



---

WORKING PAPER SERIES ON EUROPEAN STUDIES

INSTITUTE OF EUROPEAN STUDIES

CHINESE ACADEMY OF SOCIAL SCIENCES

Vol. 10, No. 3, 2016

# SERBIAN INDUSTRIAL COMPETITIVENESS AND CHINA-SERBIA COOPERATION

**CHEN Xin**

*Senior Research Fellow, Director of Economic Division*

*Institute of European Studies*

*Chinese Academy of Social Sciences*

*Secretary General of Chinese Association of European Studies*

*chen-xin@cass.org.cn*

**YANG Chengyu**

*Assistant Researcher, Economic Division*

*Institute of European Studies*

*Chinese Academy of Social Sciences*

*yangchy@cass.org.cn*

Institute of European Studies, Chinese Academy of Social Sciences • Beijing 100732

Working Paper Series on European Studies of IES, CASS can be found at:

<http://ies.cass.cn/english/wp/>

All rights reserved.  
No part of this paper may be reproduced in any form  
without permission of the author.

CHEN Xin & YANG Chengyu  
Institute of European Studies, Chinese Academy of Social Sciences  
5 Jianguomennei Dajie, Beijing 100732  
CHINA

Publications in the Series should be cited as:  
Author, Title, Working Paper Series on European Studies, Institute of European Studies,  
Chinese Academy of Social Sciences, Vol., No., Year

# SERBIAN INDUSTRIAL COMPETITIVENESS AND CHINA-SERBIA COOPERATION

Chen Xin Yang Chengyu<sup>1</sup>

base

**Abstract:** This paper applies the Revealed Comparative Advantage (RCA) approach to analyze the industrial competitiveness in Serbia. It starts with the analysis at macro level by the classification of primary industry, resource-intensive industry, labor-intensive industry, capital-intensive industry, technology-intensive industry, traditional service industry, modern service industry. Then, the paper continues the analysis at meso level based on 28 industrial sectors and 9 service sectors. Supported by the research results and comparisons with China, the paper provides some recommendations for industrial cooperation between China and Serbia.

**Keywords:** Industrial competitiveness; Revealed Comparative Advantage (RCA); Industrial cooperation; Current situation of the industry of Serbia and China

## Introduction

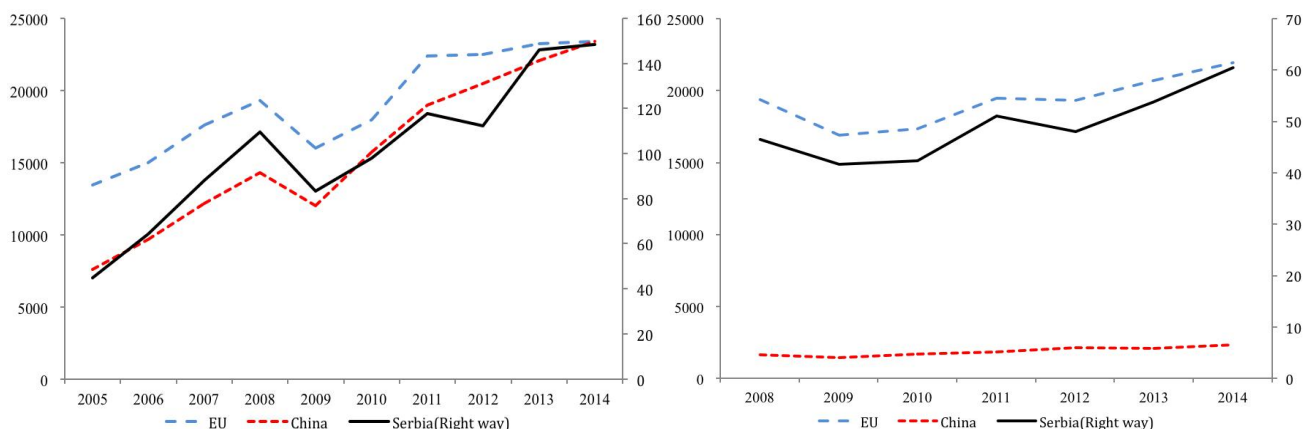
A country's factor endowment structure determines the relative labor productivity of the domestic industry, which reflects the level of industrial competitiveness (Ricardo, 1951). Therefore, it is necessary to carry out the macro analysis of the industrial structure in the way of factor endowments (Ohlin, 1933), in order to clarify the current situation of the industrial competitiveness of Serbia. We start the analysis of industrial structure at macro level, and then move to meso level which combines 28 industrial sectors and 9 service sectors, using the Revealed Comparative Advantage (RCA) approach (Balassa, 1965) to achieve comprehensive, scientific analysis on the Serbia's industry and industrial competitiveness.

