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# Political Economy of Information Technology Industry in India

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**Abstract**

India's econoic policies have largely been responsible for the slow as well as fast growth of Information Technology industry. Right after independence India followed mixed economy model whereby focus was not only on public sector but there was also strict regulation on private sector. Thus, the term *licence Raj* or *Permit raj* emerged during the pre-liberalization whereby private firms have to go through several governmental procedures to acquire licence for setting up industry. However, post-liberalization, change in economic policy along with change in political leadership, Information technology industry in India began to grow to such an extent that it becomes main one of the main propellers of its economic growth. As such, this article seeks to explore some important aspect on the history of the growth and the political economy of Information Technology industry in India.

**Key words:** Information technology, Economy, Inspector Raj, Liberalization, NASSCOM.

## Introduction

Dedrick and Kraemer (1993) pointed out that Information Technology (IT) is considered one of the fastest spreading technologies in the world in terms of use and production. In the last two decade or so India has emerged as one of the fastest growing economies in the world. Post-1990s India's economic policies witness a shift from state controlled economy to free market and competitive economy. The subsequent result of this is that India has caught the attention of International Multinational IT companies and thus became the prime destination for outsourcing and offshoring of these firms. IT industry has been instrumental in creating the global image of India as a rising economic power and has been one of the most significant contributors in the growth of its economy. Ever since Information Technology has become the driving force for accelerating Indian economy it has become a subject of study most sought after by the academician and scholars both from within and outside the country. This makes it interesting to study the contribution of IT not only from economic perspectives but also from social and political perspectives. The growth and development of Information Technology Industry in India is very well documented in the literature and the intention here is not to reproduce it all over again. But the manner in which India's Information Technology industry steering its economic growth and inspiring other sectors, makes it important to understand and conceptualize it within the larger framework of political economy of the country. Globalization process and liberalization policy initiated by government has shaped the growth of Indian IT industry.

## Information Technology Industry in India

> *"The very backwardness of the country in electronics and the smallness of the size of the present electronics industry could be turned into an asset if early stages in the development of the industry in other countries are bypassed and the industry planned on the basis of the latest ideas and techniques. In no circumstances should India follow step by step the development of the electronics industry in the more advanced countries".* – Report of the Electronic Committee, February 1996.[1]

The above report by the Electronic Committee indicates that India is lagging far behind in the field of electronics industry. Not only this, it also emphasized the need to have highly developed electronic industry in India so as to compete with the more advanced countries. Technology is very much needed and the key driver of development. There are several factors that are responsible both for the growth and hindrance of the development of IT industry in India. As such, this section will highlights those factors responsible for the growth of India's Information Technology- focusing on government policies on IT during pre-liberalization and post liberalization i.e. from independence till 1990 and post liberalization

**Pre-liberalization period 1947 to 1990**

Since independence India has been striving to achieve self-reliance in various different field including electronics and scientific technology. The foundation to the development of technology has been laid even before independence when in 1938 the Indian National Congress set up National Planning Committee (NPC) under the leadership of Nehru. It is during this time that he got in touch with several leading industrialists, entrepreneurs, scientist and academics of the country (J.R.D. Tata, P.C. Mahalanobis, Homi Bhabha, Vikram Sarabhai etc.) to formulate plan for country's development. In order to promote and develop science and technology in the country, right after independence, various department and commission was formed (some of them even before independence) such as Council of Scientific and Industrial Research (CSIR), Atomic Energy Commission (AEC) which later became Bhabha Atomic Research Institute (BARC), Department of Electronic (DOE), Tata Institute of Fundamental Research (TIFR), Indian institute of Science (IISc), India Institute of Technology (IIT) etc. and many other institutional infrastructure.

Nehru realizes the importance of technology in driving country forward. His vision on technology is perceived of three layers. The first layer consists of research and educational institutions. The second layer consists of core technologies governed and directed through technology policies. The third layer is central planning, and the interface between the government and the people (Subramaniam, 2006). Scientific Policy Resolution presented by Nehru in the Lok Sabha on 13 March 1958 present his vision on the development of science and technology in India.

