

Who enjoys the ICT development?

An investigation into the role of ICT development on socio-economic variables in Asia

Key messages

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The ICT development shows a significant progress in Asia thanks to the more role of the independent regulator and the more liberalized market

Most of the countries are still struggling for achieving the better socio-economic variables, especially in relation to poverty eradication, health and education, whereas the development of the ICT sectors has been relatively impressive.

No evidence of the long-term relationship between ICT development and socio-economic variables especially, education and health.

Penetration rate of TV has the (weak) cointegration with education.

Accelerating the better linkage between stakeholders is the key success for ICT development.

Developing local economy enhances the affordability for ICT diffusion while disseminating knowledge and education through TV program increases human capacity.

Introduction

The Asia Pacific Region has experienced the rapid growth rate in Information and Communication Technology (ICT) especially in telecommunication sector in the last couple of decades. The evidences can be shown, for instance in South Asia where the compound annual growth rates for fixed lines and cellular phones are 20% and 78% during the period of 1990 to 2000. The same progress can also be seen in the Central and South East Asian countries where the cellular penetration rate has increased significantly amid the relatively lower growth in the fixed line penetration rate. In addition, Asia region in general has also been largely supported by the enlargement of the Total factor Productivity (TFP) which increases about 1.65% per annum due to the rapid investment in telecommunication sector up to 2003. The business environment in the sector is showing the more promising environment given the independent role of the national telecommunication regulator in many countries and market liberalization which simultaneously give incentives for the new entrants to compete into the market.

Having obtained the significant progress of ICT development, denoting with the higher penetration rate of ICT devices, in facts, Asia are still in the opposite direction where most of the countries are still struggling for achieving the better socio-economic variables, especially in relation to poverty eradication, health and education, whereas the development of the ICT sectors has been relatively impressive. The pictures in India and China are part of the irony mirroring this contradiction. Amid the rapid investment in each country, China and India still contributed most to the number of poverty heads. In education sector, having found that males to females is almost equal in the primary and secondary education, females only recorded 70% of the total for males in tertiary education in many Asian countries. The disproportionate between Asian countries can also be found in terms of health sector, where some countries have the higher risk upon diseases and lower expectancy rate.

This study tries to relate the long-term relationship between the telecommunication sector and other socio-economic variables and thus allows us to conclude whether the contribution of the ICT sectors exists for supporting these variables. A data set comprising 35 countries from 1985-2005 is investigated employing two steps analysis: the panel unit root test and cointegration analysis. The socio-economic variables chosen in this study are education (primary education attainment and the ratio between male and female in the pri-

mary education) and health (life expectancy rate) while the ICT variables comprises the penetration rate of telephony (mainly fixed line) and TV. The data on the more recent development of ICT devices: mobile, broadband and the internet are still not available for conducting the study with the method.

Relationship between ICT development and education and health

The first analysis on the unit root tests shows that in most cases, the series of socio-economic variables and the penetration rates are not stationer in all simulation lags, except for the life expectancy rate. While the later investigation using cointegration analysis scrutinizes no evidence of the long-term relationship between ICT development and education and health except only the weaker cointegration between the primary education and TV penetration rate.

The phenomenon pops up a further question on how should be the role of government and other stakeholders accelerating the stronger linkage between the success story of the development of the ICT, especially telecommunication sector and socio-economic variables. The existing policy in developing countries, for instance Pakistan, has actually adopted the role of government to promote ICT sectors in the more systematic way (Hameed, 2005). The national ICT strategy has conceived the ICT sector for having the functionality as the means for enhancing capacity building and focusing on export market while at the same time focusing on development goals. Thus, the policy aims at maximizing the benefits of economic growth in the short term without trading off the sustainability in the longer term. Moreover, international promotion of ICT development has also been implemented for, instance with the more advanced countries like Korea. The Korean Agency for Digital Opportunity and Promotion (KADO) and other institutions have participated in the development assistance program cooperating with the Pakistan government, for instance in training activities, voluntary services, expertise sharing, and aid in kind. In conclusion, while Pakistan ICT policy has stressed that the development of both ICT vision and strategy with the greater degree of involvement of the people, the national ICT strategies in fact is still putting the burden on the government shoulder to design the initiatives.

