EXIM BANK: RESEARCH BRIEF

Indian Capital Goods Industry: A Sector Study

एक्ज़िम बैंक EXIM BANK भारतीय निर्यात-आयात बैंक EXPORT-IMPORT BANK OF INDIA

EXPORT-IMPORT BANK OF INDIA
Visit us at www.eximbankindia.in

No. 88
December 2014

OVERVIEW

The capital goods sector is of strategic importance to the Indian economy. It has a multiplier effect on the overall economic growth as it directly or indirectly influences core manufacturing development within India by providing critical inputs, i.e. machinery and equipment necessary for manufacturing. Therefore, the development of domestic capabilities in the capital goods sector is essential to ensure self reliance.

While the demand for capital goods in the country has been witnessing a consistent increase, domestic capital goods manufacturers have not been able to keep pace, leading to increasing dependence on imports across market segments. Few reasons that could be cited for growing imports and low capacity creation in domestic economy include inverted duty structure and ECB policies in favour of imports.

EXPORTS AND IMPORTS

The largest exporter of capital goods during 2012 was China, with a share of 19% (US$ 2.62 trillion) in world exports, followed by Germany (12%), USA (10%), Japan (8%), Italy (4%) and Hong Kong (4%). India stood at the 28th position, with a share of 0.6% in total world exports of capital goods. The major importers were USA (15%), China (10%), Germany (7%), Hong Kong (4%), UK (4%) and France (4%). India stood at the 17th position with a share of 2% in total world imports. During 2012, India's exports of capital goods stood at US$ 15 billion, growing by 2 % over the previous year. Imports of capital goods grew at a slower pace of 1.7% to reach US$ 45 billion in 2012.

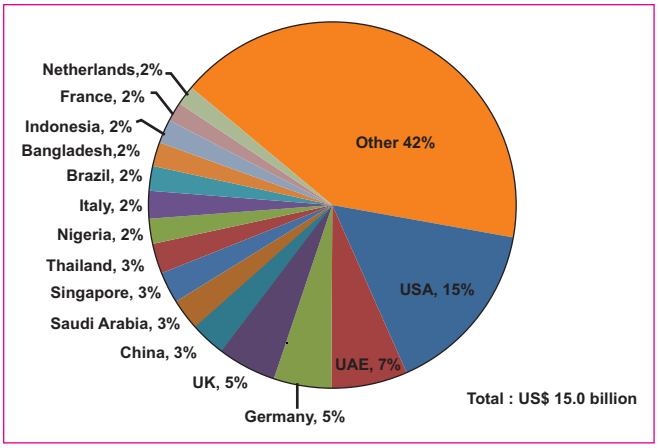
While the capital goods industry is fairly diverse, this paper focuses on non-electrical (i.e. machine tools, textile machinery, construction and mining machinery and process plant, office equipment and parts) and electrical machinery. Among all segments, process plant, office equipment and parts showed the largest trade deficit (US$ 18.97 bn) followed by electrical equipment and machinery (US$ 4.24 bn), construction and mining machinery (US$ 2.67 bn), machine tools (US$ 2.35 bn) and textile machinery (US$ 1.73 bn).

MAJOR CHALLENGES

Technological Competency

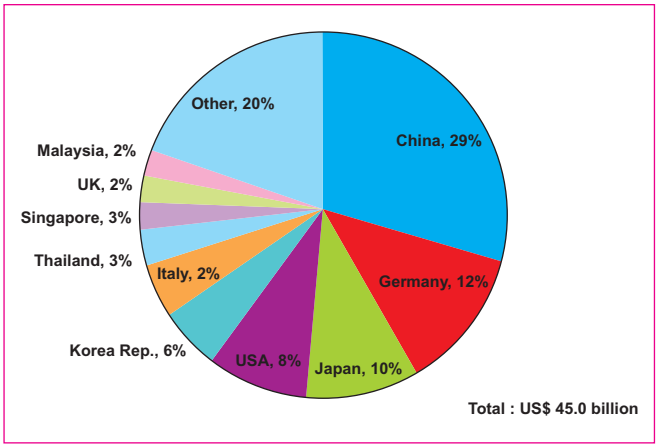
The technologies used for production as also in assembly of some of the sub-segments of Indian capital goods sector, are not always updated in tune with the global technological trends. While there are some players who have technological competencies, the technological capabilities of large number of players, particularly the SME units, are limited. In addition, the technological competencies of SME players, who provide components or intermediates to original equipment manufacturers, are also limited. Transfer of

