

## ***Post 1990s East Asian economic growth***

by

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### **Abstract**

Immediately after 1997 the Asian economies were viewed to be catastrophes of financial excess, corporate and political misgovernance, and diminishing returns to over-investment. But they are now freshly restored as the world's economic powerhouses, just as before the 1997 financial crises they were the growth miracles and poster children of a then-emerging consensus on managed economic development. From the perspective of global growth and income distribution, the economic successes of East and Southeast Asia are striking: Poverty alleviation in China alone has recently accounted for 100% of that for all of humanity. Even if still relatively small in size, the current contribution to world economic growth from East and Southeast Asia already matches that of economies many times larger. When the rest of the world economy has temporarily slowed, East and Southeast Asia have provided a stabilizing force in world business cycles. How have underlying fundamentals for economic growth changed since 1997? Is the current growth path sustainable; and if so, what has brought that about? What role has China's played in driving economic growth throughout East and Southeast Asia? Have patterns of trade changed towards greater global balance? This paper finds that in the main productivity growth has improved since 1997. Increasing inequality is no obstacle to poverty reduction provided economic growth is sufficiently rapid. Finally, international trade patterns have shifted towards greater exchange within just the region itself.

**Keywords:** cluster, growth, poverty, productivity, trade

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## 1 INTRODUCTION

Over the last half-century, East and Southeast Asia (or, succinctly, ESE Asia) more than doubled its share of world GDP and increased per capita income at an average growth rate almost 2½ times that in the rest of the world.<sup>1</sup> By 2006, ESE Asia was producing 24% of the world's \$38 trillion GDP, with per capita income 79% of world average.

At the same time, ESE Asia has recently been both stabilising influence on and steady contributor to world economic growth. In 1991, at the end of a sustained period of productivity slowdown in the US, GDP in ESE Asia increased by nearly 20 times the size of the decline in US GDP. In 2001, the end of the dotcom boom, ESE Asia's GDP grew by double the growth in US GDP. Outside of these extreme events as well, ESE Asia's contribution to world economic growth has been strengthening. Over 1992–2000, growth in ESE Asia's GDP was 63% that of the US; by 2002–2006, that ratio had risen to 112%. In 2006, China's GDP growth alone was 64% that of the US, even with China's GDP still less than one-fifth the US's.

In no more than plain arithmetic, ESE Asia has recently contributed more steadily and in greater quantity to world economic growth than has the US. A still very-poor China—having per capita income only one twenty-fifth that of the US—single-handedly added to world economic growth nearly two-thirds as much as did the US.

These statements of GDP at market exchange rates describe contribution to the world's exchange of goods and services better than, say, statements made at purchasing power parity (PPP) exchange rates. But, to be clear, since the latter almost uniformly adjust upwards the assessed incomes in poorer places—the

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<sup>1</sup> These are incomes at market exchange rates and measured in constant year 2000 US\$. All numerical calculations in this section are the author's, except where explicitly described otherwise. By East Asia I mean China, Hong Kong China, South Korea, Taiwan, and Japan. By Southeast Asia I mean Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. These correspond to (ADB) Asian Development Bank (2008) terminology, except: (1) Japan is added to East Asia, because the interest in this paper lies primarily in a geographical dimension, rather than a division across developing and developed economies; and (2) Brunei, Laos, Mongolia, and Myanmar are excluded altogether because of insufficient data. Section 6 below provides details on these and other statements about the underlying data.

Balassa-Samuelson effect that is manifest empirically as the so-called Penn effect—at PPP the economic performance of ESE Asia would be even more remarkable.<sup>2</sup>

However, because PPP calculations seek to evaluate better the welfare that accrues to a population, they are more appropriate when reporting, say, the condition of the world's poor. Between 1981 and 2005 the number of people in the world living on less than PPP\$1.25 a day fell from 1904 million to 1400 million, a reduction in world poverty of 504 million people (CHEN, S. and Ravallion, M., 2008 Table 8b). Over this time, the East Asia and Pacific region saw its population in that low-income bracket decline from 1088 million to 337 million: This is a reduction of 751 million, and thus 50% larger than the world's decline overall. In fact, in China alone, the number of people living on less than PPP\$1.25 a day fell from 835 million to 208 million, a fall of 627 million, already itself greater than the entire world's poverty reduction.

Both in its contribution to world growth and in reducing global poverty, the economic development of ESE Asia has emerged over the last half century as perhaps the single largest significant force in the world.

Three large events have played significant roles in this macroeconomic history, and in different directions. First, Japan—in 2006 still ESE Asia's largest economy, at market exchange rates more than double the size of China—has seen growth slow dramatically to an annual rate of just 1.3% since 1990, from an annual average of 10% in the 1960s, and 4% in each of the 1970s and 1980s.

