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China's trade competitiveness in the steel industry after 15 years of its membership in the WTO

Abstract. Currently, the overcapacity in the world steel market has an implication for the world steel trade. China is the leading steel producer and exporter of steel products in the world. However, its foreign trade is usually followed by unfair trade practices. In connection with the country's membership in the WTO and the expiration of the 15-year term for considering China as a non-market economy in terms of dumping, the issue of the Chinese steel trade gains significance. The paper is focused on the Chinese steel exports in the period 2001-2016. The object of the paper is, firstly, to show the key legal facts connected with China's membership in the WTO with regard to steel trade, and, secondly, to find out the changes in China's trade competitiveness in steel products that occurred during 15 years after its entrance into the WTO. The trade analysis was carried out by using the Revealed Comparative Advantage (RCA) index. The results of the analysis showed that the exports of articles of iron and steel recorded a higher value of the RCA index and were usually higher than the exports of iron and steel. However, a more detailed analysis showed the differences in China's trade competitiveness with respect to steel products as well as time. China's competitiveness in steel trade raises doubts as to whether it is really fair trade supported by the WTO.
Keywords: Competitiveness; China; Dumping; Market Economy Status; Revealed Comparative Advantage (RCA); Steel; Subsidies; WTO

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Конкурентоспроможність сталеливарної промисловості Китаю через 15 років після вступу країни до СОТ
Анотація. Нині надлишок виробничих потужностей на ринку сталі позначається на світовій торгівлі сталлю. Китай є провідним виробником сталі та експортером сталевої продукції. Разом із тим зовнішня торгівля цієї країни часто пов'язана з недобросовісною торговельною практикою. Беручи до уваги членство Китаю в СОТ, питання, що стосуються торгівлі сталлю Китаєм, набувають особливого значення. У запропонованій автором статті аналізується експорт китайської сталі за період 2001–2016 рр. Метою цієї роботи є, по-перше, відображення юридичних фактів, що мають пряме відношення до членства Китаю в СОТ, а по-друге, визначення того, як змінилася конкурентоспроможність Китаю на світовому ринку сталі після 15 років членства цієї країни в СОТ. Аналіз торгівлі було проведено з урахуванням індексу виявлених порівняльних переваг. Результати аналізу показали, що китайський експорт виробів із чавуну та сталі перевищує експорт чавуну та сталі відповідно до показників зазначеного вище індексу. Поряд із цим більш детальний аналіз виявив відмінності у визначенні конкурентоспроможності торгівлі Китаю виробами зі сталі у певні періоди, що дає підстави сумніватися в тому, що конкуренція з боку Китаю є добросовісною, як це передбачено правилами СОТ.
Ключові слова: конкурентоспроможність; Китай; демпінг; статус ринкової економіки; виявлені порівняльні переваги; сталь; субсидії; СОТ.

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Конкурентоспособность сталелитейной промышленности Китая спустя 15 лет после вступления страны в ВТО
Аннотация. В настоящее время избыток производственных мощностей на рынке стали отображается на мировой торговле сталью. Китай является ведущим производителем стали и экспортером стальной продукции. Вместе с тем внешняя торговля данной страны часто сопряжена с недобросовестной торговой практикой. Принимая во внимание членство Китая в ВТО, вопросы, касающийся торговли сталью в КНР, приобретают особое значение. В статье анализируется экспорт китайской стали за период 2001-2016 гг. Целью данной работы является, во-первых, отображение юридических фактов, имеющих прямое отношение к членству Китая в ВТО, а во-вторых, определение того, как изменилась конкурентоспособность Китая на мировом рынке стали после 15 лет членства этой страны в ВТО. Анализ торговли был проведен с учетом индекса выявленных сравнительных преимуществ. Результаты анализа показали, что китайский экспорт изделий из чугуна и стали превышает экспорт непосредственно чугуна и стали согласно показателям указанного выше индекса. Наряду с этим более детальный анализ выявил различия в определении конкурентоспособности торговли Китая изделиями из стали в определенные периоды, что дает основания для сомнений относительно того, насколько конкуренция со стороны Китая является добросовестной, как это предусмотрено правилами ВТО.
Ключевые слова: конкурентоспособность; Китай; демпинг; статус рыночной экономики; выявленные сравнительные преимущества; сталь; субсидии; ВТО.