### I. Analysis of industry competitiveness at macro level

#### I.1. Overview of macro industry export value

The relative export value of industry are regarded as the industrial competitiveness by Mainstream research (Balassa, 1965; Rodrik, 2006). Figure 1-1 and 1-2 are Serbia, the EU, China's industrial sector and the service sector exports statistics.

Figure 1-1 Export statistics of industrial sector Figure 1-2 Export statistics of service sector



Data source: export statistics of industrial sector data are calculated by the UN Comtrade Database; export statistics of service sector data are calculated by the UNCTAD Database<sup>2</sup>.

In the Export statistics of industrial sector, Serbia, EU and China as a whole are showing an upward trend. Although affected by the world financial crisis and the European debt crisis in 2009 the total trade value has declined, with the steady recovery of the world economy, the values are reaching the highest level of history in recent years. Among them, Serbia, EU and China's exports were up from 4.48, 1345.8, 761.9 billion U.S. dollars in 2005 to 14.84, 2339.7, 2342.3 billion in 2014 respectively, the average annual growth rate were respectively 14.23%, 6.33%, 13.29%. Serbia's export growth rate of the industrial sector is slightly higher than China's, and significantly higher than the overall level of the EU. In recent years, with the rapid development of various industries in Serbia, the export value and the competitiveness were increasing substantially. Serbia's industrial sector export was catching up with a growth rate of 30.11% in 2013 (The EU were 3.38%).

In the Export statistics of service sector, Serbia, EU and China as a whole are also showing an upward trend. Serbia, EU and China's exports were up from 4.64, 1933.8, 165.9 billion U.S. dollars in 2008 to 6.05, 2191.2, 233.5 billion in 2014 respectively, the average annual growth rate were respectively 4.48%, 2.10%, 5.85%. Serbia's service sector exports showed a growth rate much higher than the EU, and slightly lower than China. Serbia has a small initial size in the industrial and service export, starting late, growing fast.

## **I.2. Analysis on the export structure of macro industry**

### **I.2.1. Analysis on the export structure of industrial sector**

With the difference of the industrial production factors and the technical content, we divide the industries into primary industry (pp), resource intensive industry (Agriculture and forestry industry, RB1; Other resource intensive industry, RB2), labor intensive industry (Textile industry, LT1; Other labor intensive industry, LT2), capital intensive industry (motor vehicle industry, MT1; Processing industry, MT2; Engineering industry, MT3), technology intensive industry (Electronics and electrical industry, HT1; Other technology intensive industry, HT2).

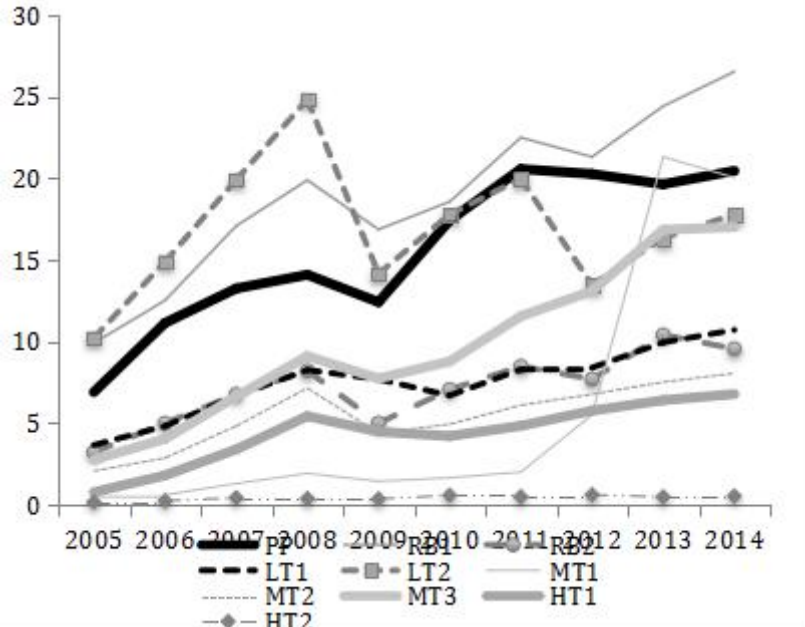
Figure 2-1 is the Serbia's export structure of industrial sectors. The development of industrial structure in Serbia is more complicated. In 2005, the industrial structure is mainly labor-intensive and resource intensive, at the same time primary industry, capital intensive and technology intensive industry is not very large, so the industrial structure and technical level is relatively low. However, after more than ten years of development, with the rapid rise of the motor vehicle and the processing industry, the share of Serbia's capital-intensive industry in the industrial structure gradually increased. In 2014 the export is mainly contributed by primary industry, resource intensive industry, labor-intensive industry and capital-intensive industry, the development of technology intensive industry is relatively stagnant. The largest export share is resource intensive

---

<sup>2</sup> Serbia's data began in 2005 on the Comtrade UN database and in 2008 on the UNCTAD database. Therefore, Serbia industrial sector data across 2005-2014, and the service sector data across 2008-2014.

industry (2.65 billion in 2014), then primary industry (2.044 billion) and motor vehicle industry (2.003 billion), and the share of technology intensive industry is small (Electronics and electrical industry and other technology intensive industry is 0.677 and 0.052 billion respective).

