ICT IMPACT ON ECONOMIC GROWTH: THE CASES OF EGYPT AND INDIA

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ABSTRACT

Information and Communication Technology (ICT) impact on economic growth has been illustrated by first presenting two countries with emerging ICT industries over the last years and have potential of further growth where figures and numbers at the end of this work show that Egypt's ICT's Gross Domestic Product (GDP) contribution grew by 13% in 2014-15 to reach 4.1%, while the ICT sector in India is expected to contribute 9.5 per cent of India's Gross Domestic Product (GDP) in 2015-2016.

Key words: ICT; ICT Industry; economic growth; GDP

INTRODUCTION

Egypt and India are both developing countries where ICT industry is a driver for economic growth. Both countries have taken several initiatives to increase investment in this industry by supporting emerging technologies and encouraging more users from market consumers to business entrepreneurs to adopt these technologies. The World Bank outlines requirements necessary to adopt a knowledge economy which include [1]:

-A sound institutional and economic regime

-An effective educational system, necessary to produce a qualified workforce

-Telecommunications Infrastructure

These requirements, in addition to others such as governmental policies and initiatives, and available workforce would be the main pillars for evaluating ICT for economy growth approach for the next two sections.

THE CASE OF EGYPT

First, about 28% of Egypt's population, 83 million, is enrolled in educational programs in schools and universities where 25% are under the age of 25 and 19 million represent its workforce [2].

Over the last two decades, there has been more open information to the public supplied by the government where sharing and disseminating information to researchers and businesses was managed by a number of public and private sector organizations led by the Central Agency for Public Mobilization and Statistics (CAPMAS).

MCIT has defined seven major tracks of the national ICT plan paving the way for Egypt's Information Society Initiative (EISI) [3]. Tracks related to promoting ICT skills are eHealth for providing training to doctors, eLearning for a community where using ICT is a part of daily life, and eBusiness to improve workforce skills.

Egypt's Internet penetration rate grew from less than one percent in 2000, to 5% in 2004, 24% in 2009,[4] and 54.6% in 2014 [5].

Among Egyptian Ministry of Communication and Information Technology (MCIT) achievements are encouraging Open Source and mobile applications technologies, with EGP 70 Mn budget and 549 SMEs involved in this initiative, Cloud Computing Center with EGP 25 Mn budget, training university students & graduates according to the market needs

In July 2008, the proportion of faculties/institutes at the university education level in Egypt with communication specialty was 9.6% of public education (Egypt ICT Indicators Portal), 4.7% of Azhar University and 11% of private education. As for IT specialty, it constitutes 14.4% of public education, 6.3% of Azhar University and 42.7% of private education. These percentages are high enough to cover the market needs in terms of quantity. ICT's expenditures represent 6% of GDP (Egypt ICT Indicators Portal). However, in most cases, graduates, once entering the employment market, they face the inadequacy between what they have learned academically and the tools that the professional life requires.

This has been overcome by several programs. In 2005, MCIT established the e-Learning Competence Center (ELCC) in partnership with Cisco to exploit the learning opportunities offered by the Cisco Network Academy Program (CNAP) and to leverage the CLI Virtuoso™ E-Learning Platform. The program, a public-private partnership, provides a complete, scalable Web-based e-learning authoring, delivery and management system through the ELCC. The center is in charge of coordinating most of the preparation for developing elearning curricula, including training of trainers, content development, customization of Cisco materials and development of the physical network of academies (MCIT in Ten Years).

Furthermore, The ELCC has been working on three programs: a national e-learning delivery network, content development and localization, and research and development (R&D). The National e-Learning Delivery Network is a network of Cisco-certified training centers that delivers e- learning programs. Until December 2009, a total of 450 IT Clubs throughout Egypt have been certified as Cisco IT Essentials Academies and developed as e-learning delivery centers. The program has graduated more than 1,000 certified instructors and trained more than 10,000 individuals till December 2009. The second ELCC program, developing Arabic content, was critical to the success of effective e- learning curricula. In 2008, the center successfully developed content for the Information Technology Institute's (ITI) e- learning diploma. In addition, the center successfully developed and localized a Cisco Business Essentials course (iExec) in 2007 to address the needs of small and medium enterprises in Egypt. The ELCC's research and development unit looks at critical issues such as interoperability between platforms and national e-learning standards. The division has migrated courses between three different learning management systems to build competencies around existing e-learning platforms (MCIT in Ten Years).

