

Globalization and its Impact on Electronics Industry in India

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Globalization describes a process by which regional economies, societies, and cultures have become integrated through a global network of communication; transportation; and trade. The term is sometimes used to refer specifically to economic globalization, the integration of national economies into the international economy through trade, foreign direct investment, capital flows, migration, and the spread of technology. In recent years the electronic industry is growing at a brisk pace. It is currently worth US\$ 32 Billion and according to industry estimates it has the potential to reach US\$ 150 billion by 2010. The largest segment is the consumer electronics segment. While its largest export segment is of components. The electronic industry in India constitutes just 0.7 per cent of the global electronic industry. Hence it is miniscule by international comparison. However the demand in the Indian market is growing rapidly and investments are flowing in to augment manufacturing capacity. The output of the Electronic Hardware Industry in India is worth US\$11.6 Billion at present. India is also an exporter of a vast range of electronic components and products.

Key Words: Globalization, Liberalization, Privatization, FDI, New Economic Policy.

Introduction

Globalization describes a process by which regional economies, societies, and cultures have become integrated through a global network of communication; transportation; and trade. The term is sometimes used to refer specifically to economic globalization, the integration of national economies into the international economy through trade, foreign direct investment, capital flows, migration, and the spread of technology. Globalization as a spatial integration in the sphere of social relations when it is said that “globalization can be defined as the intensification of worldwide social relations which link distant locations in such a way that local happenings are shaped by events occurring many miles away and vice-versa.” Globalization generally means integrating economy of our nation with the world economy. The economic changes initiated have had a dramatic effect on the overall growth of the economy.¹ It also heralded the integration of the Indian economy into the global economy. The Indian economy was in major crisis in 1991 when foreign currency reserves went down to \$1 billion. Globalization had its impact on various sectors including agricultural, industrial, financial, health sector and many others. It was only after the Liberalization,

Privatization and Globalization Policy launched by the then Prime Minister of India that India saw its development in various sectors.

After suffering a huge financial and economic crisis, the then Prime Minister of India brought a new policy which is known as Liberalization, Privatization and Globalization Policy which also known as New Economic Policy, 1991 as it was a measure to come out of the crisis that was going on at that time. The following measures were taken to liberalize and globalize the economy :

1. Devaluation : To solve the balance of payment problem, Indian currency were devaluated by 18% to 19%.
2. Disinvestment : To make the New Economic Policy, 1991 model smooth, many of the public sectors were sold to the private sector.
3. Allowing Foreign Direct Investment (FDI): FDI was allowed in a wide range of sectors such as Insurance (26%), defense industries (26%) etc.
4. NRI Scheme : The facilities which were available to foreign investors were also given to NRIs.

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The New Economic Policy (NEP) introduced changes in the areas of trade policies, monetary and financial policies, fiscal and budgetary policies, and pricing and institutional reforms. The salient features of NEP, 1991 are:

- (i) liberalization (internal and external);
- (ii) extending privatization;
- (iii) redirecting scarce Public Sector Resources to Areas where the private sector is unlikely to enter;
- (iv) globalization of economy;
- and (v) market friendly state.

The implications of globalization for a national economy are many. Globalization has intensified interdependence and competition between economies in the world market. This is reflected in inter-dependence in regard to trading in goods and services and in movement of capital. As a result domestic economic developments are not determined entirely by domestic policies and economic conditions. It is thus clear that a globalizing economy, while formulating and evaluating its domestic policy cannot afford to ignore the possible actions and reactions of policies and developments in the rest of the world. This constrained the policy option available to the government which implies loss of policy autonomy to some extent, in decision-making at the national level.

The effect of globalization on Indian industry has been very positive, though some industrial firms with the baggage of high cost, inefficient plants and processes inherited from the past because of closed economy's government dictated industrial policies and priorities had to face serious problems in the beginning. But soon most of the industries have become more and more efficient, customer friendly and improved their international competitiveness in terms of costs, prices, product quality and variety. Industrial growth has been very high and strong during the past decade because of globalization. Exports have increased tremendously. Indian industries are also expanding abroad. Foreign companies have substantially increased their investments in Indian industries. Wages of industrial labour has increased substantially as they have become very productive.