1. Introduction

When China entered the WTO in December 2001, it had accepted many trade commitments in the area of trade liberalisation. It was a reciprocal agreement between China and 142 WTO members at that time. In other words, in order to get market access via the Most-Favoured-Nation treatment (MFN) of other WTO members, China was to open the door for the products of foreign producers and exporters upon their entrance to the Chinese market. The negotiations lasted 15 years, from the period of the General Agreement on Tariffs and Trade (GATT 1947) until the operation of the World Trade Organization (WTO), and covered all areas of trade, i.e. merchandise

trade, as well as commercial services trade. As China is not purely a market economy, but a «socialist market economy», in which the state plays an important role, some WTO members expressed concerns about the continuing governmental influence and guidance of the decisions and activities of state-owned enterprises (SOEs) relating to the purchase and sale of goods and services (WTO, 2001a) [16]. With respect to this fact, many sectors have been heavily subsidised and their international competitiveness is doubtful. As S. Panitchpakdi and M. Clifford (2002) state, «cement, automobiles, steel and agriculture, to take but some of the most obvious examples, all rely on heavy state support in the form of preferential policies and loans, as well as outright protectionism» [12, 164]. Currently, with respect to overcapacity in the world steel production, the issue of the competitiveness of China's steel industry again raises serious concerns. The topic gained significance especially last year, when the official deadline for granting China market economy status (MES) by the European Union (EU) and the other WTO members for the purposes of determining normal value in anti-dumping and countervailing investigations, in which China is a very frequent target, expired.

The object of the paper is, firstly, to show the key legal facts connected with China's membership in the WTO with regard to steel trade, and, secondly, to find out the changes in the Chinese trade competitiveness in the steel industry that occurred during 15 years after China liberalised its domestic market in compliance with China's trade commitments in the WTO.

The remaining part of the paper is organised as follows: Section 2 provides the factual background and literature review regarding the Chinese steel trade and its commitments in the WTO. Section 3 deals with the methodology of the paper and data collection. Section 4 presents the results of the author's own analysis in the area of China's trade competitiveness in the world steel trade. In Section 5, the main facts are summarised.

2. Factual Background and Literature Review

The steel sector was one of the areas of the bilateral and multilateral negotiations led in the frame of the GATT/WTO Working Group before China's entrance into the WTO. Steel was on the list of products subject to designated trade and China committed that it will liberalise this sector within 3 years after accession (WTO, 2001a) [16]. Another China's commitment in the WTO under its Accession Protocol deals with the notification of any subsidy within the meaning of Article 1 of the Agreement of Subsidies and Countervailing Measures (SCM Agreement) and the elimination of all subsidies falling within the scope of Article 3 of the SCM Agreement upon accession (WTO, 2001a) [16], i.e. the so-called «prohibited subsidies». Subsidies provided to state-owned enterprises (SOEs) were viewed under Paragraph 10(2) of China's Protocol of Accession as specific. Regardless of China's commitments in the WTO, the role of the state in promoting economic development is constitutionally enshrined in China (OECD, 2016) [11]. S. Lewis (2016) states that the Chinese steel industry is dominated by state owned enterprises (SOEs) which have a reputation for being overstaffed and inefficient [8]. Unlike China, for example Japan, which is the second largest steel maker in the world and net exporter of steel, employed 20 times less people (3,627 in comparison with China's 174,000) despite producing only eight times less steel. However, besides SOEs, private companies can also be found in the steel industry in China, and their employment and productivity is different. As China's authorities argue, private steel enterprises accounted for only 5% crude steel production in 2003, and today the private sector enjoys absolute advantage in terms of the number of enterprises, contributing more than one half of crude steel production. According to the Mission of the People's Republic of China to the European Union, a number of 10-million-ton-size private steel producers have emerged, such as Shasteel, Jianlong Group, Rizhao Steel, Hebei Jingye Group, and Fangda Steel, etc. [9].

In 2006, China's share in the world crude steel production was 33.6%, and it increased to 49.6% in 2016. Likewise, according to the World Steel Association, China's share in finished steel products in the world also increased from 33.0% to 45.0% in 2006-2016 (World Steel Association, 2017) [15]. The overcapacity in the world steel industry and the concerns

about the cheap imports of steel from China were the main arguments of the European steel producers when the EU made the decision about granting market economy status (MES) to China in 2016. The analysis provided by the European Commission confirmed that the basic and fabricated metals sector, which also includes steel products, would suffer the highest job losses, i.e. more than 24,000 in the short-run and almost 43,000 EU jobs in the long-run, from moving to MES China (European Commission, 2016) [4].