Second, China has, a matter of simple arithmetic, powered a lot of the growth in ESE Asia: From a GDP level only 5% of the total ESE Asia's on average through the 1960s, China grew to make up 23% of total ESE Asia GDP by 2006, just as Japan's share in ESE Asia shrank from an average of over 80% in the 1960s to 55% by 2006. At the same time China experienced spectacular economic growth and dramatically reduced the number of its people living in extreme poverty, inequality within China also sharply increased (e.g., Quah 2003).

Third, the 1997 Asian Currency Crisis saw a sharp simultaneous fall in the value of many ESE Asian currencies: from June 1997 to mid-January 1998 exchange rates against the US dollar of the currencies of Indonesia, South Korea, Malaysia, the Philippines, and Thailand fell by over 50%, that of Singapore, 20% (ITO, T., 2007

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<sup>2</sup> See Balassa (1964) and Samuelson (1964), and Penn World Tables (HESTON, A. et al., 2006). ADB (2008) discusses how it matters greatly *which* PPP—that for GDP, household final consumption expenditure, government final consumption expenditure, gross fixed capital formation, or a poverty-specific PPP—is used and to what end.

Figure 3). In Japan and in every single one of these Asian Currency Crisis economies, GDP growth turned negative in 1998, with the combined fall in these economies' 1998 GDP amounting to 2.4% of GDP in ESE Asia the preceding year.

This paper assesses the factors surrounding ESE Asia's remarkable recent economic performance, paying attention to these three large events. It concludes that in the main productivity growth has improved since 1997; and that trading patterns have shifted more towards trade across just different parts of ESE Asia itself. Provided economic growth is sufficiently rapid, increased inequality does not hinder reduction in poverty. The balance in ESE Asia has been that economic growth *has* been sufficiently high, and poverty reduction has taken place. In ESE Asia, it is growth rather than the reduction of inequality that has most successfully brought the poor out of extreme poverty.

The remainder of this paper is organised as follows. Section 2 presents again facts on the patterns of economic growth in ESE Asia, this time in greater detail. It highlights the importance of both China and the 1997 Asian Currency Crisis for shaping recent growth in the region.

Section 3 considers sources of growth in ESE Asia: it studies the evolution of productivity in different parts of ESE Asia, and points to where the situation has changed and where it has not since the 1997 Asian Currency Crisis. The data here vary across sources but, in this paper's reading, show productivity growth in ESE Asia neither significantly worse nor better than that elsewhere in the world. Some of the data indicate improvement in ESE Asian productivity growth since 1997.

Section 4 analyzes patterns of trade across ESE Asia. It shows the importance of integration within the region itself. China's trade with the rest of ESE Asia has consistently been double that with either the EU or the US. Similarly, Japan and South Korea's trade with ESE Asia (including China) have by the mid 2000s similarly grown to be double that with either the EU or the US. Although Japan and South Korea used to have one-third of their trade with the US, since the mid 2000s or earlier, it has been with China that each of them has had much the larger and rising trade share.

Section 5 concludes.

(The Appendix, Section 6, provides details on the data used in this paper.)

## 2 THE BASIC FACTS AGAIN, IN GREATER DETAIL

This section provides more detail and context for the description of ESE Asian growth given in the Introduction.

To begin, this section draws together and quantifies the significance of three key observations: the large economy that is Japan; the fast growth in China; the relative economic slowdown in ESE Asia following the 1997 Asian Currency Crisis. All three of these are examined in the following.

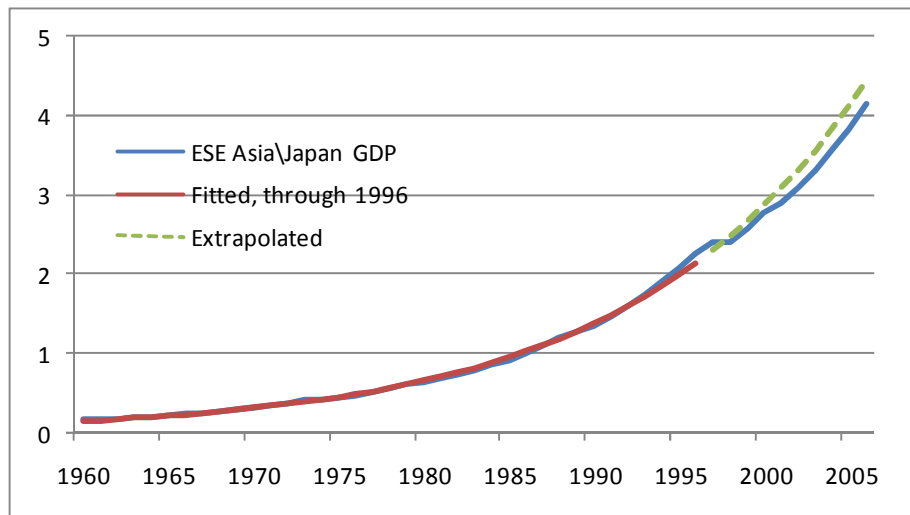
### 2.1 ESE ASIAN ECONOMIC GROWTH AFTER 1997

