



## Changing Scenario of Global steel industry and Indian steel industry

Mr. Harsha C Mathad\*

### ABSTRACT

The steel industry is the heart and soul of global development. We may call the steel industry as a global economic development indicator. On this earth, almost all human beings are using steel directly or indirectly. The Steel industry generates US\$500 billion value-added and a further US\$1.2 trillion through its global supply chain. (world steel in figures, 2019) For every one dollar value addition in steel industry will creates 2.5 dollar value in other sector in the global economy. (world steel in figures, 2019) The Steel industry does not have any matching substitute so its importance is very high, the fiber industry may compete with the steel industry as a substitute industry but only up to 10%. Steel industry is the main supplier for Construction and infrastructure industry, Manufacturing industry, Automobile industry, Transport industry, Storage industry, Railways Industry, Shipbuilding and container industry, Defence industry, Engineering goods industry, etc., and all these things show that most of the industries are dependent on steel industry and its growth is very important for any economy. In a developing country like India, it is very important to compare steel consumption and production with other countries or the world. The Indian steel industry is the second largest industry in the world. But Indian steel consumption is not up to the mark. Still, a lot of improvements have to be taken for the development of the Indian steel industry. If the steel industry is developing then we may call our GDP will improve very soon. This study will help us to understand the path of the Global steel industry and the Indian steel industry.

**Keywords :** Steel Industry, Production, Consumption, Export and Import

#### Introduction

Steel industry is a booster of the other industry, steel is a main part of any industry on the earth.

Steel industries play a pivotal role in formation of industries. The primary requirements at the time of formation of industries is steel, the requirement of steel and its products become indispensable for further activities of the industries.

The use of steel and steel manufacturing has become a primary source for not only other industries but also to human day to day life. In today's competitive global village steel consumption is the growth indicator for an economy.

So steel scope and steel industry scope is more in

this competitive global village.

Steel making art is not new one for India. There are ample of evidence were proved that steel manufacturing was started long back. In 3<sup>rd</sup> and 4<sup>th</sup> century B.C Sushruta the ancient authority of medical science described in his book a hundred different surgical instruments were manufactured by Steel.

Ancient Indian literature abounds in vivid descriptions of swords, spears, and other steel weapons. (From K.N.P. Rao, B.Sc. (Met.), and F.I.M. article). (Rao, 1963)

Origin of steel manufacture is very old. Around 4000 year back steel production was known by humans. (BELL, n.d.) But modern steel industries took

\*Research Scholar - Department of Management Studies and Research, Kuvempu University, Shankaraghatta.

place in the late 1850's.

Britain is the key player for the world industrial revolution.–("History of the steel industry," n.d.) Mass production of steel was started during 1857, when Henry Bessemer's developed the Bessemer converter. –("History of the steel industry," n.d.) During 19<sup>th</sup> century Britain is the major part of the world steel industry. Then onwards world steel industry grown in drastic manner.

### **Literature review**

A Comparative Study of the Automobile Industry in Japan and Korea was undertaken by Sang Min lee, in his study he explained about trade barriers for the automobile industry.

Mainly his study was concentrated on the car industry. (Lee, 2011)

An article published by Shrabanti Pal in that, one of the articles he found the following details, Indian steel industry is one of the fastest growing industries. CAGR of Indian steel industry is 8.18 in terms of production. The study mainly focused on production, consumption, export and import.(SHRABANTIPAL, 2013)

Literature review says that more number of comparative studies have been done in research work. However it is noticed that still more comparative study is required to give a boost on the study of steel industry. In most of these researches different parameters are used. As per this literature review very less studies are done for steel industry Comparative study. Hence it is found that there is gap in research for the comparative study of world steel industry and Indian steel industry. To fulfill that gap this study was taken.

### **Statement of the Problem**

Steel industry is the heart of the global development. Today world steel industry is very large. 60 lakhs human resources are directly working in this industry. And it has created 400 lakhs jobs from supply chain process.

For every one dollar value addition in steel industry will creates 2.5 dollar value in other sector in the global economy.

(world steel in figures, 2019)Today India stands in second place for the steel production of the world.

Around 25 lakhs human resources are working in this industry.