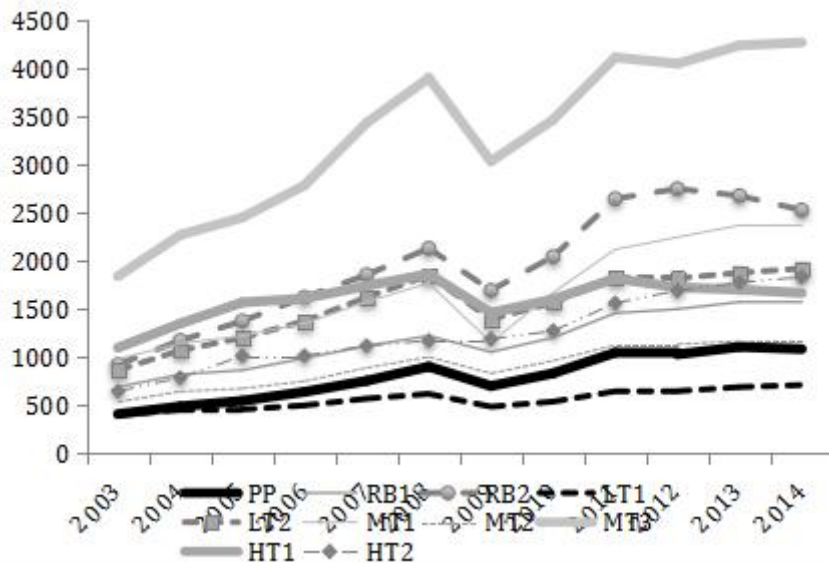
Figure 2-1 The export structure of industrial sector of Serbia



Data source: UN Comtrade Database

Shown in Figure 2-2 on the EU's export structure of industrial sector, the export share of the motor vehicle industry and the Engineering industry is the largest. EU takes the technology intensive industry in a high share whereas Serbia takes the smallest, there is a big gap between Serbia and EU in terms of industrial technology.

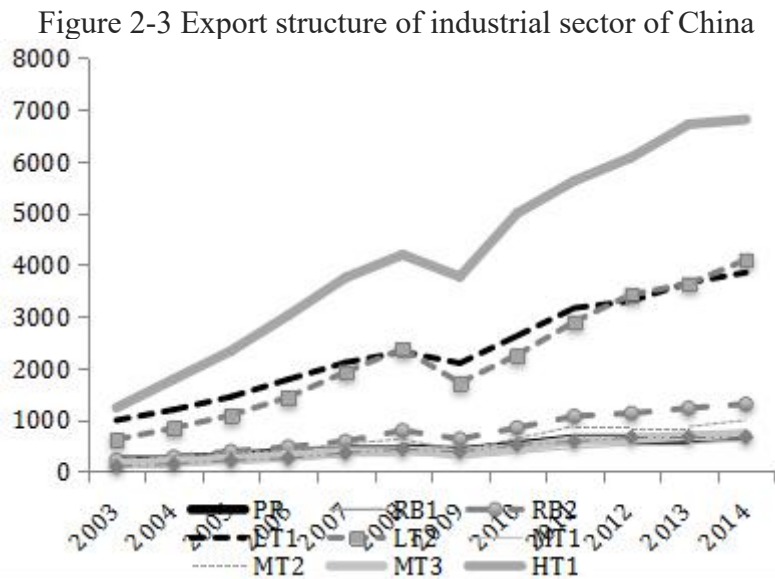
Figure 2-2 Export structure of industrial sector of EU



Data source: UN Comtrade Database

As the figure 2-3, the industrial export structure of China is different with the Serbia.

The largest export in China is the electronics and electrical industry and the textile industry. The export share of the motor vehicle industry and the engineering industry is much smaller. It is worth mentioning that the electronic and electrical industry in the industrial structure of Serbia has the smallest size and lack of competitiveness, but engineering industry and the motor vehicle industry has a larger scale in the Serbia's industrial structure which own a stronger competitiveness. It can be predicted that the industrial cooperation between China and Serbia will give a full play for China in the electronic and electrical industry and at the same time for of Serbia in the primary industry, the resource intensive industry, the engineering industry and the motor vehicle industry.



Data source: UN Comtrade Database

### 1.2.2. Analysis on the export structure of service sector

The service sector is used to be divided into two categories: the traditional service industry and the modern service industry.