China's exports of steel have also been the subject of frequent anti-dumping or countervailing measures. In the period from 1995 to 30 June 2016, in total, 1,170 anti-dumping (AD) initiations against China were recorded, from which 840 AD measures on imports from China were imposed. The predominant part of them, 228 cases, was covered by the Section of the «Base metals and articles» (HS XV) (WTO, 2017a) [19]. Likewise, China was also the most common target of countervailing (CV) initiations, i.e. out of the whole 431 CV initiations recorded by the WTO during the monitored period, 112 CV cases were connected with China, from which 69 CV measures were imposed on the Chinese imports. Most of them, 35 CV cases, were again covered by Section HS XV (WTO, 2017b). [20].

Some of these AD and CV measures have also been the subjects of trade disputes in the WTO since China joined the WTO. As L. Fojtíková (2016) argues, while the USA and China were most often defendants in the steel disputes, the EU was most often complainant in these disputes [5]. However, until December 2016 WTO members could use a methodology that was not based on a strict comparison with domestic prices or costs in China in determining price comparability in Chinese AD/CV investigations, «if the producers under investigation cannot clearly show that market economy conditions prevail in the industry producing like product with regard to manufacture, production and sale of that product» [17]. This provision of Paragraph 15(a)(ii) of China's Protocol of Accession Protocol temporarily enabled WTO members to treat with China in less favourable conditions than with other countries. This means that the EU, India, Turkey, Korea and other leading steel producers imposed AD and CV duties on the cheap Chinese imports of steel under this provision and, in this way, they protected domestic steel producers. However, the concept of a non-market economy in determining the dumping margin on the Chinese imports officially expired on 12 December 2016, i.e. after 15 years of China's entrance into the WTO, under Paragraph 15(d) of China's Protocol of Accession. Although AD and/or CV initiations against China are possible all the time, proving the price comparability on Chinese imports in the conditions of MES will be difficult. In connection with this, the issue of the Chinese competitiveness in steel trade will become more than interesting.

3. Methodology and data

The analysis of the paper is focused on finding out the changes in the comparative advantages of the Chinese exports of steel products to the world in the period 2001-2016. The analysis is carried out by using the Revealed Comparative Advantage (RCA) index. The concept of the Revealed Comparative Advantage (RCA) was firstly developed by Bella Balassa (1965) [1] and was based on Ricardo's theory of comparative advantage. Some authors tried to develop the original RCA index. For example, Yu et al. (2009) [21] proposed the normalised revealed comparative advantage index (NRCA) as an alternative measure of comparative advantage. The NCRA index is comparable across commodity, country and time, and is recommended for quantitative regional research. In order to specify the Balassa index, Costinot, et al. (2012) [3] also developed a new RCA index that enables to isolate the exporter-specific factors driving trade flows. Leromain and Orefice (2013) [7] picked up the idea from Costinot et al. (2012) and proposed some improvements, i.e. they covered a higher product disaggregation and extended the sample of partner countries and the time span. They created a database of the RCA index, based on an econometric estimation procedure and compared the results of the Balassa index and the new RCA index. In spite of the fact that the alternative indexes of the RCA were developed, the Balassa index is still widely used. In general, the Balassa RCA index shows the sectoral composition of a country's exports to the world. In this

way, it is a measure of a country's relative advantage or disadvantage in a specific industry as evidenced by trade flows (The World Bank, 2013) [14]. It is calculated as follows:

$$RCA_{ijk} = (x_{ijk}/X_{ij})/(xw_{jk}/X_{wi}),\qquad(1)$$

where x is the value of the exports of product k from country i to destination j, and X is the total exports from i to j; w indicates the world as origin. If the result of the index is between 0 and 1, it indicates a comparative disadvantage, while above 1 it indicates a comparative advantage. With respect to the object of this paper, the analysis of the RCA in this paper is based on the traditional Balassa index. The calculation of the RCA includes data about the total Chinese foreign trade (X_{ij}) and the value of k exports includes the products from Section XV - «Base Metals and Articles of Base Metal», specifically Chapter 72 - «Iron and Steel» and Chapter 73 - «Articles of Iron and Steel» of the Harmonized system (HS) code. The analysis is carried out at a four-digit level, which includes 29 and 26 Headings. Data about the Chinese exports were obtained from the COMTRADE database. The analysis covers the period 2001-2016, which corresponds with the period during which the Chinese imports of steel products were considered by other WTO members in AD/CV investigations as imports from a non-market economy. With respect to the fact that high Chinese exports of steel can be influenced by some market distortions, such as subsidies or under-valued exchange rates, E. Siggel (2006) states that the RCA index expresses export competitiveness more than comparative advantage [13]. Thus, the final results of the Chinese RCA show the Chinese competitiveness in steel exports.