It contributes 2% to the GDP.(India, n.d.) More are less there is no substitute for the steel product. Now a day's fiber is considered as a substitute for the steel but not 100%. Fiber industry may compete with 10% substitute power for steel industry. Steel industry is creating 13 more jobs in supply chain for every two jobs in steel industry.

The Steel industry generates US\$500 billion value added and a further US\$1.2 trillion through its global supply chain. (world steel in figures, 2019) If steel industry slow down then the global economy will slow down and its impact will affect all other industry and global economy.

A Timely review is very much required to know the performance of steel industry.

### **Scope of the study**

For this research publication data was collected and analyzed for 10 years from 2008-09 to 2017-18. Scope of this research is production, consumption, export and import of steel industry. World steel industry includes all the steel manufacturing countries except India for this study.

### **Objectives of the study**

- To compare the Indian steel industry with world steel industry in terms of production, consumption, export and import.
- To assess the growth rate of Indian steel industry.

### **Hypothesis of the study**

Ho: Growth of world steel industry is not same as Indian steel industry (In terms of production and consumption).

### **Research Methodology**

In this Analytical research method secondary data was collected from world steel association, ministry of steel India and other journals.

Data are presented in tabular format and descriptive Statistics and inferential statistics are used to compare the global steel industry and Indian steel industry.

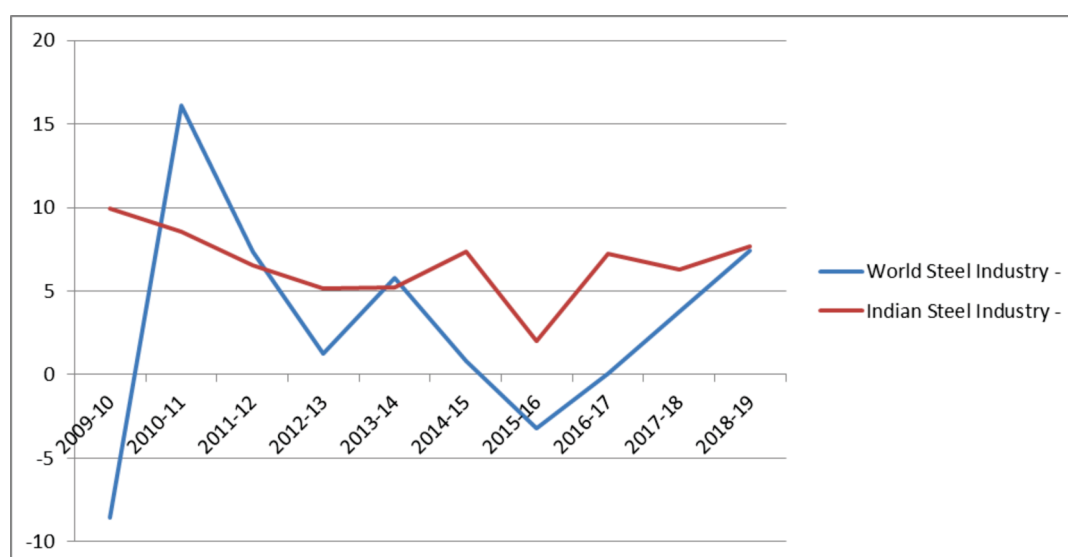
To test the hypothesis two sample independent t-test is used.

**Data Analysis**

**Table 1: Production flow of World steel industry and Indian steel industry (Crude Steel)**

Year	World Steel Industry Production (Thousand metric tons)	Trend (Base 2008)	Growth Rate	Indian Steel Industry Production (Thousand metric tons)	Trend (Base 2008)	Growth Rate
2008-09	1285640	100	-	57791	100	-
2009-10	1175226	91	-8.59	63527	110	9.93
2010-11	1364460	106	16.10	68976	119	8.58
2011-12	1464531	114	7.33	73471	127	6.52
2012-13	1482865	115	1.25	77264	134	5.16
2013-14	1569059	122	5.81	81299	141	5.22
2014-15	1582155	123	0.83	87292	151	7.37
2015-16	1530975	119	-3.23	89026	154	1.99
2016-17	1531477	119	0.03	95477	165	7.25
2017-18	1589024	124	3.76	101455	176	6.26
2018-19	1707339	133	7.45	109272	189	7.70
<b>CAGR</b>			<b>2.88</b>	<b>CAGR</b>		<b>6.58</b>

Sources: World steel Association.



