

THE EVOLUTION AND THE GROWTH OF INFORMATION TECHNOLOGY INDUSTRIES IN INDIA AND THE IMPACT OF INVISIBLE TRANSACTIONS ON I.T EXPORTS

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ABSTRACT

Information Technological industries have changed the image of India in the global arena. Currently, the IT industry has developed to such an extent where it has resulted in many internal and external factors which functioned over a long period of time. This paper is basically dependent on the secondary data and tries to analyse the growth of the development of IT sector in India (S.Annapoorna, 2015) and also the impact of the Invisible Receipts incurred from the exports of Software services, Engineering goods and service exports, and ICT (information and communication technology) service exports on Total exports of Goods and Services.

Keywords: Software services, IT, Growth, Invisible receipts, ICT, Engineering goods, Exports.

1.1 INTRODUCTION

India is a hub for some of the well-known software/IT companies in the world viz. “TCS, Wipro, Infosys, Siemens India, Oracle India”, etc. Across the world these are known for efficiency and business-related solutions. The performances of these companies have added social value and economic growth to the country.

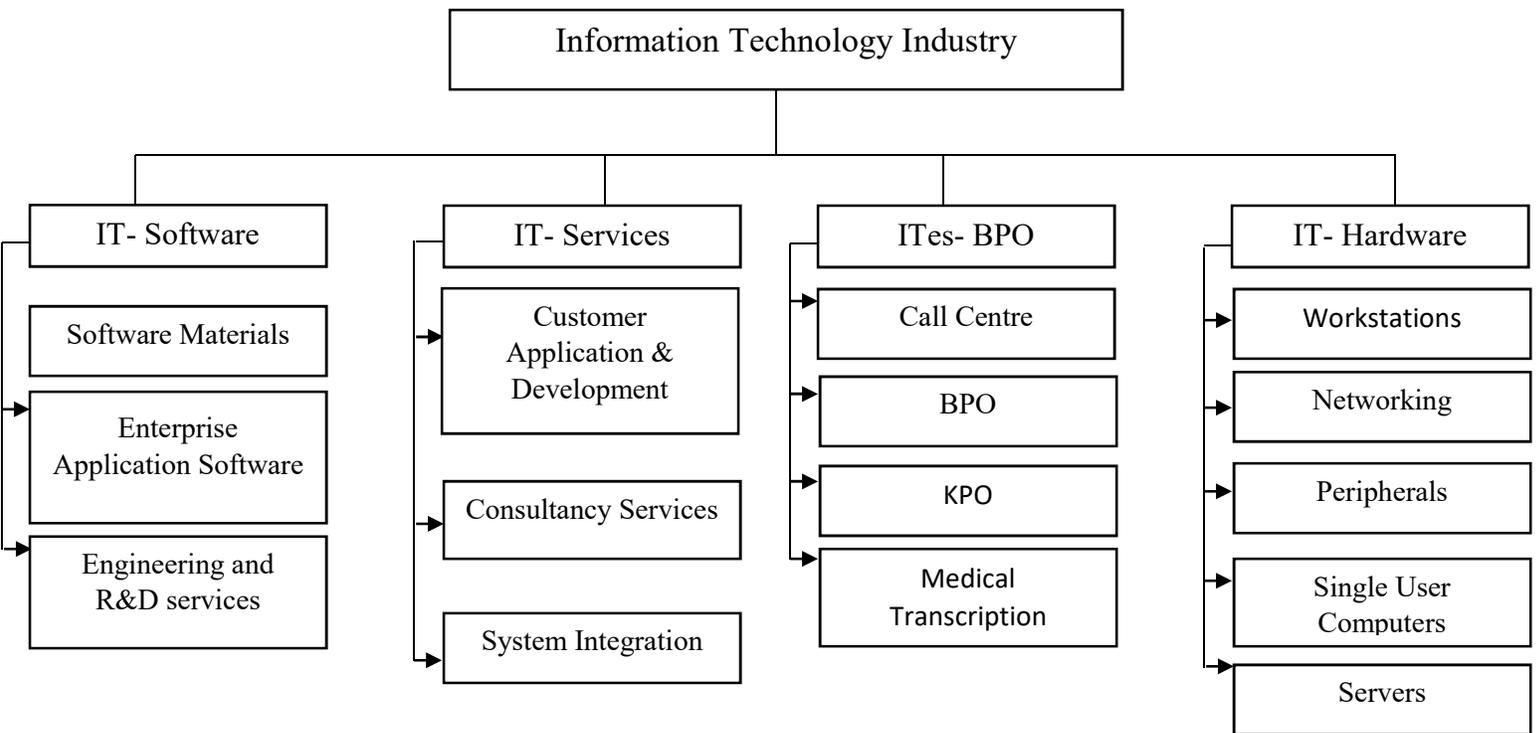
India, the world's largest system or country where leaders are chosen by votes with a population of 1.29 billion, where the people are newly appearing as the best performers in the field of software engineering and development (world, 2018) The IT industry in India has a growth of nearly 70 percent yearly. The techno revolution has brought an enormous and unanticipated opinion in the field of information technology due to which India's software industry was a success. (Rastogi, 2018)

While the Information Technology revolution was started much early with its technological developments, it came into being in the early 1950s. The first computer which made its way into the world of corporates was IBM701, which was the first large computer manufactured by the IBM corporation. After a decade and with a slow pace of growth globally the IT services market earned \$153 billion in the 90s. Since then the trend of growth of IT sector around the world has shown a steady and a stable movement with few adverse years in between (Dr. K. Rangarajan, 2014):

The information technological services have impacted the lives of humans in and out of their workplaces, houses, and many more. According to the reports released by the World Bank, there is a huge adopting process which is happening round the world where people relate to each other through digital services, not only people even the enterprises, and governments too. The ultimate

driver of the growth in the economy and the creation of employment around the world is defined as Digitalization.

