

Comment on Bosworth-Collins-Chen

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The analysis of the patterns of economic growth of the countries and the factors determining these patterns have attracted an interest of the economists for long time. The recent years have seen an increase in the interest in this subject for several reasons. One reason is the rapid economic growth of the countries in East Asia. Another reason is new theoretical developments in the fields of economic growth. Since the second point is nicely summarized in the Bosworth-Collins-Chen paper (hereafter, BCC for short), let me now briefly discuss the first point, that is the rapid economic growth of the countries in East Asia.

The rapid economic growth of the developing countries in East Asia in recent years is remarkable, when other developing countries have been performing unfavorably. The publication of a World Bank report titled *The East Asian Miracle* in 1993 gave rise to an added interest in the subject of economic growth and the mechanism of economic growth not only among the economists but also among policy makers and even among the people in general. The World Bank report finds that high economic growth of the eight Asian countries is associated with high productivity growth. It attributes such favorable economic performance by the Asian countries to their pragmatic adherence in their policies to fundamentals, which are important for the promotion of economic growth. Specifically, these countries have been engaged themselves in the policies to achieve three critical functions of economic growth, namely, accumulation, allocation, and productivity growth.

One year after the publication of the World Bank report, Paul Krugman cast doubt about the finding of the World Bank report on the factors or sources of economic growth in East Asia in his controversial article titled "The Myth of Asian Miracle" in *Foreign Affairs* (October,

1994). Utilizing the finding of Alwyn Young, Krugman concludes that capital accumulation rather than productivity growth is the key factor behind the rapid economic growth of East Asian countries. Krugman goes on to argue that the growth mechanism realized in East Asia resembles that of the Soviet Union in the 1950s. Based on this observation, Krugman asserts that economic growth of East Asian countries will decline sooner or later as diminishing returns to capital accumulation sets in.

Since the publications of these influential works, a number of studies have been undertaken to examine the patterns of economic growth of the countries in the world with a particular focus on the countries in East Asia. So far, no definitive conclusion has been reached regarding the importance of productivity growth in economic growth of East Asian countries.

BBC examines the sources of economic growth for 88 countries and identifies the factors determining cross-country differences in economic growth. BCC contributes to the debate mentioned earlier by clarifying a number of points which have been left as untouched or unsolved. Among a number of their contributions, let me mention three. First, it extends the previous analyses regarding the period of coverage and the use of different definitions for measuring the factor inputs. Specifically, the analysis covers a longer period of 1960-92, compared to the previous analysis, and it examines quality of labor using two measures, the year of schooling and the wage differentials. Second, the BCC paper adopts various specifications of the model used for the growth accounting exercise. Previous studies have applied only one of these specifications to different data sets. As such, it has been very difficult to compare the results from the different studies. By applying different specifications to the same set of data, BCC was able to compare effectively the estimates derived from different specifications. Finally, BBC examines the determinants of the cross-country variations in growth rates, capital accumulation, and total factor productivity (TFP), separately. The factors they consider are initial conditions, external environment, macroeconomic policy, and trade regime. BBC carried out an investigation of the factors determining TFP and capital accumulation, which has not been performed intensively in the previous studies.

Their major findings may be summarized as follows. As for the patterns of economic growth in East Asia, capital accumulation has been a major factor and the growth in TFP is not a major factor, giving support to Krugman's observation. Regarding the factors affecting economic growth, capital accumulation, and total factor productivity, BCC finds that stable macroeconomic policy and outward oriented trade policies promote economic growth, capital accumulation and TFP.

Below I would like to raise some points that have not been dealt with by BCC but may be important to increase our understanding of the mechanism of economic growth.

The first point is on the meaning and the measurement of TFP. One would like to interpret it as technical progress. If so, TFP derived by adjusting for labor quality is an appropriate measure of technical progress. However, to derive the measure of pure technical progress, one may have to consider the change in the quality of capital as well. This approach, which results in symmetrical treatment of labor and capital, can be done by taking the vintage of capital equipments into consideration. Such analysis may be conducted for a particular country or a particular industry, but it is difficult to do so for all the countries under study because of the difficulty in obtaining necessary data. Because of this difficulty associated with proper and symmetrical treatment of quality of labor and that of capital, it may be appropriate to use a simple approach by using only physical capital and labor. If this approach is adopted, TFP is likely to be greater and therefore it is likely to be a more important factor determining economic growth of the East Asian countries.

The second point, which is related to the previous one, regards the framework used for the analysis of economic growth. The growth accounting approach assumes that the economy is in long-run equilibrium in the sense that full employment prevails for all the factors of production. Because of this assumption the growth accounting approach is characterized as a supply-side framework, ignoring demand-side factors. The assumption of full employment does not appear realistic for developing countries, where not only unemployment in labor but also capital is widely observed. If unemployment or under-utilization of capital equipment is taken into account explicitly in the computation of TFP, the estimates on TFP are likely to be different from their estimates.

The third point is on the factors behind rapid capital accumulation. BCC finds that rapid capital accumulation contributed greatly to rapid economic growth for the countries in East Asia. One wonders how this came about. In other words, one would like to know how the countries in East Asia obtained the funds or resources used for capital accumulation. Obviously, domestic savings and foreign savings are the sources for capital accumulation. BCC does not examine this issue, but the growth mechanism cannot be explained without providing the answers to this question. I will come back to the issue of foreign savings, when I discuss the role of foreign direct investment in economic growth of the East Asian countries.

The fourth point is the period of analysis. An observation of the results of the sources of growth decomposition shown in Table 6 reveals

that for East Asia the 1986-92 period registers the highest economic growth as well as TFP growth. Indeed, this is the period that has drawn a significant attention recently among the economists, and thus an attempt should be made to focus on this period to reveal the mechanism of high economic growth. Several notable developments were observed for the 1986-92 period. Liberalization in trade and foreign direct investment (FDI) policies was rigorously carried out, to result in rapid expansion of foreign trade and FDI. Rapid expansion of foreign trade and FDI, in turn, promoted economic growth. For some countries, a significant portion of fixed investment was undertaken by foreign firms. FDI is likely to contribute to economic growth of the host country not only by expanding fixed investment but also by improving technical efficiency through technology transfer. Because of its impact on technological progress, it may be interesting and useful to divide capital inputs into domestic inputs and foreign inputs in the sources of decomposition analysis.

Finally, I would like BCC to look into the impact of the changes in the policies on economic growth explicitly. In the BCC paper, different characteristics of trade policies are examined by using trade policy related indicators measured at one point. However, it may be the changes in trade and FDI policies that influence economic growth. To test this conjecture, the changes in trade and FDI regimes have to be incorporated explicitly.

In spite of the points remained to be examined in future research, I do believe that BCC contributes significantly to our understanding of economic growth, and for that reason I would like to congratulate the authors.