

Discussion

1. Wong Fot Chyi

Michael Sarel provides a critical review of some of the issues which have been addressed by numerous studies concerning East Asia's remarkable economic growth over the past few decades. This is an area that has proven to be fertile ground for intense debate and controversy among growth and political economists, and will continue to be so. Here, I shall also restrict my discussion of his paper to the four main dimensions of the issues which he has identified as important, drawing on Singapore's experience whenever possible.

Productivity or Factor Accumulation?

Consider first the issue of total-factor productivity (TFP) measurement. In most empirical studies, TFP is measured either as a residual of output growth net of a weighted average of the growth in all inputs, or as a coefficient of time in a regression of output on the various inputs and time. In either methodology, there is an underlying assumption that all the factors, inputs and TFP, are independent of each other. However, several possible sources of interdependence between factors have been identified in the literature. These include the embodiment of technology in capital, non-neutrality of technological progress, and the complementarity of skill and capital (both physical and human).¹ The analysis of such interactions suggests that the contributions to output growth from TFP and the various inputs may be empirically indistinguishable. However, in many conventional growth-accounting exercises and regression studies, the effect of this interaction is usually credited to the inputs, thereby underestimating TFP growth.

I show in Table 1 the estimates of TFP growth for both the manufacturing sector and overall economy in Singapore which can be extracted from the literature.² The great variety of TFP growth estimates that have been obtained for the same country, some highly contradictory, should immediately give rise to caution in interpreting such TFP measures. Sarel has correctly highlighted the problem of robustness of TFP estimates. In particular, he has shown that they are sensitive to the weight being assigned to capital input and the specific estimation period. Another significant influence on the robustness of TFP results lies in the disaggregation of the various inputs. As Jorgenson and Griliches (1967) had initially argued, the residual from the growth-accounting exercise could be eliminated altogether by adjusting the inputs for shifts in quality, composition and other attributes.³

The point is that TFP calculations are notoriously imprecise, easily distorted by measurement errors in the data on inputs and output, and improvements in their quality.

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1. See, for example, Kim and Lau (1992,1994), Hulten (1992) and Berman, Bound and Griliches (1993).
 2. The estimates are mostly taken from Felipe (1994), who also provides the TFP estimates by various researchers for some of the other South-East Asian countries.
 3. They had, however, retreated from that position after being criticised by Denison (1969). Even then, the effect of disaggregation of inputs on TFP estimates remains.

As shown by both Lowe and Gordon in this Volume, this problem is particularly severe in the financial services and electronics industries. It is even more so in an economy with rapid structural changes like Singapore, where the share of financial and business services in GDP had risen from 15 per cent in 1960 to 25 per cent in 1994 while the share of manufacturing, heavily weighted in electronics, had risen from 18 per cent to 27 per cent. Seemingly obscure differences in national-accounting methodologies can also lead to big differences in TFP growth between countries, rendering cross-country comparison a meaningless exercise. Moreover, despite its importance, the concept of TFP remains a relatively vague one. TFP, or technological progress estimated as a residual or a coefficient on a time trend, also has little policy implication, since we do not know where it comes from. The recent literature on TFP growth has not contributed significantly to our understanding of the process of economic growth in East Asia, although it has raised useful questions for further study.

Table 1: Estimates of TFP Growth for Singapore
(Per cent per annum)

Source	Period covered	Overall economy	Manufacturing
Chen (1977)	1957-70	3.62	—
	1960-70	—	3.34
Easterly (1993)	1960-85	3.02 ^(a)	—
		1.69 ^(b)	—
Elias (1990)	1950-87	1.81	—
IMF (1995)	1961-91	1.80	—
Kim and Lau (1994)	1964-90	1.90	—
Nehru and Dhareshwar (1994)	1960-73	4.70	—
	1973-87	1.50	—
	1960-87	-0.80	—
Toh and Low (1994)	1970-92	1.37	—
Tsao (1985)	1970-79	—	0.08
Tsao (1986)	1966-72	0.60	—
	1972-80	-0.90	—
Wong and Gan (1994)	1981-90	—	1.60
World Bank (1993)	1960-90	1.19 ^(c)	—
		-3.01 ^(d)	—
Young (1992)	1966-85	-0.50	—
Young (1993)	1970-85	0.10	—
Young (1994)	1966-90	-0.30	—
	1970-90	—	-1.00

Notes: (a) Using Barro-type regression.
(b) Using Levine-Renelt-type regression.
(c) Sample includes high and low-income countries.
(d) Sample includes high-income countries only.

