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Paliu-Popa, Lucia

Constantin Brancusi University of Targu Jiu

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IMPACT OF THE ECONOMIC AND FINANCIAL CRISIS ON THE EVOLVING TREND OF CRUDE STEEL CONSUMPTION

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Given that the modern world cannot be conceived without the existence of the steel and its use, the crude steel consumption may be considered as an indicator characterizing the economic development of a country. The purpose of this paper is to establish the evolution of the world, regional and state consumption of crude steel, both per total, as well as per inhabitant, but also the impact of the economic and financial crisis it had on the evolving evolution of using the crude steel. Data subject to the study are related to the period 2004 – 2014 and concern nine regions of development and ten countries.

Key words: crude steel, consumption, evolving trend, economic and financial crisis

INTRODUCTION

The metallurgic industry, the main branch of the heavy industry, represents an essential activity for each national economy, being a multiplier of the gross added value, industrial manufacturing and job offers, but also a generator of taxes and fees [1].

The steel as representative product of the metallurgic industry is at the same time the material the most widely used in industry, during the last decades, the machine building industry being the main beneficiary of the metallurgic industry products, along with electronics, mechanical and electrical engineering industry [2]. Starting from the consideration that the steel represents an essential factor for the technical progress, [3, 4] the purpose of this paper is to establish the evolution of world consumption of crude steel during the period 2004 – 2014, both at the level of the nine regions of development, as they were identified by World Steel Association, [5]

but also at the level of countries occupying the first positions in the world hierarchy during the considered period, per total area and per each inhabitant, without omitting the influence of the economic and financial crisis on this evolution.

THE USED METHOD AND DATA BASIS

The used research method aims a structural and comparative empirical analyze of the annual crude steel consumption both globally [6], and at the level of the nine regions of development subject to the study, namely: European Union 28 (EU 28), Other Europe

(Other EU), Commonwealth of Independent States (CIS), North America (NA), South America (SA), Africa, Middle East (ME), Asia and Oceania, geographic areas established according to the classification performed by World Steel Association [5], but also the significant issues of their evolving trend for the period 2004 – 2014, in terms of identifying the possible effects of the economic and financial crisis, extending to the first ten users. Statistical data that underpinned the study come from the online data base and Steel Statistical Yearbooks of World Steel Association, for year 2014 data are provisional being in the production of crude steel.

ANALYSIS OF CRUDE STEEL CONSUMPTION EVOLUTION

For knowing the evolving trend of using the crude steel, (Table 1) the statistical analyze considered the annual data on the crude steel consumption globally and at the level of the nine regions of development established by World Steel Association.

Globally, the crude steel consumption knew, during 2004 – 2008, an ascending trend, and in 2009, it registered a decline, its value being comparable with 2006. But the recorded regress was for a short period, because in 2010 the increase compared to the previous year returned, and later, by the end of the review period, its evolution to be on an ascending trend. And at the level of the studied geographic areas, we can notice that, generally, the dynamic evolution of using the crude steel follows the trend of the world consumption, excepting Asia and Africa, areas which, in 2009, registered increases of the crude steel consumption compared to the previous year, but also EU 28, Other EU, CIS and NA, regions where the decline started since 2008.

L. Paliu-Popa, "Constantin Brancusi" University of Targu Jiu, Faculty of Economics and Business Administration, Targu Jiu, Romania

From the comparative analyze of information presented for the years ending and starting the studied period, it results that, in 2013, the world use of crude steel was with 585,70 million tonnes (Mt) greater than in 2004, the increase being of 55,13 %, pointing out significant values in Asia, where the crude steel consumption represented 50,41 % of the world consumption at the beginning of the analyzed period, so that at the end of it to rise to 66,01 %, the majority being of 30,95 %, while at a great distance were EU 28 and NA.