Moreover, the e-industry development track of the EEI has been designed to build capacity in the e-learning and e-content development industry, including promoting professional certification in this field. The ITI and the ELCC, in partnership with IBM, offer a nine-month program focusing on e-learning technologies and courseware design and development methods. The first group of students graduated in 2007 and all were successfully recruited by private sector firms (MCIT in Ten Years).

Table 1 shows ICT investment in Egypt in 2015/2016. The numbers of Communications and IT Enabled Services have doubled in 2016. The total issued capital in March 2016 is 50.99 Million EGP with highest contribution from Information Technology sector. It should be noted that most of newly established ICT Companies were small and micro enterprises.

Table I.

Unit			April 2015	March 2016	April 2016
Number of Newly Established ICT Companies	Companies	Information Technology	70	69	58
		Communications	1	2	2
		IT Enabled Services	11	22	10
Total Number of Companies			82	93	70
Issued Capital of Newly Established ICT Companies	Million EGP	Information Technology	52.21	36.87	8.09
		Communications	0.10	0.02	0.35
		IT Enabled Services	1.46	14.10	2.31
Total Issued		Capital	53.77	50.99	10.76

CASE OF INDIA

With an average rate of growth close to 6 percent a year since 1980, there is some evidence that India's growth is accelerating and can be sustained at 8 percent a year in the coming decades [6].

According to the World Economic Forum (Nov. 2015), the potential priority areas for India are as follows:

-Reforming the tax code and expanding social protection

-Reducing regulatory burdens and inefficient public administration and fostering formal entrepreneurship

-Improving access to basic infrastructure like electrification and uptake of digital technology

-Making education more equitable and strengthen vocational training to improve the skills needed for a productive labor force

-Increasing transparency of the public administration when tackling corruption and ensuring independence of judicial system.

-Further enlarging access to finance through special programs leveraging digital technologies and targeting rural areas

Although the Indian higher education system has inherited many regulatory mechanisms from the British legacy of higher education which ensured satisfactory functioning of the system, with quantitative expansion, raising the standards of higher education could not be achieved [7]. With 259 university-level institutions, more than 10,750 colleges, 8 million students, and 400,000 teachers, India has one of the world's largest higher education systems covering only 6 percent of the relevant age group of which 88 percent of student enrollments are in undergraduate education. Therefore, ensuring the quality of education provided to this small percentage is a key factor to the success of the nation. Most Indian universities are of the affiliating type where the affiliating university is responsible for legislating on courses of study, holding examinations centrally on common syllabi for its affiliates, and awarding degrees to successful candidates.

E-commerce and internet marketing in India has got tremendously bright future in terms of the increase in number of customers and internet users, where percentage of individuals using the internet in 2015 is 26% according to ITU, increasing interactivity among businesses and their customers [8].

For mobile industry, India is one of the biggest telecom markets in the world with more than 18 million subscribers every month with the introduction of 3G and 4G technologies where their adoption in education has widened usage of cellular phones by many college students [9].

ICT ECONOMY SHARE FOR BOTH COUNTRIES

Indian software exports are huge – roughly US$75bn in 2014/15 (and c.US$100bn if BPO services are included) – and continuously registering double digit annual growth. IT software/services' share of total exports remains roughly static: it was just under 14% in 2003/04 and just under 15% in 2013/14 [10].

For India, the IT sector which is currently valued at US$ 143 billion is expected to grow at a Compound Annual Growth Rate (CAGR) of 8.3 percent year-on-year to US$ 143 billion for 2015-16. The sector is expected to contribute 9.5 percent of India's Gross Domestic Product (GDP) and more than 45 percent in total services export in 2015-16 [11].

Figure 2 shows ICT goods exports and imports as percentage of total goods exports and imports in Egypt over the period from 2008 to 2014 [12]. It shows that ICT exports have increased significantly in 2014 compared to past years to reach 2.75% of total goods exports in Egypt in this year.