Public Policy and Government Intervention

On the role of public policy and government intervention, Sarel has succinctly summarised the three views on this issue. Without a doubt, this is an area of even greater controversy than TFP measurement. Even with respect to Japan, there is still no complete agreement among economists about how far policy intervention has been carried, and with what success. The World Bank (1993) also appears to have two minds about the role of government intervention in East-Asian economic growth.⁴

Differences of opinion about the role of government in economic development are most obvious in the analyses on the divergent growth experiences between East Asia and Latin America. In their survey of the literature, Adams and Davis (1994) surmised that the main reason for the difference in growth experience is one of economic orientation. Most East-Asian countries adopted an export-oriented industrialisation strategy at an early stage of their economic development, while most Latin-American countries clung to inward-looking import-substitution policies, at least until recently. In addition, the benefits of outward-looking policies in East Asia were reinforced by prudent macroeconomic policies and more cooperative relations between the government and other economic actors. As they put it:

‘The crucial difference between the East Asian and the Latin American countries is not the extent of government intervention in the economy but the fact that intervention in East Asia has generally been market-conforming, facilitating adjustment to market forces, while in Latin America, as in other protectionist regimes, it has tended to be market-distorting, designed to protect interest groups from market pressures’ (Adams and Davis 1994, p. 19).

The East-Asian government action has been termed ‘neoclassical intervention’ in the literature and I am inclined to subscribe to this view. But as Sarel has noted, there is such a large variation in the policies pursued by the East-Asian countries that the same set of countries have been used to support opposing schools of thought on economic development.

Investment, Exports and Initial Conditions as Determinants of Growth

On these three possible determinants of growth, Sarel is negative about the first two but positive about the third. He has quite aptly pointed out that correlations between growth and some chosen variables typically found in cross-sectional studies do not necessarily imply causality. Such studies are vulnerable to omitted variable bias, spurious correlation and reversed causation. On top of these, one also cannot be sure whether the diverse economic experiences represent different observations on some well-defined surface (see Levine and Renelt (1992)).

4. As Benjamin (1994) has highlighted, in one part of the report, World Bank (1993) asserts that ‘our assessment of these major uses of intervention is that promotion of specific industries did not work’ and, in another, it concludes that ‘more selective interventions – forced savings, tax policies to promote (sometimes very specific) investments, sharing risks, restricting capital outflow, and repressing interest rates also appear to have succeeded in some HPAEs, especially Japan, Korea, Singapore and Taiwan, China’.

As a partial solution to the problem of reversed causality, Sarel uses initial period (rather than average period) observations for the explanatory variables. The problems of cross-sectional analysis which I have just mentioned notwithstanding, the use of initial period observations for the explanatory variables is not without its own problems. First, since economic growth is a dynamic process, the finding that initial period conditions are a significant determinant of growth for the ensuing 30 years is tantamount to saying that the high economic growth of East Asia is fortuitous. Second, as Sarel himself has noted, the quality of the data on initial conditions for most of the less developing and East-Asian countries is in dispute. As such, the empirical results derived from these data should not be taken seriously. Third, there is reason to believe that economic growth and some of the variables are closely linked in a virtuous cycle. These variables may also determine economic growth jointly, rather than singly. Thus, evaluating the respective individual effect of, for example, investment, exports or initial conditions on growth to the exclusion of the other variables may not yield meaningful results. Perhaps Singapore's experience with economic development might be instructive in this regard.

During the approximately three-decade period since achieving self-government from the British in 1959, the Singapore economy has evolved from a semi-closed, low-wage producer of mainly labour-intensive goods, to a very open, high-wage producer of high-technology, capital-intensive products. During the early years, Singapore's economic conditions were dismal. For example, in 1961, unemployment rate was a chronic 15 per cent, gross domestic savings rate was a negative 2 per cent and gross investment rate was a low 12 per cent. There were also the problems of severe poverty and a poorly educated population. Singapore's small domestic market, poor resource endowment, narrow industrial entrepreneurial base and lack of industrial capital were further constraints on growth. If at all, the positive aspects of Singapore's poor initial conditions were that it was very economically backward, since, as Dowrick in this Volume has shown, there are advantages to backwardness in economic development; and that its population had an even distribution of income, as we were all equally poor.