In fact, in the two regions above mentioned the annual consumption of crude steel felt into a descending trend since 2008, at the end of the

analyzed period the value of the crude steel use being under the level registered at the of the studied period, such that, if in 2004 the percentage of using the crude steel at the level of EU 28 in the world consumption was of 17,90 %, in 2013 it represented only 9,34 %, with a decrease of 47,82 %, and at the level of NA the decrease was from 16,24 % in 2004 to 9,04 % in 2013, with a decrease of 44,33 %.

For enlightening conclusions on the contribution that each region has in the development of world economy, the study took into account the consumption of crude steel per number of inhabitants of each region (Table 2), a more relevant indicator, if we take into account that the geographic areas in question have different sizes and economic powers.

Data analysis reveals that global crude steel consumption per inhabitant falls generally in the same

trend, noting that the decline occurs in 2008, is emphasizes in 2009, while in 2010 the indicator to be higher than the 2007 level.

From the analyze of data subject to the study results that, in this situation too, the significant increase of the crude steel consumption per inhabitant registered by Asia in the studied period, which, in 2004 started from the seventh position in the world hierarchy and arrived, in 2013, on the third position. In contrast, the EU 28, although it ranked first in 2004 and second place in 2013, after the decline in the period 2008 to 2009, the crude steel consumption per inhabitant did not exceed at the end of the studied period the value registered in the early period.

The same situation is met for the occupants of the second and third positions in 2004, Oceania and NA, which in 2013 is ranked on fifth and fourth and which did not succeed, in 2013, to exceed the level registered in 2004.

THE ANALYZE OF THE IMPACT OF THE ECONOMIC AND FINANCIAL CRISIS ON THE EVOLVING TREND OF THE CRUDE STEEL CONSUMPTION

Research performed also aiming to analyze the distribution of crude steel consumption in the main countries in the regions previously covered, per total and per inhabitant, and the extent to which the financial and economic crisis has affected the use of crude steel in these

Table 1 Crude steel consumption, per regions / Mt. [7, 8]

Region	Year										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Asia	535,6	619,5	657,2	717,5	748,3	815,4	891,2	964,9	993,7	1 087,9	1 110,9
EU 28	190,2	181,8	206,6	220,2	205,8	128,9	160,6	171,5	152,7	153,9	169,2
NA	172,5	161,2	183,0	167,2	154,6	99,2	131,3	142,5	153,4	149,0	121,2
CIS	44,9	48,7	57,1	65,3	57,4	40,8	55,6	62,6	65,4	67,1	105,1
ME	32,3	38,2	39,0	48,6	54,1	49,7	52,7	55,5	55,0	55,1	28,1
SA	34,5	33,9	39,3	43,3	46,5	36,0	47,7	49,1	50,5	51,6	45,2
Other EU	23,8	25,8	30,0	32,4	29,4	24,6	30,7	34,9	36,2	39,2	36,2
Africa	19,8	21,1	24,2	25,0	29,6	32,7	30,3	30,9	33,1	36,8	15,6
Oceania	8,8	8,8	8,7	9,4	9,5	6,8	8,8	7,7	8,3	7,5	5,5
World	1 062,4	1 139,0	1 245,1	1 328,9	1 335,2	1 234,1	1 408,9	1 519,6	1 548,3	1 648,1	1 637,0

Table 2 Crude steel consumption, per capita / Kg [7]

Region	Year										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Other EU	229,9	247,4	284,9	304,3	273,6	227,4	280,6	316,4	325,1	349,4	322,6
EU 28	389,1	370,5	419,3	444,9	414,3	258,5	320,9	341,6	303,5	305,4	335,7
Asia	153,1	175,2	184,0	198,9	205,4	221,7	240,0	257,5	262,7	285,0	291,0
NA	351,6	325,1	364,9	330,1	302,0	191,8	251,3	269,9	287,8	276,8	225,2
Oceania	359,8	353,3	345,8	369,0	365,0	253,8	326,1	281,4	296,8	266,6	195,5
CIS	173,4	188,4	221,0	252,8	222,2	158,0	214,8	242,3	252,4	258,9	405,5
ME	177,5	204,7	203,9	247,6	268,3	240,5	249,3	257,1	249,7	245,3	125,1
SA	94,3	91,5	105,0	114,4	121,5	92,9	122,0	124,1	126,5	127,8	111,9
Africa	22,2	23,1	25,8	26,1	30,2	32,6	29,4	29,4	30,8	33,4	14,2
World	168,5	178,5	192,9	203,5	202,1	184,6	208,4	222,3	224,0	235,9	234,3

