Fitting Macroeconomics to Emerging East Asia

East Asia has given rise to some of the most spectacular economic performances of the post-World War II era. It has also borne some of the most serious setbacks. As everywhere, boom and bust follow one upon the other in recurring cycles. Notably for Emerging East Asia, as the region has become more integrated internally and with the rest of the world, the cycles have become more synchronized.

Many East Asian economies have managed to sustain double-digit growth rates for a few years at a stretch – Japan, Hong Kong, Singapore, Korea, Taiwan, China, Thailand, and as of the 2000s even Myanmar and Cambodia, are all members of this club. Singapore stands out for having achieved growth in excess of 10 percent for nine consecutive years from its independence in 1965 to 1973. More recently, Myanmar appears to have beaten this record with an 11-year run of double-digit growth beginning in 1999, if official statistics are to be believed (see end of chapter Data Note).

Typically though, boom times are short lived, and what’s more, they are often followed by busts. Spurts of growth intermix with periods of sluggishness or even contraction. Singapore’s storied success was punctuated by repeated setbacks, with growth going negative in 1985, 1998, 2001, and 2009. The Asian Financial Crisis of 1997–1998 plunged much of Emerging East Asia into negative growth territory. At the epicenter of the crisis, Thailand experienced a particularly virulent turn, coming through a decade of expansion at near double-digit levels only to see output growth drop to –1.4 percent in 1997 and then to –10.5 percent the following year.

Fluctuations in economic growth, and the policy measures aimed at containing them, are the central concern of this book. This chapter introduces the subject matter and explains why the treatment presented in standard US texts is a poor fit for Emerging East Asia. The 13 economies within our purview are Cambodia, China, Hong Kong, Indonesia, Korea, Laos, Malaysia, Myanmar, the Philippines, Singapore, Taiwan, Thailand, and Vietnam.

The focus of this text is on short-run deviations from long-run potential growth. For our purposes, the conceptual basis for long-run potential growth can be characterized succinctly, and we accomplish that in this first chapter. Long-run potential provides a reference against which to mark output gaps wherein an economy temporarily overshoots or undershoots a
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sustainable path. A high degree of volatility around the norm rate of growth is undesirable. Shortfalls involve loss of employment and income, as well as missed investment opportunities. But overshooting, too, carries costs as resources are misallocated into projects that are not ultimately viable, sowing the seeds of dislocations to come. More generally, volatility complicates planning for the future and inhibits entrepreneurial risk taking. Government policy thus seeks to stabilize growth and keep output gaps – positive or negative – to a minimum.

The first section of this chapter defines macroeconomics, drawing the contrast with microeconomics. It then presents graphically the main phenomenon to be understood: growth fluctuations for our 13 economies as viewed over the last six decades. The second section explains the concept of long-run potential growth, against which output gaps are registered, and examines the controversy surrounding how the early break-out economies of Emerging East Asia sustained their extraordinary growth rates. Theories of output gaps are introduced in the third section, with attention to why the economies of Emerging East Asia are particularly prone to volatility. The fourth section discusses stabilization policy, again with attention to the particulars of Emerging East Asia. The final section summarizes the book and provides a chapter by chapter outline, then offers guidance on finding a path through it along alternative tracks.

A Macroeconomics Defined

An economy is made up of multitudes of diverse individuals making choices in pursuit of their own interests. Households make choices about how much of their incomes to spend or save, what products to buy or assets to hold, how to make the most of their time and talents in the marketplace. Business managers make choices about designing and producing products, employing workers, investing in plant and equipment, adopting and developing technologies, borrowing money or taking on equity investors, and distributing profits. No omniscient planner coordinates this vast array of activity, yet somehow it takes on an overall coherence. And in the aggregate, the activity coalesces to move as an integrated whole, cycling through boom-and-bust.

In this section, we flesh out the concept of macroeconomics by contrasting it with microeconomics. We then offer a first glimpse of the phenomenon at the heart of this text by charting growth fluctuations over the last six decades for the economies of Emerging East Asia.

