Editorial

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The Das and Upadhyay (2019) article in this issue contributes to the economic growth and policy analysis literature by exploring key drivers of economic growth and factors contributing to total factor productivity (TFP), explicitly incorporating human capital and the export-orientation of the economy into an analysis of the economies of 15 Asian countries. The paper is worthwhile reading for the analytic techniques used, but is most rewarding for the economic policy implications it infers.

Drivers of economic growth and factors contributing to TFP were estimated for 15 Asian countries with a detailed analysis of the implications for Malaysia. This analysis utilized Penn World Table data for a 45-year period, time series model (ARDL) techniques and generalized method of moments (GMM) estimation. Several variables analyzed in previous studies (Romer 1989; Sumner and Leiby 1987) were anticipated to be significant and, therefore, included in the model by Das and Upadhyay (2019). However, the paper goes further by explicitly considering human capital and the export-orientation of the economy for Malaysia. Human capital is considered to reflect skills, education, worker training, and health improvements. Traditionally, human capital comprises skills, knowledge and values, reflecting the work of the 1979 Nobel Laureates, Sir Arthur Lewis and Theodore W. Schultz (*Task Force on Measuring Human Capital* 2016). However, the inclusion of health improvement allowed Sibabrata and Das (2019) to make important observations about young adult mortality and life-expectancy rates. Additionally, the analysis permitted observations about how Malaysia might be able to maintain, or even accelerate, its growth rate over the next 15 to 20 years.

The results of the analysis were consistent with the literature, with the exception of Singapore, where real growth per capita was relatively flat to modestly declining over the period. For Malaysia, Das and Upadhyay (2019) found a strong interaction between human capital and trade openness, though some have suggested that pre-conditions exist that influence the transition of these relationships through direct foreign investment (Tsaurai 2017). The economic policy implication is that countries are likely to yield total productivity

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gains from human capital increases in direct proportionality to the openness of the economy. The authors included health improvement within the context of the definition of human capital. Thus, health improvement served as a transmission mechanism for total factor productivity and, in turn, economic growth. On the other hand, the analysis seems to suggest potential inertia in the contribution to economic growth from human capital as a specific country's (i.e., Malaysia) growth rate approaches the rate of growth of leading economies (e.g., U.S.A.) due to the interaction with trade openness and, by definition, the interaction between export-oriented countries and their trading partners' economic growth. Though Das and Upadhyay (2019) also pointed to the importance of fixed capital formation and domestic capital markets, export-market orientation and its interaction with human capital appear to be more promising mechanisms for driving sustained economic growth. In this respect, the authors may be pointing to ideas about market demand pulling economic growth versus investment pushing economic growth, which certainly warrants further analysis.

The explicit inclusion of human capital in the analysis allowed Das and Upadhyay (2019) to consider the impact of emerging technology, such as robotics and artificial intelligence, on the future nature of work and human capital. Their research suggests that export market orientation is a complementary factor relative to human capital in driving economic growth. The implications of new emerging technologies will depend on whether these technologies are complements or substitutes and, similarly, whether these technologies will be labor-saving or "labor-using" with corresponding effects on per capita income within countries.

The economic techniques used in the study have applications for the study of economic growth and total factor productivity in other regions. The economic policy implications are important for governments considering mechanisms for supporting gains in per capita income through economic growth and productivity gains. Furthermore, domestic economic policy aimed at fostering domestic economic growth needs to take into account the openness of the economy, global trade coordination and liberalization, as much as investment in domestic human capital gains and domestic capital market development. Conversely, international economic policy aimed at supporting human capital gains and capital market development in countries with material gaps in economic growth and per capita income, relative to leading economies, will likely have broad benefits due to the interdependencies and market demand-pull nature of economic and total productivity growth.

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