Table 3 Crude steel consumption, per main users / Mt. [7, 8]

Country	Year										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
China	287,3	362,0	393,4	435,9	465,5	574,4	612,1	667,9	687,6	771,7	822,7
US	127,8	117,8	134,0	120,4	110,5	69,4	92,4	101,0	108,3	106,3	88,3
India	39,2	43,1	49,1	55,5	56,2	64,4	69,1	73,6	78,0	81,4	83,2
Japan	80,5	82,9	83,3	85,9	83,2	56,0	67,4	69,6	68,8	70,9	110,7
S Korea	49,1	49,0	52,2	57,4	61,0	47,3	54,6	58,7	56,3	53,9	71,0
Russia	31,7	35,1	41,5	47,0	40,9	28,5	41,4	47,2	48,5	49,7	70,6
Germany	38,6	38,6	41,9	46,0	44,9	29,1	40,5	45,1	40,8	41,5	42,9
Turkey	18,6	19,7	22,3	25,3	22,9	19,2	25,1	28,7	30,3	33,3	34,0
Brazil	20,4	18,7	20,6	24,5	26,7	20,6	29,0	27,8	28,0	29,4	33,9
Mexico	22,3	22,4	25,5	25,1	24,0	17,1	20,6	23,1	24,6	23,2	19,0
Total	715,5	789,3	863,8	923	935,8	926	1 052,2	1 142,7	1 171,2	1 261,3	715,5
World	1 062,4	1 139,0	1 245,1	1 328,9	1 335,2	1 234,1	1 408,9	1 519,6	1 548,3	1 648,1	1 637,0

Table 4 Crude steel consumption per inhabitant, per main users / Kg [7]

Country	Year										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
S Korea	1 048,5	1 041,6	1 104,6	1 208,5	1 278,1	986,2	1 132,6	1 213,9	1 159,2	1 105,5	1 456,2
Qatar	702,3	1 044,8	900,6	844,0	1 247,2	1 064,0	734,1	762,9	1 026,4	1 103,9	1 505,3
Singapore	961,5	703,2	680,3	828,8	885,5	715,8	658,6	944,5	903,7	1 018,7	773,5
UAE	930,0	1 363,5	1 548,3	1 585,2	2 164,7	999,4	980,4	991,7	999,8	957,5	294,6
Taiwan	1 176,6	1 051,1	1 040,8	944,7	879,5	584,4	919,6	933,5	915,9	952,1	995,0
Chez R.	567,4	593,1	672,6	736,8	728,0	498,8	607,9	663,1	638,6	630,3	1 452,4
China	220,9	276,8	299,3	329,8	350,4	430,3	456,3	495,7	508,0	567,7	605,2
Japan	637,4	655,9	658,7	679,0	657,5	442,5	532,7	550,2	544,2	561,2	876,2
Germany	467,3	467,3	507,7	557,4	544,4	353,1	491,8	549,4	498,0	507,3	524,4
Austria	459,3	481,6	565,7	568,5	546,5	440,0	494,7	536,6	508,0	475,6	927,4
World	168,5	178,5	192,9	203,5	202,1	184,6	208,4	222,3	224,0	235,9	234,3

countries compared to the belonging region and with the globally registered trend. For having a relevant image on crude steel consumption growth, ranking was achieved for 2013 and includes ten countries, developments in the use of crude steel at their level throughout the period under review, as shown in Table 3.