There are four major categories and its sub categories under Information Technology in India, which is shown dramatically below:



IT Software: Software products are the ones which are vastly exported from India. The production of software in India was started during the 1970s and grew to a greater height in the past five decades. “The revenue generated from the software product segments currently stands at US \$5.2 billion dollars and is expected to increase to US \$5.8 billion dollars by the end of the year 2018.” (Statista, 2018)

“Despite the global crisis during 2009, the IT industries in India is growing steadily to the upward direction. When the whole world perceived negative growth, the IT industries of India managed to incur a growth of 5.5%.” (Sarawgi, 2010).

Many of us will not even have an idea of what invisible receipts are and what are its uses in the Indian economy? Well Invisible receipts in simple terminology are nothing but trade receipts earned out of the exports of services provided by one country to another, in other words, it is the income earned for the services provided in the form of an export. In a broad sense, these are the business transactions which happens with no exchange of tangible goods. It involves the transfer of intangible goods and services, like telecommunication services, software services, patents, intellectual property and so on. The goods or the services involved in an invisible trade are related with a value and can be traded for tangible goods. “These invisibles are also called as transfer payments or remittances and includes the money remitted from other countries to home country by an individual, business, government, and also by Non-Government Organizations.”

In this paper, the author is talking about the growth of the software industries India as his primary objective and the secondary being that, as there is a boom in exporting software services compared to other products such as engineering goods, ICT services, and so on, software service exports are more which is in-turn helping in the rise of trade receipts received from other nations for the services provided. In short, the author is trying to explain the impact on the total exports of goods and services, due to the rise of the invisible receipts in different sectors of IT exports.

1.2 LITERATURE REVIEW

As service exports are increasing in India, vis-à-vis the trade receipts are also rising. The paper basically is about the rise of invisible receipts due to the rapid increase in exports of software

services, and including the growth and evolution of the software industries in India. As India carries across the software and IT services for over more than 100 nations (Hindu, 2001). Exports of software services helped in an obvious way in providing clear flexibility.

From past several years, it was a mystery that while exports of software were rising, in the balance of payment statistics it was found that the foreign exchange earnings were not recorded. During the 1990s (Hindu, 2001) India's BOP stats on 'invisible receipts' under which the revenue from software was classified and was showing a stronger growth. It was these trade receipts which were mainly responsible for the relatively vigorous FOREX situation during the past decade. (Hindu, 2001).

However, the receipts from Invisibles, which covered 60 to 70 percent (Hindu, 2001) of the trade shortage, appeared to have been driven mostly by payments from Indians working in other countries and the effect of software exports was not easily visible. This is no longer the case. The latest and detailed RBI data on Invisibles show that net receipts from software exports last year contributed close to 25 percent of the net surplus in invisible (RBI, 2009).

“The major strengths of Indian invisible export or invisible trade include professional competence, low-cost structure, diverse capabilities, high adaptability and a quick learning capability of Indian consultants. The major weaknesses of Indian invisible trade or invisible export include low-quality assurance, low local presence overseas, low equity base, lack of market intelligence and low level of R&”.(Financial Express, 2018)

In India, the export sector dominated majorly by software industries and constitute about 77% of the overall revenues incurred by the industry sector. Though the software industry is export driven, the local markets are also significant with a strong growth in revenue.

“During the Financial year 2017-2018, the market size of the IT service sector had a share of 55.2% in India’s Gross Value Added (GVA) and a US\$ 75 billion which continued to be the main objective in the growth of economic growth of India gaining almost 72.5% of GVA growth in the FY 2017-18, as stated in the Economic Survey of FY 2017-18, initiated by the Parliament by the Union Minister for Finance and Corporate Affairs, Mr. Arun Jaitley, under Prime Minister honourable Mr. Narendra Modi.” (Times New Network, 2011).

Nearly 81% of the revenue generated in the IT sector comes from the export market or through the exports of software services. While the growth of the IT service sector is expected to be at 8.3% in the FY2017-18, and the exports of services robust at 16.2% in the H1 of FY2017-2018. Looking at the growth of the FY 2017-18, with a massive success and achievement made by the government, India has outnumbered not only China but also the rest of the world also. India’s service export, which was previously in the race with China and the rest of the world in terms of annual growth rate of FY2015, clearly outnumbered them in terms of annual growth. (IBEF, IT & ITeS, 2017).

During the FY2011-12, India has outpaced China and rest of the world after China had observed a steep decline possibly due to the 2008 Financial crisis. (IBEF, IT & ITeS, 2017). The exports of service took over the country after the FY2012 as the country could not maintain its status for keeping up that level.