> *"Science and technology can make for deficiencies in raw material by providing substitutes or indeed by providing skills which can be exported in return for raw materials. In industrializing a country, a heavy price has to be paid in importing science and technology in the form of plant and machinery, highly paid personal and technical consultants. An early and large scale development of science and technology in the country could, therefore, greatly reduce the drain on capital during the early and critical stages of industrialization"* (Singh, 1988, p. 158).

Despite various initiatives to develop science and technology India still was lagging behind. More emphasis was give to the development of areas like manufacture, power, etc. It was only after subsequent war with China and Pakistan national leaders did take serious note on the development of technology. Indian army was not only defeated by China but they also face lacked and shortage in electronic and communication equipment (Sharma, 2009; Subramaniam, 2006; Mathur, 2006). Defeat at the hands of China and curbing of electronic equipment import by United State (since India was an ally of Soviet Union) made India to indigenously develop its own communication and electronic equipment. As a result Electronic committee was set up under the under the chairmanship of Homi Bhabha in November 1965. The resolution setting committee said, "Electronics is the nervous system of modern technology and has assume an important role in monitoring and controlling the production process in engineering, chemical and metallurgical

industries. It is vital not only for atomic energy but also in communication and defense" (Electronic Committee Report, 1966, p.4). The committee submitted series of interim report over the period of time till the time of its submitting in December 1966. "The report basically laid out the blueprint for the development of an indigenous electronic industry based on research and development, design, training and select foreign inputs" (Sharma, 2009, p.50).

The government of India followed the policy of self-reliance and promotion of domestic computer technology in the 1960s and 1970s. As such Electronics Corporation of India Limited (ECIL) was established under the Department of Atomic Energy on 11th April 1967 with a view to generate a strong indigenous capability in the field of electronics technology and also to develop and market computers using primarily components made in India.[2]

However, in February 1970 the government scrapped Electronics Committee (EC) and replaced it with Electronics Commission and the Department of Electronic (DOE) on 26th June 1970. The EC and DOE, thus, "became the apex policy and implementation bodies responsible for all the aspects of electronics and computer in India" (Subramaniam, 2006, p. 36). M.G.K.Menon, a physicist and earlier director of TIFR became the first chairman of the Electronics Commission and secretary of DOE. "With Menon in charge of the new institutions, control of electronics policy making in the country effectively shifted from the Defence Ministry to the scientific community, most of who were drawn from the atomic energy program" (Parthasarathy, 2004, p.6). With the authority and responsibility given the new Electronics Commission and DOE set up Santa Cruz Electronics Export Processing Zone (SEEPZ) providing incentives (such as tax break, cheap land, duty free import on inputs etc.) to both foreign and Indian investor to establish and export base in India.

For almost four decade since independence all permits, authorization and licenses issued for import of technology were under the control of DOE. As such this period became to referred as "*License Raj*" or "*Permit Raj*" or some called it "*Inspector Raj*"[3]. As such, it is often believed that "India's decision to have a planned economy or the state controlled economy gave birth to the License Raj. Here licenses were given only to a select few, not only this up to 80 government agencies had to be satisfied by private companies, before the production of which was to come under government regulation".[4] This proves to be a hindrance for the growth of IT industry in India because most of the time authority was concentrated on few government officials as such decision making and multiple layer of processing application delayed the implementation of policies.[5] India's policy on indigenization and self-sufficiency in electronics and technology put forth that all computer system and their component were to be developed indigenously and technology imports were strictly curtailed through the imposition of high import duties. As such, "Foreign companies were required to follow stringent rule (Foreign Exchange Regulation Act or FERA[6]) limiting their ownership to 40 percent" (Subramaniam, 2006, p. 36).

Another drawback of the monopoly policy followed by the government it has led to the exit of foreign companies from the country. For instance International Business Machines Corporation (IBM) closed its operation in India in 1978 because it does not want to reduce its equity shares to 40 percent (Subramaniam, 2006; Sharma, 2009). IBM began its operation in India way back in 1951 in Calcutta through its subsidiary IBM World Trade Corporation (IBM WTC). Subramaniam, (2006) is of the view that despite its exist from the country "the presence of IBM had bought in ideas and process for greater efficiency, and a talent, well trained and quality-minded sales and maintenance force" (p. 37). IBM has a huge success ever since in came to in India in late 1951. During the time there was little or no competition IBM faced. Thus, Sharma (2009) says that "The only competition came in the mid 1960s when International Computers Limited (ICL) began its manufacturing operation in India" (p.84). IBM accounts for over 70% of all computers installed

in India from 1960-72. However, IBM operation in India faced several controversies and allegation both by government and other industries. For instances old and discarded machines were brought in from the US and other market; they were stripped to the base; all parts were tested; whatever was unusable was thrown away; whatever was reasonably good and repairable was repaired; and was rebuilt (Ibid. p. 81).