If Japan is excluded from ESE Asia, the income growth path for the entire region is practically unchanged before and after 1997 (Figure 2.1).<sup>3</sup>

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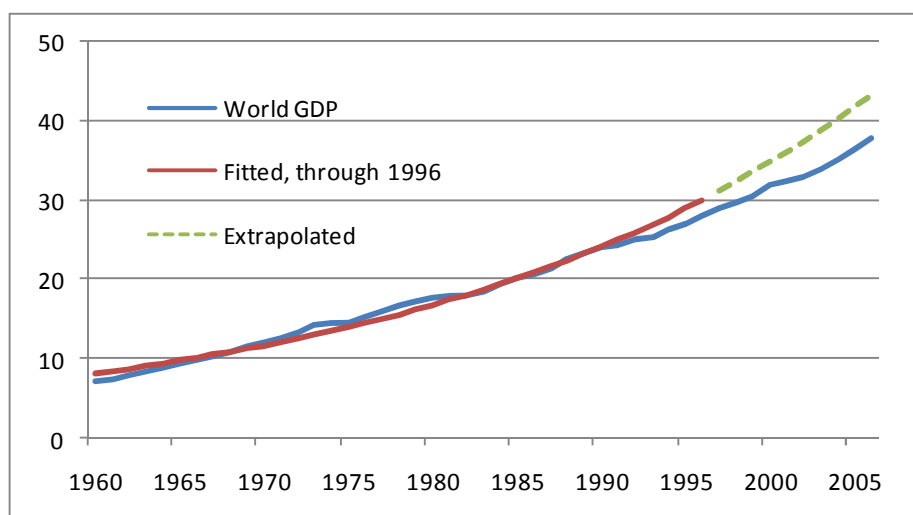
<sup>3</sup> By construction the accumulated under-performance over the fitted sample period is approximately zero. It is the out-of-sample outcome that is informative. Jones (1995) had previously used this technique to argue that the US economy had been on the same stable growth path from even before the Great Depression.

**Figure 2.1 Excluding Japan, ESE Asia GDP growth after 1997 is indistinguishable from before.** The exponential trend fitted for 1960–1996 shows growth at 7.6% per year. The Figure shows 5.1% accumulated under-performance in GDP relative to the extrapolated trend over 1997–2006. The vertical axis is in trillions of constant (year 2000) US dollars.

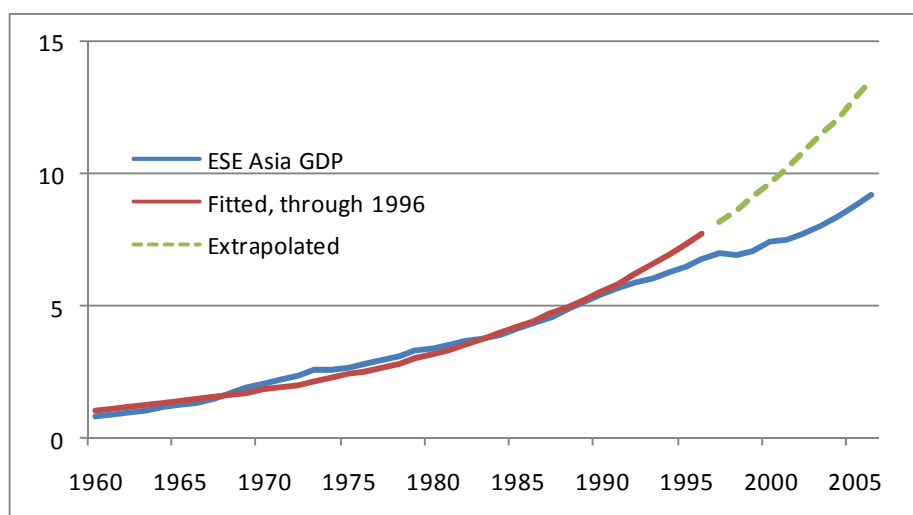


To assess the quantitative significance of this observation, Figures 2.2 and 2.3 provide the same calculations for world GDP and ESE Asia (now including Japan) in turn. In both these cases the under-performance relative to trend is marked: For world GDP the accumulated under-performance relative to 1997–2006 extrapolated trend amounts to 11%; that for ESE Asia, 27%. By contrast the under-performance for ESE Asia (excluding Japan) is only 5%.

**Figure 2.2 World GDP growth after 1997 indicates a slowdown relative to earlier trend.** The exponential trend fitted for 1960–1996 shows growth at 3.7% per year. The Figure has 10.6% accumulated under-performance in GDP relative to the extrapolated trend over 1997–2006. The vertical axis is in trillions of constant (year 2000) US dollars.



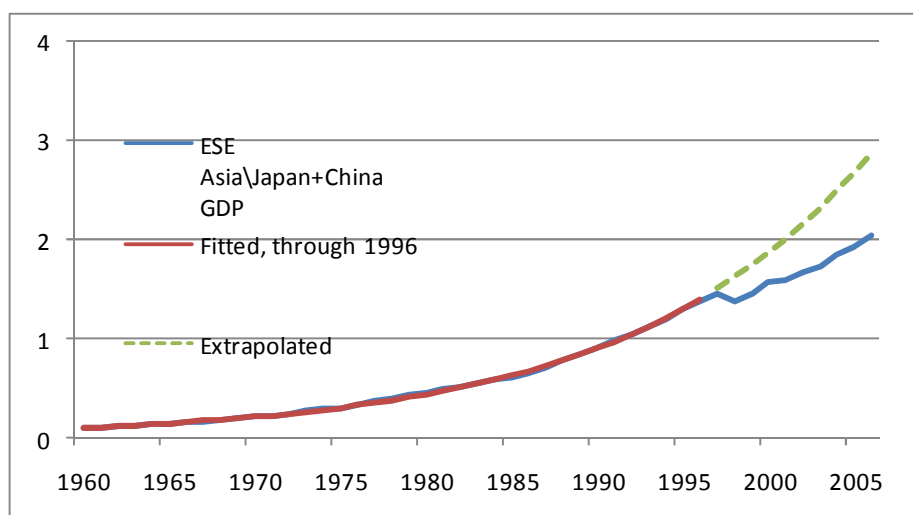
**Figure 2.3 ESE Asia GDP growth after 1997 indicates a slowdown relative to earlier trend.** The exponential trend fitted for 1960–1996 shows growth at 5.7% per year. The Figure has 26.6% accumulated under-performance in GDP relative to the extrapolated trend over 1997–2006. The vertical axis is in trillions of constant (year 2000) US dollars.



The post-1997 trend performance of ESE Asia excluding Japan, compared to that for the world economy, is noteworthy for how it contradicts a widely-held view on the permanent and significant effects of the 1997 Asian Currency Crisis. Indeed, by historical standards the region appears to have performed better than the world economy overall.

Figure 2.4 illustrates how much of this is due to a single economy, China alone. Over 1997–2006 ESE Asia—excluding China and Japan—under-performed 21% relative to historical trend. Admittedly, the standard used is exacting: even for 1997–2006 the annual growth rate for this bloc of economies still exceeded 6% while the extrapolated trend growth rate of 7.4% is twice the pre-1997 growth rate for the world economy overall. This trend growth rate is approximately the same as when China is included (the earlier Figure 2.1).

**Figure 2.4 ESE Asia, without China and Japan, shows a marked slowdown in GDP growth after 1997.** The exponential trend fitted for 1960–1996 shows growth at 7.4% per year. The Figure has 21.3% accumulated under-performance in GDP relative to the extrapolated trend over 1997–2006. The vertical axis is in trillions of constant (year 2000) US dollars.



This relative slowdown in growth relative to historical trend has not reduced the increasing weight of ESE Asia's GDP in the world economy. Figure 2.5 shows that

except for Japan, Thailand, and Indonesia, every single economy in ESE Asia has increased its share of world growth after 1997, compared to before. Across all of ESE Asia, taking out Japan, the share of world growth doubled to 20% after 1997 from only 10% before.

**Figure 2.5 Share of world growth before and after 1997 for individual economies in ESE Asia.** Except for Japan, Thailand, and Indonesia, the contribution of every single economy increased after 1997. The underlying data are in constant (year-2000) US\$ at market exchange rates. The horizontal axis measures percentage share.

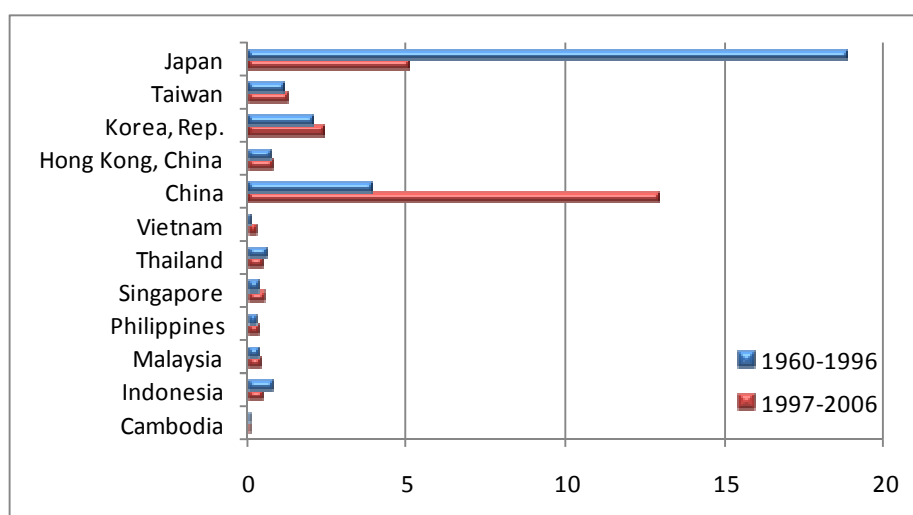


Figure 2.5 holds three key messages. First, Japan and China necessarily dominate any discussion of the performance of ESE Asia, with South Korea a relatively distant third. Second is that already stated: the great majority of economies in ESE Asia contributed more to world growth after 1997 than before. Third, the Figure gives a dramatic illustration of group (conditional) convergence in the sense described by Barro and Sala-i-Martin (1992), Baumol (1986), and Quah (1997). Those economies originally richer grow more slowly; those originally poorer, faster. With Japan and China by 2006 over one-half and nearly one-quarter of all ESE Asia respectively, the dynamics in Figure 2.5 show growth patterns that imply a force for equality in the region.

As earlier stated, one of the virtues of measurement at current market exchange rates is that the results directly assess contribution to a global exchange of goods and

services. To that end, Table 2.1 shows how growth in ESE Asia in general and China in particular have begun to match in magnitude that of the US economy. By 2002–2006 ESE Asia grew by 12% more than the US did, the ratio having steadily risen over the preceding decade. In that period China alone, although having per capita GDP only 4% of that in the US, contributed 54% as much as did the latter to world economic growth.

**Table 2.1 Ratio of GDP growth to the US across episodes.** In 1991 US GDP, measured in constant (year 2000) US\$, declined, while growth in both ESE Asia and China remained positive. The column for that year uses the absolute value of the US decline in its denominator. The numbers below were calculated by the author from data in WDI (2008).

Ratio of GDP growth	1961–1990	1991 (denominator value of US decline)	1992–2000	2001	2002–2006
ESE Asia/US	1.03	18.19	0.63	1.78	1.12
China/US	0.08	2.99	0.26	1.34	0.54

The world economy was also stabilized through periods of US slowdown by ESE Asia and China: In 2001 when US growth dipped, ESE Asia and China grew by 78% and 34% more than US. In 1991 when US growth turned negative, ESE Asia and China grew by 18 and 3 times, respectively, more than the US growth slowdown.

## 2.2 POVERTY

The contribution of ESE Asia and China in the world economy occurred, however, not just through adding to world GDP growth but also through reducing the absolute numbers of poor in the world.

In 1981 the world's population living on less than PPP\$1.25 a day numbered 1904.3 million; by 2005, that number had fallen to 1399.6 million, a reduction of 504.7 million people (CHEN, S. and Ravallion, M., 2008).<sup>4</sup> In this time the population of China in that same income bracket fell from 835.1 to 207.7 million, a decline of 627.4 million. Thus, China single-handedly lifted more people out of extreme (\$1.25/day) poverty than did the entire world.

Figures 2.6–2.9 show four snapshots of the evolution of world poverty and economic growth, and provide a striking depiction of the significance of China (and the ESE Asian region) in this history. An animation that dynamically describes this historical evolution is available at

<http://econ.lse.ac.uk/staff/dquah/p/2008.09-wpdyn-2005.gif>.

Each bubble in the Figures represents the state of a continental grouping or large economy—China and India, in particular, are explicitly given, as are East Asia and the Pacific (EAP) excluding China, and South Asia (SA) excluding India. Sub-Saharan Africa (SSA), Latin America and the Caribbean (LAC), and the Middle East and North Africa (MENA) also appear explicitly, with Eastern Europe and Central Asia (ECA) unavailable until 1990. (Section 6 provides more detail on the data and the construction of these Figures.)

The horizontal axis measures per capita GDP, in thousands of PPP constant year-2005 US\$; the vertical axis measures in millions the number of people living on less than \$1.25 a day, in PPP constant year-2005 US\$. The location of each bubble is that state of the economy; the relative size of each bubble, the population. As population increases, so too does the bubble grow in size.