After 2013, India came near an equal level with China until 2015, when it started outnumbering both China and rest of the world, where the exports of service had a strong growth of 16.2% during FY2017-2018, with a turnaround in most of the major industrial sectors such as travel and software services. (Shamshad Akhtar, 2016).

Moreover, the Ministry of Finance in its Economic Survey of 2017-2018 projected that India's service exports are going to gain progress further in 2018-19. "Good performers of sub-sectors like Tourism, Aviation, and Telecom, robust service trade performance with even growth of major services like software returning to positive territory." (Niharika, 2018).

Also, the economic survey of 2018, stated that India has remained in the top 10 list of largest exporters of commercial services in the world in the FY2016 with a share amounting to 3.4%. Where the share of India's was double than that of the total merchandise exports of the world that is 1.7%. During the FY 2016-17, the exports of service sector recorded a growth of 5.7%. And during the April- September of the FY 2017-2018, the growth of the service exports and imports gave a strong growth of 16.2%. Where the net service receipts increased to 14.6% during the FY2017-18. And 49% of the deficit in India's merchandise during the H1 of FY2017-18 on the net surplus in the services exported. (Niharika, 2018).

During the gap of 11 months that is from April 2017 to February 2018 India's exports of services had a rapid growth of 17.6% even when the deficits in imports is a huge challenge for India to overcome it. This data shows a very rough correlation between the performance in the export and in the standard of living of the states. As the survey found that, the States that export overseas and trade with other states have been found to be wealthier. (Niharika, 2018).

1.3 RESEARCH PROBLEM

Due to the rapid increase in exports of software services and Engineering goods and ICT services, the trade receipts are increasing rapidly, and currently, exports are more when compared to the total import percent, resulting in the imbalance of BOP. So, the paper tries to

find the impact of invisible receipts received from exports of IT on the Total exports of goods and services.

1.4 OBJECTIVES

- 1) To examine the growth of information technology (IT) industries, and its exports in India. (by using trend values).
- 2) To find the Impact of invisible receipts of the exports of software services on total exports of goods and services using invisible receipts' values.

1.5 RESEARCH METHODOLOGY

1.5.1 SOURCE OF DATA:

Current study is descriptive in nature. The secondary data was used from journals, newspapers, and other published sources, such as NASSCOM, IMF, RBI, ICAI and India Stat websites.

1.5.2 RESEARCH TOOLS

Multiple regression model was used to analyse the data with help of EViews version 9.5. Four variables were identified and analysed, dependent variable being Invisibles from Total Exports of Goods and Services and the independent variables are Invisibles incurred from Software exports, ICT service exports, Engineering goods exports. Before running regression, stationarity was tested. Trend analysis using the values of all the four variables invisible receipts retrieved from the India-stat website was done using Excel (2016).

1.6 Analysis:

1.6.1 OVERVIEW OF THE GROWTH OF INFORMATION TECHNOLOGY (IT) INDUSTRIES AND I.T EXPORTS IN INDIA.

The IT industry in India was born in Mumbai in 1967, along with the establishment of the Tata group partnered with the Burroughs (Bijoy, 2007) corporation of the USA. It was the first software economic zone or the SEZ in the country also known as the progenitor of the modern IT parks which was established during 1973 in Mumbai. Nearly 80% of the country's software exports were originated from the Santacruz Electronics Export Processing Zone (SEEPZ) during the 80s (Tholons, 2009). During 1991-2002, the economy of India underwent a major reform which paved a way for the new era of international economic integration and globalization and the annual economic growth was around 6%. When Late Sri Atal Bihari Vajpayee took-over the position of the Prime minister of India during 1998-2004, had formed and started the Indian National Task Force on Information Technology and Software Development and had positioned the early development of information technology among its top five primacies.

Talking about the communication technology, the VSNL i.e., The Videsh Sanchar Nigam Limited founded in 1986 (Adugu, et al., 2003). Started as a wholesale provider for services of tele-communication in India, its growth is to such an extent where currently it is one-of the largest tele-communications service providers in the world. Presently known as Tata Communication is a global provider of services and solutions for tele-communications. The customers of Tata Communications include more than 2000 service providers and enterprises in more than 240 countries, including many of the world's largest corporations. According to world blaze, Tata Communication is one of the largest tele-communication providers in the country, with a revenue of ₹18,913 crore and ₹1,230 crores as its net revenue as of the FY2017 (Wikipedia, 2012).

“STPI i.e., Software Technology Parks of India, a society established during 1991 by the Indian Ministry of Electronics and Information Technology with an objective of encouraging,

promoting and boosting software exports from the country. STPI was established to maintain the internal engineering resources where the latter provides consulting, training and implementation services.

STPI was meant for export-oriented scheme which was established for the development and exporting of computer software, including exports of professional services. Today, Software Technology Parks of India across over the country are synonymous with excellent Infrastructure and Statutory support aimed at furthering the growth of Information Technology in the country.” (STPI, n.d.)

