical products*** – sub-group 5413;

-The group V - ***Scientific instruments –*** sub-groups 8711, 8714, 8719, 88419, 89961;

-The group VI – ***Electrical machinery*** - sub- groups 77862, 77863, 77865, 7787, 77884;

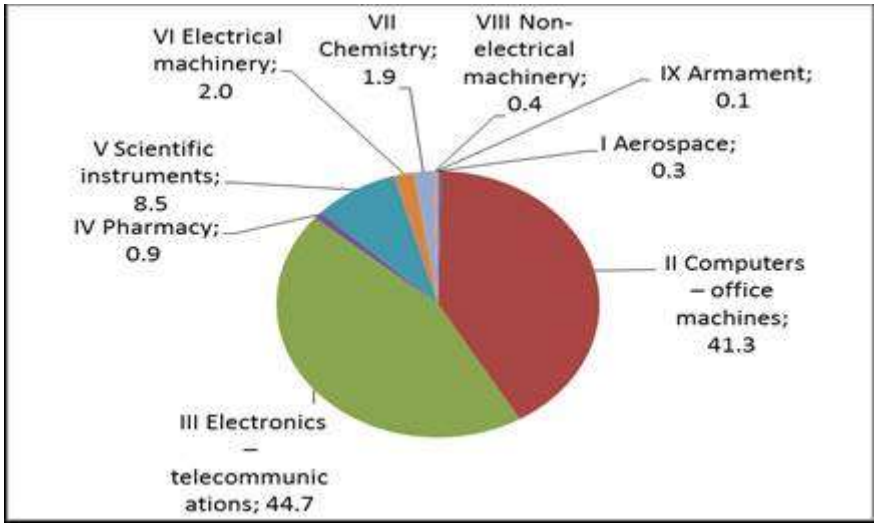
-The group VII – ***Chemistry -*** sub- groups 52222, 52223, 52229, 52269, 531, 57433, 591; and

-The group VIII – ***Non - electrical machinery*** - sub-grups 7311, 73314.

During the period 2008-2011, China registered the greatest increase at the export of ***Integrated circuits and electronic components*** - the group 776 (approximately 159%) and division 79 (approximatelly 70%), ***chemical products*** (about 45%) and ***pharmaceutical products*** (about 46%). The same products groups were the most well represented, from the point of view of the growth, in the Chinese HT products import.

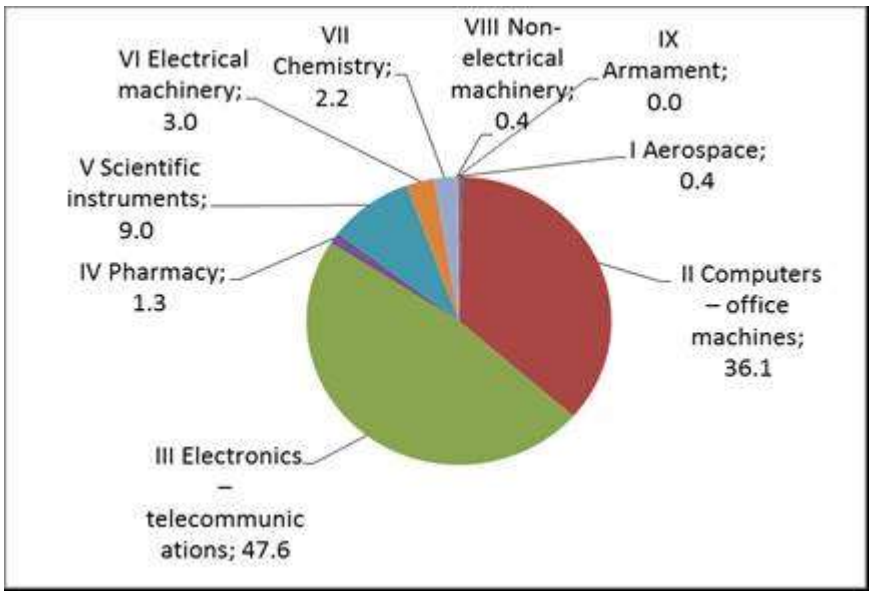
In the figures 1-4 are presented the structures of the Chinese HT products exports and imports (in %, in 2007 and 2011). The main products groups, in the two mentioned years, are for Chinese exports (see figures 1 and 2), the groups ***II - Computers – office machines,*** with a participation of 41.3% in 2007 and 36.1% in 2011 (somewhat in a remarkable decline), and ***III - Electronics – telecommunications*** with 44.7% in 2007 and 47.6% in 2011. The group ***V - Scientific instruments*** had a stable share (8.5% in 2007 and 9% in 2011). The other groups have shares under 3.0% in both years.

Figure 1. China international export of HT products structure, 2007, %



Source: Designed upon UN Comtrade, Rev. 3 data

Figure 2 – China international export of HT products structure, 2011, %



Source: Designed upon UN Comtrade, Rev. 3 data

Regarding the Chinese imports we may see a difference in relation to exports, because in 2007 (Figure 3) the group ***II – Computers – office machines*** had a much small share (9.2%) in favour of groups ***IV Electrical machinery*** (24.1%) and ***V – Scientific instruments*** (15.8%). The group ***III - Electronics – telecommunications*** had a similar share with that detained in exports (45.9%).

