

Chapter 12

Challenges of Developing Countries in Imitating Technological Progress

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ABSTRACT

Technological progress has become an important characteristics of economic progress. The most economically developed nations are also the most technologically advanced ones, that is, the ones that not only make a proper and innovative utilization of technology, but also develop it on their own. Newly developed countries, such as South Korea and China, have economically surpassed many Western countries, because they can catch up and surpass the technological capability of the latter. However, the technological progress of one country cannot be just imitated by another. Technological development is much more than just allocating a large budget for research and development. It involves and transform a heterogeneous network of actors, and hence requires a complex set of institutions and governance that enable the network to upgrade their collective capabilities.

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INTRODUCTION

Technology and society are inseparable, they both coevolve and constitute each other. Human civilization grows with the development of technology, which they use to solve problems or overcome their limitations. Technology extends our body and cognition (McLuhan, 1994), enabling us to do many things that would be otherwise impossible. Without technology, only relying on our muscles and mind, we would be not too different from other species. Therefore, “It is easy to imagine human beings as pre-literate, but it is difficult to imagine them as pre-technological” (Nye, 2006, p. 5).

Since the industrial revolution, or more precisely since the capitalist system had become dominant in the Western world, technology development and diffusion have intensified. Under this system technological capabilities have become the determining factor of survival and success for both companies and countries. As the difference of technological capabilities among countries widen significantly, their inequality also increases greatly (North, 2005). The most economically developed nations are also the most technologically advanced ones, that is, the ones that not only make a proper and innovative utilization of technology, but also develop it on their own. Newly developed countries, such as South Korea and China, have economically surpassed many Western countries, because they can catch up and surpass the technological capabilities of the latter.

Many developing countries want to catch up with the advanced ones. Experts from the developed countries have always been keen to advise developing countries to achieve what the former have achieved for a long time. They regard their success as an irrefutable proof of their developmental prescriptions. Not only developing countries have been encouraged, but also being pressured by the developed world and the international development policy establishment to adopt free market economy, through implementing a set of “good policies” and establishing “good institutions” to foster their economic development (Chang, 2002). In technological capability development, the prescriptions includes inviting foreign direct investment (FDI) to establish manufacturing industries; establishing science and technology (S&T) institutions as those in developed countries; and establishing engineering higher education institutions.

Despite the long-term involvement of Western experts in advising developing countries as well as persistent pressures on the latter to liberalize their economy, most of them remain economically and technologically lagging behind. It is either they cannot implement the Western recommendations, or the Western experts

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