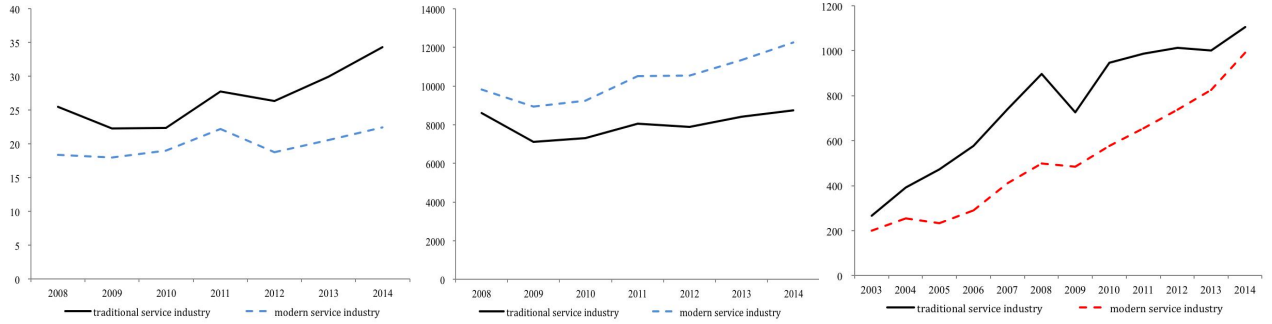
Figure 3 is the export structure of service sector for Serbia, EU and China. As shown in the figure 3, the traditional service industry is the largest in the proportion of the export structure of Serbia's service sector, whereas the modern service industry is smaller, which are 2.547, 1.836 billion in 2008 with a growth to 3.432, 2.244 billion in 2004 respectively, both growth rate are synchronous.

On the EU side, the scale of the modern service industry is bigger than the traditional service industry (981.3 vs. 861.5 billion). With the development of modern service industry in the European Union, along with the improvement of the comparative advantages, the modern service industry is becoming more and more important in the industrial structure of service industry in EU.

The macro structure of China's service sector reflects the distinct characteristics: firstly, different with Serbia, China's modern service industry export growth is significantly faster than the traditional service industry which reflect the characteristic of the rapid upgrading of China's modern service industry competitiveness; Secondly, different with structure of the service industry in EU, the traditional service industry has a larger scale

in the macro structure of China's service sector, although it has a steady development in comparison with the rapid development of modern service industry; Thirdly, affected by the European debt crisis, the development of the service industry in Serbia and EU has a drop after 2008. At this time, China traditional service industry influence by external demand which decline but rebound to the level of growth in the short-term. And at the same time, even the development of modern service industry has maintained a rapid growth trend.

Figure 3 Export structure of service sector of Serbia, EU and China



Data source: UNCTAD Database

### I.3. Analysis on comparative advantage at macro level

By using Revealed Comparative Advantage (RCA), we begin the research on the comparative advantages of macro industry in Serbia, and on the comparative analysis of the advantages and disadvantages of Serbia, EU and China. The calculation formula is as follows:

$$RCA_{it}^j = \frac{X_{it}^j / X_{it,w}}{X_{wt}^j / X_{wt}}, \forall i \in \Omega, j \in \Phi, t \in T$$

$RCA_{it}^j$ : the revealed comparative advantage of the industry  $j$  in country  $i$  at the time  $t$ .

$X_{it}^j$ : the export value of the industry  $j$  in country  $i$  at the time  $t$ .

$X_{it,w}$ : the export value in country  $i$  at the time  $t$ .

$X_{wt}^j$ : the export value of the industry  $j$  of the world at the time  $t$ .

$X_{wt}$ : the export value of the world at the time  $t$ .

#### I.3.1. Analysis on the comparative advantages of the industrial sector in the macro industry

As shown in Table 1-1, according to the calculation of the macro industry comparative advantage of the industrial sector in Serbia, Serbia has a comparative advantage in the following industrial sectors at macro industrial level: the agriculture and forestry industry, the labor intensive industries, the motor vehicle industry and the processing industry. The comparative advantage index of the agricultural and forestry industry was

almost 3 which has the most obvious comparative advantage<sup>3</sup>. The comparative advantage index of the labor intensive industry was almost 1.5 which has a comparative advantage. However, the biggest disadvantage is the high technology industry whose index is smaller than 0.1. Overall, Serbia has a obvious competitive advantage in agriculture, labor-intensive industry, but the lack of competitiveness in high-technology industry.