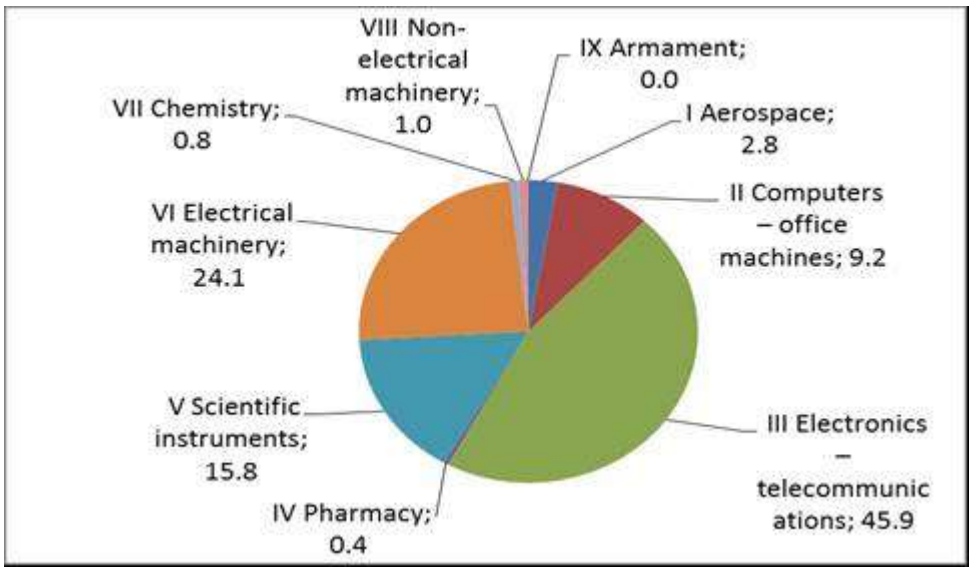
In 2011 (see Figure 4), it is a picture much different from 2007, because of the great increase of the share of group ***III – Electronics – telecommunications*** (practically 60%) to the detriment of group ***VI – Electrical machinery***, which participation decreased from 24.1% at 3.1%. This means that there is a quite important difference between the evolution of the structure of HT products exports and of the structure of imports in the same period of time.

If we compare the export and import structures of the Chinese HT products trade in the analyzed period, we may remark that there is a difference, the import structure being much changed in 2011 as compared to 2007. In 2007, the Group ***III - Electronics – telecommunications*** had a very closed share in exports – 44.7% - compared to that of the imports – 45.9%. But, as regards the group ***II - Computers – office machines***, it may be noticed a great difference between its share in exports and imports, i.e. 41.3% against 9.2%. The Groups ***V – Scientific instruments*** and ***VI - Electrical machinery*** had registered substantial greater shares in imports relatively to the exports.

In 2011, we may see a quite great share difference for the exports in relation with the imports for the Group **III** (47.6% towards 58.9%) as well as for the Group **II** (36.1% towards 10.3%) and for the Group **V** (9.0% towards 19.8%).

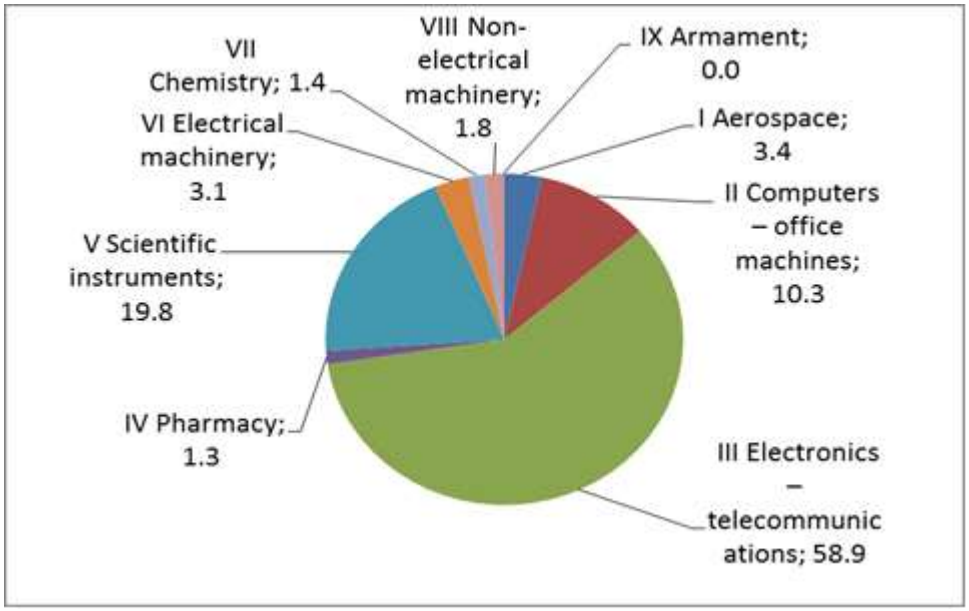
The conclusion I may draw is that there is a more evident differentiation in the evolution of the import structure as compared to that of the export, in the period 2007-2011.

Figure 3 – China international import of HT products structure, 2007, %



Source: Designed upon UN Comtrade, Rev. 3 data

Figure 4. China international import of HT products structure, 2011, %



Source: Designed upon UN Comtrade, Rev. 3 data

Conclusions

The short analysis marked out here reveals at least three conclusions:

a) the impressive development of China industrial production had as a major consequence the great extension of the international trade, with very good prospects for the years to come. According to my estimations, based on the past period growth rate, in 2020 the export value of HT products will reach about 745 billion. $ and the import one about 600 billion $;

b) the HT products export and import structure is a very good one for an emergent economy in full development like China's (taking into account, of course, its outstanding development progress). Anyway, in the considered period of time the structure of imports is

quite different in comparison to that of exports. The expectations for the future evolution of trade pattern are also positive, both for HT products exports and imports, from the point of view of their structure;

c) EU countries must action more firmly for gaining segments from China huge market, especially with HT products, finding out some complementarities for the development of bilateral trade relations. Some suggestions I may do refer to the targeted sectors like pharmaceuticals, cosmetics, aerospace and gears of any kind of industries.

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