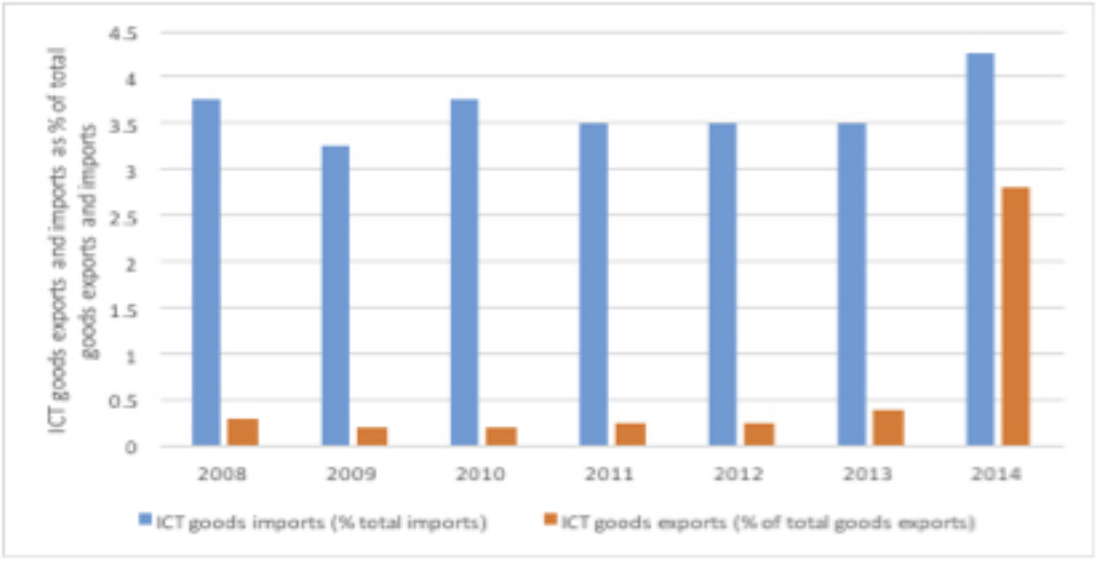

Fig. 2. ICT goods exports and imports as percentage of total goods exports and imports in Egypt over the period from 2008 to 2014 (Source STIIB 2016)

The Egyptian government plans to triple ICT's GDP contribution from EGP 65 billion (USD 8 billion) in FY 2014- 2015 to EGP 195 billion (USD 25 billion) in FY 2020-2021, according to the Ministry of Communications and Information Technology [13].

CONCLUSION

As indicated by the cases of Egypt and India, which show rapid growth in the ICT industry over the past years, ICT has become a main contributor to the economy of these two countries with Egypt's ICT's GDP contribution expected to reach from EGP 65 billion (USD 8 billion) in FY 2014-2015 to EGP 195 billion (USD 25 billion) in FY 2020-2021, while the ICT sector in India is expected to contribute 9.5 per cent of India's Gross Domestic Product (GDP) in 2015-2016.

REFERENCES

[1]N. Rizk, S. Kamel, "Economics: Concepts, Methodologies, Tools, and Applications,"

[2]ICT Facts and Figures 2016, ITU.

[3]MCIT ICT Indicators in Brief, May 2016.

[4]"Estimated Internet Users 2000 to 2009", International Telecommunications Union (ITU), spreadsheet, accessed 12 June 2011

[5]http://www.internetworldstats.com/africa.htm#eg

[6]Mani, S. (2014) Emergence of India as the world leader in computer and information services, Economic & Political Weekly, XLIX(49), 51-61

[7]Anthony Stella, "Institutional Accreditation in India," 2015

[8]Prateek Kalia, Navdeep Kaur, Tejinderpal Singh, "INTERNET MARKETING AND B2C E-COMMERCE: THE INDIAN SCENARIO," 2015.

[9]Rajeev Kumar Saxena, Dr. Neelu Tiwari, “A Study on Mobile Subscription, Penetration and Coverage Trend in Indian Mobile Sector,” 2016.

[10]Indian IT/Software Sector Statistics: 1980-2015 Time Series Data

[11]INDIA BRAND EQUITY FOUNDATION www.ibef.org

[12]Science, Technology and Innovation Indicators Bulletin, Isuue number 5, May 2016.

[13]www.menaherald.com

[14]Corrigan, G. and DiBattista, A. , “19 charts that explain India’s economic challenge,” World Economic Forum, Nov. 2015.

[15]http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx