Editorial on Innovation in Science and Emerging Technology

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Abstract

The large disparities in income and social development between developed and developing countries are rooted in the considerable differences in their industrial development and use of technology, and the resulting gaps in their productivity. There are serious differences among developing countries as well, with some countries making great leaps forward and others appearing to be trapped in the low-income category. Countries with high levels of investment in physical capital instead of in technology run the risk of facing diminishing returns and slow growth. Ultimately, weak productivity growth in developing countries exacerbates poverty, energy deficiency and environmental debt, to name but a few significant implications. Conversely, investment in technology guarantees continuous productivity growth and potential for inclusive and sustainable industrial development.

It is therefore important to focus on the factors that are involved in increased technical efficiency (more output per input or more resource productivity) and technological change, both of which are components of productivity growth. Typically, the most dynamic sector for making advancements in this sense is the manufacturing sector. Apart from a few resource-rich, particularly oil-rich, countries, no country has been able to eradicate poverty without industrial development. A significant reason behind developing countries' weak productivity is the low rate of innovation. This may be due to the lack of skilled labour and incentives, and it is often made worse by an unsupportive environment that lacks a coordinated National System of Innovation (NSI), which promotes investment on innovation, decreases the constraints on the creation of new knowledge and technology, and boosts the rates of adoption and adaptation of existing technologies.

In addition to promoting productivity growth, the adoption of new technologies allows for a less energy-intensive and increasingly resource-saving production. While in the short term this may cause structural change and thus transitory unemployment, in the long term productivity growth generates more and different types of employment. Since higher technology levels are seen to promote the Inclusive and Sustainable Industrial Development (ISID) of countries, UNIDO also supports enterprises with landing the necessary investment to acquire new technologies. In the case of Foreign Direct Investment, the transfer of technology often happens automatically.