India's Major Export Destinations



Source: PCTAS

India's Major Import Sources



Source: PCTAS

India's Segment-wise International Trade in Capital Goods

Product Description	India's Exports (US$ bn)		CAGR 2008-12 (%)	India's Imports (US$ bn)		CAGR 2008-12 (%)	Trade Balance (US$ bn)		CAGR 2008-12 (%)
	2008	2012		2008	2012		2008	2012	
Capital Goods	**11.76**	**15.00**	**6.3**	**33.53**	**44.97**	**7.6**	**-21.77**	**-29.97**	**8.3**
Machine Tools	0.20	0.24	3.6	2.20	2.59	4.2	-1.99	-2.35	4.2
Textile machinery	0.20	0.34	14.3	1.91	2.07	2.0	-1.72	-1.73	0.2
Construction & Mining machinery	0.90	1.55	14.5	4.65	4.22	-2.4	-3.75	-2.67	-8.1
Process plant, office equipment, parts	6.67	8.80	7.2	19.04	27.77	9.9	-12.37	-18.97	11.3
Electrical Equipment & machinery	3.79	4.08	1.9	5.74	8.33	9.8	-1.95	-4.24	21.5

Source: PCTAS

technology from other developed countries has also not been significant despite liberalization of policies for technology transfer and foreign direct investments. Further, the products offered by indigenous manufacturers are not always that of cutting edge; often there exists a large technology gap between domestic and foreign manufacturers of capital goods leaving user industries with little recourse other than importing them. As demands of user industries evolve over time and the demand for next generation of products increases, this technology gap will be widening and crippling the sector.

Delivery Schedules

Most capital goods are not supplied off-the-shelves and are custom-made to suit the requirements of end users. Thus, the delivery schedule to cater to the order is longer than many other engineering products. However, due to various reasons, including capacity constraints, the delivery schedules of Indian capital goods suppliers are longer than their foreign counterparts. The quality of infrastructure (transport, communication and power) is poor, thus affecting competitive delivery schedules, and increasing the operating costs. The delivery time of locally made capital goods in many cases is 1.5 to 2 times longer than in industrialized nations[1]. Inland transport is slow, although the railroad density in India is amongst the highest in the world. The cost of electric power is comparable to that in other developing nations, but the reliability is uncertain. Many Indian capital goods firms have set up their own captive power plants to obviate the problem. This has added to the costs. According to industry sources, the infrastructure inadequacies are estimated to translate into 5% cost disadvantage for Indian capital goods manufacturers vis-a-vis foreign manufacturers.

Low R&D Intensity

Low spending on R&D by capital goods sector has increased India's dependence on capital goods imports. Analysis of R&D as percentage of GDP for select countries shows that India has very low share as compared to other countries. While India's share of R&D expenditure was 0.9% of GDP in 2014, China held twice the share at 2%. Israel was the country with the largest share of R&D expenditure in its GDP (4.2%). While these data represents the overall trend in these economies, the encouraging point is that the R&D intensity of Indian capital goods industry has been increasing – from 0.45% in 2006-07 to 1.42% during 2012-13. Further, while this fares well when compared to other sectors, there is still a lot of room for increasing R&D expenditure so as to reduce import dependence.