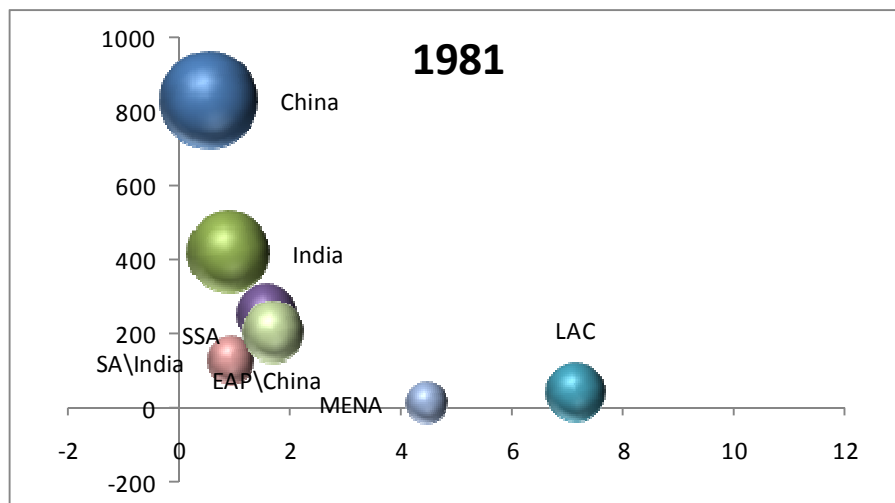
For 1981 China appears in the extreme upper left in Figure 2.6: it is poor on average and holds many extremely poor people. Over time, the China bubble sinks and moves rightwards. Economic growth occurs and lifts hundreds of millions of Chinese out of extreme poverty. By 2005 China both holds fewer extremely poor people and is per capita richer than India and Sub-Saharan Africa.

Figures 2.6–2.9 also show that the rest of East Asia and the Pacific region have in parallel with China also grown and successfully reduced poverty, although nowhere to the same magnitude as China alone.

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<sup>4</sup> These numbers use PPP indexes from the 2005 International Comparison Project (ASIAN DEVELOPMENT BANK, 2008). In this time the world's population rose from 4.51 to 6.46 billion (WORLD BANK, 2008).

**Figure 2.6 Income and poverty 1981.** The horizontal axis measures per capita income in thousands of PPP constant (year 2005) US\$; the vertical axis, millions of people with incomes less than PPP constant (year 2005) US\$ 1.25 a day. See Section 6 for the abbreviations used and for further details.



**Figure 2.7 Income and poverty 1990.** See notes for **Figure 2.6.**

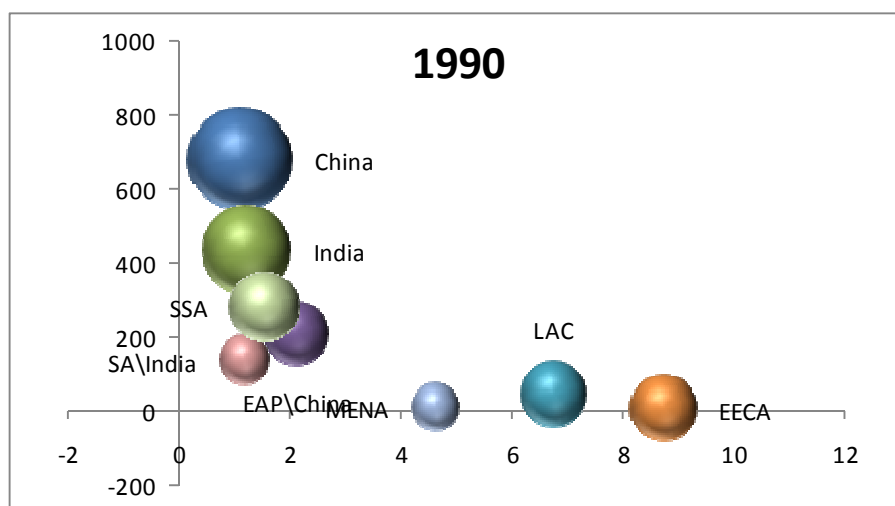


Figure 2.8 Income and poverty 1999. See notes to Figure 2.6.