**Figure 1 - Production Growth trend**

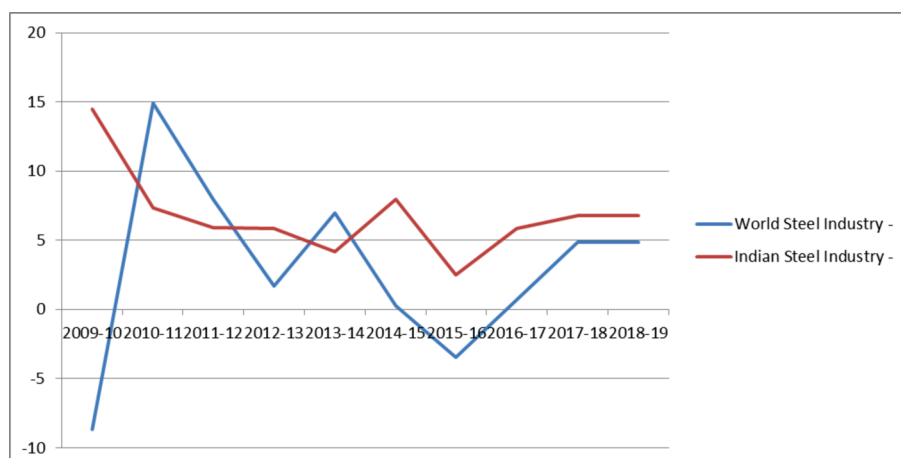
Production of Indian steel Industry is increased to 8% in the last 11 years and its CAGR is 6.58%. World steel industry production is increased to 33% in the last 11

years and its CAGR is 2.88%. In terms of production Indian Steel industry growth is better than world steel industry.

**Table 2: Consumption flow of World steel industry and Indian Steel industry**

Year	World Steel Industry Consumption (Thousand metric tons)	Trend (Base 2008)	Growth Rate	Indian Steel Industry Consumption (Thousand metric tons)	Trend (Base 2008)	Growth Rate
2008-09	1283693	100	-	56209	100	-
2009-10	1172373	91	-8.67	64360	115	14.5
2010-11	1347353	105	14.93	69082	123	7.34
2011-12	1454544	113	7.96	73154	130	5.89
2012-13	1479020	115	1.68	77436	138	5.85
2013-14	1581710	123	6.94	80656	143	4.16
2014-15	1585686	123	0.25	87086	155	7.97
2015-16	1530657	119	-3.47	89256	159	2.49
2016-17	1541835	120	0.73	94502	168	5.88
2017-18	1616800	126	4.86	100892	179	6.76
2018-19	1726315	134	4.86	104502	186	6.76
<b>CAGR</b>			<b>3.01</b>	<b>CAGR</b>		<b>6.40</b>

Sources: World steel Association.



**Figure 2 - Consumption Trend**

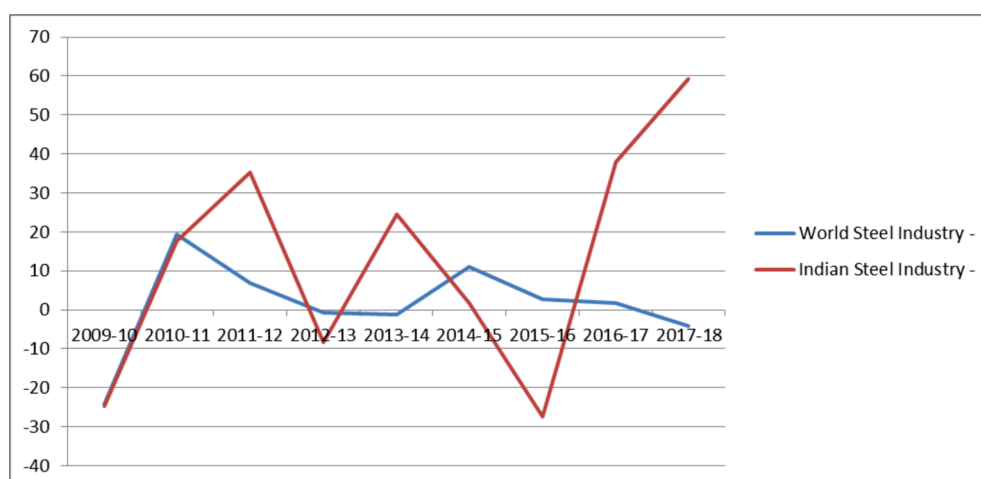
The steel consumption detail says that Indian steel industry demand is increased by 86% during last 11 years and its CAGR is 3.01%. World steel industry is also

increased its demand by 34% and its CAGR is 3.01%. The comparison of world steel industry and Indian steel industry says that Indian steel industry demand is better than world steel industry.