4. Results

Except for the fact that China is the leading steel producer in the world, it is also a major world exporter of steel. While China exported more than 108 million tonnes (Mt) of steel in 2016 and was in the first position among the leading steel exporters in the world, on the import side, China was up to the tenth position at the same time. Unlike the other leading steel exporters in the world, China reached net exports in the value of 94.5 Mt in 2016 (World Steel Association, 2017) [15]. China's leading position in the world steel trade is the result of a high competitiveness of China's steel industry on the one hand; on the other hand, the results of the RCA did not confirm it on the whole. Table 1 shows the number of Headings of HS, in which China recorded the RCA in steel exports in the individual years.

While China reached an RCA in the export of the products from Chapter «HS 72» only in 2007, 2008, 2014, 2015 and 2016,

the export of products from Chapter «HS 73» was carried out with an RCA for the whole period. As for Chapter 72, a more detailed analysis of the level of HS Headings showed that only HS 7217 was exported with an RCA during the whole monitored period, with the exception of 2002 (although the result of the RCA index was near 1). The other steel products, specifically HS 7227, HS 7228, HS 7229 and HS 7202, were exported with an RCA by China in more than a half of the monitored period. The results of the author's own analysis also confirmed that the export competitiveness of the Chinese steel products in HS 72 was changing during the monitored period, from 2 Headings in 2002 to 13 Headings in 2007. As for Chapter «HS 73», the RCA index was higher than 1 for the whole period on the level of Chapter, but different on the level of Headings, and the data were not available for all products in the whole period. Thus, the evaluation of the changes in the number of Headings with an RCA is not possible in this Chapter. However, unlike in Chapter «HS 72», China recorded an RCA in HS 73 more often and the values of the RCA index were also higher. This corresponds with the fact that the competitiveness of the Chinese steel export is higher in the «Articles of Iron and Steel» than in «Iron and Steel». As A. Carvalho and N. Sekiguchi state, as steel producers in some emerging economies move up the value chain, they will begin exporting more sophisticated steel products [2]. This is also the case of China. In more detail, the results of the RCA index in both Chapters, i.e. HS 72 and HS 73, are shown in Table 2 and Table 3 of the paper.

5. Conclusion

The data concerning the Chinese steel production show the low productivity of the Chinese steel industry. Nevertheless, China maintains its leading position in the world steel trade, and, in this way, its ability to compete in the world steel market. However, the results of the author's own analysis show that the competitiveness of the Chinese steel exports is different in the individual products and over time. The previous research carried out by Carvalho and Sekiguchi (2015) [2] confirmed these

Tab. 1: The number of steel products (HS Headings) with Revealed Comparative Advantage (RCA)

HS	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
72	4	2	3	7	9	8	13	10	4	6	10	7	7	9	8	7
73	15	15	14	15	16	6*	8*	8*	8*	7*	19	19	19	19	7*	7*

Note: * - The data for all Headings were not available.
Source: Own calculation

Tab. 2: The Development of the RCA in China's Exports of Steel Products - 72 HS in 2001-2016