It follows that not all regions are represented by countries whose consumption of crude steel enable their inclusion among the top 10 users and consumption trends does not always follow the trend of the region to which they belong. It is, especially, about the Asian countries, which, excepting China and India, whose consumption is falling on an ascending trend during the whole analyzed period, all the others, Japan, South Korea (S Korea) and Taiwan register a decline, as appropriate, during the period 2008 – 2009, Japan and Taiwan, failing, at the end of the analyzed period to exceed the value of the consumption from the beginning of the studied period, situation also met of United States (US) and Italy. In Germany the evolution of crude steel use is falling into the region trend, moreover in 2013 it succeeded in exceeding the value of the consumption for 2004, contrary to the zonal evolution, although its volume is not even to the level recorded in 2007.

The research focused on the analysis of crude steel consumption compared to the number of inhabitants of each country, the data for the whole period under research being presented in Table 4.

From the comparative analyze of the crude steel consumption per inhabitant at the level of the first ranked in 2013, using it within the regions of origins, it results that the last research lead to the exclusion from the considerable positions, namely: Other EU, 1st position and NA, 3rd position. It may be noticed that the ten countries are concentrated in only three regions of development, namely: Asia, five countries, EU 28, three countries and ME, two and the value of the crude steel consumption per inhabitant exceeds both the world consumption per inhabitant, as well as the consumption registered per inhabitant in the ninth studied regions.

Moreover, we can notice the exclusion of some countries from the ranking, such as: United States, India, Russia, occupants of the positions 2, 3 and 6, but also the loss of leading position by China, it succeeding in occupying only the 7th position in 2013, the first position being of South Korea, closely followed by: Qatar, Singapore, United Arab Emirates, Taiwan, countries which were not in the previous rankings.

RESULTS AND CONCLUSIONS

The research of the global, regional and state evolution of the crude steel consumption related to the period 2004 – 2014 led to the following conclusions:

- At the world level, the crude steel consumption felt, excepting 2009, into an ascending trend, but not the

- same for using the crude steel at the level of nine analyzed regions of development, because at the level of Asia and Africa, there were no decline, and in EU 28, Other EU, CIS, NA the decline started in 2008 and maintained in 2009 too;
- The crude steel consumption per inhabitant highlights that, at the world level, its decline occurs since 2009, and in 2010 the increase was retaken, a similar situation being met only in EU 28 and NA, regions strongly affected by the economic and financial crisis;
 - The analyze of the crude steel consumption per inhabitant at the level of the nine regions led to the change of hierarchies, therefore Asia passed from the first position on the third position, Other EU from the seventh position on the first position, NA from the third position on the fourth position, while EU 28 kept its second position;
 - In terms of the main state users, the evolution of the crude steel consumption do not fall, most often, in the evolution of the region to which it belongs, excepting China and India, where throughout the analyzed period the evolution of the crude steel use was placed on an ascending trend, while in the other countries the decline began in 2008 and continued in 2009, with the exception of South Korea and Brazil, where the decrease occurred in 2009;
 - The analyze of the crude steel consumption per inhabitant among the first ten countries ranked at the level of 2013 led to the exclusion from the hierarchy of six regions of development, including some countries which, in the analyze of the total crude steel use occupied not insignificant positions (United States, 2nd position, India, 3rd position and Russia, 6th position), but also the loss of the leading position occupied by China, it occupying only the 7th position, in the ranking being countries which were not in the previous rankings, namely: Qatar, Singapore, United Arab Emirates, Taiwan, and the first position being adjudicated by South Korea;
 - Excepting China, whose crude steel consumption felt on an ascending trend, including in its analyze per inhabitant, for the other countries the crude steel use was marked by decline, either in 2008 or in 2009, but the most unfavorable evolution was met in the regions of EU 28 and NA, including the belongings countries, which leads to the idea that at their level the economic and financial crisis had a negative impact on the crude steel consumption.

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