Challenge of Inverted Duty Structure

Inverted duty structure refers to a situation where final product attracts less duty than inputs that go into manufacturing of that product. Even though customs duty on capital goods (under chapter 84, 85, 90) was reduced to 7.5% from 12.5%, major inputs for production of the capital goods attract higher customs duty than finished products. For instance, the customs duty on seamless tubes of alloy/non-alloy steels that find usage in boilers and heat exchangers is 10%, while the customs duty on boilers and heat exchangers is 7.5%. Also, the EPCG scheme allows import of capital goods [including CKD/SKD (completely-knocked-down/semi-knocked-down) as well as computer software systems] for pre-production, production and post-production at zero customs duty. This leaves the domestic capital goods industry at a disadvantage, discouraging local manufacturing and value addition. The government is planning to review this inverted duty structure to increase local manufacturing and reduce reliance on imports.

SELECT STRATEGIES

Encourage Private Sector Investment in Technology and Innovation

One of the major reasons cited for low volume of domestic capital goods production is low greenfield FDI inflows and limited focus on R&D by Indian companies. Corporate sector investment in R&D is less than 1% of sales in India as compared to about 5% in several developed countries. India is ranked at 66th position in the global innovation index[2], with countries like South Korea (18), Malaysia (32), China (35), South Africa (58) and Thailand (57) well above in global rankings. Proactive policies are required that incentivize industry efforts to invest in innovation and develop new products. This needs to be supported through financial and fiscal incentives.

Countries like Brazil have been providing special financing package for the capital goods sector through the state development bank, BNDES, which lends at significantly low rates (about 400 bps lower than benchmark Selic rate – equivalent to Indian Repo rate) for upto 10 years to buy domestically manufactured capital goods. Some countries, such as Canada, are providing dual tax credit allowances system that rewards both incremental expenses in R&D, as well as the level of spending in R&D. While India may like to consider such measures, additional tax credits for SME units engaged in R&D activities could also be considered.

Another option is to have strategic takeovers to acquire critical technologies in order to bridge the technology gap, as also capacity gap. An example is that of South Korea where capital goods manufacturers have been particularly aggressive in adopting this approach. Some have obtained access to the triad of BTG or Boiler-Turbine-Generator technologies

[1]Report on Indian capital goods sector by PWC

[2]Global Innovation Report 2013

entirely through strategic acquisitions, enabling them to enter the class of GE, Siemens and Alstom as companies capable of providing end to end solutions for fossil fuel based power plants.

Strengthening Technological Competencies

In order to enhance productivity, product quality and operating efficiency, the players in the sector need to constantly upgrade their technological competencies. The Department of Heavy Industry, Government of India, has proposed to undertake a comprehensive scheme for technology upgradation and R&D facilities, for modernization of capital goods industry. The proposed schemes could endeavour to help the players in the Indian capital goods industry in tracking global trends in product and process technologies, with specific objective of cost control, besides enhancing productivity, energy efficiency, eco-friendliness, product quality, operating flexibility and efficiency. The scheme could also help enhance the usage of information technology that provides convenience to the customers, and help enhance customer base and provide new avenues for profitability. The R&D Centres could also be conceived as training platforms for skill upgradation of the shop-floor technicians.

Redefining Investment Cap for SMEs

An important reason for low technology orientation of Indian SMEs is low level of ceiling on capital investment, especially for medium enterprises. More than 80%[3] of the units in the capital goods and engineering sector are SMEs. Although MSMEs play an important role in India's economic growth, not many units have ability to access technological expertise or mobilize resources for in-house innovation. Also, the cap on plant and machinery for the purpose of classifying the units as MSMEs does not encourage Indian MSMEs to move up the value chain. Due to low levels of investment ceiling, MSMEs in capital goods sector are either expanding laterally or engaging themselves in low-tech/low-value products. Since the manufacturing operations in capital goods industry are capital intensive, investment ceiling for treatment of medium enterprises may be raised at least in this sector, benchmarking with such ceiling on investment in other countries. Some countries (such as EU and China) have positioned the ceiling on investment for medium enterprises at high level, encouraging capital intensiveness, technology upgradation, quality improvement, export orientation and employment generation. The Hon'ble Finance Minister in his maiden Union Budget (2014-15) has indicated revisiting the existing capital investment ceiling of MSMEs in India. While this is a positive step, the revision of ceiling on capital investment for medium enterprises in India may be increased at least to an extent of US$ 10 million to US$ 12 million.

