

# A STUDY ON GROWTH OF PRODUCTION AND EXPORT OF STEEL PRODUCTS IN INDIA



Economics

KEYWORDS:

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## ABSTRACT

*Steel has considered as a tool for development of any modern economy. Steel is a product of a large and technologically complex industry having strong forward and backward linkages in terms of material flows and income generation. Steel is basically a mixture of iron, carbon and other elements steel widely used in construction of roads, skyscrapers, bridges, railways, other infrastructure, appliances, and buildings steel's high tensile strengths and low costs. The Production Categories of Steel in India are as Bars and Rods (BR), Structural, Plates, Hot Rolling Sheets and Coils, CR Sheets and Coils, Galvanized Plain and Corrugated Coils Sheets (GP/GC). Thus, the study helps to know about the Production and Export Performance of Steel Industry in India.*

## Introduction

Steel is one of the most important products of the modern world and is of strategic importance for any industrial nation. Steel has considered as a tool for development of any modern economy. Historically, every nation's during industrialization phase have been supported by a strong steel industry. From construction, industrial machinery to consumer products, steel finds a wide variety of applications. The steel industry is characterized by high capital intensity, high dependence on bulk raw materials, cyclical growth trends, perpetual over capacity and relatively low profitability. The steel industry requires larger governmental and social interventions for its sustainable growth.

## Steel Industry in India

The Indian steel industry started in 1907 and at the time of independence there were only three steel plants producing about 1. Million metric tonnes of steel in 1948 i.e., Tata Iron and Steel Company Limited (TISCO) and Viswamvarya iron and steel limited at Jamshedpur, Burnpur and Bhadravati. Tata steel was established in 1907 as Asia's first and India's largest integrated private sector steel company. IISCO's Burnpur steel plant initially set up in 1918, began production in India was 33.91 million metric tonnes and India become one of the 10 largest steel producing countries of the world. The modern iron and steel industry in India owes steel origin to the grand vision and perseverance of Jamsetji Nusserwanji Tata. The Tata Iron and Steel Company Limited (Tata steel) was registered in Bombay on 26<sup>th</sup> August 1907. The construction of the steel plant was then taken up in earnest with the first stake being driven in February 1908.

## Categories of Steel in India

**1. Bars and Rods (BR):** Rods and Bars is produced by several different processes namely extrusion, rolling and coiling. The processes elongate the bar-shaped pieces that can be machined into all kinds of applications. Many machine and equipment parts, such as rivets, nails, screws and bolts are made from rod and bar. Everyday products produced from rod and bar include chain-link fence material.

**2. Structural:** The Steel Structural steel products continue to deliver in an industry where speed of construction and cost are critical factors.

**3. Plates:** Steel plate use to welded, cut, heat treated and subject to other processes. The properties make it a valuable manufacturing item used in many industries. Steel supplies one of the world's widest ranges of plate products to a large number of markets. These include lifting and excavating, energy and power, shipbuilding and construction.

**4. Hot Rolling Sheets and Coils:** The Hot Rolled Coil and sheet steels in a wide variety of specifications, manufactured to meet international standards and a wide range of market requirements

like forming, bending, deep drawing, laser cutting and welding.

**5. CR Sheets and Coils:** CR Sheets and Coils constitute 8.55 per cent of Total Finished Steel (non-alloy) production. There are two main producers namely TSL and SAIL of CR coil/sheets. Market of CR Sheets and Coils is oligopolistic in nature.

**6. Galvanized Plain and Corrugated Coils Sheets (GP/GC):** The Galvanized steel sheets are then surface treated using specially formulated chromatin solution to retain their shine and brightness and avoid any corrosion white rust formation. The coil are then slitted/cut or automatic slitting/cut to length Lines and also corrugated as per the customer's requirements.