Table 1-1 Comparative advantage of industrial sector of Serbia

	PP	RB1	RB2	LT1	LT2	MT1	MT2	MT3	HT1	HT2
2005	1.12	3.60	0.79	1.62	2.52	0.12	0.89	0.46	0.11	0.09
2006	1.13	3.34	0.84	1.57	2.59	0.11	0.91	0.48	0.19	0.09
2007	1.03	3.25	0.81	1.62	2.41	0.18	1.08	0.56	0.27	0.13
2008	0.77	3.14	0.71	1.77	2.45	0.23	1.25	0.64	0.39	0.09
2009	1.02	3.22	0.63	1.95	1.90	0.26	1.07	0.71	0.39	0.11
2010	1.15	3.16	0.69	1.51	2.12	0.24	1.00	0.71	0.31	0.16
2011	1.06	3.15	0.64	1.59	1.98	0.25	1.01	0.79	0.33	0.12
2012	1.10	3.17	0.61	1.72	1.38	0.70	1.21	0.94	0.40	0.14
2013	0.82	2.78	0.63	1.49	1.31	2.07	1.07	0.95	0.34	0.09
2014	0.98	2.91	0.59	1.51	1.31	1.82	1.10	0.91	0.34	0.09

Data source: UN Comtrade Database

Note: The red value in the table shows “comparative advantage”.

Shown in Table 1-2, the comparative advantage industry in EU is not only the agricultural and forestry industry, the capital intensive industry which Serbia also has, but also the technology intensive industry which Serbia is lack of competitiveness.

Table 1-2 Comparative advantage of industrial sector of EU

	PP	RB1	RB2	LT1	LT2	MT1	MT2	MT3	HT1	HT2
2003	0.33	1.04	1.23	0.70	0.98	1.07	1.04	1.37	0.71	1.69
2004	0.31	1.05	1.18	0.69	0.97	1.05	1.00	1.37	0.72	1.69
2005	0.29	1.04	1.12	0.66	0.98	1.05	0.96	1.36	0.76	2.01
2006	0.27	1.12	1.17	0.68	1.02	1.10	1.01	1.42	0.71	1.78
2007	0.29	1.06	1.11	0.68	0.98	1.07	0.99	1.46	0.71	1.67
2008	0.28	1.09	1.05	0.74	1.03	1.22	0.99	1.56	0.76	1.67
2009	0.30	1.04	1.10	0.63	0.97	1.09	1.05	1.46	0.66	1.92
2010	0.30	1.11	1.09	0.65	1.01	1.33	1.06	1.52	0.64	1.91
2011	0.28	1.07	1.04	0.64	0.95	1.37	0.97	1.47	0.64	1.99
2012	0.28	1.11	1.08	0.65	0.93	1.41	1.00	1.45	0.60	2.01

<sup>3</sup> If  $RCA_t^j > 1$ , we consider that there is a comparative advantage in the industry  $j$  in country  $i$  at the time  $t$ ; If  $RCA_t^j < 1$ , we consider that there is a comparative disadvantage in the industry  $j$  in country  $i$  at the time  $t$



2013	0.29	1.12	1.02	0.64	0.94	1.44	1.03	1.49	0.56	2.02
2014	0.33	1.10	0.99	0.63	0.89	1.37	1.02	1.45	0.52	1.95

Data source: UN Comtrade Database

Note: The red value in the table shows “comparative advantage”.

As to Table 1-3, there is a comparative advantage in the labor-intensive industry and the electronics and electrical industry in China. Designing a good economic and trade cooperation between China and Serbia could be effectively based on the complementary industrial relationship, which means maximizing the Serbia’s advantage of agriculture and forestry industry, capital intensive industry on the one hand, and on the other hand utilizing China’s advantages in the electronic and electrical industry whereas Serbia is lack of competitiveness. Such kind of cooperation could realize the mutual interests and complement each other's benign development.

Table 1-2 Comparative advantage of industrial sector of China

	PP	RB1	RB2	LT1	LT2	MT1	MT2	MT3	HT1	HT2
2003	0.38	0.49	0.65	3.95	1.58	0.17	0.84	0.24	1.81	0.56
2004	0.31	0.49	0.58	3.80	1.56	0.20	0.96	0.23	1.94	0.64
2005	0.27	0.51	0.56	3.77	1.58	0.22	0.92	0.24	2.01	0.75
2006	0.25	0.55	0.53	3.84	1.65	0.25	0.88	0.25	2.06	0.69
2007	0.23	0.52	0.50	3.69	1.68	0.29	0.87	0.23	2.20	0.77
2008	0.18	0.49	0.53	3.79	1.79	0.33	0.84	0.22	2.32	0.82
2009	0.22	0.47	0.54	3.69	1.60	0.32	0.67	0.23	2.26	0.82
2010	0.20	0.48	0.51	3.67	1.67	0.32	0.80	0.23	2.27	0.88
2011	0.20	0.52	0.50	3.75	1.78	0.35	0.90	0.25	2.35	0.87
2012	0.18	0.52	0.48	3.71	1.92	0.35	0.82	0.25	2.31	0.86
2013	0.18	0.51	0.49	3.62	1.92	0.34	0.81	0.25	2.34	0.80
2014	0.21	0.50	0.51	3.44	1.91	0.34	0.86	0.24	2.15	0.71

Data source: UN Comtrade Database

Note: The red value in the table shows “comparative advantage”.