An initial unsuccessful attempt at import-substitution in the early 1960s quickly gave way to an export-oriented industrialisation strategy based on foreign investments. This was a break from the preferred development strategy in both policy and academic circles at that time. In fact, Singapore's economic development over the past three decades has been synonymous with the attraction of foreign direct investments by multi-national corporations to spearhead growth in the manufacturing industries. To attract foreign investments, however, Singapore had to first overcome the hurdle of its economic constraints and poor initial conditions and create a favourable climate conducive to investment. This required strong government intervention in providing the necessary infrastructure such as roads, ports, industrial estates, and public housing for the masses. The role of the government also extended to ensuring sound, stable and prudent macroeconomic policies, upgrading the educational level of the population and promoting private savings.

Between 1961 and 1994, Singapore's gross domestic savings rose from -2 per cent to 50 per cent of GDP, while gross investments went up from 12 per cent to 32 per cent of GDP. Real GDP and per capita real GDP grew at 8.5 per cent and 10.5 per cent per annum respectively, leading to a 46-fold increase in per capita nominal income from US\$447

in 1961 to US\$20,499 in 1994. Foreign direct investments had augmented low domestic savings during the initial years in boosting growth which, in turn, had generated higher savings and investments in a virtuous cycle. Studies (IMF (1995), for example) have also shown that the high savings rate in Singapore had been due to demographic factors and robust economic growth. The much cited compulsory pension fund system has very little forced savings effect, except during the early years, as total private savings have been much more than net pension contributions.

Although the sources of Singapore's high economic growth have been, and will continue to be, much debated, the analogy that has been made between Singapore and the Soviet Union certainly does not stand up to scrutiny. The crucial difference between the two economies is that one is outward-looking while the other is inward-looking. Thus, insulation from vagaries of international competition and failure to exploit and adopt best-practice technologies from the West, combined with the fact that much of its high investments were defence-related had led to the implosion of the Soviet economy.

Conclusion

As Sarel admits in his conclusion, his paper does not offer clear and conclusive results, nor make clear policy recommendations. If anything, much of his critique in the paper is negative, and this would certainly cloud the debate on the East-Asian growth miracle. Singapore's experience has shown that things are not as dismal as Sarel has concluded. Of course, one case does not make for generalisation. While the search for a unified explanation of the East-Asian miracle may well be futile, it has not curtailed the enthusiasm nor the number of officials from less developing countries visiting the East-Asian capitals to pursue and learn from their economic success. As Rostow (1995) puts it, miracle or not, the industrialisation of Asia will shape the next century.

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2. General Discussion

The discussion focused on three issues:

- the importance of government intervention in the Asian growth process;
- whether Asian growth was intensive or extensive; and
- the necessary pre-conditions for growth.

While participants generally agreed that there was a large amount of evidence that poor government policy could harm economic performance, opinion was divided about whether the opposite was true – that is, whether government policy could enhance economic growth. One participant argued that it may be more difficult in the current world economic environment to adopt a ‘picking-winners’ approach than it was in the 1960s and 1970s. The increased openness of trade and capital markets may reduce the ability of governments to favour one industry over another. In focusing on government intervention in the East-Asian economies, the poor experience of industry policy in many Latin-American countries tended to be overlooked. The lessons of the Asian growth experience were drawn mainly from the ‘winners’ rather than the ‘losers’.

The issue of whether Asian growth was ‘intensive’ or ‘extensive’ was seen as vital to the debate on the relevance of Asian growth. If the Asian growth experience was solely due to the mobilisation of resources, when should we expect to see these economies slow down? Alternatively, however, there may be further scope for continued growth by reallocating resources more efficiently between sectors. Furthermore, one participant argued, if their growth simply involves mobilising resources, shouldn’t this be easily replicable in developing countries which have had a very poor growth record? In terms of the lessons for Australia, if growth in Asia was extensive, then there is little that Australia can learn from the Asian experience.

There was also some debate about what were the necessary pre-conditions for growth. One participant argued that the Asian experience provided mixed evidence on the need for higher saving to encourage growth. In a number of countries, high saving rates followed economic growth, whilst in other countries high saving rates were in place before growth accelerated. Another participant emphasised the integrity of the financial system as a necessary pre-condition for growth: a sound financial system is necessary to mobilise resources and to allow saving to be transformed into productive investment. While much attention was paid to deregulation of financial markets, it was also noted that there are a host of institutional rigidities that can retard growth. In this regard, it was suggested that a key ingredient for a revival of growth in Japan was microeconomic reform in the non-traded goods sector. Finally, it was emphasised that the pre-conditions for good economic growth may vary with the maturity of the economy; a phenomenon not easily captured in cross-country growth regressions.