CHAPTER 1

Introduction: The IT Revolution, Globalization, and Economic Progress

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Recent East Asian economic development has been astonishing, thanks mainly to the Information technology (IT) revolution, a process that, in the course of only a few of generations, has benefited many countries in the region in terms of primary production for domestic use and participation in advanced aspects of the global economy. Following Japan, Taiwan, South Korea, Singapore, and Hong Kong have moved rapidly to the most advanced industries and financial services. Other East Asian countries, particularly, China, Malaysia, Thailand, the Philippines, and Indonesia are following in their footsteps.

The pace of development in parts of East Asia reflects fundamental changes in the structure and geography of world production. These changes have been made possible by accumulation of capital, by technical change introducing new technology and by reallocation of resources to industrial activities (World Bank, 1993). In each case, the contribution of information technology has been substantial not only in the form of IT capital, but also as IT technology. Since, as a result of the IT revolution, knowledge, information and technology can radiate instantly among countries, globalization has been a significant contributing factor to economic development. Potentially the most promising mechanism for globalization is the international transfer of ideas and knowledge that are an essential ingredient of economic progress.

In this study, we are concerned with the role of IT in East Asian development. In particular, we discuss the role of IT in economic growth through quantitative analysis. If

we do not have any empirical work about the effect of IT on the economy, we may overlook the chance of raising potential growth in East Asian countries.

As Jorgenson (2008) points out

"….a wealth of microeconomic evidence emphasizes the complexity of the link from technology to productivity. To leverage information technology, firms must typically make large complementary investments and innovations for areas such as business organization, workplace practices, human capital and intangible capital." (p. 10)

Jorgenson is particularly concerned here with investment in IT equipment. It is important, moreover, to recognize that complementary activities and organizational changes are especially important if the application of IT is in the infrastructure that connects industries to international markets. Modern low cost high speed communication and transportation services are basic to the transfer of production activities to East Asia and to the management of these operations at all stages of development. The fragmentation of the production process makes possible high tech production in the most advanced countries; production of chips, for example, and low tech operations, like assembly, in low wage countries. International transfers of programming services are possible on an efficient basis as a result of high speed electronic communication but require highly trained programming operators found only in some locations.

The role of the IT operations is very different in different East Asian countries as well as in different industries. The effectiveness of IT depends on not only IT infrastructure but also on other factors such as management style, human capital, culture, language and so on.

In this research, first we consider the conceptual issues that determine the role of IT in East Asian development. We then do empirical studies about the role of IT in the production function. This is the first stage of more extensive work covering various countries and industries.

Since the time series data of IT variables such as IT capital stock and IT service flow have not been prepared in most ASEAN countries, we use the time series data of IT variables for 108 Japanese industries by classifying the 108 industries into several groups that represent the characteristics of East Asian countries based on the Stages of Development Ladder. By doing the empirical work about the effect of IT on these

Japanese industrial groups, we can extrapolate the effect of IT on the economies of East Asian countries.

It would be very helpful if each East Asian country would construct IT time series data based on common definitions. This would enable each country to estimate a new production function of its own and, as shown in this study, find the possibility of potential growth that is higher than what is derived using a traditional production function.

References

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