### I.3.2. Analysis on the comparative advantages of the service sector at macro level

Table 2 shows the comparative advantage index of service sector at macro level in Serbia, EU, and China. Serbia and China has a comparative advantage in traditional service industry, and Serbia’s index is larger than China, which present that Serbia is more competitive than China in the traditional service industry. EU’s comparative advantage index reflects the overall competitiveness of its traditional service industry as well as its modern service industry.

Table 2 Comparative advantage of service sector of Serbia, EU and China

	Serbia		EU		China	
	Traditional	Modern	Traditional	Modern	Traditional	Modern
2008	1.15	0.89	0.94	1.14	1.13	0.67

2009	1.19	0.93	0.93	1.14	1.11	0.72
2010	1.20	1.02	0.95	1.21	1.25	0.76
2011	1.25	0.97	0.95	1.21	1.23	0.79
2012	1.26	0.87	0.94	1.22	1.07	0.76
2013	1.28	0.84	0.93	1.21	1.10	0.87
2014	1.34	0.82	0.94	1.24	1.12	0.94

Data source: UNCTAD Database

Note: The red value in the table shows “comparative advantage”.

## II. Analysis on the competitiveness of the industrial sectors at meso level

On the basis of analysis on the competitiveness of Serbia’s industry at macro level, now we move our analysis at meso level based on 28 industrial sectors<sup>4</sup> and on 9 service sectors, in order to make the research more refined and more detailed.

### II.1. Analysis on the industrial competitiveness of 28 industrial sectors

Based on the SITC Rev.3 of International Trade Classification, we divide the industries into 28 sectors.. With the data in the UN Comtrade Database, we calculate the comparative advantage index of 28 industrial sectors in Serbia, EU and China.

Table 3-1 shows the comparative advantage index of 28 industrial sectors in Serbia from 2005 to 2014.

Table 3-1 Comparative advantage index of 28 industrial sectors in Serbia

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
1	3.49	3.29	3.12	2.71	3.23	2.76	2.51	2.58	2.13	2.15
2	1.92	2.72	2.79	3.28	3.57	3.10	3.24	3.22	2.38	2.44
3	0.14	0.50	1.13	1.58	2.25	1.81	1.76	2.09	3.15	5.41
4	0.59	0.59	0.58	0.56	0.57	0.55	0.62	0.71	0.65	0.74
5	2.05	1.94	2.00	2.19	2.47	1.78	1.77	2.06	1.79	1.74
6	2.57	2.43	2.36	2.42	2.30	2.12	2.27	2.11	1.72	1.73

<sup>4</sup> 28 industrial sectors: 1.Food processing industry 2.Beverage industry 3.Tobacco processing industry 4.Textile industry 5.Clothing and other fiber products industry 6.Leaner fur feather and down industry 7.Brown wood and bamboo processing industry 8.Furniture industry 9.Paper and paper products industry 10.Printing industry record media replication 11.Stationery and sporting goods industry 12.Petroleum processing and coking industry 13.Chemical raw materials and chemical products industry 14.Pharmaceutical industry 15.Chemical fiber industry 16.Rubber industry 17.Plastics industry 18.Non metallic mineral industry 19.Ferrous metal smelting and rolling processing industry 20.Non-ferrous metal smelting and rolling processing industry 21.Metal products industry 22.General machinery industry 23.Professional equipment industry 24.Transportation equipment industry 25.Electrical machinery and equipment industry 26.Electronic and telecommunication equipment industry 27.Instrumentation and cultural office machinery 28.Other industry