Macro vs Micro

Macroeconomics looks at the big picture of aggregate output and the general price level, and seeks to understand movement in these indicators over time. Microeconomics focuses on the behavior of individual households and firms and how this behavior is expressed in markets to determine relative prices and patterns of resource allocation among alternative uses. Systematic parallels between macro and micro are drawn in Box 1.1.
Box 1.1 Macro vs micro

**Macroeconomics** deals with an economy as a whole. Attention is on aggregate production of output and overall utilization of resources. The key performance indicator is the total value of final goods and services produced during a period of time. In contrast, **microeconomics** focuses on the allocation of resources among alternative uses in the production of goods and services. Attention is on how the forces of supply and demand determine activity in particular markets.

Prices are of interest in **macroeconomics** for how they move overall. A key indicator of macroeconomic stability is the inflation rate. In **microeconomics** relative prices are what matters. Some products are relatively cheap, others relatively expensive, and microeconomics explains why.

The degree of resource utilization relative to potential is of concern in **macroeconomics**, the unemployment rate being a standard measure of this and, along with inflation, a key indicator of stability. **Microeconomics** looks at the allocation of resources among competing uses.

Finally, the external sector comes into play in **macroeconomics** with respect to an economy’s overall payments position with the rest of the world. Whether an economy is running a surplus or deficit in its international trade and financial accounts has implications for macroeconomic performance and policy. In **microeconomics**, the composition of imports and exports and the role of foreign investment by sector are of interest.

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<th>MACRO</th>
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<td><strong>General Purview</strong></td>
<td>size of an economy in the aggregate; long-term growth and short-term fluctuations</td>
<td>relative activity in particular markets as determined by forces of supply and demand</td>
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<td><strong>Prices</strong></td>
<td>movement in the general level of prices, the inflation rate being the key indicator</td>
<td>relative prices, or why some things are cheap and others expensive</td>
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<td><strong>Resources</strong></td>
<td>utilization of resources relative to capacity, the unemployment rate being a prime indicator</td>
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<td><strong>External Sector</strong></td>
<td>overall balance in international trade and financial flows</td>
<td>composition of exports and imports, and impact of trade and foreign investment by sector</td>
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Microeconomics takes households and firms, of a stylized sort, as its basic building blocks. Households are assumed to maximize utility (i.e., well-being) by selling the factor inputs to production – labor, capital, land, and entrepreneurship – and buying goods and services. Firms are assumed to maximize profits by operating on the opposite side of these exchanges, buying factor inputs and selling goods and services. Market participants bid against one another to arrive at prices that equate demands and supplies. Under competitive market conditions, microeconomic theory contends that scarce resources will be allocated to the uses in which they are most highly valued. The “Invisible Hand” of the market, in the metaphor of Adam Smith (1776), thus achieves an efficient outcome in a way that no planning authority could hope to match.

Yet, while micro theory adheres to a story of markets reaching equilibrium, macro theory is concerned with instability in an aggregate that is ostensibly the sum of its micro parts. There is a seeming disconnect in this. For macro must deal with resources at times being less than fully utilized and the price level being broadly unstable even as micro presents a vision of markets clearing through price equilibration. At the macro level, the unemployment rate and the inflation rate are standard indicators of how an economy is performing relative to its potential. An economy in a downturn experiences rising unemployment and weakening inflation or even a falling price level. Conversely, in an expansion, labor markets tighten to reduce unemployment and inflation heats up. Equilibrium seems elusive in the macro realm.

How can the disconnect between micro and macro be reconciled? The failure of the labor market to clear – that is, the existence of unemployment – may be explained by lags in adjustment to shocks or by rigidities in wage bargains that limit downward adjustment and thus compel firms to layoff workers when they must cut costs. And movements in the macro price level can occur irrespective of the structure of relative prices that pertain to micro. In any case, some disconnect between micro and macro should not be too disconcerting. Each body of thought is concerned with explaining different phenomena: micro with the way markets coordinate the allocation of resources and the distribution of products to achieve an outcome in the moment; macro with the way the aggregate of this activity moves over time. Each body of theory should be taken on its own terms with a view to its particular purpose.