Literature Review

The Electronics Industry in India took off around 1965 with an orientation towards space and defense technologies. This was rigidly controlled and initiated by the government. This was followed by developments in consumer electronics mainly with transistor radios, Black & White TV, Calculators and other audio products. Colour Televisions soon followed. In 1982-a significant year in the history of

television in India - the government allowed thousands of colour TV sets to be imported into the country to coincide with the broadcast of Asian Games in New Delhi, 1985 saw the advent of Computers and Telephone exchanges, which were succeeded by Digital Exchanges in 1988. The period between 1984 and 1990 was the golden period for electronics during which the industry witnessed continuous and rapid growth.

From 1991 onwards, there was first an economic crises triggered by the Gulf War which was followed by political and economic uncertainties within the country. Pressure on the electronics industry remained though growth and developments have continued with digitalization in all sectors, and more recently the trend towards convergence of technologies. After the software boom in mid 1990s India's focus shifted to software, while the hardware sector was treated with indifference by successive governments. Moreover the steep fall in custom tariffs made the hardware sector suddenly vulnerable to international competition. In 1997 the ITA agreement was signed at the WTO where India committed itself to total elimination of all customs duties on IT hardware by 2005. In the subsequent years, a number of companies turned sick and had to be closed down. At the same time companies like Moser Baer, Samtel Colour, Celetronix etc. have made a mark globally. In recent years the electronic industry is growing at a brisk pace. It is currently worth US\$ 32 Billion and according to industry estimates it has the potential to reach US\$ 150 billion by 2010. The largest segment is the consumer electronics segment. While is largest export segment is of components. The electronic industry in India constitutes just 0.7 per cent of the global electronic industry. Hence it is miniscule by international comparison. However the demand in the Indian market is growing rapidly and investments are flowing in to augment manufacturing capacity. The output of the Electronic Hardware Industry in India is worth US\$11.6 Billion at present. India is also an exporter of a vast range of electronic components and products for the following segments:

- Display technologies
- Entertainment electronics
- Optical Storage devices
- Passive components
- Electromechanical components
- Telecom equipment
- Transmission & Signaling equipment

- Semiconductor designing
- Electronic Manufacturing Services (EMS).

This growth has attracted global players to India and leaders like Solectron, Flextronics, Jabil, Nokia and many more have made large investments to access the Indian market. In consumer electronics Korean companies such as LG and Samsung have made commitments by establishing large manufacturing facilities and now enjoy a significant share in the growing market for products such as Televisions, CD/DVD Players, Audio equipment and other entertainment products.

The growth in telecom products demand has been breathtaking and India is adding 3 million mobile phone users every month. With telecom penetration of around 11 per cent, this growth is expected to continue at least over the next decade. Penetration levels in other high growth products are equally high and growth in demand for Computer/ IT products, auto electronics, medical, industrial, as well as consumer electronics is equally brisk. Combined with low penetration levels and the Indian economy growing at an impressive 6.5 per cent per annum, the projection of a US\$150 Billion market is quite realistic and offers an excellent opportunity to electronics players worldwide.

India is well-known for its software prowess. But on the hardware front, the progress is rather slow. However, the country has been making gains in this sector also. Already, 50 Electronics Manufacturing Services (EMS)/Original Design Manufacturers (ODMs) providers are operating in India, ranging from global players including Flextronics and Solectron to indigenous firms including Deltron, TVS Electronics and Sahasra. Further moves by international players are expected to add production in India in the coming years.

India's contract-manufacturing business is expected to nearly triple in revenue over the next five years, a development that will present both opportunities and potential pitfalls for the worldwide electronics supply chain. Revenue generated by Electronics Manufacturing Services (EMS) providers and Original Design Manufacturers (ODMs) in India will expand to \$2.03 billion in 2009, rising at a CAGR of 21 per cent from \$774 million in 2004. Indian EMS/ODM revenue grew by 20.8 per cent to reach \$935 million in 2005.

It is obvious that allure of locating electronics production in India is the nation's low labor costs. Labor costs for conducting electronics manufacturing in India are between 30 to 40 per cent less than in the United States or in Western

Europe. Other equally important benefits from operating in India include a fast-growing domestic market, an excellent education system, the nation's technology parks and the recent improvements in the country's transit and utility infrastructure.