7	1.31	2.04	2.83	2.95	3.01	3.13	3.77	3.87	2.99	3.03
8	1.91	1.93	2.06	1.96	2.03	2.12	2.20	2.20	2.05	2.10
9	1.54	1.83	2.02	1.95	2.16	2.05	2.43	2.43	2.10	2.44
10	1.85	1.75	2.08	2.34	2.12	1.87	1.95	2.36	1.42	1.81
11	0.30	0.34	0.32	0.34	0.38	0.33	0.23	0.33	0.24	0.25
12	0.73	0.54	0.28	0.32	0.49	0.53	0.41	0.39	0.45	0.52
13	1.16	1.09	1.12	1.04	0.65	0.84	0.80	0.61	0.77	0.71
14	0.85	0.77	0.62	0.72	0.61	0.67	0.66	0.80	0.59	0.56
15	0.62	0.07	0.06	0.05	0.03	0.02	0.03	0.07	0.04	0.05
16	6.20	5.18	4.30	3.90	3.69	3.76	3.78	3.83	3.85	3.97
17	2.34	2.23	2.18	2.46	2.20	2.05	2.20	2.45	2.33	2.23
18	0.88	1.30	1.18	1.20	0.89	0.74	0.75	0.67	0.52	0.54
19	4.48	4.36	3.59	3.60	3.00	3.49	2.89	1.21	1.13	1.28
20	4.22	3.78	3.07	3.00	2.83	3.27	3.32	2.91	2.33	2.12
21	1.23	1.68	1.93	1.72	1.64	1.51	1.88	1.84	1.83	1.78
22	0.54	0.59	0.75	0.83	0.73	0.60	0.69	0.80	0.77	0.78
23	0.60	0.48	0.48	0.52	0.52	0.44	0.49	0.53	0.47	0.46
24	0.16	0.19	0.28	0.42	0.43	0.37	0.34	0.69	1.68	1.47
25	0.26	0.35	0.44	0.55	0.65	0.75	0.85	0.97	0.96	0.95
26	0.04	0.08	0.11	0.29	0.32	0.22	0.21	0.33	0.22	0.20
27	0.11	0.14	0.16	0.17	0.24	0.21	0.22	0.22	0.21	0.21
28	0.28	0.21	0.19	0.26	0.34	0.36	0.76	0.32	0.28	0.28

Data source: UN Comtrade Database

Note: The red value in the table shows “comparative advantage”; the blue value in the table shows “comparative disadvantage”.

As to the Table 3-1, Serbia has the core competitiveness in the industry sectors such as Tobacco, Rubber, Furniture, Wood processing, Beverage, Paper and paper products, Plastics, Food processing, Non-ferrous metal smelting and rolling processing. In addition Serbia also shows comparative advantage in Printing industry and record media replication, Metal products, Clothing and other fiber products, Leather, Transportation equipment, Ferrous metal smelting and rolling processing industry.

However, Serbia is also very lack of competitiveness in some capital intensive or technology intensive industries, mainly in the Chemical fiber, Electronic and telecommunication equipment, Instrumentation and cultural office machinery, Stationery and sporting goods, Textile, Petroleum processing and coking, Chemical raw materials and chemical products, Pharmaceutical products, General machinery industry, Professional equipment, Electrical machinery and equipment and Other industries.

## II.2. Analysis on the industrial competitiveness of 9 service sectors

Based on the UN Conference on Trade and Development service classification, we

divided service industry into 9 service sectors<sup>5</sup>. We calculate the comparative advantage index of 9 service sectors in Serbia, EU and China.

Table 3-2 shows the comparative advantage index of 9 service sectors in Serbia from 2008 to 2014.

Table 3-2 Comparative advantage index of 9 service sectors in Serbia

	2008	2009	2010	2011	2012	2013	2014
1	1.03	1.02	1.04	1.05	1.10	1.16	1.15
2	1.05	1.19	1.20	1.26	1.28	1.27	1.30
3	3.19	2.29	2.53	2.78	2.30	2.33	3.35
4	0.41	0.38	0.44	0.34	0.44	0.44	0.49
5	0.11	0.08	0.11	0.12	0.11	0.08	0.06
6	0.10	0.23	0.15	0.17	0.12	0.13	0.11
7	1.16	1.29	1.51	1.66	1.70	1.70	1.77
8	5.17	5.58	6.46	5.62	3.96	3.11	2.70
9	1.32	1.32	1.43	1.30	1.08	1.03	0.99

Data source: UNCTAD Database

Note: The red value in the table shows “comparative advantage”; the blue value in the table shows “comparative disadvantage”.

As to Table 3-2, Serbia has the core competitiveness in the traditional service sectors, such as Construction, Transport, Travel. In addition Serbia's Personal, cultural, and recreational services, Telecommunications, computer and information services also show the comparative advantages to some extent. Similar to the industrial sector, Serbia has a very prominent disadvantage in some service sectors with technology intensified, like Insurance and pension services, Financial services, as well as Intellectual Property Rights.

On the contrary, in EU, the overall competitiveness of the service industry mainly appears in the modern service sectors. The core competitiveness is mainly reflected in Insurance and pension services, Financial services, Telecommunications, computer and information services, and Other business services.

The structure and level of China's service industry are very similar to Serbia. It is worth to mention that Serbia's Personal, cultural and recreational services is extremely competitive, which is the weak point of modern service industry in China.

## II.3. Horizontal comparative analysis on industrial competitiveness

### II.3.1. Competitiveness in manufacture industry

Based on the RCA index, we make a competitiveness rankings of 28 industrial sectors

<sup>5</sup> 9 service sectors: 1.Transport 2.Travel 3.Construction 4.Insurance and pension services 5.Financial services 6.Charges for the use of intellectual property 7.Telecommunications, computer, and information services 8.Personal, cultural, and recreational services 9.Other business services

in Serbia, EU and China in 2014, shown in Table 4-1.