HS/Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
72	0.45300	0.36209	0.35659	0.69970	0.71334	0.93594	1.05629	1.13139	0.49984	0.72186	0.80171	0.76753	0.82456	1.07265	1.08266	1.10707
7201	1.48736	0.76582	0.25227	1.46354	1.88400	0.74178	0.50352	0.17098	0.22248	0.62822	0.62540	0.19042	0.16665	0.15506	0.09169	0.06702
7202	2.78120	2.34178	2.27551	2.64233	1.85868	1.61397	1.66440	1.83995	0.77628	0.78668	1.08615	0.62411	0.41355	0.36354	0.30995	0.29663
7203	0.06439	0.05847	0.00036	0.13502	0.07214	0.06607	0.06786	0.04835	0.05319	0.45098	0.25820	0.18502	0.29185	0.06185	0.06809	0.00293
7204	0.00678	0.00381	0.03825	0.00145	0.00054	0.00470	0.00369	0.02030	0.00095	0.03509	0.00220	0.00010	0.00003	0.00024	0.00011	0.00011
7205	0.95350	1.49465	1.82250	3.04052	2.19919	0.97014	0.79129	0.62904	0.47145	0.29462	0.36026	0.35192	0.33518	0.38794	0.38992	0.49846
7206	0.52985	0.41566	0.00567	1.09543	1.00372	0.41154	0.23620	0.01827	0.00362	0.00134	0.00036	0.00022	0.00051	0.00030	0.00058	0.00137
7207	1.33423	0.55692	0.26245	1.67590	1.58061	1.67209	1.05260	0.30348	0.00891	0.01564	0.00063	0.00044	0.00047	0.00076	0.00072	0.00022
7208	0.41361	0.34625	0.47355	0.82938	0.93275	1.49503	1.72040	1.79740	0.85704	1.06257	0.12116	0.04624	0.03883	0.03275	0.05193	0.04486
7209	0.20911	0.14058	0.07173	0.32183	0.28833	0.64975	0.68868	1.35413	0.34251	0.80642	1.17409	1.03446	0.90231	1.23810	1.09228	0.78008
7210	0.16783	0.13132	0.78446	0.25710	0.29115	0.78643	0.98360	1.41423	0.83277	1.35709	1.85497	1.68370	1.61430	1.91052	1.81870	1.86712
7211	0.03358	0.05245	0.09672	0.38667	1.25072	1.49595	1.53868	0.50463	0.36447	0.65414	0.21066	0.19302	0.17441	0.18185	0.27129	0.20498
7212	0.17811	0.09532	0.03052	0.10216	0.24308	0.91883	1.14641	0.32212	0.44377	0.59146	0.37425	0.34262	0.35177	0.35088	0.18932	0.48758
7213	0.19697	0.75645	0.71505	1.59232	1.79466	2.45300	2.37303	0.79876	0.08378	0.04286	0.03657	0.02266	0.02631	0.01868	0.01214	0.01858
7214	0.63574	0.37282	0.59263	0.72613	0.83557	1.22091	1.55485	0.46294	0.16881	0.12801	0.11879	0.09665	0.08542	0.07044	0.46841	0.07094
7215	0.11461	0.12366	0.01535	0.12114	0.19772	0.25284	0.27553	0.10131	0.05842	0.03989	0.02547	0.02837	0.02627	0.02564	0.02533	0.02288
7216	0.37690	0.30870	0.38903	0.29566	0.43098	0.97182	1.52618	1.26446	0.62648	0.68561	0.41022	0.29452	0.25134	0.30312	0.41662	0.36893
7217	1.01720	0.99182	1.16577	1.11883	1.04892	1.37140	1.31113	1.53936	1.41257	1.42994	1.60319	1.46865	1.60197	1.71376	1.74083	1.64796
7218	0.27889	0.30699	0.27134	0.13050	0.04954	0.01342	0.00162	0.00268	0.01193	0.00300	0.00414	0.00311	0.00558	0.00888	0.00789	0.00153
7219	0.03759	0.03820	0.28705	0.22305	0.24687	0.58832	0.87876	0.64588	0.40133	0.77194	1.20120	0.99568	1.22204	1.57165	1.18002	1.47013
7220	0.09610	0.17378	0.33175	0.16601	0.22375	0.27417	0.38491	0.45185	0.48960	0.53913	0.51323	0.47398	0.47502	0.51261	0.49708	0.63305
7221	0.02511	0.07317	0.05489	0.27099	0.26027	0.22437	0.19797	0.22518	0.14810	0.61867	1.08684	0.84499	0.84975	1.09566	0.76030	0.63015
7222	0.09947	0.10769	0.29125	0.21570	0.28047	0.30189	0.27609	0.25056	0.28333	0.28182	0.34239	0.27911	0.27454	0.27744	0.24587	0.35163
7223	0.50827	0.47088	0.44295	0.84464	1.01103	1.04470	1.01148	0.86473	0.78378	0.88606	0.95624	0.92647	0.91443	0.91691	0.83396	0.84304
7224	0.08761	0.11995	0.01267	0.08026	0.12107	0.04984	0.06877	0.20795	0.02340	0.02613	0.00337	0.00398	0.00333	0.00337	0.00669	0.02037
7225	0.09091	0.13036	0.77601	0.12713	0.09350	0.13757	0.32491	1.39563	0.41550	0.75517	1.86864	1.90074	1.92638	2.50879	2.16222	2.16749
7226	0.08201	0.07833	0.16579	0.08959	0.19551	0.14692	0.13349	0.19002	0.16027	0.23169	0.30151	0.33502	0.33240	0.46875	0.37583	0.34659
7227	0.03761	0.06553	0.00558	0.14776	0.32912	0.67947	1.26731	5.91352	2.66346	3.42101	3.81069	4.86110	5.31460	5.36072	4.65361	4.39352
7228	0.27145	0.40054	0.53037	0.84385	0.86173	0.83838	1.64122	3.43138	1.22358	1.84987	2.40875	3.10929	3.66151	4.33295	4.36825	4.34961
7229	0.09388	0.11642	0.10931	0.19577	0.42127	0.49856	1.20769	2.67964	2.14821	2.03386	1.86528	1.71697	1.56794	1.47816	1.26409	1.38707