However, the Indian contract-manufacturing industry is not expected to pose a significant threat to China's position as the epicenter of electronics manufacturing in the short term. India's contract manufacturing activities primarily serve the nation's indigenous demand. OEMs primarily outsource manufacturing to cater to the Indian domestic market, although export of Indian-assembled electronic goods does occur. In the longer term, i.e. 2009 onward, it is predicted that India may compete with the Chinese providers in select products as the nation's share of the global electronics market increases. For OEMs, using contract manufacturing services in India can help them penetrate the local market. However, OEMs face specific risks associated with using contract manufacturers in India. Fluid exchange rates combined with volatile oil and component prices lead to unpredictable costs. Changing government policies along with shifting government regimes also contribute to an unpredictable political environment. Doing business in India is often disjointed, with an inefficient bureaucratic system that causes frequent delays. However, for OEMs able to manage these risks, the opportunity in India is significant.

The semiconductor fabrication segment has a small existing base in India with only two fabrication units, which both are developing chips for the defense and strategic sectors. However, semiconductor suppliers are expanding their manufacturing activities in India to serve the growing contract-manufacturing industry in the nation. As evidence of this trend, ground breaking commenced on a 200 mm fabrication unit in Hyderabad operated by Nano-Tech Silicon India Ltd.

Recent trends show that an increasing number of engineering and design activities are also being outsourced to EMS companies and they are becoming ODMs (Original Design manufacturers) and also provide final system integration and logistical support. Some electronics products manufacturing companies have projected that India can target a share of 1 per cent in North America, 2 per cent in Western Europe, 4 per cent of Asia and 5 per cent of Rest of the World of the Electronics Manufacturing Services market. Thus India can target 2.2 per cent of the world-wide electronics EMS market of US\$497 Billion by 2012 which works out to a potential of US\$11 Billion.

Behind the impressive growth of the electronics industry is the robust and consistent growth in Electronic Hardware market of approximately 25 per cent due to a stable economy & large middle class of 350 million people. The fastest growing segments are demand for telecom services particularly cell phones, internet subscribers & growth in demand for it products with increasing penetration of computers, falling prices & Government support to rapidly encourage usage of IT in all sectors. Within next 5 years penetration of telephone users (both landline & mobile) is projected to increase from 100 to 500 per thousand while PC's increase from 10 to 30 plus per thousand. Some of the other factors are:

- Highly talented workforce, especially for design and engineering services with good communication skills.
- Rising labor costs in China.
- Presence of global Electronics Manufacturing Services (EMS) majors in India and their plans for increased investments in India.
- More outsourcing of manufacturing by both Indian and global Original Equipment Manufacturers.

The production trend of different segments mentioned above are briefly discussed below:

Computer Industry

With sound macroeconomic condition and buying sentiment in the market, PC sales touched 7.3 million units during 2009-10. The high growth in PC sales is attributed to increased consumption by Industry verticals such as Telecom, Banking and Financial Services, Manufacturing, Education, Retail and BPO/IT-enabled services as well as major e-Governance initiatives of the Central and State Governments. Significant consumption in the small and medium enterprises and increased PC purchase in smaller towns and cities was witnessed during the year. It is expected that increased Government focus on pan-India deployment of broadband at one of the lowest costs in the world will soon lead to accelerated PC consumption in the home market. The growing domestic IT market has now given impetus to manufacturing in India. The year witnessed not only capacity expansion by the existing players, but also newer investments in hardware manufacturing. India is also high on the agenda of electronics manufacturing services companies.

Control, Instrumentation and Industrial Sector

This is now a matured industry sector in the country at least as far as various application segments is concerned. State-of-art and reliable SCADA, PLC/Data Acquisition systems are being applied across various sections of the process industry. Latest AC drive systems from smaller to very high power levels also find application in large engineering industries like steel plants and/or metal industries. World class UPS systems are being manufactured in the country to cater to the need of the emerging digital economy. However, it appears there is really no manufacturing base in the country for the whole range of the latest test and measuring instruments which are invariably procured from outside. A good number of Indian companies in the control and instrumentation sector are able to acquire orders for export systems through international competitive bidding. However, the creation of knowledge base in the country through industrial R&D in this critical sector has not been improving as desired. There is still lack of needed R&D activities by the industry looking at the global market. On the part of Department of Information Technology some of the latest technology development and applications in this area include Intelligent SCADA Systems for monitoring and control of Mini Hydel plants, Advanced Traffic Control System for urban transportation, Intelligent Power Controllers for improvement of quality of electric power, etc. These systems have been successfully developed and applied in real field conditions.