“The STPI has played a major role in developing the information technology giant in India. During the FY2016-17 the exports from India were USD \$117 billion and 8% growth in industry revenue touching USD \$154 billion from USD \$143 billion in FY2015-16” (STPI G. c., 2016-17). According to the survey conducted by the STPI, Karnataka followed by Maharashtra, Tamil Nadu, Kerala and Telangana are the largest exporter of I.T products in the country. STPI has its presence in major cities of India. (STPI, n.d.) The centres of the Software Technology Parks of India also provide various services, which includes high-speed data-communication, data-centres, and hosting and so on. Also provides a physical holding for the National Internet Exchange of India. (STPI, n.d.)

During the FY from 2010 to 2017, the software industry has matured across 5 dimensions which is traditional custom built and package software, engineering services, business process management and infrastructure, product development and global in-house centres of large corporations. And apart from these, many entrepreneurial companies have made an early move to a partnership with their clients through using their digital and e-commerce journeys. (Natarajan, 2018)

The IT segment has now become one of the most remarkable growth substances for the economy of our country, where the IT sector contributes nearly 9.3% in the country's GDP and public welfare. "According to the reports from Ministry of Electronics and Information Technology, India has captured a substantial portion of the global technology sourcing business. The share of India's IT industry in the global technology market is nearly 7% and the growth has largely been made largely by the exports of Information Technologies." (ME&IT, 2017) A survey conducted by MEITY, an Initiative by The Government of India showed that 56% firms around the globe use India for testing services before taking software products.

As the Information Technology industries grew, the government of India initiated many policies such as **(a)** Special Economic Zones (SEZs) Policy: Rules and Regulations made for the SEZ zones, "With a view to overcome the shortcomings experienced on account of the multiplicity of controls and clearances; absence of world-class infrastructure, and an unstable fiscal regime and with a view to attract larger foreign investments in India, the Special Economic Zones (SEZs) Policy was announced in April 2000" (India, 2018); **(b)** National e-Governance Plan (NeGP): is an initiative made by the government of India to make all the government services available to the public through social and e-media. "This was articulated by the Department of Electronics and Information Technology (DEITY) with the help of Department of Administrative Reforms and Public Grievances" (Wikipedia, National e-Governance Plan, 2018). **(c)** National Cyber security policy-2013: This was articulated by the Department of Electronics and Information Technology (DEITY) which aims at protecting the privacy of the public and private infrastructure from the cyber-attacks. The mission statement of National Cyber security is, "To protect the information infrastructure in cyberspace, build capabilities to prevent and respond to cyber threats, reduce vulnerabilities and minimize damage from cyber incidents through a

combination of institutional structures, people, processes, technology and cooperation.” (M.C.I.T, 2013). **(d) Artificial Intelligent Task Force:** Constituted by the Ministry of Commerce and Industry, Government of India for the creation of policies and legal frameworks to accelerate deployment of Artificial Intelligence technologies, this focuses on Fintech, Healthcare, Intelligent automation, Aid for differently abled, enablers for Artificial Intelligent Technology Entrepreneurship etc.,

NASSCOM an association, setup by government of India during 1988, is the trade association of Indian information technology and business process outsourcing industry. As the name says NASSCOM which is “National Association of Software and Services Companies”. This consists of an “international trade build with over 2000 members, of which over 250 companies spanned across the countries such as EU, Japan, China, U.S. and UK. NASSCOMs members are into building or development software for businesses, software services, software products, IT enabled/BPO services and Ecommerce” (NASSCOM, 2007).

Speaking about the history and the evolution of the IT industry in India there were four main stages in the growth of the IT industries in Indian history, which are as follows:

“Stage 1: Before the 1980s

The term software was a new word to many Indians until late 1960s. The software used in the computer systems were in-built until then. During that time to protect such hardware industries the government had imposed high tariff barriers and authorisation. Nevertheless, in the western countries the wants of software growth was not adequate to perform all kinds of operations as they were used as in-built in systems. Hence, watching over these developments in the west, the

Government of India understood that there is a possibility in receiving more foreign exchange reserves.

During the year 1972, the central government articulated a new scheme on exports of Software services. This scheme made the facility for importing of hardware products in exchange of exports of software services and its materials. In India, the Tata Consultancy Service became the first company to approve and initiate this scheme of plan.

Stage 2: During 1980-1990

After many initiatives made by the government of India, the growth of software exports was not in good shape mainly because of (a) the exports of software services and materials were majorly dependent on the hardware product imports which made exporters and importers to spend more and the procedures to obtain the same were very difficult (b) The infrastructure facilities for the development of software were lacking.

To overcome these, the Government of India formed a new policy that is New Computer Policy in the year 1984, which made the import process more simplified and decreased import tariffs on hardware for the developers of software. This was made to make the software industry autonomous from the hardware industries. During 1986, the Government of India furthermore formulated the policies for Software industries which liberalized the Information Technological industries. The hardware industries in the country were de-authorized and were also made tax free for exporters. Alongside to this initiative by the government of India, the entry barriers for hardware prices substantially decreased.

Stage 3: From 1990 – 2000

During the start of 90s, the Indian Government established Software technological parks round the country. The first software technology park in India was the STPI-B in Bangalore, Karnataka in 1990. This scheme was formed to increase the growth in the exports of IT products and services from India.