## Production of Steel in India: Categorywise

Bars and rods is produced by several difference processes namely, extrusion, rolling and coiling. Production of Bars and Rids in absolute terms has been steadily increasing from 9,560 thousand tone in 2000-01 to 31,926 thousand tone in 2014-15. The Annual Growth Rate of Production of Bars and Rods is fluctuating in during the study period with a maximum of 34.7 per cent during 2003-04 and a minimum of 1.18 per cent during 2008-09. The compound growth rate of production of Bars and Rods shows an increase of 327.95 per cent from 2000-01 to 2014-15.

Production of structural in fluctuating from 2,240 thousand tone in 2000-01 to 7,483 thousand tone in 2014-15. The Annual Growth Rate of production of Structural is fluctuating in between 2000-01 to 2014-15 with the maximum of 66.55 per cent during 2003-04 and the minimum of -22.83 per cent during 2008-09. The compound growth rate of production in India shows an increase of 328.06 per cent from 2000-01 to 2014-15.

Production of Plates in absolute terms has been increasing steadily from 1784 thousand tone in 2000-01 to 4057 thousand tone in 2007-08 and 2008-09 product of plates has been fluctuated to reached. The annual growth of Plates fluctuating between 2000-01 to 2014-15 with the maximum of 43.07 per cent during 2014-15 and minimum of -9.07 per cent during 2003-04 the study period. The compound growth rate of production of Plates shows an increase of 315.95 per cent from 2000-01 to 2014-15.

Production of HR Sheets and Coils in absolute terms has been increasing steadily from 7670 thousand tone in 2000-01 to 19315 thousand tone in 2014-15. The annual growth of HR Sheets and Coils is fluctuation between 2000-01 to 2014-15 with the maximum of 27.98 per cent during 2002-03 and minimum of -7.17 per cent during the study period 2014-15. The compound growth rate of production of HP Sheets and Coils shows an increase of 245.83 per cent from 2000-01 to 2014-15.

Production of CR Sheets and Coils in absolute terms has been increasing steadily from 4190 thousand tone in 2000-01 to 9613

thousand tone in 2003-04 has been fluctuated to and reached to 7,048 during 2014-15. The annual growth is in fluctuation between 2000-01 to 2014-15 with the maximum of 90.70 per cent during 2003-04 and minimum of -63 per cent during the study period 2004-05. The compound growth rate of production of GP and GC shows an increase of 583.48 per cent from 2000-01 to 2014-15.

Production of GP and GC Sheets in absolute terms has been steadily

from 1,297 thousand tone in 2000-01 to 2348 thousand tone in 2002-03 and from it has been fluctuated to and reached to 7,010 during 2014-15. The annual growth is in fluctuation between 2000-01 to 2014-15 with the maximum of 97.56 per cent during 2004-05 and minimum of -24.87 per cent during the study period 2008-09. The compound growth rate of production of GP and GC shows an increase of 583.48 per cent from 2000-01 to 2014-15.

**Table 1.1 Production of Categories of Steel in India**

(in '000 tonnes)