**Table 3: Export of World steel industry and Indian Steel industry**

Year	World Steel Industry Export (Thousand metric tons)	Trend (Base 2008)	Growth Rate	Indian Steel Industry Export (Thousand metric tons)	Trend (Base 2008)	Growth Rate
2008-09	847035	100	-	14512	100	-
2009-10	641683	76	-24.24	10925	75	-24.72
2010-11	765404	90	19.28	12865	89	17.76
2011-12	817368	96	6.79	17402	120	35.27
2012-13	812136	96	-0.64	15974	110	-8.21
2013-14	801838	95	-1.27	19906	137	24.61
2014-15	889575	105	10.94	20250	140	1.73
2015-16	914737	108	2.83	14686	101	-27.48
2016-17	929912	110	1.66	20278	140	38.08
2017-18	890267	105	-4.26	32320	223	59.38
<b>CAGR</b>			<b>0.50</b>	<b>CAGR</b>		<b>8.34</b>

Sources: World steel Association.



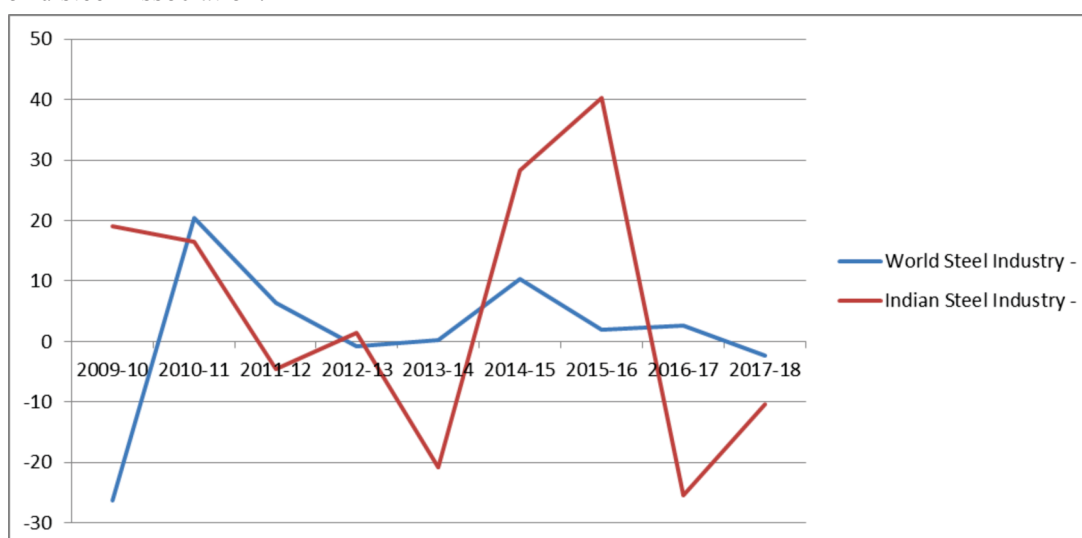
**Figure 3 - Export Trend**

World steel industry export is increased by 5% during last 10 years with a CAGR of 0.50%. In Indian steel industry export is increased by 123% during last 10 years with a CAGR of 8.34%. This shows that Indian steel industry is growing faster than world steel industry.

**Table 4: Import of World steel industry and Indian Steel industry**

Year	World Steel Industry Import (Thousand metric tons)	Trend (Base 2008)	Growth Rate	Indian Steel Industry Import (Thousand metric tons)	Trend (Base 2008)	Growth Rate
2008-09	832452	100	-	13893	100	-
2009-10	614168	74	-26.22	16546	119	19.1
2010-11	739842	89	20.46	19274	139	16.49
2011-12	787443	95	6.43	18389	132	-4.59
2012-13	780954	94	-0.82	18637	134	1.35
2013-14	782486	94	0.2	14745	106	-20.88
2014-15	863324	104	10.33	18917	136	28.29
2015-16	880469	106	1.99	26536	191	40.28
2016-17	904022	109	2.68	19775	142	-25.48
2017-18	882719	106	-2.36	17730	128	-10.34
<b>CAGR</b>			<b>0.59</b>	<b>CAGR</b>		<b>2.47</b>

Sources: World steel Association.