Source: Own calculation

Tab. 3: **The Development of the RCA in China's Exports of Steel Products - 73 HS in 2001-2016**

HS / Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
73	1.51813	1.47723	1.44070	1.45716	1.47833	1.62521	1.64541	1.77078	1.54827	1.56708	1.61808	1.61211	1.55716	1.50721	1.58654	1.52307
7301	0.36291	0.47531	0.48408	0.69203	0.59580	0.63057	5.39763	7.25137	12.41798	16.58945	0.60881	0.71339	0.94380	0.85382	446.69889	309.65055
7302	0.35553	0.39627	0.35271	0.31616	0.29308	0.67549	25.19094	43.66960	80.23058	46.54119	1.08309	1.03554	0.74339	1.04077	4199.91022	1222.81167
7303	4.69027	4.25171	2.98058	3.52703	3.38133	n.a.	n.a.	n.a.	n.a.	n.a.	4.09688	3.70359	2.78451	2.59080	n.a.	n.a.
7304	0.63654	0.58742	0.62968	0.73412	0.97263	n.a.	n.a.	n.a.	n.a.	n.a.	1.82831	1.67949	1.58696	1.51653	n.a.	n.a.
7305	0.06045	0.03112	0.07692	0.05492	0.38412	n.a.	n.a.	n.a.	n.a.	n.a.	0.95520	0.96187	1.15927	0.88734	n.a.	n.a.
7306	0.34198	0.33024	0.57722	0.70698	0.84781	n.a.	n.a.	n.a.	n.a.	n.a.	0.79995	0.84329	0.86677	0.88191	n.a.	n.a.
7307	1.84543	1.60711	1.37378	1.53445	1.57218	n.a.	n.a.	n.a.	n.a.	n.a.	1.94145	1.87153	1.71923	1.77067	n.a.	n.a.
7308	1.53042	1.44402	1.34566	1.37191	1.58194	1.78492	33.73793	49.96300	55.74060	120.50495	2.00995	2.05920	1.83351	1.77652	1011.99176	3849.76430
7309	0.33346	0.36421	0.40622	0.33160	0.45183	n.a.	n.a.	n.a.	n.a.	n.a.	0.43976	0.48182	0.59221	0.56295	n.a.	n.a.
7310	0.69896	0.75665	0.82483	0.88123	0.81545	n.a.	n.a.	n.a.	n.a.	n.a.	1.10677	1.20298	1.29894	1.12762	n.a.	n.a.
7311	1.03649	1.23564	0.74898	0.80590	0.69960	n.a.	n.a.	n.a.	n.a.	n.a.	1.31537	1.25929	1.14676	1.21548	n.a.	n.a.
7312	0.83434	0.79571	0.89233	1.21039	1.35276	n.a.	n.a.	n.a.	n.a.	n.a.	1.88753	1.73494	1.57196	1.66393	n.a.	n.a.
7313	0.87851	0.55306	0.40013	0.97656	1.33475	n.a.	n.a.	n.a.	n.a.	n.a.	2.67838	2.34470	2.70987	2.80929	n.a.	n.a.
7314	2.84768	2.65028	2.26874	2.05098	2.21280	n.a.	n.a.	n.a.	n.a.	n.a.	1.82700	1.76232	1.69678	1.71390	n.a.	n.a.
7315	2.83576	2.77689	2.50517	2.54140	2.50661	n.a.	n.a.	n.a.	n.a.	n.a.	2.61944	2.59449	2.39471	2.29836	n.a.	n.a.
7316	2.61660	2.86446	2.11276	2.20336	2.49528	n.a.	n.a.	n.a.	n.a.	n.a.	3.03987	2.40371	2.36546	2.45122	n.a.	n.a.
7317	3.59875	3.53928	3.61775	4.19933	4.44634	n.a.	n.a.	n.a.	n.a.	n.a.	4.27984	4.08876	3.79624	3.72000	n.a.	n.a.
7318	1.11357	1.04437	1.07289	1.20757	1.30586	n.a.	n.a.	n.a.	n.a.	n.a.	1.30827	1.19244	1.11579	1.07920	n.a.	n.a.
7319	3.36193	3.61847	3.04477	2.56942	2.33627	n.a.	n.a.	n.a.	n.a.	n.a.	2.26273	2.71220	2.87912	2.67128	n.a.	n.a.
7320	0.23803	0.28424	0.25343	0.29440	0.33684	0.34292	0.33648	0.35161	0.38134	0.41557	0.44785	0.49294	0.52196	0.59278	0.56560	0.48442
7321	2.14025	2.41193	2.64423	3.09825	3.15683	3.09685	3.08259	2.78004	2.64748	2.77109	2.92162	2.77451	2.80514	2.85119	2.95145	2.80212
7322	0.08774	0.11502	0.17244	0.23608	0.30202	0.36626	0.43397	0.48222	0.42350	0.44159	0.42209	0.46916	0.45657	0.36990	0.41395	0.33402
7323	5.87363	5.75443	5.45444	5.01004	4.63818	4.42521	4.02967	3.99257	4.09012	4.33077	4.53050	4.65248	4.45294	4.15790	4.15466	3.79818
7324	1.54853	1.72279	1.69615	2.06781	2.35404	2.57727	2.68583	2.72552	2.65127	3.02196	3.36617	3.55357	3.43091	3.09389	3.25966	3.12956
7325	3.50883	3.33911	2.88742	2.84831	2.48245	2.28246	1.63482	1.30469	1.18884	0.99489	0.90324	0.79187	0.78892	0.82265	0.82602	0.76110
7326	1.61406	1.62506	1.57112	1.51551	1.46509	1.41497	1.25058	1.05916	1.20010	1.22887	1.23495	1.27626	1.28722	1.24163	1.23119	1.17761