During this decade, the government had made many changes which were significant to the country's economy, which included liberalization of trade, allowing foreign investments into the country's economy, deflation of rupee and simplifying the process of entry barriers. Due to these changes many foreign entities were attracted towards the country. Overseas firms introduced an “offshore model” for the services of Software. This initiative helps the MNCs to service their clients from India. This model was later named as Global Delivery Model (GDM) (Wajahath Khan, 2018). This GDM is the mixture of the offshore model and on-site model. Under GDM the offshore model is situated at several location round the globe.

Stage 4: After 2000 (21st Century)

Global hitches like the Y2K bug or the Year 2000 Problem, “also known as the millennium bug, these are the bugs related to the formatting and storage of calendar data for dates beginning in the year 2000. Problems were anticipated, and arose, because many programs represented four-digit years with only the final two digits — making the year 2000 indistinguishable from 1900.” (Wikipedia, 2015). Also, the crash of DOTCOM and the recession in the USA's economy, proved to be an advantage to IT industries in India. This bug or the problem which rose during the start of this century demanded the prevailing software companies to be compatible to the year 2000. Many mid-sized companies were forced to use the services of Indian companies as there

was a shortage of the US based programmers during that period. Due to this reason the IT industries of India was placed as one of the top firms in the map.

After 2004, I.T industries had shown a strong rate in its growth because of the rise in the number of clients, contracts and strong global delivery model.” (Sarawgi, 2010)

Some of the major I.T hubs in India are in:

- Bangalore
- Hyderabad
- NCR-Delhi
- Kolkata
- Mumbai
- Pune
- Chennai

The advantage that these cities provide for I.T hubs are:

1. Higher savings in administration
2. Less infrastructural costs
3. A pool of talented people in the form of skilled professionals

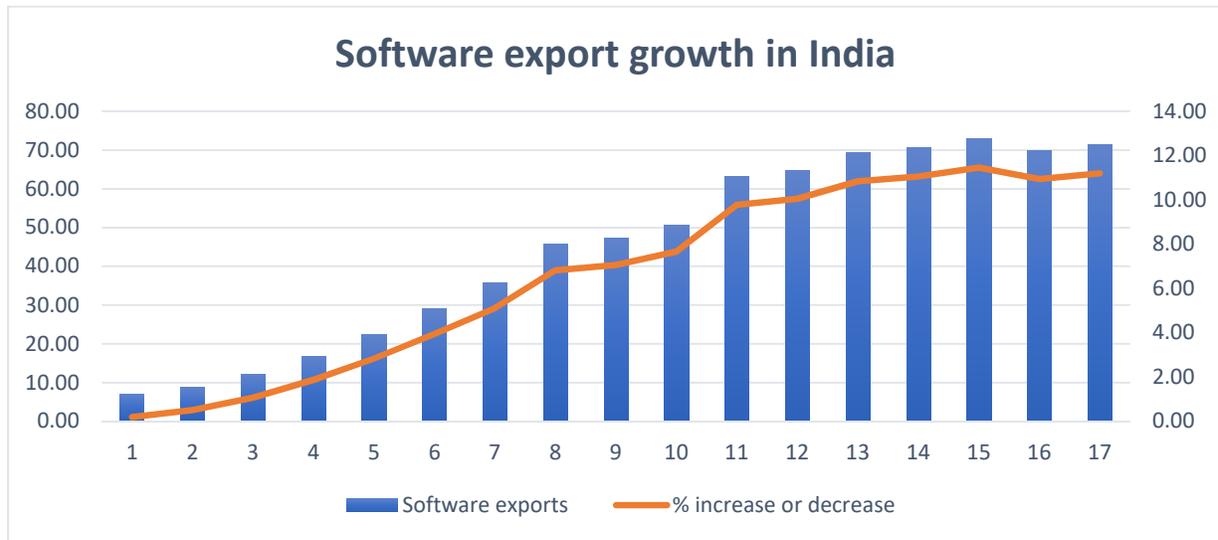
1.6.2 THE INVISIBLE RECEIPTS AND THE RISE OF IT IN DIFFERENT SECTORS OF EXPORTS OF INFORMATION TECHNOLOGY

Analysis of the growth from trend values of sub-topics of information technology export.

(the percentages of growth value are calculated by the author)