For a large economy with a relatively small foreign sector, the study of macroeconomics can proceed with respect to the domestic realm, leaving an international dimension to be grafted on afterward. This is the typical approach of textbooks focused on the US economy. However, for the outward oriented economies of Emerging East Asia, external influences must be treated as integral. External shocks – for example, swings in global commodity prices, movements in exchange rates, or changing perceptions of risk that drive international capital flows – are major sources of volatility for these economies. External imbalances in trade or financial flows can be sustained to a point, and that point can be stretched with concerted macro policy action. But ultimately, vulnerabilities may develop or tipping points may be reached with disruptive consequences when corrections finally occur. External balance is thus central to the study of macroeconomics for Emerging East Asia.
**Fluctuations around Potential Growth**

The principal measure of macroeconomic performance is gross domestic product (GDP) which captures the value of all final goods and services produced in a given period of time. This includes both consumption and investment products. Nominal GDP growth rates are calculated based on current prices. Subtracting the rate of inflation yields real GDP growth at constant prices.

Real GDP growth rates for our 13 economies for the period 1960–2020 are presented in Chart 1.1. The scaling of the axes allows for growth as high as 15 percent and as low as –15 percent, with the numbers sometimes going off the chart in early years although not since the 1970s. The most extreme negative value was for China in 1961 at –27 percent, and indeed this is the only instance of a growth rate dropping below the negative bound of the scale. Known in China as the “difficult period,” the early 1960s saw tens of millions of people lose their lives to famine as food production collapsed under Chairman Mao’s ill-conceived Great Leap Forward. Later in the 1960s and the 1970s, both China and Hong Kong saw growth rates spike above 15 percent within a context of extreme volatility.

Growth has at some point reached more than 10 percent for all economies in the region except the Philippines and Vietnam (the latter on the basis of data only since 1985). And it has plunged into negative territory without exception for all those economies for which time series are available in full. Volatility is a reality no economy has escaped. Even from one year to the next, wide fluctuations in growth rates are common. Of a total 686 year-to-year points of comparison yielded by the sample, 114, or 17 percent, involve a change of more than five percentage points in one direction or the other.

For each economy, Chart 1.1 shows a trend line representing a linear approximation of the growth rate over time. The linear form of the approximation allows values to go to untenable extremes toward the ends of the time period. Subject to this caveat, the slope of the line provides a clue as to general movement in the growth rate up or down over time. Economies that reached middle income status earlier (Hong Kong, Korea, Singapore, and Taiwan) have generally experienced slowing growth rates during the period under examination whereas those emerging later (such as China, Laos, and Myanmar) have shown rising growth rates.

Patterns over time in the region-wide coincidence of fluctuations can be discerned by superimposing the growth rates of the 13 economies, as shown in Chart 1.2. The Asian Financial Crisis stands out for its severe impact across the board in 1998. And the devastating impact of the pandemic is evident in 2020. Prior to the Asian Financial Crisis, deep recessions were usually confined to a single economy, although milder growth slowdowns of a more shared nature are visible in some years (1964, 1967, 1982, and 1985). From the Asian Financial Crisis onward, synchronization is more clearcut. Subsequent sharp dips in growth rates registered broadly in 2001 and 2009. In recent decades, the economies of Emerging East Asia have become more integrated both with one another and with the rest of the world. Individual economies have thus tended to get more caught up in forces emanating from beyond their borders.
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Chart 1.1 GDP growth rates, select economies, 1961–2020
B Potential Growth

With all the variation in growth rates on display—not only from year to year for given economies but in general trends across economies—how are we to discern long-term potential? In this section we examine the underpinnings of potential growth using a formal growth accounting framework. We then review empirical applications of the framework to Emerging East Asia.

Even a formal accounting framework leaves much ambiguity about what can be achieved as opposed to what has been achieved. For purposes of macroeconomic stabilization policy, the reality is in any case more pragmatic discovery process than modeling exercise. An economy’s potential growth is marked most tellingly by that threshold beyond which inflation accelerates. The goal of policy is to bring the economy as close to potential as possible without crossing the line. As a practical matter, potential is discerned by pushing the limits. Growth accounting acts as an aid in envisioning those limits.

