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Two industry indices that don't match

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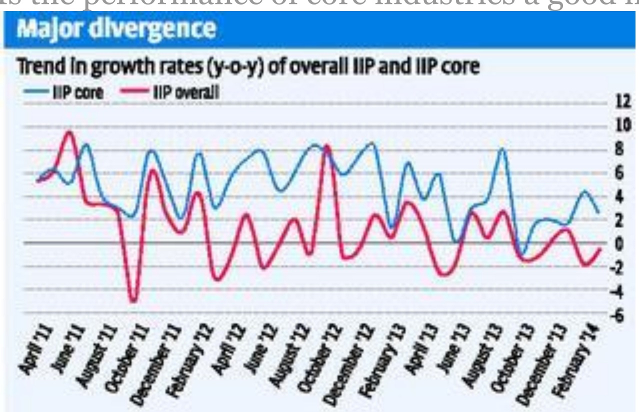
Is the performance of core industries a good indicator of overall industrial production?



Every month, ahead of the release by Central Statistical Organisation (CSO) of the Index of Industrial Production (IIP), Department of Industrial Policy and Promotion (DIPP) releases the data on eight core infrastructure industries comprising of coal, crude oil, natural gas, petroleum and refinery products, fertiliser, steel, cement and electricity.

These eight core industries have a combined weight of 37.9 per cent in the general IIP.

Very often the performance of core industries is viewed as a lead indicator of the direction and magnitude of the overall IIP. However, our analysis shows that there is in fact a poor correlation between the two indices not only in terms of magnitude but even in terms of direction.

Persistent divergence

There have been several months when the two indices have behaved differently. Between April 2011 and June 2014 there have been 13 months in which the core index had shown a year on year increase while the IIP general had shown a decline.

As per the use based classification, IIP consists of four major components. These are basic goods, capital goods, intermediate goods, and the consumer goods which constitute 45.7, 8.8, 15.7 and 29.8 per cent of the total weight of the IIP, respectively.

The eight core infrastructure industries, the combined weight of which is 38 per cent of the IIP general, is large enough to impact the overall IIP. However, the spread of these core infrastructure industries is such that they come mainly under the basic goods component.

Out of eight core infrastructure industries, only one industry i.e. natural gas, the weight of which is 1.7 per cent comes under the intermediate goods component.

The remaining seven core industries, the weight of which is 37 per cent in the total IIP constitute nearly 80 per cent of the basic goods component. As such, the core industry index predicts better the basic goods component of IIP than over all IIP.

Unreliable indicator

To test the closeness of the relationship between core industries and the overall IIP as well as its different components, a statistical analysis was done by regressing the logarithmic value of different use based indices of IIP on the logarithmic value of IIP core and estimating the R-square values of each regression. Out of the total variation in the overall IIP only 52 per cent is explained by IIP Core Index. However, 90 per cent of variation in IIP of basic goods is being explained by the core index.

The explanatory power of IIP core in the case of fluctuations in the production of capital goods and consumer durables is very weak, about only 0.1 per cent and 6 per cent respectively. Even if we look at the annual data, we find poor correlation between the two indices. For example, the annual growth rate of the eight core industries had declined from 8.4 per cent in 2006-07 to 5.2 per cent in 2007-08 but the growth rate of General index of industrial production increased from 12.9 per cent in 2006-07 to 15.5 per cent in 2007-08.

The opposite behaviour of the two series can be seen between 2009-10 and 2010-11. The divergence between the two series is striking in the three years beginning 2011-12. The core industry index showed a persistently higher rate than the overall IIP. In 2013-14, while core industry showed a positive growth, the overall IIP showed a decline. The broad conclusion that emerges is that despite having a weightage of 37 per cent in the overall IIP, core industry performance is a poor indicator of the behaviour of overall IIP.

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