1. Invisible receipts incurred from the export of software services and its growth.

1.1



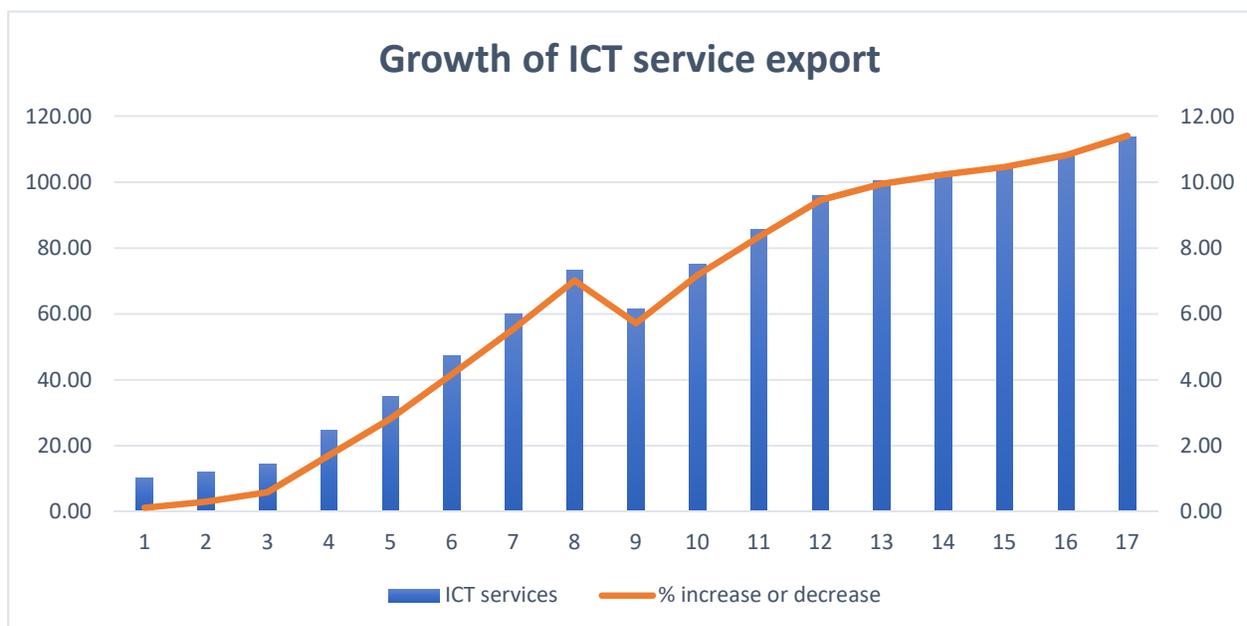
*the numbers 1, 2, 3, ...17 are the series of years from 2000-2017 **Source: India stat ***Percentage increase or decrease: author calculation

In the current generation, software industry is dominated by exports and creates a total of 77% net revenue from industries. The above chart 1.1, talks about the Software export growth in India and the invisible receipts incurred out of exports made from India to the world, which in-turn shows how the software industry has grown until now. The above data is based on a time series data from FY2000-FY2017 [numbered from 1 to 17]. During the FY2000, software exports net sales were \$5.85 billion after which the growth in software exports increased drastically showing a growth of \$22.46 billion in the FY2005 with a growth rate of 2.84% (percentage of growth is based on the base year using the formula: $[\text{current year} - \text{base year} / \text{base year}]$) and the growth during FY2010 grossed up to \$50.74 billion with a growth rate of 7.67% compared to the FY2000. During the financial year of 2015 the net sales was \$72.95 billion with a growth percentage of 11.46%, but soon after a year that is, during the financial year of 2016 there was a fall in the net sales of the software exports grossing up to \$69.95 billion with a percentage

growth of 10.95% which resulted a 0.51% of fall in growth, when compared to its previous year value. But gradually the exports of software services gained by 0.26% with a net sale value of \$71.46 billion during the financial year 2017, yet the value during the year 2017 was not up to the growth mark which had rose during the FY2015.

2. Invisible receipts incurred from the export of ICT service and its growth.

1.2

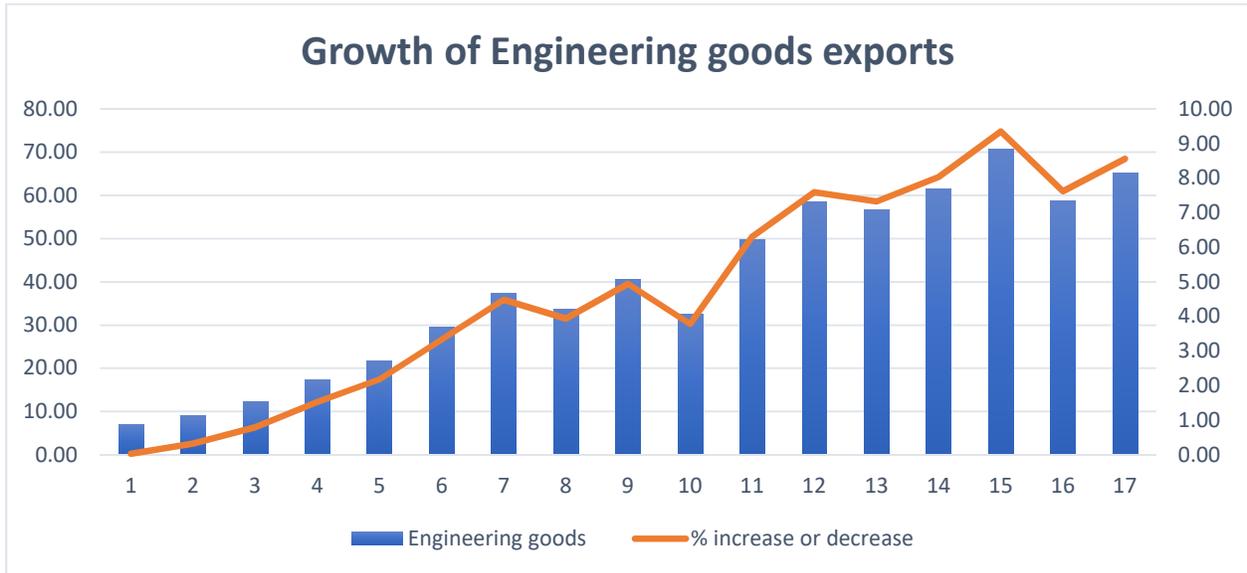


*the numbers 1, 2, 3, ...17 are the series of years from 2000-2017 **Source: India stat ***Percentage increase or decrease: author calculation