Growth Accounting

The conceptual foundation for growth accounting, as laid out by Robert Solow (1957), rests on a distinction between increases in the factor inputs to production and increases in the productivity of those factor inputs. For growth accounting purposes, the key factor inputs are capital and labor (land not varying appreciably over time and entrepreneurship, varying or not, not readily measurable). Formally, the contribution of capital to output growth is given by the rate of increase in the capital stock, represented by $\dot{K}$, times the rate of return to capital, i.e., the profit rate, represented by $\pi$. Similarly, the contribution of labor is given by the rate of increase in labor, $L$, times the rate of return to labor, i.e., the wage rate, $w$. 

Chart 1.2 GDP growth rates superimposed, select economies, 1961–2020
Output growth is given by $\dot{Y}$, and that part of output growth explained by an increase in total factor productivity by TFP. Putting the pieces together, we have:

$\dot{Y} = TFP + \pi \cdot \dot{K} + w \cdot \dot{L}$  \hfill (1.1)

More detailed formulations of the contributions of labor and capital are possible. Labor may increase not only quantitatively, but qualitatively through human capital formation, with years of schooling typically taken as the measure of this. Quantitative increases in labor may trace to: (1) increases in the labor force due to (1a) increases in working age population or (1b) increases in labor force participation among those of working ages; or (2) changes in hours worked per worker. Increases in capital result from new investment, which is partially offset by depreciation of existing capital. Breakdowns by form of investment (plant, equipment, residences, infrastructure) and vintage are possible. This finer parsing of labor and capital inputs allows for more closely calibrated measurement of their impact on growth affording a clearer delineation of the residual element, TFP.

The TFP residual captures a wide variety of influences. Foremost among these is technological innovation. The advance of knowledge allows more to be achieved with given resources. Another influence, important in developing economies, is the transfer of labor out of subsistence agriculture into formal industrial and service sector employment. Migration from farm to factory involves a leap across a productivity chasm when poor peasants take up work in the city. Finally, institutional development can contribute dramatically to productivity growth. The strengthening of market functioning and the fostering of private enterprise are great boosters of effort, entrepreneurial energy, and efficiency in resource use.

**Empirical Application to Emerging East Asia**

Growth accounting exercises for Emerging East Asia have ignited a firestorm of controversy. A study by Young (1995) of Hong Kong, Korea, Singapore, and Taiwan for the period 1966–1990 traced most of the extraordinary growth recorded to increases in factor inputs leaving little, or in the case of Singapore less than nothing, to be explained by improvements in TFP. The four tigers, as they are known, invested heavily in both physical and human capital, and put more of the population to work as females increasingly entered paid labor and falling birth rates concentrated more of the population in working ages. Hard work and sacrifice, then, rather than technological advance and economic progress, were alleged to have been the basis for growth.

The finding that East Asia’s success derived mainly from “perspiration” rather than “inspiration” in the words of Paul Krugman (1994) did not sit well within the societies being studied. The findings suggested that growth had come at a very high cost in terms of foregone consumption and leisure, and that in the extreme case of Singapore investment had been pushed to a point of negative returns. With saving rates and labor force participation reaching the limits of feasibility, the implication was that the East Asian development
model was close to exhaustion, and that absent improvements in productivity, growth was about to hit a wall.

Results of growth accounting studies are sensitive to tweaks in methodology, and other researchers have come to less extreme conclusions. A report by the International Monetary Fund (2006) offered mixed findings on TFP for a broad selection of Emerging East Asian economies. The period under review started from an economy-specific year of growth take-off and extended to 2005. The report showed TFP growth having contributed more importantly among the four tigers than Young estimated, and very importantly with respect to China’s much higher growth, although negligibly to the more modest growth of the ASEAN-4 comprising Indonesia, Malaysia, the Philippines, and Thailand. Heavy reliance on investment in physical and human capital to achieve growth remains characteristic of the region. Once that is recognized, the wedge left for attribution to TFP increases takes on significance only with very high GDP growth.