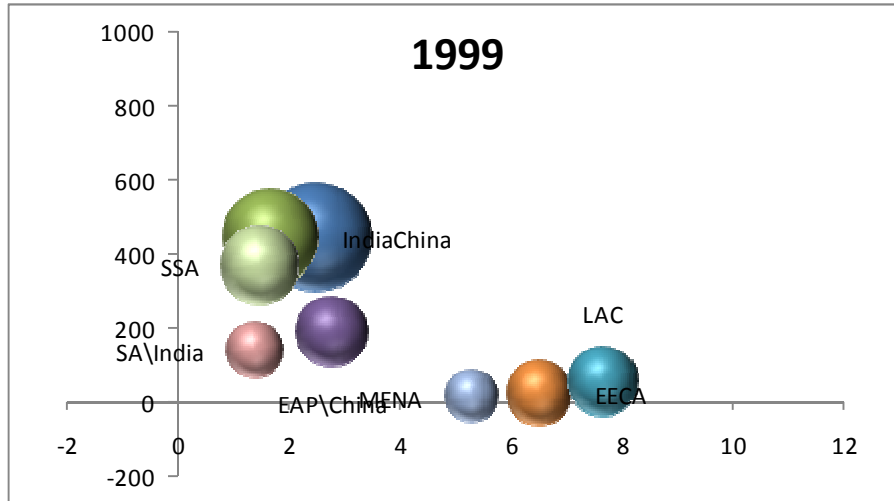
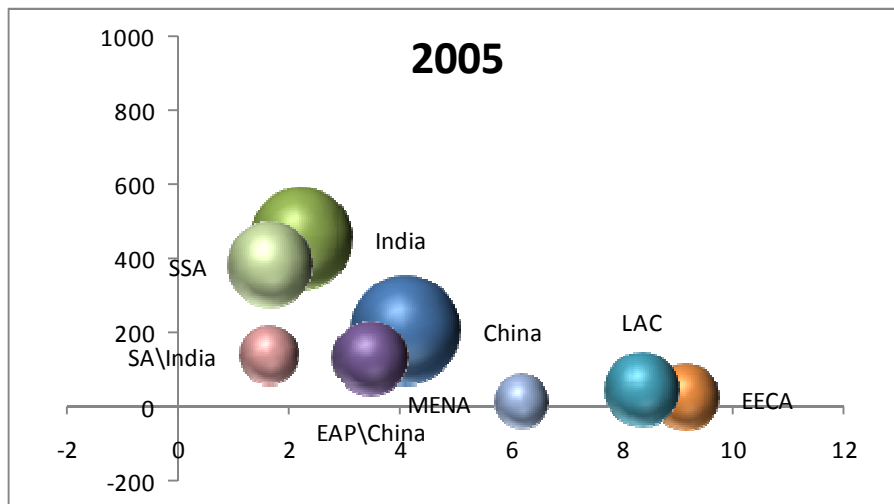


Figure 2.9 Income and poverty 2005. See notes to Figure 2.6.

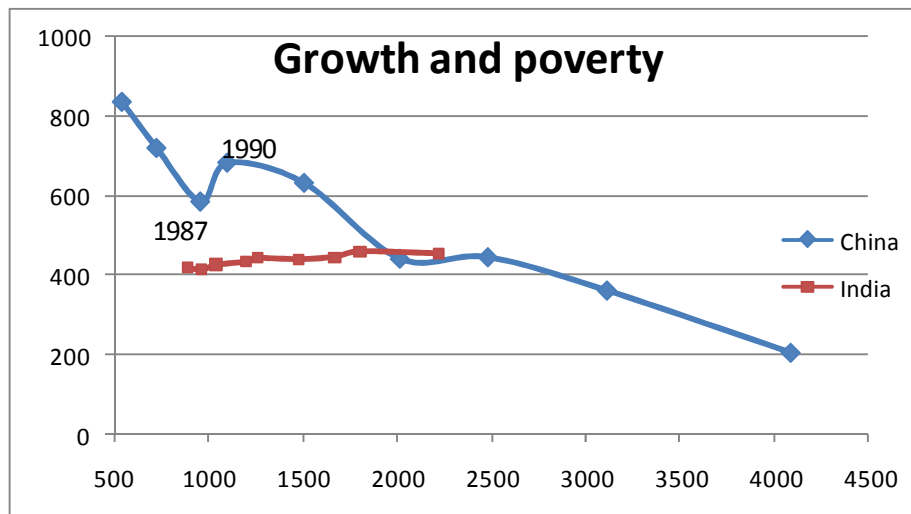


By contrast the rest of the world has changed little in that same positive direction. The only other significant event is instead a negative one. Figures 2.6–2.9 show Sub-Saharan Africa had GDP decline and poverty nearly double between 1981 and 2005. By 2005 the population of all of Sub-Saharan Africa was only 58% that of China but in absolute numbers Sub-Saharan Africa had 85% more people living in extreme poverty than had China.

The impact of China on world poverty is not due only to its having such a large population.

Figure 2.10 better brings out the comparison with India—the only other billion-people economy in the world—implicit in these preceding Figures. Three features are particularly striking. First, compared to China over this sample period, India has both grown a lot slower and seen much less poverty reduction—indeed, the number of people in India living on less than US\$1.25 a day has remained approximately constant despite economic growth. This rise in poverty is because of India’s increased population and its relatively stable income distribution (e.g., Quah 2003).