The report of Public Accounts Committee also came as blow to IBM. It concluded that:

> *"IBM, with its near-monopoly position in India, has defrauded the country of enormous revenues by resorting to various unfair practices like transfer pricing under the grab of inter-company billing system, misuse of import entitlements, exaggerated claims of drawback, underpayment of excise duty, exaggerate claims of depreciation, development rebate, head office expenses, etc. All these practices have enabled them to reap high profits at the cost of the exchequer as well as the technological development of country"* (Public Account Committee Report 1973-74. P. 243).

Despite various policies and measures initiated by the government to develop computers technology in India somehow it was not very successful due to several reason. Among them are strict regulation and control on foreign import technology, corruption in government offices, lengthy official procedure, etc. Subramanian (2006) noted that "India was confine to 'dark age' when it comes to technology development, despite having a very bright cadre of scientist, researcher, engineers and entrepreneurs" (Ibid. p.37). The policy of indigenization and self-sufficiency followed during the 1960s and 1970s is a policy with dead end because while trying to promote indigenous technology, government curb import of technology forgetting that without importing technology from outside, domestic technology won't develop due to the fact that Indian technology is still in its infant stage.

By late 1970s and 1980s Indian leader began to notice that the restrictive policy it has been pursuing is not doing any good for the cause of the development of science and technology in the country. Changes began to take places slowly and gradually from late 1970s onward. In 1982 New Computer Policy is being formulated where in over 80 companies were granted manufacturing licenses for minicomputers. New computer policy was announced by Rajiv Gandhi the then Prime Minister of India (after the assassination of Indira Gandhi) in 18 November 1984. Rajiv Gandhi himself was fond of technology. He was among the first Indian to own a Sony compact disc player besides having two Toshiba laptops (Nugent, 1990, pp. 40-41 and 67).

New Computer Policy, introduced in 1984, laid the foundation for the development of new era especially in Information technology Industry in India. It has changed the face of Indian IT industry. The policy achieved one of its basic objectives which was to "simplify existing procedures to enable users to obtain computers of their requirements either from indigenous sources or from overseas sources, mainly regulates through fiscal measures" (New Computer Policy, 1984, pp. 89-94 ).

Subsequently Computer Software Export, Development and Training Policy was announced on 18 December 1986 so as to increase India's share in world software market by maximizing software export and at the same time promoting domestic software industry. "The key feature of the policy was "flood in, flood out" whereby Indian firm were to be provided with latest software and technology to enhance international competitiveness and have higher export value-added content" (Parthasarathy, 2004; Dedrick and Kraemer, 1993). Following this licensing requirement was removed on software imports and also the import duty was reduced to 60% under this policy. This was further reduced to 25% in

1990 for computers and software used by software producers. Furthermore, a 100% tax exemption was extended to profits from software export and the double taxation of software imports was eliminated (Dedrick and Kraemer, 1993, p.480). As a result of these measures India's software industry began to grow. Table no.1 presents how Indian software export grew between 1980 to 1990.

**Table no.1. Indian software export 1980-1990**

| Year | Software Export (US$ million) | Annual growth rate (%) |
|---|---|---|
| 1980 | 3 | |
| 1981 | 4 | 33 |
| 1982 | 10 | 150 |
| 1983 | 17 | 70 |
| 1984 | 22 | 29 |
| 1985 | 28 | 27 |
| 1986 | 38 | 36 |
| 1987 | 53 | 39 |
| 1988 | 71 | 34 |
| 1989 | 98 | 38 |
| 1990 | 128 | 31 |

Source: Department of Electronics publication and NASSCOM.

An important landmark in the history of Indian Information Technology take place in 1988 with the formation of National Association of Software and Service Companies (NASSCOM), "a software industry trade association to promote its interest and also to provide much needed marketing support" (Subramaniam, 2006, p. 39). It guide government in formulating policies that are needed to promote the information technology industry and also acts as a consulting body for various state governments. The various policies measures introduced in the 1980s have sowed the seed of liberalization.

