Chapter 6
Technology Resilience and Diffusion:
Capability Formation Dilemma in Non-Agile Economies

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ABSTRACT

Economic zones are facing difficulties to control their endogenous process of technology creation. Technology poverty does exist. How to ensure that fragile economic zones become more resilient in capturing technology? How to achieve a competitive advantage in non-agile economies and get a larger category of their populations benefit from it? These challenges have taken all serious developmentalists by storm. Unfortunately, the so-called 'technology transfer' does not yield to the outcomes it promotes resulting to mitigated results in non-agile countries. This chapter argues that in an unpredictable and changing environment, technology diffusion is part of a complex change process which needs to be dealt with in a comprehensive manner. It cannot take place without revisiting the capability formation dilemma in non-agile economies. The technology-driven capability should therefore be supported by strategic policies and public private institutions. Technology diffusion may appear as the systemic link between shared wealth creation and collective efficiency.

INTRODUCTION: TECHNOLOGY CONTENT AS THE MISSING LINK

The paradigm of catching-up or falling behind industrialized countries is an endless issue in the development paradigm. The global trend towards a sustainable wealth creation is a technology-innovation driven process. With reference to this debate, the world is basically split into three main groups of countries: industrialized countries (IC), emerging or newly industrialized countries (NIC) and least industrialized countries (LIC). Selected criteria such as the gross domestic product (GDP) per capita or the share of manufacturing or industry in the GDP appear as partial indicators while trying to restore the crucial role of science and technology in determining the wealth's creation of countries or economies. The correlation be-

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tween the lack of technology, the level of poverty and the pace of development is more and more obvious. Some countries have organized and structured their technology capability to respond positively and efficiently to change. Based on a clear commitment of governments, it is possible to support an endogenous process towards industrialization. As agility becomes an issue in the wealth creation process, States could be split into two broad categories: agile and non-agile economies. Economies whose selected economic drivers are below the world average will be considered as non-agile economies. Priority will be given to gross domestic product (GDP) (or gross national income (GNI)) per capita and the share of manufactured value-added in GDP.

Highlighted by many development institutions in the 1970s and 1980s, the naive approach of transferring technology to people without taking into consideration the existence of a comprehensive technology-driven policy embedded in local culture appears today as a strategic mistake. Any effective policy scheme should include the mastering of a local capacity of absorption, ensure the presence of support institutions, offer smart partnership approaches favoring investors and innovators, both local and foreign, and contribute to capture and diffuse knowledge. It is not surprising to register mitigated failures of past radical top-down precepts, wrongly considered as solutions which were supposed to make the difference for people in regions which are lacking technology infrastructure and leaders' effective commitments. Billions of US dollars (US$) of development aid[1] transferred to non-agile economies hardly improve the lives of those who are at the bottom of the wealth's ladder although there is no bottom to poverty. With the structural decline and mitigated efficiency of development aid, it is not surprising that a growing number of concerned people are clearly advocating against the effective benefit of aid (Moyo, 2009). Aid does not contribute to an effective transfer of technology. It often contributes to increase the number of people falling into dependency and poverty, an impressive number of African people which cannot be limited to the 'bottom million[2]' (Collier, 2007). In fact, with improved relations between effective democratically elected leaders and the population in fragile, failing and failed States (Reinert, Amaïzo & Kattel, 2010 forthcoming) and the renewed interest to foster entrepreneurship at all levels, the road to economic prosperity is possible. As recalled by the President of Rwanda, Paul Kagame, *'We know the road to prosperity is a long one. We will travel it with the help of a new school of development thinkers and entrepreneurs, with those who demonstrate they have not just a heart, but also a mind for the poor'* (Kagame, 2009). Alternative economists and new developmentalists' views may become more prominent in the future (Chang & al., 2010, forthcoming).

With reference to the mainstream neo-liberal economics schools of thoughts, the principle of effective technology transfer is simply restricted to those who can afford the high cost of transferring technology. For many governments with budgets constraints, technology transfer is simply an undeliverable option in a competitive globalized unpredictable environment. The importance of the State intervention was often underestimated in modern liberal economics. The recent financial crisis and its negative collateral effects have reversed that perception. In order to ensure technology diffusion in countries whose immediate objectives are to sustain or support an industrialization process, a smart and cross-cutting policy to improve the level of technology content has more chances to succeed if promoted by a government. Industrialization without clear linkages with the entrepreneurial community and a re-orientation of skills in line with global market evolution may not lead to the creation of decent jobs. In a competitive environment, it could even become a trap for countries whose policy combines low-level skills and high transaction costs while pursuing trade without value-added or trade limited to no- or low-technological content goods.