The formal growth accounting framework is useful for benchmarking potential. Projections of labor and capital increases combined with expectations about productivity growth can suggest a feasible trajectory for an economy. A modeling exercise such as this presents a loose reference point for macro stabilization policy. But more immediate, tangible indicators of output gaps take on greater influence in the practical affairs of policymaking. We now turn attention to these indicators.

C Output Gaps

Growth above potential is indicated by accelerating inflation, growth below potential by resource under-utilization. We elaborate on the manifestations of output gaps in this section with attention to the particulars of emerging market economies. We then approach the controversial subject of how to interpret fluctuations in growth. Much disagreement revolves around what causes fluctuations and whether or not an economy will tend to self-correct and return to its potential path automatically. Differences in views on these theoretical issues lead to differences in positions on how to conduct stabilization policy.

Measuring Output Gaps

Overperformance relative to long-run potential results in a positive output gap, underperformance a negative output gap. A positive output gap is also known as an inflationary gap. As growth outstrips potential, bottlenecks develop in markets for labor and other resources. This puts upward pressure on wages and prices. Low levels of inflation, on the order of 2–4 percent, are generally conducive to healthy economic development. A little inflation allows for easy adjustment in relative prices to reflect changes in costs or other market conditions. Higher and accelerating inflation becomes problematic, however, especially as uncertainty mounts and this clouds decision-making. Lenders worry about lost purchasing power of funds being repaid them and call for higher interest rates, which borrowers may be reluctant
to take on. Investment consequently tends to shift to riskier endeavors in an inflationary environment. Keeping inflation low and stable is therefore an important macro policy objective.

A negative output gap is known also as a deflationary or recessionary gap. In mature market economies, the unemployment rate is the most closely watched indicator of a negative output gap. In emerging market economies, however, reported unemployment rates are generally not very meaningful. Much of the labor force is absorbed in agriculture or informal urban activities such as street vending or day labor. For the stratum of society eking out an existence in such pursuits, work is often erratic and insecure. People nevertheless have to survive somehow, and unemployment strictly speaking is not much of an option. Official unemployment rates typically pertain to the formal segment of the labor force, members of which are entitled to benefits and officially register their unemployment status. In the emerging market context, the more telling way to gauge lagging economic performance relative to potential is by comparing the number of jobs created in the urban formal sector with some measure of potential based on demography and urbanization. If the economy is not creating enough jobs to absorb school leavers and a steady stream of those transitioning from agricultural and informal urban activities, this signals a negative output gap. The employment focus is thus on the rate of formal job creation rather than a not readily measured, or even conceptualized, unemployment rate. Job creation is in turn closely tied to GDP growth with a shortfall relative to trend the practical indicator of a negative output gap.

Explaining Output Gaps

Classical economics, rooted in the works of Adam Smith (1776), Jean-Baptiste Say (1821), and David Ricardo (1817), provides an explanation for how the decentralized decision-making of a market economy succeeds as well as it does to put people to work and provide for their needs. The upshot is that wages and prices adjust to match supplies with demands. Within this framework, such unemployment as may emerge is attributed to shocks that cause temporary dislocations. These shocks can trace to a host of forces from technological advances that bring about substitution of capital for labor to development of new products that crowd out old ones to geopolitical events or natural disasters. A shock is transmitted through the price mechanism to guide a process of resource reallocation that culminates in a return to full-employment equilibrium.

The classical paradigm largely held sway until the Great Depression of the 1930s. But when unemployment in the USA reached 25 percent in 1933 and remained at 19 percent five years later, the credibility of an autonomous mechanism to achieve full employment was seriously undermined.

John Maynard Keynes (1936) stepped into the ideological breach to offer a whole new way of thinking about economic malaise. “Animal spirits,” in Keynes’s view, were the driving force behind booms and busts. For risky investments to be undertaken and consumer spending to thrive, people must be optimistic about the future. When investors lack