| Year    | Bars and Rods | AGR   | Structurals | AGR    | Plates | AGR    | HR Sheets and Coils | AGR   | CR Sheets and Coils | AGR   | GP and GC | AGR    | Pipes  | AGR    |
|---------|---------------|-------|-------------|--------|--------|--------|---------------------|-------|---------------------|-------|-----------|--------|--------|--------|
| 2000-01 | 9560          | -     | 2240        |        | 1784   | -      | 7670                | -     | 4190                | -     | 1297      | -      | 469    | -      |
| 2001-02 | 10037         | 4.99  | 2332        | 4.11   | 2145   | 20.24  | 7208                | -6.02 | 4648                | 10.93 | 1565      | 20.66  | 541    | 15.35  |
| 2002-03 | 10676         | 6.37  | 2368        | 1.54   | 2679   | 24.90  | 9225                | 27.98 | 5041                | 8.46  | 2348      | 50.03  | 487    | -9.98  |
| 2003-04 | 14356         | 34.47 | 3944        | 66.55  | 2436   | -9.07  | 9613                | 4.21  | 9163                | 90.70 | 1764      | -24.87 | 557    | 14.37  |
| 2004-05 | 15347         | 6.90  | 4008        | 1.62   | 3165   | 29.93  | 10325               | 7.41  | 3557                | -63.0 | 3485      | 97.56  | 588    | 5.57   |
| 2005-06 | 16636         | 8.40  | 4484        | 11.88  | 3243   | 2.46   | 10125               | -1.94 | 3989                | 12.15 | 4263      | 22.32  | 1058   | 79.93  |
| 2006-07 | 18811         | 13.07 | 4884        | 8.92   | 3342   | 3.05   | 11181               | 10.43 | 4322                | 8.35  | 4263      | 2.32   | 1198   | 13.23  |
| 2007-08 | 20188         | 7.32  | 5043        | 3.26   | 4057   | 21.39  | 11674               | 4.41  | 4445                | 2.85  | 4687      | 7.45   | 1335   | 11.44  |
| 2008-09 | 20427         | 1.18  | 5366        | 6.40   | 4004   | -1.31  | 11167               | -4.34 | 4615                | 3.82  | 5356      | 14.27  | 1865   | 39.70  |
| 2009-10 | 21770         | 6.57  | 4141        | -22.83 | 3973   | -0.77  | 12002               | 7.48  | 5914                | 28.15 | 5620      | 4.93   | 1636   | -12.28 |
| 2010-11 | 25912         | 19.03 | 4554        | 9.97   | 4617   | 16.21  | 13138               | 9.47  | 6717                | 13.58 | 5556      | -1.14  | 1859   | 13.63  |
| 2011-12 | 28102         | 8.45  | 4939        | 8.45   | 4666   | 1.06   | 16450               | 25.21 | 7038                | 4.78  | 5682      | 2.27   | 1954   | 5.11   |
| 2012-13 | 28795         | 2.47  | 5932        | 20.11  | 4162   | -10.80 | 19391               | 17.88 | 7654                | 8.75  | 5287      | -6.95  | 2007   | 2.71   |
| 2013-14 | 29550         | 2.62  | 6896        | 16.25  | 4010   | -3.65  | 20806               | 7.30  | 7722                | 0.89  | 6996      | 32.32  | 1978   | -1.44  |
| 2014-15 | 31926         | 8.04  | 7483        | 8.51   | 5737   | 43.07  | 19315               | -7.17 | 7048                | -8.73 | 7010      | 0.20   | 2055   | 3.89   |
| CGR     | 327.95        |       | 328.06      |        | 315.58 |        | 245.83              |       | 162.21              |       | 583.48    |        | 432.17 |        |

**Source:** Ministry of steel, Government of India (2001-2015)

Production of Pipes in absolute terms has been steadily from 499 thousand tone in 2000-01 to 1,954 thousand tone in 2011-12 and from 2012-13 product of pipes has been fluctuations and reached to 2055 during 2014-15. The Annual growth rate of production of pipes is fluctuation in between 2000-01 to 2014-15 with maximum of 79.93 per cent during 2005-06 and minimum of -12.28 per cent during 2009-10. The compound growth rate of production of pipes shows an increase of 432.17 per cent from 2000-01 to 2014-15.

#### Export of Steel in India: Categorywise

Exports of bars and rods in absolute terms has been steadily from 82.5 thousand tone in 2000-01 to 387 thousand tone in 2005-06 it has been fluctuating during the study period of 15 years. The Annual Growth Rate of Export of Bars and Rods is fluctuating in between 2000-01 to 2014-15 with maximum of 138.89 per cent during 2005-06 and minimum of 2.13 per cent during 2001-02. The Compound growth rate of Exports shows an increase of 326.76 per cent from 2000-01 to 2014-15.

