Impact Of ICT In An Economy

Epsita Chakraborty

Ph.D Research Scholar, OKDISCD, Guwahati

Abstract:
Contemporary economic perspective believes Information and Communication Technology (ICT) to be an important factor of knowledge-driven (new) economy. As a student of economics, we know how knowledge, innovation and technological changes become important factor for economic growth. As ICT continue to rapidly advance since the last few decades, the knowledge economy has become an important part of the overall world economy. The resolution of this paper is to show the impact of information and communication technology on economic growth. In addition to its significantly contribution to economy growth, computing technologies also have profound impact on many aspects of society. Impact of ICT on main sectors that effects growth is aimed to be examined.

Keywords: Economic Growth, Information and Technology, Computing

Introduction:
By common consensus, the influence of ICT on the economy appears to be pervasive and decisive. Arguably, a driving factor behind this consensus is the omnipresence of ICT. The launch of ‘desktop’ personal computing in 1982 introduced a large section of the public to regular ICT usage in both their working and personal lives. This was followed up by at least two further major ICT diffusion events - the emergence of the commercial internet in the mid-1990s and the rise of mobile computing devices in the late 2000s (Draca, Martin, & Guarner, 2018).

Information technology (IT) covers the study and application of computers that includes any form of telecommunications that store, retrieve and send information. IT is used to automate simple, routine tasks such as word processing and advanced processes such as production, scheduling and logistics. In this manner, information technology enables businesses to operate efficiently and profitably. Technological advances in the past few decades have greatly increased the competitive nature of the economic business world. Companies have used software, computers and the Internet to transform their businesses from local places of business to national and global market competitors. Many companies have responded to these changes by automating their business processes and capturing industry-related information and using it to their advantage. Technology has also forced businesses to remain flexible, adapting their operations to newer and better technological advances.

Despite this ubiquity a number of major puzzles surround the role of ICT in the economy. The influence of ICT on productivity and economic growth was very slow to appear and then
seemed to dissipate after the early 2000s. This has led to ‘ICT realists’ such as Robert Gordon to renew their questioning of the structural importance of ICT relative to earlier ‘General Purpose Technologies’ (GPTs) such as the steam engine, electrification and the automobile (Gordon, 2012). In addition, the penetration of computers and related technologies into the labour market via the perceived displacement of jobs through automation has contributed to a wave of economic pessimism around ICT.

ICT and Economic Growth

ICT has greatly contributed to the economic growth in the last few years. According to an analysis of 110 economies in the world by Harvard economists Jorgenson and Vu (Jorgenson & Vu, 2005), the annualized growth of the world economy, measured in GDP, was 2.5% during the 1989-1995 period and 3.45% or 1995-2003, a 38% increase. They included three main categories as the factors responsible for economic growth: capital deployment, effective use of labor, and total factor productivity (TFP). The contributions to the overall economic growth are shown in Table 1.

Table 1: Contribution of ICT to the world economic growth

<table>
<thead>
<tr>
<th>Period</th>
<th>GDP growth</th>
<th>Source of growth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Capital</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IT</td>
</tr>
<tr>
<td>1989-95</td>
<td>2.50</td>
<td>0.27</td>
</tr>
<tr>
<td>1995-03</td>
<td>3.45</td>
<td>0.53</td>
</tr>
</tbody>
</table>

Source: a conference report by (Harris, et al., 2009)

It is seen in this table that the capital deployment (including Information Technology and non-IT capital) contributed almost 50%, while the other two major factors, labor and productivity, contributed about 20-30% and 25%, respectively. The contribution of IT capital deployment almost doubled from 0.27% to 0.53% during these periods, while the impact of non-IT capital and labor to economic growth remained pretty much flat.