Consumer Electronics

Consumer electronics (durables) sector continues to be the main stay of the Indian electronic industry contributing about 32 per cent of the total electronic hardware production. By the end of 2009-10, the market for consumer durables (including entertainment electronics, communitarian and IT products) was Rs 190 billion (US \$4.7 billion). The market is expected to grow at 11 to 13 per cent annually and is expected to reach Rs 65 billion (US\$13.6 billion) by 2010. The urban consumer durables market is growing at an annual rate of seven to 10 per cent, the rural durables market is growing at 25 per cent annually. Some high-growth categories within this segment include mobile phones, TVs and music systems.

Communication & Broadcasting Sector

The telecommunication industry has gained tremendous recognition as the key driver for all round development and growth. With about 256 million telephone subscribers (as

on February, 2010) India has emerged as one of the largest in the world and second largest in Asia. The share of private sector in telecom industry has increased to more than 67 per cent and the contribution of mobile telephony has gone up to 66 per cent on December, 2010. Buoyed by the better-than-expected tele-density in 2005 (11.4 per cent against 8.6 per cent in 2008) due to the mobile boom in India, Department of Telecommunications has revised the upwards the target of 22 percent tele-density by 2009. Broadband connectivity is holding tremendous potential in the country. It is expected that the number of broadband subscribers would reach 20 million by 2012. India has emerged as the second largest market for mobile handsets. Following the unprecedented growth in the mobile market, a number of companies are planning to set up production base for mobile hand sets in the country for meeting local as well as export markets. Direct to Home (DTH) broadcast service has gained more and more popularity during 2005. DTH service is available through National Broadcaster and private DTH service provider. Better quality digital broadcast reception is now available almost everywhere in the country to the common people on their TV sets through the use of small dish antenna and a Set-Top Box (STB).

Strategic Electronics

Though the government has started the process of getting private sector involved in the production of strategic electronics equipments, the private involvement is at its nascent stage. The estimated market for strategic electronics in India during 2007-08 was Rs.36 billion and 95 per cent of this was done by the public sector unit Bharat Electronics Limited (BEL).

Electronic Components

The total production of components was estimated at Rs. 88 billion during 2007-08. The colour picture tube production is likely to be around 11 million, a decline from 11.5 million in the last year. The production of B&W picture tubes declined further due to decreased market for B&W TVs. The components with major share in the export are CD-R, CPTs, PCBs, DVD-R, connectors, semiconductor devices, ferrites, resistors, etc. Significant developments took place during the year in the area of colour picture tubes and colour glass parts. Another CPT manufacturer successfully launched manufacture of pure flat tubes, leading to availability of flat tubes from three indigenous sources. The CPT units continued expansion of capacities to improve further their global competitiveness. Two more lines were commissioned during the year, one for manufacture of large

size flat colour picture tubes and the second for small size. Two more lines are likely to come up next year. Keeping pace with the downward trend in prices of color TVs, the prices of CPTs also fell.

Exports of Electronic Products

During the year 2009-10, electronics and IT exports are estimated to be Rs. 1,231 billion, as compared to Rs. 981.80 billion in 2008-09, showing a phenomenal growth of 27 per cent. The software and services industry continues to show a robust growth and the total value of software and services export are estimated at Rs. 1038 billion (US\$ 24.3 billion) in the year 2009-10, as compared to Rs. 808.70 billion (US\$ 18.9 billion) in the year 2008-09, an increase of 32 per cent in dollar terms and 29 per cent in rupee terms. Major challenges facing the Indian electronic manufacturing market are an infrastructure that needs to be improved at the earliest possibility, easing of foreign investment procedures, which is underway, and a restructured government tariff that now makes domestically manufactured goods more expensive than imported goods with zero tariff. There are also other problems, which are hampering the growth of the Indian electronics industry. Some of them are:

- Lack of World-class infrastructure.
- Lack of clear-cut government policy for the industry.
- Very little expenditure in Research and Development area.
- Power of Marketing not harnessed to the maximum

While the Electronics sector in India is currently small, there are several advantages that India offers that can be effectively leveraged to achieve higher growth. These can be categorized under three heads:

- (a) Manpower;
- (b) Market Demand; and
- (c) Policy and Regulatory Support

Abundant Availability of Man Power

India produces over 600 PhDs, 220,000 engineers, 350,000 non-engineering postgraduates and 3,100,000 other graduates each year. The Indian Institute of Technology (IITs) and The Indian Institute of Management (IIMs) produce graduates and post graduates with best-in class skills and capabilities in technical and management fields. India's capabilities in IT and engineering make it an

attractive location for sourcing engineering services such as Research & Development (R&D) and design.