Exports of Structurals in absolute terms has been steadily from 27.5 thousand tone in 2000-01 to 89.4 thousand tone in 2005-06 and from 2006-07 it has been fluctuated and reached to 55.4 thousand tone during study period of 15 years. The Annual Growth Rate of Export of Structurals is fluctuating in between 2000-01 to 2014-15 with

maximum of 52.08 per cent during 2003-04 and minimum of -32.72 per cent during 2010-11. The Compound growth rate of Exports shows an increase of 195.45 per cent from 2000-01 to 2014-15.

Exports of Plates are increasing with from fluctuation from 21.4 thousand tone in 2000-01 to 330.1 thousand tone in 2014-15. The Annual Growth Rate of Export of Plates is fluctuating in between 2000-01 to 2014-15 with maximum of 256.21 per cent during 2010-11 and minimum of -75.00 per cent during 2009-10. The Compound growth rate of Export of Plates shows an increase of 1536.52 per cent from 2000-01 to 2014-15.

Exports of HR coils and sheets in absolute terms has been steadily from 1026 thousand tone in 2000-01 to 1245 thousand tone in 2002-03 and from 2003-04 it has been fluctuated and reached to 989.30 thousand tone during 2014-15. The Annual Growth Rate of Export of HR Coils and sheets is fluctuating in between 2000-01 to 2014-15 with maximum of 139.38 per cent during 2011-12 and minimum of -53.56 per cent during 2014-15. The Compound growth rate of Exports shows an increase of 90.42 per cent from 2000-01 to 2014-15.

An export of CR Sheets and Coils in absolute terms has been steadily from 202.5 thousand tone in 2000-01 to 280.10 thousand tone in 2003-04 and from 2004-05. Exports of

**Table 1.2 Export of Categories of Steel in India**

(in '000 tonnes)

| Year    | Bars and Rods | AGR    | Structurals | AGR   | Plates | AGR    | HR Sheets and Coils | AGR   | CR Sheets and Coils | AGR    | GP and GC | AGR   | Pipes  | AGR   |
|---------|---------------|--------|-------------|-------|--------|--------|---------------------|-------|---------------------|--------|-----------|-------|--------|-------|
| 2000-01 | 82.5          |        | 27.5        |       | 21.4   | -      | 1026.00             | -     | 202.50              | -      | 1453.60   | -     | 104.50 | -     |
| 2001-02 | 70.3          | -14.79 | 38.6        | 40.36 | 20.2   | -5.61  | 1143.90             | 11.49 | 212.08              | 4.73   | 1684.50   | 15.88 | 112.60 | -     |
| 2002-03 | 90.7          | 29.02  | 45.7        | 18.39 | 40.5   | 100.50 | 1245.30             | 8.86  | 270.70              | 27.64  | 1563.60   | -7.18 | 130.50 | 7.75  |
| 2003-04 | 101.2         | 11.58  | 69.5        | 52.08 | 98.7   | 143.70 | 1175.60             | -5.60 | 280.10              | 3.47   | 1789.20   | 14.43 | 145.70 | 15.90 |
| 2004-05 | 162.0         | 60.08  | 70          | 0.72  | 158    | 60.08  | 1328.00             | 12.96 | 620.00              | 121.35 | 1843.00   | 3.01  | 149.00 | 11.65 |
| 2005-06 | 387.0         | 138.89 | 89.4        | 27.71 | 149.8  | -5.91  | 1371.10             | 3.25  | 450.50              | -27.34 | 1842.60   | -0.02 | 120.00 | 2.26  |