**Post-liberalization**

Beginning 1990s there was massive change in the Information Technology industry in India. The process of liberalization began under the Prime Ministership of P.V. Narasimha Rao. An important landmark initiated for the development of Information and technology in India was setting up of Software Technology Park of India (STPI) on 5$^{th}$ June 1991 under the Department of Electronics & Information Technology, Ministry of Communications and Information Technology, Government of India. Software Technology Park of India was thus set up to promote the development and export of computers software, including export of software professional services. It was an effort to overcome hurdles created by bureaucratic procedure. STPI is a bonus for IT industry in India. Some of its key features are IT firms are allowed to import equipment without import license or pay import duty. Similarly, there is an exempt from excise duty with equipment purchased from the domestic market (Parthasarathy, 2004 and Murali Kallummal, 2012). The objectives of the STPI are:

1. To promote the development and export of software and software services including Information Technology (IT) enabled services/ Bio- IT.
2. To provide statutory and other promotional services to the exporters by implementing Software Technology Parks (STP)/ Electronics and Hardware Technology Parks (EHTP) Schemes and other such schemes which may be formulated and entrusted by the Government from time to time.

3. To provide data communication services including value added services to IT / IT enabled Services (ITES) related industries.
4. To promote micro, small and medium entrepreneurs by creating conducive environment for entrepreneurship in the field of IT/ITES.[7]

Furthermore, New Industrial Policy (NIP) was announced on 24 July 1991. "The NIP permitted Foreign Direct Investment in virtually all sectors of economy and substantially loosened licensing to ease entry barriers for new firm" (Parthasarathy, 2004, p.21). Liberalization policy have brought down the tariff on software import and eventually helped the rapid growth of software industry in India. As a result domestic software industry began to emerged and gain profit immediately. Some domestic software companies that take this advantage and grew into prominence are WIPRO (1945), TCS (1969), Pani Computer System (1976), HCL (1976), Tech Mahindra (1986), Satyam Computers (1987) etc.

In the aftermath liberalization numerous concession were granted to the software companies. For instances, import duty on computer that are use for software export was abolished and also earning ten year tax free were made free on export earning of software companies. Here N.R.Narayana Murthy (2011) (co-founder of INFOSYS company in 1981 with six of his colleagues), view on government policies towards IT sector is worth mentioning. According to him four key policy changes significantly altered the business environment of Indian IT industry. They were:

1. Making Indian rupees convertible to foreign currency. This allowed Indian companies in obtaining foreign exchange for opening offices, hiring employees abroad and hire foreign consultants for branding and marketing.
2. Abolition of the office of the Controller of Capital Issues which had earlier made it extremely difficult for companies to raise capital through Initial Public Offers (IPOs). This has allows entrepreneurs and investors freedom to set market related prices for share offerings. Many software companies floated IPOs.
3. Allowing foreign IT companies 100 per cent ownership of their Indian subsidiaries. As a result of this many major international corporation opened office in India thus benefiting Indian software professionals as it create employment opportunity.
4. Import duty on software product came down to zero. (Ibid. pp.157-158)

Another important landmark in the area of information technology sector in India is that the National Telecommunication Policy of 1994 allowed private companies to enter the telecommunication business. This policy had a far reaching impact particularly in the field of mobile communication. Not only this, the government also permitted private software companies to have dedicated satellite links with their overseas customers.[8]

With the changes in the government at the centre and also coupling with changes in policies there was a sudden spurt in activities of Indian software companies – "export earning which was around USD 128 million during 1990-1991 went up to around USD 1.76 billion in 1997-1998, averaging a growth of 45% annually" (Bhatnagar, 2006). According to NASSCOM during the FY 2013 software export stands at USD 75 billion an increase of 10 percent over the last fiscal year. For the current financial year 2015-16 the sectors exports is estimated to around USD 112 billion, which is an increase by 12 percent over the last 12 month.

