CHAPTER 5

Conclusion: ITC's Contribution to ASEAN Development

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The Leaders of ASEAN adopted the Declaration of ASEAN Concord II (Bali Concord II) in 2003 as "the ASEAN Vision 2020," which would establish an ASEAN community by 2020 (this date was later accelerated to 2015). The ASEAN Community consists of three pillars: the "Political and Security Community (APSC)", the "Economic Community (AEC)" and the "Socio-Cultural Community (ASCC)." The purpose is to ensure durable peace, stability and shared prosperity in the region. Particularly from a viewpoint of economics, the promotion of sustainable economic growth and development in the region is key. Since ASEAN countries are in different stages of the development ladder, the "rising tide lifts all boats" concept is relevant and will benefit all participants in the region. In other words, ASEAN has to aim at sustainable higher economic growth by raising potential output because it cannot distribute wealth without first producing it.

The e-ASEAN Framework Agreement, ICT cooperation or collaboration between ASEAN and other East Asian countries such as China, Japan and Korea, and the ASEAN ICT Master Plan 2015 (AIM2015) suggest that the IT revolution and human development play an important role in achieving sustainable higher economic growth and development. Since "Openness" and "Globalization" are key concepts of the IT revolution, "free flow of information and knowledge[1]" is a critical factor for effectively utilizing the IT revolution for ASEAN's economic development.

Indeed, the ASEAN ICT Master Plan 2015 (AIM215) considers ICT as an engine of growth for ASEAN member States in one of four AIM2015's targets[2], but there is no quantitative evidence about the effect of the IT revolution on ASEAN economies. There are two main reasons for this. The first is the lack of IT time series data such as net real IT capital stock. The second reason is that a new production function has to be introduced to analyze the effect of IT revolution on the economy because the use of a traditional production function will result in a misleading conclusion.

[1] A distinction is sometimes made between information and knowledge (Wade, 2001). Information is available on an impersonal basis and is communicated through books, the Internet, television, for example. Knowledge includes more complex ideas that require learning and that typically rely on personal relationships to communicate.

[2] The four key targets include ICT as an engine of growth for ASEAN member states, recognition for ASEAN as a global ICT hub, enhanced quality of life for the people of ASEAN and contribution towards ASEAN integration.

Indeed, the effect of the IT revolution on the economy depends on the IT infrastructure, including network, software and hardware. Other factors, however, such as culture, language and politics also play important roles in utilizing the IT revolution effectively. Therefore, the effects of IT are quite different not only among countries but also among industries. Although many people admit that the IT revolution is integral to economic growth, there has been little quantitative evidence about the effect of IT on the economy. In addition, it is possible to miss the chance to raise potential IT-propelled growth if a traditional production function or growth accounting method is used. By introducing a new production function in this study, we focused on quantitative analysis of the effect of IT on economies or industries at different stages of the development ladder. Since time series data of IT variables such as IT capital stock have not been prepared yet in most ASEAN countries, we used the time series data of 108 Japanese industries by classifying them into several groups based on the Stages of Development Ladder in East Asian countries.

We conclude and recommend from our study as follows:

Conclusions

- There is little effect of IT on Primary Products industries in Stage 1 of the development ladder. IT does not play an important role in industries in Stage 1.
- As industries move up the Stages of Development Ladder, the effect of IT on their output becomes larger. This is judged by (1). the size of output elasticity w.r.t. IT capital stock; and (2). whether there is an increasing or decreasing trend in output elasticity w.r.t. IT capital stock as well as the marginal product of IT capital stock as IT capital stock increases.
- Although output elasticity w.r.t. IT capital stock showed an increasing trend from the Resource related service sector in Stage 1 of the Development Ladder to High-level services in Stage 4 of the Development Ladder, marginal product showed a decreasing trend for the Resource-related service sector in Stage 1 of the Development Ladder and for Labor-intensive manufacturing industries in Stage 2, suggesting that IT has a limited role in industries in these Stages. In particular,

quality of capital plays a more important role than IT capital intensity in Stages 1 and 2.

- Industries in Stage 3 can utilize all dimensions of IT such as quality of capital and IT capital intensity.
- IT capital intensity and global network may be more important than quality of capital for industries in Stage 4.
- Output elasticity w.r.t. IT capital stock in the Japanese aggregated manufacturing sector increased as IT capital stock accumulated. Its value was 0.10 ~ 0.15 in the mid-2000s.
- Wholesale and retail trade industries belonging to Local-services in Stage 1 of the Development Ladder had very high output elasticity w.r.t. IT capital stock, 0.5 ~ 0.6, in the mid-2000s. IT can be utilized very effectively in these industries.
- Output elasticity w.r.t. IT capital stock for High-tech manufacturing industries in Stage 3 of the Development Ladder was 0.25 in 2006 while that for Labor-intensive and General manufacturing industries in Stage 2 of the Development Ladder was about 0.15. These results imply from a viewpoint of Stages of the Development Ladder that Malaysia, Taiwan and S. Korea may benefit more from the IT revolution than might Indonesia, Philippines, Vietnam, Thailand and China (figure 3.1). However, not only stages of the development ladder but also other factors such as culture and English capability are important determinants of the S-Shape production function.
- Financial, insurance and real estate industries, so-called FIRE, in High-level services in Stage 4 of the development ladder had output elasticity w.r.t. IT capital stock of 0.18 in 2006. If we calculate output elasticity w.r.t. IT capital stock for only the financial industry, its value was 0.35 in 2006. These results imply that Singapore and Hong Kong, in Stage 4 of the Development Ladder where the financial industry has a large share of economic activity, may benefit the most from the IT revolution.
- We can prove that Japan's potential growth is more than 3% by using the new production function where IT variables explain TFP. Only Primary products

industries and Labor-intensive manufacturing industries have difficulty achieving a 3% output growth.

- If economists stick to a traditional production function where a proxy of Time explains TFP, they will miss the possibility of raising potential output resulting from the IT revolution.

Recommendations:

- ASEAN countries should prepare a common IT database such as the time series data of IT capital stock and flows from Input-Output tables based on the common definition of IT investments. This will be very advantageous for analyzing ASEAN economies as globalization continues to advance.
- In addition to the idea of ASEAN IT database, ASEAN countries should prepare ASEAN Input-Output tables which will be very useful to analyze the economic development of ASEAN through the globalization due to the IT revolution.
- Policy-makers should consider various factors such as culture, politics and language in order to respond to the IT revolution effectively since the IT innovation is quite different from traditional innovations such as the invention of the steam engine. For example, English capability and computer usage are basic skills in an IT Economy.
- Since “Openness” and “Globalization” are key concepts of the IT revolution, “free flow of information and knowledge” should be added as one more core element to the following five core elements for an ASEAN single market and production base: (i) free flow of goods; (ii) free flow of services; (iii) free flow of investment; (iv) freer flow of capital; and (v) free flow of skilled labor.

References

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