Transformation in Objective and Approach

Sale of capital goods is not a one time business but requires technical support in transportation, erection, staff training (for operation and minor repairs), continuous service maintenance and periodical upgradation in technology. All over the world, the capital goods manufacturers are turning themselves as engineering services companies, offering turnkey solutions to retain the customers. Players in Indian capital goods industry could also reorient their approach to transform themselves into service based organizations. This would help the industry in strengthening the competitive advantage.

Cluster Development Approach

It is recognized that enterprises can achieve high levels of competitiveness if they work in a cluster environment ensuring complementarities, common facilities, collective activities including collective sourcing and marketing. Since majority of the firms in the capital goods sector are SMEs, they would also benefit from working in a cluster. For instance, currently there are only a limited number of Common Facility Centres, which can offer heavy and high precision machining services to users on a chargeable basis and are equipped with advanced testing equipments. As a result, a lot of players have to invest independently in testing and machining facilities, raising overall manufacturing costs. Clusters can be useful in such situations by increasing supply chain responsiveness because of manufacturing consolidation near the suppliers.

A good example of how cluster development can strengthen an entire sector is the development of the Taiwanese CNC Machine Tool Industrial Park. Nanjing Taiwanese CNC Machine Tool Industrial Park was built in 2002 with a planning area of 5 square kilometers. At present, there are 52 enterprises settled in the park, which gathers many Taiwan enterprises to form an industrial chain of moulding, casting, machining, thermal treatment, milling and production of precise CNC machine. Similar approach could be adopted for development of machine tool clusters / industrial parks in India to develop the Indian machine tool industry.

Introducing New Product Lines

Over the years, players in the Indian capital goods industry have been diversifying the product lines offered with the objective of mitigating risks associated with business and cyclical trends. However, more focus needs to be given in building new generation machines that may be in demand in future. Such new generation machines should have greater flexibility to produce a variety of products and also create opportunities for offering engineering services that are less sensitive to business and cyclical fluctuations. This trend is already evident in developed markets which continue to be at the forefront of innovation and new technology. While such technical innovation is absorbed first by the developed world, it is adopted later by the developing world as well. In order to become a global force, Indian capital goods sector needs to understand these changes and also evolve to serve user industries with the next generation products. For instance, a sector where technical innovation and automation is becoming ever more important in mature markets is mining equipment sector. Next generation mining is transforming operations that were once manual and local into those that are automated, remotely operated and integrated. Increasingly, a steep change in productivity is being delivered through integration of equipment with information technology.

Leverage Domestic Demand for Localization and Technology Transfer

India represents one of the fastest growing markets in the world. Local demand provides a unique opportunity for capital goods manufacturers to scale up. This fact needs to form the basis for developing a long term growth strategy for Indian capital goods sector. Hon'ble Prime Minister has unveiled the ambitious 'Make in India' campaign, which aims at turning the country into a global manufacturing hub. To achieve this objective, we need to ensure an

[3] Report of the Working Group on Capital Goods & Engineering Sector for the 12th Five Year Plan (2012-2017)

environment that promotes investments in local manufacturing and enables the domestic players to compete on a level playing field. Examples of countries such as China and Korea, where this has been the basis for creating global giants, could be suitably adapted in the Indian context.

China has been extremely successful in building a world class manufacturing sector through acquisition of technology and building self sufficiency in capital goods. This has been accomplished through proactive policies, prominent amongst them being a strong procurement policy favouring domestically produced goods. China's public procurement policies clearly lay down a preference for domestic goods with extensive controls over purchase of imported products (requiring several approvals and special procedures). There is also a clearly stated preference for domestic innovation. Such policies have led to localisation of several capital goods products. Foreign players eager to capture the Chinese market setup production facilities in China to locally manufacture the goods. At the same time manufacturers were also encouraged to think of ways in which they can acquire technology. India should also learn from such experiences and wherever feasible, public procurement should have preference for local manufacturers.