Source: Own calculation

conclusions. It should be noted that the obtained results do not show the sources of China's export competitiveness in the steel sector. Thus, the competitiveness of the Chinese steel trade may be linked with market and competitiveness factors and/or government measures and policies. With respect to the fact that the data about state subsidies in the steel industry are not published by the Chinese authorities, which is not in compliance with China's trade commitments in the WTO, we can suppose some market distortions. For example, SOE Chongqing Iron & Steel Co Ltd., which is in the 8th position of the top 10 companies listed in the Shanghai and the Shenzen Stock Exchanges, received government support amounting to CNY 92 million (USD 14.862 million) in 2014 [18].

Thus, although China complained about the EU in the WTO due to the EU rejecting granting China MES in December 2016, which is probably not in compliance with the WTO law (the WTO Panel is investigating the dispute now), China also did not notify the WTO of its subsidies in the steel industry, and thus violated the WTO Agreements and general commitments connected with its WTO membership.

On the whole, regardless of the fact that China's steel trade was followed with fair or unfair trade practices, such as dumping or subsidisation, the Chinese steel industry has been suffering from declining profits recently, and many Chinese mills have faced losses over the last few years. According to the China Iron and Steel Association, member steelmakers

have posted operating losses in their core businesses for 12 months running, with yearly cumulative losses in excess of CNY 100 billion (USD 15.527 billion), a loss which is 24 times larger than the previous year, making 2015 the steel industry's worst year on record. Large-scale non-ferrous metal companies saw profits fall by 13.2% on a YOY basis, with nearly 21% of companies posting losses (KPMG, 2016) [6].

Thus, the Chinese government is currently making efforts to eliminate outdated steel capacities to mitigate overcapacity and air pollution (OECD, 2015) [10]. In October 2013, the State Council of China issued the Guidelines for Resolving Overcapacity, targeting the closure of 80 million tonnes per year of steel capacity by the end of 2017. In addition, the Ministry of Industry and Information Technology of China has called for public feedback on a draft of the Policy for Restructuring the Steel Industry, an update of the initial version of the Steel Industry Development Policy issued in 2005. The government's measures also include a requirement to remove restrictions on foreign investment in the Chinese steel industry. In the 13th Five-Year Plan, the Chinese authorities introduced their intent to upgrade the metallurgical industry's technology through foreign investors. The State Council's Guiding Opinions calls for the development of production bases specialising in iron and steelmaking in order to boost steel equipment exports and the establishment of a fund for supporting structural rebalancing in the industrial sector (KPMG, 2016) [6].