In order to make India an Information Technology superpower and one of the largest generators and exporters of software in the world within ten years a high powered National Task Force on IT and Software Development was set up by the Prime Minister's Office on May 22, 1998, under the Chairmanship of the Deputy Chairman of Planning Commission. This taskforce has mandate to formulate the draft of a National Informatics Policy. The task force has given several recommendations to the government, some such are:

- The monopoly of the VSNL on International Gateway for INTERNET shall be withdrawn and replace by an authorized public/government organization.
- IT Software shall be entitled for zero customs duty and zero excise duty.
- Allowing Public Call Offices to provide Internet services to the public in addition to telecommunication services.
- Expanding the definition of IT to include IT enabled Services (ITeS) and BPO besides software development.
- Setting up a National Council on IT education to improve education standards and creating a pool of good educators.
- The setting up of **Indian Institutes of Information Technology (IIIT)** shall be implemented with urgency to make up for the lost time. Hi-tech institutions like the Indian Institute of Information Technology (IIIT) will be given the Deemed University status without insisting upon the mandatory three-year stipulation.[9]

It is worth mentioning that most of the recommendations made by the task force have been implemented immediately.

In 2005, the Department of Commerce, Ministry of Commerce & Industry, Government of India has enacted the Special Economic Zone (SEZ) Act which came into effect on 10th February, 2006. SEZ is defined as a "specifically demarked duty-free enclave and shall deemed to be foreign territory (out of Customs jurisdiction) for the purpose of trade operations and duties and tariffs"[10]. It provides drastic simplification of procedures and a single window clearance policy on matters relating to central and state governments. The scheme is ideal for bigger Industries and has a significant impact on future Exports and employment

The SEZ policy aims at creating competitive, convenient and integrated Zones offering World class infrastructure, utilities and services for globally oriented businesses. The SEZ Act 2005 envisages key role for the State Governments in Export Promotion and creation of related infrastructure. Salient features of SEZ scheme are as under:

- Duty free import/domestic procurement of goods for development, operation and maintenance of SEZ units.
- 100% Income Tax exemption on export profits available to SEZ units for 5 years, 50% for next 5 years and 50% of ploughed back profits for 5 years thereafter.
- Exemption from Central seal Tax.
- Exemption from Service Tax.
- Single window clearance for Central and State level approval.[11]

Industries in general and Information Technology industry in particular has been greatly benefited by SEZ. By 2007 two hundred and fifty seven software/service companies were set up in SEZ.[12] Change in various policies with regard to IT has been responsible for the birth of several multinational software companies from within India where in some of them have even been listed in overseas stock exchanges. These companies even expand their base outside of India with

over 400 delivery centres in 52 countries. In 1998 the export earning of Indian IT companies was USD 2 Billion however, by 2010 it grew to USD 50 Billion and by 2014 it was estimated at USD 86 billion.[13]

Two most important IT sector in India are Information Technology services and Business Processing Organization (BPO). Its relative share in national Gross Domestic Product (GDP) is 9.5% for the FY2015. In a written reply to Rajya Sabha Communication and IT Minister Ravi Shankar Parsad said, quoting industry body NASSCOM data, "the export revenue of the industry is estimated at USD 80.6 billion during 2013-14 fiscal against 75.8 billion in 2012-13 fiscal, registering an increase of 13.1 per cent".[14] According to NASSCOM Indian IT-BPM revenues stands at US$ 118 billion in FY2014 witnessing an increase in 13 percent compared to last financial year adding another US$ 10 billion.

**Table no. 2. Indian IT-BPM revenues**

| Year | USD Billion |
|---|---|
| FY2009 | 68 |
| FY2013 | 109 |
| FY2014 | 118 |

Source- NASSOM.

Not only this, the sector is the biggest private sector employer. India's IT-BPM sector employs about 5.5 million people, of which 3.5 million are direct employees. Announcing the findings of an HR survey, NASSCOM said "the Indian IT-BPM industry will increase its net hiring by approximately six per cent over last year".[15] According to Communication and IT Minister Ravi Shankar Parsad "2.45 lakh IT professionals are working for international markets, while 6,80,000 professionals are employed in the country".[16]

**Conclusion**

Right after independence the leaders of the country recognized the need to develop science and technology sector so as to move forward. The country followed a policy of self-sufficiency in almost every sector. It has been clear that India's policy towards technology has been greatly responsible both for slow growth as well as fast growth rate of its Information Technology sector. Various measures and policy were initiated right after independence towards the development of information and technology however, those initiatives were half-heartedly implemented. Pre-liberalization India witness a restrictive regulator policy towards the import of technology. This is one of the main hindrances responsible for the slow growth in IT industry in India. As such, scholars cutting across have criticized the strict licensing policy followed by Indian state. Not only this, yet another reason responsible for slow growth of IT sector is the socialist model of economy followed by earlier leaders whereby not only there was restriction on import of foreign technology but also there was strict monitoring on private companies from the government.