ICT or information, communication and technology are just another word for information technology that emphasizes on the role of creating a framework mainly for assimilating many asynchronous and real-time communication tools, with an aim of strengthening business communication, productivity and collaboration. “The term ICT also refers to the convergence of audio visual and telephone networks with computer networks through a single cabling or link system”. (Wikipedia C. , 2018)

The above chart 1.2, talks about the ICT that is Information, Communication and Technology growth in India and the invisible receipts incurred out of ICT exports made from India. The above data is based on a time series data from FY2000-FY2017 [numbered from 1 to 17]. During the FY2000, ICT exports net sales were \$9.18 billion after which the growth in software exports increased drastically showing a growth of \$35.07 billion in the FY2005, with a growth rate of 2.82% (a percentage of growth is based on the base year using the formula: $[\text{current year} - \text{base year} / \text{base year}]$) but the growth during FY2009, exports showed a huge loss of \$11.87 billion when compared to its previous year which had grossed up to \$61.62 billion with a growth rate of 5.72%. During the financial year of 2010, net sales increased with a growth percentage of 7.18% incurring \$75.04 billion. Gradually the exports gained a century in total exports of ICT services of \$100.46 billion with growth percent of 9.95%. Last year the incurred invisible trade value had touched \$113.83 billion, and the percentage growth when compared to FY2001, there is a huge gain of 11.29% and the difference of \$103.52 billion which created a huge success in exports of Information, Communication and technology and in the growth of Information technology.

3. Invisible receipts incurred from the export of Engineering goods and its growth.



*the numbers 1,2,3...17 are the series of years from 2000-2017 **Source: India stat ***Percentage increase or decrease: author calculation

Engineering is one of the largest sectors of Indian IT industry, providing employment opportunities for more than four million skilled and semi-skilled workers. This segment has also witnessed enormous growth, taken by significant investments in power projects and developments of infrastructure. “EEPC INDIA also known as “Engineering Exports Promotion Council” which was setup and sponsored by The Ministry of Commerce and Industry, The Government of India in the year 1955, it has catering its growing strength of over 13,000 members from amongst large corporate houses, star trading-houses, and SMEs which are up-to 60%” etc., (INDIA, 2016)

The above table, figure 1.3, talks about the Engineering goods manufacture growth in India and the invisible receipts incurred out of exports of Engineering goods made from India. The above data is based on a time series data from FY2000-FY2017 [numbered from 1 to 17]. During the FY2000 engineering goods exports, net sales were \$6.82 billion after which the growth in engineering goods and service exports increased drastically showing a growth of \$37.37 billion

in the FY2007 with a growth rate of 4.48% (a percentage of growth is based on the base year using the formula: $[\text{current year} - \text{base year} / \text{base year}]$), but the growth during FY2008 resulted in a loss of \$33.70 billion when compared to its previous years value, with a growth rate of 3.94%, due to the recession period, the manufacture of Engineering goods was affected slightly due to which the loss was resulted. During the financial year of 2009 net sales again increased with a growth percentage of 4.94% incurring \$40.50 billion, which showed that India started to gain its power post-recession period. But, as the exports started to gain there was continuously loss and gains like during the FY2010 the net sales grossed up-to \$32.60 billion with a growth percentage of 3.78% and again there was a rise in the exports during the FY 2012 with a rate of 7.59% growth and the net sales of \$58.60 billion, and again a decrease in the invisible exports during the FY2013 which resulted a slight decrease of 7.33% growth. But during the FY2015 the invisibles from exports of engineering goods recorded the highest value during this century until 2017, where the value of the net sales resulted up-to \$70.60 billion with the growth rate of 9.35% (based on the FY2000). Yet again in 2016 there was a huge drop in the exports of engineering goods which created a huge gap in net sales when compared to its previous years which amounted to \$58.80 billion where the difference between them was \$11.8 billion, and the growth rate during the year of 2016 was 7.62%. But the previous record of the invisibles gained from exports of engineering goods and services was broken during the year 2018 with the record value of the net sales \$76.20 billion (IBEF, 2018). Which shows that there is a momentum in the growth of exports of engineering goods. “Out of 227 exports destinations of Indian engineering goods, top 25 nations accounted for 74.7 per cent of India's total engineering exports in 2017-2018 over 2016-2017” (IBEF, 2018).

Based on the above graphs, according to the values of the invisible receipts of exports from different sectors of IT industry, to some point, there is an impact of the IT exports on the invisible receipts.