References

1. Balassa, B. (1965). Trade Liberalization and «Revealed» Comparative Advantage. *The Manchester School, 33*(2), 99-123. doi: https://doi.org/10.1111/j.1467-9957.1965.tb00050.x
2. Carvalho, A., & Sekiguchi, N. (2015). The structure of steel exports. Changes in specialisation and the role of innovation. *OECD Science, Technology and Industry Working Papers 2015/07.* doi: https://doi.org/10.1787/5jrxfmstf0xt-en
3. Costinot, A., Donaldson, D., & Komunjer, I. (2012). What goods do countries trade? A quanti-tative exploration of Ricardo's Ideas. *The Review of Economic Studies, 79*(2), 581-608. doi: https://doi.org/10.1093/restud/rdr033
4. European Commission (2016). *Commission Staff Working Document. Assessment of the economic impact of changing the methodology for calculating normal value in trade defense investigations against China.* Accompanying the document Proposal for a Regulation of the European Parliament and of the Council. Retrieved from http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016SC0372&from=EN
5. Fojtíková, L. (2016, May 25-27). Trade specialisation and protectionism in the world steel trade. *METAL 2016 - 25th Anniversary International Conference on Metallurgy and Materials, Conference Proceedings*, 1695-1700.
6. KPMG (2016). *The 13th Five-Year Plan China's transformation and integration with the world economy. Opportunities for Chinese and foreign businesses.* Retrieved from https://assets.kpmg.com/content/dam/kpmg/cn/pdf/en/2016/10/13fyp-opportunities-analysis-for-chinese-and-foreign-businesses.pdf
7. Leromain, E., & Orefice, G. (2013, June 20). New Revealed Comparative Advantage Index: dataset and empirical distribution. *CEPII Working Paper.* Retrieved from http://www2.cepii.fr/PDF_PUB/wp/2013/wp2013-20.pdf
8. Lewis, S. (2016). *What is the human cost of restructuring China's steel industry?* S&P Global Platts. Retrieved from http://blogs.platts.com/2016/08/05/china-steel-industry-human-cost
9. Mission of the People's Republic of China to the European Union (2016). *China Steel Industry Development 2016.* Retrieved from http://www.chinamission.be/eng/zgggfz/chneco/t1366481.htm
10. OECD (2015). *Capacity Developments in the World Steel Industry.* Directorate for Science, Technology and Innovation Steel Committee. Retrieved from https://www.oecd.org/sti/ind/Capacity-Developments-Steel-Industry.pdf
11. OECD (2016). *State-Owned Enterprises as Global Competitors. A Challenge or an Opportunity?* Paris: OECD Publishing.
12. Panitchpakdi, S., & Clifford, M. L. (2002). *China and the WTO.* New York: John Wiley & Sons Inc.
13. Siggel, E. (2006). International Competitiveness and Comparative Advantage: A Survey and a Proposal for Measurement. *Journal of Industry, Competition and Trade, 6*(2), 137-159. doi: https://doi.org/10.1007/s10842-006-8430-x
14. The World Bank (2013). *Online Trade Outcomes Indicators. User's Manual.* Retrieved from http://wits.worldbank.org/WITS/docs/TradeOutcomes-UserManual.pdf
15. World Steel Association (2017). *World Steel in Figures 2017.* Retrieved from https://www.worldsteel.org/en/dam/jcr:0474d208-9108-4927-ace8-4ac5445c5df8/World+Steel+in+Figures+2017.pdf
16. WTO (2001a). *Report of the Working Party.* Retrieved from https://www.wto.org/english/thewto_e/acc_e/a1_chine_e.htm
17. WTO (2001b). *Protocol of Accession.* Retrieved from https://www.wto.org/english/thewto_e/acc_e/a1_chine_e.htm
18. WTO (2016). *Trade Policy review - China. Report by Secretariat.* Retrieved from https://www.wto.org/english/tratop_e/tpr_e/s342_e.pdf
19. WTO (2017a). *Statistics on anti-dumping.* Retrieved from https://www.wto.org/english/tratop_e/adp_e/adp_e.htm
20. WTO (2017b). *Statistics on subsidies and countervailing measures.* Retrieved from https://www.wto.org/english/tratop_e/scm_e/scm_e.htm
21. Yu, R., Cai, J., & Leung, P. (2009). The normalized revealed comparative advantage index. *Annals of Regional Science, 43*(1), 267-282. doi: https://doi.org/10.1007/s00168-008-0213-3