However, post-liberalization presents a different scenario in the history of information technology industry in India. Shift in economic policy coupling with political backing has brought changes in the face of Information Technology Industry in India. The result is IT industry in India began to grow and expand. The reforms carried out within policy making institution such as Department of Electronics also play a crucial role in the development IT sector. State having constant dialogue with industries and initiating Software Technology Park has creates easiness and trust for investment.

Despite its criticism, state monitoring and regulating over electronics sector have its own positive side. On the one hand it created industrial infrastructure for electronics manufacturing in the public sector and on the other hand, India's

confidence and its technological dominance in the current time can clearly be attributed to its early policy of self-sufficient and self reliance. Information Technology industry thus, become one of the main propeller of Indian economy not only in terms of economy but also in terms of generating employment.

## Endnotes

[1] The above quote is taken from Dinesh C Sharma, *The long revolution: The Birth and Growth of India's IT Industry*, (New Delhi: HarperCollins, 2009), p. 41

[2] http://www.ecil.co.in/history.html. Accessed on 19th November 2014.

[3] It refers to the elaborate licenses, regulations and accompanying red tape that were required to set up and run businesses in India between 1947 and 1990.

[4]*India economy: A journey of last 65 years*. http://zeenews.india.com/business/slideshow/indian-economy- a-journey-of-last-66-years_68.html/10. Accessed on 22nd January 2015.

[5] For instance C.R. Subramanian (1992) added that Menon, who was heading Electronics Commission and secretary of DOE, was primarily a scientist, and his introspective nature made policy formulation and decision making into tedious, long-drawn process.

[6] The government in 1973 passed the new FERA thus replace the old FERA Act of 1947. Section 29 (2) (a) of the provision state that foreign companies working in India , through their braches and Indian companies in which the non-resident interest was more than 40 percent required to obtain Reserve Bank of India (RBI) approval for continuing their activities.

[7] See http://www.stpi.in/index1.php?langid=1&level=1&sublinkid=201&lid=278. Accessed on 11 December 2014.

[8]For more details on National Telecommunication Policy of 1994 see http://www.trai.gov.in/Content/telecom_policy_1994.aspx

[9] For more details on the recommendation of the task force see IT Action Plan, Part I- Software, Part II- Hardware and Plan III- Long Term National IT Policy at http://it-taskforce.nic.in/index.html. Accessed on 26th February 2015.

[10] http://deity.gov.in/content/export-promotion-schemes-dpl-elec

[11] For more details on SEZ log into http://deity.gov.in/content/export-promotion-schemes-dpl-elec and http://www.sezindia.nic.in/index.asp

[12] *Annual Report 2007-2008*, Department of Commerce, Government of India, New Delhi.

[13] *Annual Report 2009-2010*, and *Annual Report 2013-2014*, Department of Information Technology, Government of India, New Delhi.

[14] Over 3 lakhs Indians working in the IT-ITes sector: Government. *The Economic Times.* PTI Jul 18, 2014, 05.55PM IST. http://articles.economictimes.indiatimes.com/2014-07-18/news/51709041_1_capita-income-professionals-nasscom

[15] Hiring in IT-BPM to go up 6% in 2014: Nasscom. Press Trust of India | Updated On: July 23, 2014 23:42 (IST). http://profit.ndtv.com/news/industries/article-hiring-in-it-bpm-to-go-up-6-per-cent-in-2014-nasscom-592896. Accessed on March 10 2015.

[16] Over 3 lakhs Indians working in the IT-ITes sector: Government. *The Economic Times.* PTI Jul 18, 2014, 05.55PM IST. http://articles.economictimes.indiatimes.com/2014-07-18/news/51709041_1_capita-income-professionals-nasscom. Accessed on November 19th 2014.

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