Multiple Regression model (Variables taken are: Total invisible receipts from Exports of Goods and Services, Total invisible receipts from Exports of Software services, Total invisible receipts from Exports of ICT services and Total invisible receipts from Exports of Engineering goods and services)

Stationarity Test

Test type: Individual root- Fisher- ADF [Level and individual- Fisher- ADF]

Figure: 1.4

Null Hypothesis: Unit root (Individual root process)			
Series: Engineering goods in billion; ICT services in Billion; Software exports in billions; Total exports of goods and services in billion.			
Exogenous Variable: Individual effects, Individual linear trends			
Method	Statistics	Prob **	
ADF- Fisher Chi-Square	30.3373	0.0002	
ADF- Choi Z-stat	-3.89490	0.0000	
**Probabilities for Fisher tests are computed using an asymptotic chi-square distribution. All the other tests assume asymptotic normality.			
<i>Intermediate ADF test results D(UNTITLED)</i>			
Series	Probability	Lag	Observations
D (Engineering goods exports)	0.0020	0	16

D (ICT services exports)	0.0359	0	16
D (Software service exports)	0.0699	0	16
D (Total exports of goods and services)	0.0503	0	16

**tool used: testing of stationarity for multiple regression; EViews version 9.3*

Before running regression, stationarity should be checked and it was found that the data was not stationary at 'first level'. The figure 1.4 shows the result of the stationarity at 'first difference'. The data become stationary at 'first difference' as shown by individual probability values are less than 0.05. Using the differenced data from the above table, the regression was used to check the impact of the invisible transactions of the independent variables that is Engineering goods exports, ICT exports and Software exports on the dependent that is the Total Exports of IT Products and Services.

Figure:1.5

Dependent Variable: D (Total exports of goods and services)				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistics	Probability
D (Engineering goods exports)	-1.346080	1.143739	-1.176911	0.2603
D (ICT services exports)	2.892375	1.343048	2.153590	0.0506
D (Software service exports)	5.271231	2.648714	1.990109	0.0680
C	-8.340356	10.00416	-0.833689	0.4195
R-Squared value				0.652304
Adjusted R-Squared value				0.572067

**tool used: Multiple regression; EViews version 9.5*

The figure 1.5 above shows the multiple regression results. The result shows that, as one-unit increase in Engineering exports invisibles causes a decrease of 1.346 units in Total Exports of Goods and Services of Information Technology, this means that there is a negative relationship between the two. This impact is not statistically significant as shown by the probability value of 0.2603, which is more than 0.05. As one-unit increase in the ICT service invisibles causes an increase of 2.892 units in Total Exports of Goods and Services of Information Technology, which is also statistically significant as shown by the probability value of 0.050, which is equivalent to the required value. This shows that there is a positive relationship between the two, holding other variables constant, also proving that there is an impact of the invisible receipts incurred from ICT exports on Total Exports of Goods and Services. More so, as one-unit increase in the Software exports invisibles causes an increase of 5.271 units in Total Exports of Goods and Services of Information Technology, which means there is a positive relationship between the two but however, it is not statistically significant as shown by the probability value of 0.0680, which is more than 0.05 holding other variables constant.

The result shows an 'Adjusted R-squared' value of 0.572, which implies that about 57.2% of changes in the dependent variable has been understood using given variables above. Adjusted R-squared is 0.572 at 0.002 Prob(F-statistic).

1.7 Summary and Conclusion:

Whatever maybe the impacts and the challenges Information technological industries in India has played an important role in placing India on the world map. The challenges such as infrastructure (broadband, software productions, etc.), issues with data security, improper market for IT services, churning of employees, retaining of talents, and dynamic types of situation in the

economy have made the IT industry more raging during quite few years. One side, IT industries being reached to such an extent where it has changed or call it as transformed many sectors in the economy and the society of the country such as innovations, upcoming of new industries, and the arrival of the new era of “hyper-connectivity”, access to ICT services and opened employment opportunities to many and on the other side, the policies and the actions in the IT industry are predisposed by two types of factors. Where, the first factor was internal to business entities and the other are completely reliant on external factors of the business entities and are typically out-of-service for the retail business entities. Talking about the exports of IT products and services, looking at the increase in the invisible receipts or the trade receipts it is confirmed that from past several years, the exports of Engineering goods, ICT (products and services) and Software services has increased. The USA, UAE, Europe, Japan, etc., are some of the top ten countries who import IT products such as Software services and talents from India. Thus, while India’s venture into software and further IT-enabled services exports have been extraordinary as its growth is rising at a faster pace yet loses a lot of its varnish when seen considering the low performance in the country’s hardware industry. According to my analysis and the reports from the - The Hindu paper it is confirmed that the exports of ICT services and products have increased when compared to other IT products. And based on the objective of finding the impact of the invisible transaction on Total Exports of Goods and Services it was found that, out of all the IT exports Information and Communication Technology has the highest impact of the invisible receipts’ transactions on the Total exports of goods and services exports, followed by the other exports of the IT products but still there are slight impacts created by exports of software exports and engineering goods exports. Currently India is positioned as top 2nd country

in the world after USA and followed by Australia in exporting software products and services to the world.

1.8 Area for further study:

In depth study can be done on the same area, about the impact of the invisible receipts on the total exports of goods and services including more variables too as to be able to increase the adjusted R-squared value. There is also a need to study the relationship between the invisibles received from IT industries exports, and its various sectors like Engineering goods and service export, Software service exports and Information and Communication Technology exports.

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