|                |               |        |               |        |                |        |              |        |               |        |              |        |               |        |
|----------------|---------------|--------|---------------|--------|----------------|--------|--------------|--------|---------------|--------|--------------|--------|---------------|--------|
| <b>2006-07</b> | 329.0         | -14.99 | 75            | -16.11 | 106.5          | -28.91 | 1580.30      | 15.26  | 386.40        | -14.23 | 2173.30      | 17.95  | 203.50        | -19.46 |
| <b>2007-08</b> | 213.0         | -35.26 | 73            | 2.67   | 153            | 43.66  | 1391.00      | -11.98 | 510.00        | 31.99  | 2026.00      | -6.78  | 200.00        | 69.58  |
| <b>2008-09</b> | 187.0         | -12.21 | 73            | 0.00   | 264            | 72.55  | 943.00       | -32.21 | 341.00        | -33.14 | 1849.00      | -8.74  | 504.00        | -1.72  |
| <b>2009-10</b> | 212.0         | 13.37  | 55            | -24.66 | 66             | -75.00 | 540.00       | -42.74 | 345.00        | 1.17   | 1287.00      | -30.39 | 495.00        | 152.00 |
| <b>2010-11</b> | 136.0         | -35.85 | 37            | -32.73 | 235.1          | 256.21 | 533.80       | -1.15  | 283.00        | -17.97 | 1312.20      | 1.97   | 608.00        | -1.79  |
| <b>2011-12</b> | 225.1         | 65.51  | 44.5          | 20.27  | 374            | 59.08  | 1277.80      | 139.38 | 295.00        | 4.24   | 1443.10      | 9.97   | 470.80        | -22.83 |
| <b>2012-13</b> | 413.1         | 83.52  | 60.6          | 36.18  | 243            | -35.03 | 1878.30      | 46.99  | 411.90        | 39.63  | 1543.80      | 6.98   | 136.70        | -70.96 |
| <b>2013-14</b> | 585.1         | 41.64  | 64.7          | 6.77   | 154            | -36.63 | 2130.20      | 13.41  | 560.60        | 36.10  | 1821.70      | 18.00  | 109.30        | -20.04 |
| <b>2014-15</b> | 270.4         | -53.79 | 55.4          | -14.35 | 330.1          | 114.35 | 989.30       | -53.56 | 418.40        | -25.37 | 1218.80      | -33.10 | 174.80        | 59.93  |
| <b>CGR</b>     | <b>326.76</b> |        | <b>195.45</b> |        | <b>1536.52</b> |        | <b>90.42</b> |        | <b>200.62</b> |        | <b>77.85</b> |        | <b>161.27</b> |        |

**Source:** Ministry of Steel, Government of India

CR Sheets and Coils have been fluctuating and reached to 418.40 thousand tonne during 2014-15. The Annual Growth Rate of Export of CR Sheets and coils is fluctuating in between 2000-01 to 2014-15 with maximum of 121.35 per cent during 2004-05 and minimum of -33.14 per cent during 2008-09. The Compound growth rate of CR Sheets and Coils shows an increase of 200.62 per cent from 2000-01 to 2014-15. Exports of GP and GC Sheets in absolute terms has been fluctuating from 1453.60 thousand tone in 2000-01 to 2173.30 thousand tonne in 2014-15. The Annual Growth Rate of Export of GP and GC Sheets are fluctuating in between 2000-01 to 2014-15 with maximum of 18.00 per cent during 2013-14 and minimum of -33.10 per cent during 2014-15. The Compound growth rate of Exports of GP and GC shows an increase of 77.85 per cent from 2000-01 to 2014-15.

Exports of Pipes in absolute terms has been steadily from 104.50 thousand tone in 2000-01 to 149.00 thousand tonne in 2004-05 and from 2005-06 it has been fluctuating and reached to 174.80 thousand tone during 2014-15. The Annual Growth Rate of Export of Pipes is fluctuating in between 2000-01 to 2014-15 with maximum of 152.00 per cent during 2008-09 and minimum of -70.96 per cent during 2012-13. The Compound growth rate shows an increase of 161.27 per cent from 2000-01 to 2014-15.

### To Sum

From the study it was found that the Growth of category wise steel production during the study period showed that Galvanized plain and corrugated coils sheet was more than Pipes, Structural, Bas and Rods, Plates, Hot Rod sheets and coils and CR sheets and coils. And regarding, Exports more in plates compare to Bars and Rods, cold sheets and coils, structural, Pipe, HR Coils and sheets and Galvanized plains and corrugated.

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