Competitive Labour Costs

India's cost of skilled labour is among the lowest in the world. For example, average labour rate per employee in the electronics sector is about \$3,000 per year. Labour cost as a percentage of value added is only 21 per cent in India as compared to 23 per cent in China and 30 per cent in Taiwan. Taking advantage of this many MNCs have set up manufacturing bases in India for domestic consumption as well as exports. Many multinational companies in the electronics sector have leveraged India's manpower advantage to grow in the domestic market, as well as source products and services from India. Some of the products manufactured in India are listed below:

(i) **Motorola** : Motorola's Global Telecom Solutions Sector (GTSS) designs, develops, manufactures and supplies infrastructure equipment for wireless communications systems worldwide. GTSS. India operates a "Centre of Excellence" for providing network services for customers in India as well as in the Asia Pacific Region. Motorola India Electronics Ltd. develops software for Motorola's worldwide businesses. Motorola Global Software Group (GSG), the R&D arm is involved in all the major developments of the company. Motorola India's operations are established as a source of software and chip design and as a source of excellent capital for Motorola globally. Motorola's two chip designing units around Delhi and a third one in Hyderabad are 100 per cent export units meeting the company's global requirements.

(ii) **Siemens** : Production cost arbitrage has prompted the company to increase production and hence exports from the Goa factory. Siemens Goa plant is used as a manufacturing hub for catering to the international market. The Goa factory will become the hub for manufacturing X-ray tubes as it can save 30 per cent of the cost.

(iii) **Kodak** : Kodak has a camera manufacturing and assembly plant near Bangalore, which produces over four million units per year. Around 60 -70 per cent of this centre's products are exported to the US, Europe, West Asia and the Far East in 2009.

(iv) **Samsung** : Samsung invested US\$ 11 million in setting up an R&D centre in India. Samsung R&D Centre at Noida helps the company customize its CTV range as per the preference of Indian customers.

(v) **Electrolux** : Electrolux has set up its R&D centre with an investment of US\$ 8.6 million. It is the headquarters of its South Asian Association for Regional Cooperation (SAARC) countries, excluding Sri Lanka. This centre will be the regional hub for developing new technologies and products.

Conclusion :

India has been experiencing a strong growth in the demand of consumer products and durables in recent years, driven by consumer demographic trends. This has facilitated growth in the electronics sector both directly and indirectly. Some of the key trends that have a positive impact on the sector are:

(a) Growing consuming class (defined as people having annual income of US\$ 980 (Rs. 45000 or above) that has greater disposable income and propensity to spend. It has been estimated by NCAER that this group will constitute over 80 per cent of the population of India by 2009-10;

(b) Lifestyle changes such as greater exposure to global trends and increasing affinity for convenience and lifestyle products;

(c) Increasing urbanization, emergence of nuclear double income families;

(d) Low penetration levels of most consumer durables. For example, in 2002, only 66 per cent of middle-income households had a TV set, only 28 per cent of the urban households possessed a refrigerator, while just a little over 15 percent owned an air cooler. Despite a population of more than 1 billion people, only 16 million computers were used in India in March 2006;

(e) Increased government and private industry spending on sectors such as defense and aerospace. The Indian aviation sector, for example, has placed orders for more than 350 aircrafts with a list price of about US\$ 26 billion;

(f) In recognition of India's domestic market potential, Samsung has selected India as one of the top six strategic markets in the world along with the US, China, Russia, Germany and Thailand.

Growth in demand of consumer durables such as CTVs, VCD / MP3 players and PCs directly benefits the sector. Also the demand for products such as automobiles, white goods, air-conditioners, textiles, etc, leads to growth in the

electronics sector as these products contain a significant number of electronic components. At the same time, consumer demand has boosted growth in India's overall manufacturing sector as well, which, in turn, has a positive impact on industrial electronics.

On the whole the domestic market in India is very attractive from the point of view of the electronics sector, and current trends indicate high growth potential for the sector in the future.

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