Table 4-1 Comparison of RAC ranking of Serbia, the EU, China for 28 industrial sectors

Industry	Serbia's ranking	EU's ranking	China's ranking
Tobacco processing	1	12	28
Rubber	2	18	13
Wood	3	14	8
Paper and paper products	4	9	22
Beverage	5	1	26
Plastics	6	17	11
Food processing	7	21	24
Non-ferrous metal smelting and rolling processing	8	22	21
Furniture	9	15	5
Printing industry, record media and replication	10	10	20
Metal products	11	8	9
Clothing and other fiber products	12	26	1
Leather fur feather and down	13	19	3
Transportation equipment	14	6	23
Ferrous metal smelting and rolling processing	15	20	12
Electrical machinery and equipment	16	23	7
General machinery	17	4	16
Textile	18	25	4
Chemical raw materials and chemical products	19	7	19
Pharmaceutical	20	2	27
Non metallic mineral	21	11	15
Petroleum processing and coking	22	13	25
Professional equipment	23	3	18
Other	24	5	17
Culture and sport products	25	24	6
Instrument and office machinery	26	16	10
Electronic and telecommunication equipment	27	28	2
Chemical fiber	28	27	14

Data source: UN Comtrade Database

Note: The red value in the table shows “comparative advantage”; the blue value in the table shows “comparative disadvantage”.

As to the Table 4-1, Serbia has the core competitiveness in some industry sectors, such as Tobacco, Rubber, Furniture, Wood, Beverage, Paper and paper products, Plastics, Food processing, Non-ferrous metal smelting and rolling processing, Printing, record media and replication, Metal products, Clothing and other fiber products, Leather, Transportation equipment, and Ferrous metal smelting and rolling processing. At the

same time, Serbia is lack of competitiveness in some industry sectors, such as Chemical fiber, Electronic and telecommunication equipment, Instrument and office machinery, Other industry, Culture and sport products, Textile, Petroleum processing and coking, Chemical raw materials and chemical products, Pharmaceutical products, General machinery, Professional equipment and Electrical machinery and equipment.

### II.3.2. Competitiveness in Service

Based on the RCA index, we make a competitiveness ranking for 9 service sectors in Serbia, EU and China in 2014.

Table 4-2 Comparison of competitiveness ranking of Serbia, the EU, China's 28 service sectors

Industry	Serbia's ranking	EU's ranking	China's ranking
Construction	1	7	1
Personal, cultural, and recreational services	2	2	8
Telecommunications, computer, and information services	3	1	3
Travel	4	8	4
Transport	5	6	5
Other business services	6	4	2
Insurance and pension services	7	3	6
Charges for the use of intellectual property	8	9	9
Financial services	9	5	7

Data source: UNCTAD Database

Note: The red value in the table shows that a “comparative advantage”; the blue value in the table shows that a “comparative disadvantage”.

Shown in In Table 4-2, out of 9 service sectors, there are 5 service sectors which Serbia has the core competitiveness. China has the same raking as to Serbia, except Personal, cultural, and recreational service sector, which ranks No2 for Serbia and No8 for China. The difference is so big that it could be the one of industry sector for the cooperation between Serbia and China.

### III. Conclusion

This paper analyzed the industrial competitiveness of Serbia at macro and meso level, and also made some comparisons with EU and China. Based on the research result mentioned above, we would like to provide some recommendations for the industrial cooperation between China and Serbia.

1. Regarding on the industry sectors which are more competitive for Serbia and less competitive for China, there could be a complementary effect between the two countries with trade promotion. Such industries are Tobacco, Paper and paper products, Beverage, Food processing, Non-ferrous metal smelting and rolling processing, Printing, record media and replication, Transportation equipment. It is

- also including the Personal, cultural and recreational services in service sector.
2. Regarding on the industry sectors which are less competitive for Serbia and more competitive for China, there could a win-win effect between the two countries with investment promotion. Such industries are Electronic and telecommunication equipment, Textile, Culture and sport products, Electrical machinery and equipment, Instrument and office machinery, and as well as Chemical fiber industry.

## Reference

- Balassa, B. Trade Liberalization and “Revealed Comparative Advantage” [J]. *The Manchester School of Economic and Social Studies*, 1965, 33 (2): 99-123.
- Lall, S., Weiss, J., Zhang, J. The Sophistication of Exports: A New Trade Measure [J]. *World Development*, 2006, 34 (2): 222-237.
- Ricardo, D. On the Principles of Political Economy and Taxation [M]. The Works and Correspondence of David Ricardo, Vol. I, Cambridge University Press, 1951.
- Ohlin, B. Interregional and International Trade [M]. Harvard University Press, Cambridge, 1933.
- Rodrik, D. What Is So Special about China’s Exports? [J]. *China and the World Economy*, 2006, 14 (5): 1-19.