Disconnection between ICT development and socio-economics variables: a way forward

The disconnection between ICT development and socio-economics variables is, nevertheless, an example of the chicken and egg problems which cannot be resolved from supply side policy solely. The study in Latin America (Balboni, 2010) shows that ICT diffusion is concentrated in narrowly defined segments of income and education groups in each country. Consequently, income, education and geographical areas are key determinants of ICT diffusion. In other words, ICT will largely impact the society with the higher existing human capital, i.e., higher literacy level, in addition to other pre-requisite conditions, for instance law enforcement (Jorgenson, 2001; Oxley and Yeung, 2001; Gregorio, et al, 2005). Not surprising that provided the internet adoption; there are clear indications in Latin America that returns to internet for workers results a large effect on the earnings. The returns are even higher in comparison to industrialized countries which could be explained by lower prevalence of internet used in the Latin America region. The similar results can also be found in African countries (Ifinedo, 2008) which indicated the importance of human capital to spreads the benefit of ICT development apart from law enforcement factors.

Policies

To sum up, there are two suggested policies for obtaining the higher impact of ICT development in the longer run periods where both policies require active participations from government, private sectors (industries) and the society.

Firstly, by promoting local economic development mediated by ICT sectors/devices especially for agriculture sector where the majority of poverty cases are found. The agricultural sector which is supported by the role of ICT in India can be seen as a progressing example. India traditionally is an agrarian economy, where 40% of the country's GDP is derived from agriculture and agriculture products. The crafting institutions by government and private sectors (industry) enable the increased acceptability of the latest innovations and tools by the farmer (Bowonder and Yadav, 2005).

The second policy is related to education which is concluded by previous studies as the pre requisite enhancing factor to obtain a larger impact of the ICT. This study also indicates that television has long term cointegration with education. Therefore, television program can be seen as a strategic mean for disseminating the knowledge and education especially for the people in the remote area through the distance learning program (Demiryurek, 2010). Television seems to be a more suitable and still important medium for distance education for rural people in developing countries. It is more accessible and reaches more people usually with a cost effective way. In addition, it is still popular due to its entertainment characteristics and audiovisual capacity when the availability of the more advanced internet based distance learning cannot be fulfilled due to limited budget for providing the infrastructure.

Given the limitation on the series of data in this study, future research will emphasize on the more advanced ICT development particularly the impact of cellular and broadband in Asian countries. Country-to country case studies are perceived for picturing the clearer investigation in this regards.

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Authors

Ibrahim KHOLILUL Rohman, Erik BOHLIN

khोलilul@chalmers.se

Department of Technology Management and Economics

Chalmers University of Technology

Ibrahim Kholilul Rohman is a PhD student at the Division of Technology and Society with Erik Bohlin as his main supervisor and Ann-Sofie Axelsson as co-supervisor. He obtained his bachelor's degree in Economics from Faculty of Economics, University of Indonesia in 2002. After the completion of the bachelor's degree, he worked with the Institute for Economic and Social Research, Faculty of Economics, University of Indonesia as a researcher. In 2006 he obtained a master's degree in Monetary Economics from the same university.

In 2008 he got a scholarship from the Ministry of Communication and Information Technology, Government of Indonesia to pursue the PhD programme at the Division of Technology and Society, Chalmers University of Technology

Currently he joins the research of Mobile Barometer Survey 2009. The research is conducted by Chalmers University of Technology and NTT Docomo to investigate the future demand analysis on cellular services for the Japanese and the Swedish market. He is also conducting the research on the impact analysis of broadband in European countries with Arthur D Little. His interests are mainly on pricing, competition and demand analysis of cellular market and the macroeconomic analysis of ICT sector.