The growth in total factor productivity (TFP) is the output growth of an economy not accounted for by the growth in input, that was also almost doubled during these two periods. Atkinson in 2007, Basu and Fernald in 2008, and Fernald and Ramnath in 2004 documented that such rapid growth in productivity is impacted by the advancement of Information and Communication Technologies (ICT) in a significant way (Atkinson & McKay, 2007) (Basu & Fernald, 2008) (Fernald & Ramnath, 2004).

Economics of ICT and Policy Implication:

The policy implications of ICT’s evolving role in an economy can be summarized as follows:

- Business, Innovation and Infrastructure: The role of ICT in business activity can be concise along two lines: production and consumption. Firms can produce ICT hardware and software or they can benefit from the consumption of ICT goods either internally or as a result of new economies created from public adoption (e.g.: the App economy, internet commerce in general). Policy should therefore be organized along these dimensions of production and consumption (Draca, Martin, & Guarner, 2018).
• The labour market: Automation - specifically the displacement of jobs by machines - is the major challenge created by ICT in the context of the labour market. Previous research (Cortes, Jaimovich, Nekarda, & Siu, 2014) has shown that major challenges have emerged in terms of the redeployment of workers after losing employment in routine jobs. This adjustment problem has deepened with every recession since the 1980s. The consensus policy solution since the 1990s for worker adjustment has been investment in training and human capital in general.

• Direct job creation: The ICT sector is, and is expected to remain, one of the largest employers. India is the third-largest start-up hub in the world with over 9200 technology start-ups in 2017-18 (Agarwal, Sharma, Jhingran, Sharma, & Rawat, 2018). They also believe that Computer and information technology jobs are expected to grow by 22% up to 2020. India ICT sector employment prospects, both in the near and long term are expected to be broadly positive and encouraging for future. India ICT companies currently served two thirds of the fortune 500 companies and have created 40 lakhs direct jobs in India. 2.5-3 million new jobs will be created by 2025. In FY 2017, the industry added 1,70,000 new jobs. NASSCOM has already publicly contradicted reports of large-scale layoff. ICT industry added 600000 in last three years and today, boasts of a total employee base of 3.9 million.

• Contribution to GDP growth: study by Agarwal in 2018 also shows a 10% increase in broadband penetration is associated with a 1.4% increase in GDP growth in emerging markets. India’s economy grew at an impressive 8.2% in the first quarter of 2018-19 financial year ending June 30 on the back of a strong core performance and a healthy base. GDP at current prices in 2018-19 is estimated at Rs. 44.33 lakh crore, as against Rs. 38.97 lakh crore in 2017-18, showing a growth rate of 13.8%. They project GDP growth to be 6.7% in 2017-18 and accelerate to 7.3% and 7.5% respectively in 2018-19 and 2019-20. Going forward, sustaining a growth rate higher than the trend growth rate of 7 to 7.5%, and reaching a growth rate of 8% or higher, will require contributions from all domestic sectors as well as support from the global economy (Agarwal, Sharma, Jhingran, Sharma, & Rawat, 2018).

• Emergence of new services and industries: Numerous public services have become available online and through mobile phones. The transition to cloud computing is one of the key trends for modernization. Therefore, a major support to growth needs to come from a sustainable recovery in private consumption and investment. Further, we expect government expenditure to pay a year, as a whole, we expect growth to rise to 7.3% from 6.7% in 2017-18.

• Workforce transformation: New “micro work” platforms developed by companies like o Desk, Amazon and Sam a source, help to divide tasks into small components that can then be outsourced to contract workers. Digital transformation is the driving force behind the strategic and innovative use of technologies, and it’s already transforming how and where work gets done. As new generations enter the workforce, ICT departments are preparing to meet their expectations for friction less, high-quality collaboration and communications.

• Business innovation: OECD countries, more than 95% of businesses have an online presence. The Internet provides them with new ways of reaching out to customers and competing for market share. Technology is usually associated with world changing innovations that revolutionize how we live. But technology can also play a big role in
the smallest scale, incremental improvements that are the real bread and butter of business innovation (Agarwal, Sharma, Jhingran, Sharma, & Rawat, 2018).

- Investing in ICT to drive economic sustainability: Countries have started to invest in ICT because they know that the sector can have a substantial positive impact on social and economic sustainability. Investing in ICT is a key driver of economic development for emerging and developed markets alike.

- The direct effects of ICT can also be seen in bringing ICT services to remote, underserved areas. In this case, direct investments will bring job creation and extra spending that benefit the population in these areas (Beardsley, Enriquez, Bonini, Sandoval, & Brun, 2010). Telefónica, for example developed the Intégrame initiative in Peru, which aims at extending ICT services via public-private partnerships. As a result of these partnerships, mobile, landline, Internet access, and television services are now offered using wireless technology at better tariffs to 62,300 people in 180 locations throughout the country. Further, Intégrame has opened new markets for Telefónica and increased the speed of social and economic development through the inclusion of rural communities.

Social Benefit of ICT

Beyond encouraging economic growth, the ICT industry is helping to achieve social sustainability by improving the way societies and governments provide education, healthcare, and services to citizens. Additionally, the ICT industry is changing the way people interact with each other, creating longer-term and largely positive changes in a variety of areas.

- On Education: ICT has changed the way people study. The use of email, websites, and virtual classrooms and libraries has proliferated, facilitating the sharing of information on a large scale. Some countries have set specific initiatives to improve education through ICT. For instance, the deployment of the Jordan Education Initiative (JEI), a public-private partnership that aims to improve education in Jordan through the effective use of ICT, was launched in 2003 with the support of the World Economic Forum. Partnerships with multinational companies such as Microsoft and Cisco have enabled the equipment, with computer labs and broadband Internet, of 100 “Discovery Schools” around the country, along with the creation of e-learning curricula for 50,000 pupils and information technology (IT) training schemes for 3,200 teachers. The performance of Jordan’s students is higher in Discovery Schools than in other schools, and higher levels of education are key to reducing unemployment and poverty.

- On Healthcare: The use of ICT for health (e-health) has the potential to transform healthcare by efficiently connecting people and improving information sharing. Currently, e-health is predominantly seen in developed countries. But as the availability of ICT spreads rapidly in the developing world, there is an opportunity to expand healthcare access to areas where distance, poverty, and scarce resources are currently barriers to even basic care (Beardsley, Enriquez, Bonini, Sandoval, & Brun, 2010). In collaboration with a leading provider of telecommunications and data communications systems, Apollo Hospitals, a major hospital Chain in India, are providing basic diagnostics (blood pressure), medical check-ups, and consultation via mobile services.

- On Government services: In many countries, more than 70 percent of taxpayers now file taxes electronically, for example, and many other transactions- ranging from
renewing drivers’ licenses and paying parking tickets to managing government benefits—can be conducted online. Citizens have a much easier and faster access to government services (Beardsley, Enriquez, Bonini, Sandoval, & Brun, 2010). A customer perception survey conducted by the Ministry of Finance and Infocomm in Singapore showed that, in 2008, 85 percent of respondents made transactions with government electronically, and 88 percent were satisfied, for four main reasons: it is easy to find information, it is user friendly, the transaction is fast, and it is easy to complete.

**Conclusion:**

Overall, it may be said that ICT is an important industry economically. Because of the nature of its products and services, one that can create significant benefits for society as well. Increasing the reach of ICT creates economic growth and enables better healthcare, education, and government services, among many other social benefits. The key to secure ICT’s economic and social benefits is cooperation among the industry, regulators, and government policymakers. Government has a central role to play. We have seen that the government has provided both clear strategy and crucial initial funding in the countries that have succeeded with ICT.

**References:**


End Notes:


iv According to the Infocomm Development Authority (IDA) of Singapore website (http://www.ida.gov.sg/Publications/20090717150535.aspx), the E-Government Customer Perception Survey was conducted in March 2009 with 1,200 respondents above the age of 15.