Promotion of Intelligent Manufacturing

Significant engineering skills, with the combination of hardware, software and system integration skills are required in the evolution stage of advanced technology products. This niche area is called intelligent manufacturing. These are usually high tech products which provide high value addition but low volumes in highly quality conscious capital goods sector. India has a competitive advantage in this sector where a large proportion of value addition is through software and system integration. According to a Strategy Paper on 'Doubling Exports in Next Three Years (2011-12 to 2013-14)', prepared by the Ministry of Commerce, Government of India, establishing joint ventures with Chinese companies, which have manufacturing strengths and substantial market share in third world countries, would help in increasing high tech exports in the short term to developing countries in Africa and the Middle East.

Promoting Investments in Hi-tech Capital Goods Sector

Government could identify Hi-tech zones in consultation with state governments and investors may be encouraged through fiscal and financial instruments. Analysis of Hi-tech zones like Chengdu (China) and Colorado (USA) reveals that these regions, despite being land-locked have increased their exports, provided additional employment and generated higher tax revenues than neighbouring regions that have not adopted Hi-tech manufacturing strategy. Hi-tech manufacturing is region-neutral and don't require large land area. Suitable geographies may be identified in various states to develop Hi-tech zones. A conscious attempt is required to be made to attract foreign and domestic investment in these sectors by offering special incentives as is being offered by other countries.

Special incentives could include fiscal measures for setting up of manufacturing facilities, R&D Centres, world class logistics and infrastructure and easy to do business facilities, etc. There would be no adverse fiscal impact on the government, if provided with tax holidays, as it will be just a notional loss; however, the investments could potentially benefit in long term if the units are profitable through job creation, additional investments and eventually more revenues (through both direct and indirect taxes). There would also be spin-off benefits, viz. creation of ancillary segments supplying to the large Hi-tech goods producing units.

Skill Development

Skilled manpower is required in two different categories. The first relate to provision of skilled people to the immediate requirements of the economy such as ITI trained persons, skilled persons at polytechnic and graduates, while certain industries like Chemicals, Pharmaceuticals etc., need highly skilled persons like PhD holders. In terms of enrolment for PhD, the number in India is 5,000 which is very small compared to 1,20,000 scholars in China and 50,000 scholars enrolled for PhDs in USA. As against the 5000 scholars enrolled for PhDs, only 375 PhDs were awarded in India, of which engineering disciplines contributed to about 100[4]. There is need to improve the turnout of PhDs, for which a long term plan needs to be drawn up. The second category of skill development is for the long term growth and strength of the knowledge economy. These are Science & Technology skills of a high order which can be developed only in the longer run. They include basic research and directed applied research. There is need to give high priority to this area of skill development not only from the point of view of strengthening competitiveness and economic growth, but also from the point of addressing the requirement of long-term national security.

CONCLUSION

It is felt that adopting select strategies, such as encouragement of private sector in R&D and innovation, supporting local manufacturing, strategic takeovers, cluster development approach, redefining investment caps for SMEs and focussed investment in hi-tech capital goods sector, will go a long way in boosting the performance of capital goods sector and help the industry in achieving the projected CAGR of 17% to reach a production level of ₹ 681,000 crore by 2016-17 from the level of Rs 312,557 crore in 2011-12[5].

[4] Report of the Working Group on Capital Goods & Engineering Sector for the 12th Five Year Plan (2012-2017)

[5] ibid

Publication is available with:
Dharmendra Sachan
Chief Knowledge Officer
EXPORT-IMPORT BANK OF INDIA
Centre One Building, Floor 21,
World Trade Centre Complex,
Cuffe Parade, Mumbai - 400 005, India.
Phone : +91 22 2218 0379
Fax : +91 22 2218 3070
E-mail : dharmendra@eximbankindia.in
Website : www.eximbankindia.in