**Figure 4 - Import Trend**

Import of world steel industry is increased by 6% with a CAGR of 0.59%. Indian steel industry import is increased by 28% with a CAGR of 2.47%.

By analyzing the CAGR of world steel industry and Indian steel industry it can be concluded that Indian steel industry growth rate is higher than the world steel industry. To get more clarity on the assumption below test is taken.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{s^2 \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

$$s^2 = \frac{\sum_{i=1}^{n_1} (x_i - \bar{x}_1)^2 + \sum_{j=1}^{n_2} (x_j - \bar{x}_2)^2}{n_1 + n_2 - 2}$$

x1 = Indian steel industry Mean Growth in terms of production, consumption, export and import.

x2 = World steel industry Mean Growth in terms of production, consumption, export and import.

n1 = 10 years

n2 = 10 years

Critical value at 5% is 2.101

t-test value is -1.6314.

Ho is accepted if t-test value is less than to critical value.

Here t-test value is less than the critical value hence Ho is accepted.

### Finding and Conclusion

The above data analysis and hypothesis test says that Indian steel industry mean growth is better than the world steel industry. Production and export are increased almost more than 75% in last ten years. Import is not increased up to the mark and it is a positive impact on the Indian steel industry. Overall analysis says that Indian steel industry performance is good in terms of production, consumption, export and import. When we compare to world steel industry Indian steel industry performance is very good and Indian steel industry is the second largest steel industry in the world. But to reach first place it is very difficult why because the contribution of Indian steel industry is only 6% where as China is contributing more than 50%. Hence it is very important

for Indian steel industry to take necessary action to grow fast and with good quality. Government has to take lots of initiations to strengthen the Indian steel industry.

### References :

- BELL, T. (n.d.). The History of Steel. Retrieved from <https://www.thebalance.com/steel-history-2340172>.
- D'Costa, A. (1999). The global restructuring of the steel industry: Innovations, institutions and industrial change (Vol. 13). Routledge.
- Dwivedi, A. K., Ghosh, P., & Dangayach, G. S. (2013). Efficiency measurement of Indian steel industry using data envelopment analysis. *International Journal of Operational Research*, 18(4), 386-400.
- Firoz, A. S. (2014). Long term perspectives for Indian steel industry. Ministry of Steel, Economic Research Unit mimeo, New Delhi, May.
- History of the steel industry. (n.d.). Retrieved from Wikipedia website: [https://en.wikipedia.org/wiki/History\\_of\\_the\\_steel\\_industry\\_\(1850-1970\)](https://en.wikipedia.org/wiki/History_of_the_steel_industry_(1850-1970)).
- India, M. of S. G. of. (n.d.). Annual Report 2017-18.
- Lee, S. M. (2011). A Comparative Study of the Automobile Industry in Japan and Korea From Visible to Invisible Barriers. *Asian Survey*, 51(5), 876-898.
- Malanichev, A. (2015). Contemplation of global steel industry future using scenario approach. *Mineral Economics*, 28(1-2), 53-63.
- Pauliuk, S., Wang, T., & Müller, D. B. (2012). Moving toward the circular economy: The role of stocks in the Chinese steel cycle. *Environmental science & technology*, 46(1), 148-154.
- Rao, K. N. P. A brief History of the Indian Iron and Steel Industry., (1963).
- Reddy, B. S., & Ray, B. K. (2011). Understanding industrial energy use: Physical energy intensity changes in Indian manufacturing sector. *Energy Policy*, 39(11), 7234-7243.
- SHRABANTI PAL. (2013). A study on performance and prospect of Indian steel industry from national perspective under globalisation.

International Journal of Economics, Commerce and Research, 3(Aug), 53–60.

- World steel in figures. (2019). In World steel association.

- Worrell, E., Bernstein, L., Roy, J., Price, L., & Harnisch, J. (2009). Industrial energy efficiency and climate change mitigation. Energy efficiency, 2(2), 109.