**Figure 2.10 Growth and poverty in one third of the world.** China and India are the only billion-people economies extant. Together they make up one third of the world’s population. The vertical axis shows millions of people living on less than US\$1.25 a day; the horizontal axis, per capita GDP in US\$: both use PPP constant (year-2005) US\$.



Second, while successful overall, China's poverty reduction has not been uniform throughout this time. Between 1987 and 1990 when economic growth slowed, poverty in China increased markedly as well.

Third, both from the 1987–1990 episode and by comparison to India, China's growth and size alone do not make automatic large-scale poverty reduction. Growth has to be sufficiently rapid to overturn the negative effects arising from increases in population and in inequality.

### 3 SOURCES OF GROWTH

Thus, even as ESE Asia has risen to contribute significantly to world economic growth, it has significantly reduced world poverty and stabilized the world economy against downturns. Japan continues to be the largest economy in ESE Asia but its growth slowdown is more than matched by the increase from China.

How has this state of affairs come about? And what are prospects for its continuing? This second question is particularly compelling in light of observations by Krugman (1994) and Young (1995) on the factor input-driven nature of Asia's economic growth, suggesting that Asia's growth has occurred not through increases in productivity especially but instead through unsustainable "mere sweat"—nothing more than hard work and savings.

This section draws on comprehensive cross-country productivity estimates recently constructed in Jorgensen and Vu (2005) (subsequently updated and kindly provided this author by Khuong Vu). These estimates extend past-1997 and therefore allow evaluating the impact of policies put in place or changes arising from the Asian Currency Crisis.

From differences in data sources and detail the estimates in Jorgensen and Vu (2005) do not match exactly, say, Young's (1995, 2003) estimates for the pre-1995 sample (Table 3.1). Some estimates are surprisingly close (those for Hong Kong, South Korea, and Taiwan); others notably different, especially those for Singapore and China. The estimates in Hsieh (2002) for Hong Kong, South Korea, and Taiwan are close to those in Young (1995) and therefore also to those from Jorgensen and Vu (2005) used here, and are thus not repeated in the Table. Young (1995) estimates TFP's contribution in Singapore to be negative. Hsieh's estimate for Singapore moves TFP's contribution to be at least positive but the gap between the resulting 23% and that from Jorgensen and Vu's estimate remains large.

**Table 3.1 Comparing estimated TFP contribution to economic growth.** Each entry in the Table is the ratio of TFP growth to output growth in percent. The figures given under “Alternate estimates” have varying sources, as described in the corresponding rows. When a source reports only TFP growth but not output over the appropriate sample period, I calculated the latter from WDI (2008) using constant (year-2000) US\$ GDP evaluated at market exchange rates.

<i>Economy</i>	<i>Jorgensen and Vu (2005) and updates, 1989–1995</i>	<i>Alternate estimates</i>	<i>Source</i>
<b>Hong Kong</b>	34%	38%	Young (1995 Table 5, p. 657) 1986–1991
<b>South Korea</b>	24%	24%	Young (1995 Table 7, p. 660), outside agriculture 1985–1990
<b>Taiwan</b>	37%	42%	Young (1995 Table 8, p. 661), outside agriculture 1989–1995
<b>Singapore</b>	41%	-7%	Young (1995 Table 6, p. 658)
		23%	Hsieh (2002 Table 1, p. 509), E-P ratio 1973–1990
<b>China</b>	44%	19%	Young (2003)

Young (2003 Table 24, p. 1258) reports a baseline estimate of TFP growth of 1.4% for China over 1978–1998 but says also that the range -0.4% to 5.6% is plausible, depending on the assumptions a researcher wishes to impose. The maximum in this range would give a TFP contribution of 88%, double that estimated by Jorgensen and Vu (2005).

I am unable to reconcile completely the different productivity estimates for Singapore and China. For consistent treatment across a broad range of countries and across time, I hereafter use the estimates given in Jorgensen and Vu (2005) and updates kindly provided by Khuong Vu.

### 3.1 GROWTH DECOMPOSITIONS

Figure 3.1 shows growth decompositions, before and after 1997, of three different large blocs: the G7, India, and China. The focus is China; the G7 and India provide comparison examples. Before 1997 growth in China was driven heavily (over 23%) by labour hours, certainly at a pace much greater than the G7 but also than India. After 2000, however, the principal factor-input driver for growth in China shifted to physical capital, from 27% earlier up to 44%. Throughout this time TFP growth was maintained. Compared to China's shift, changes in the G7 and India have been less readily observable.

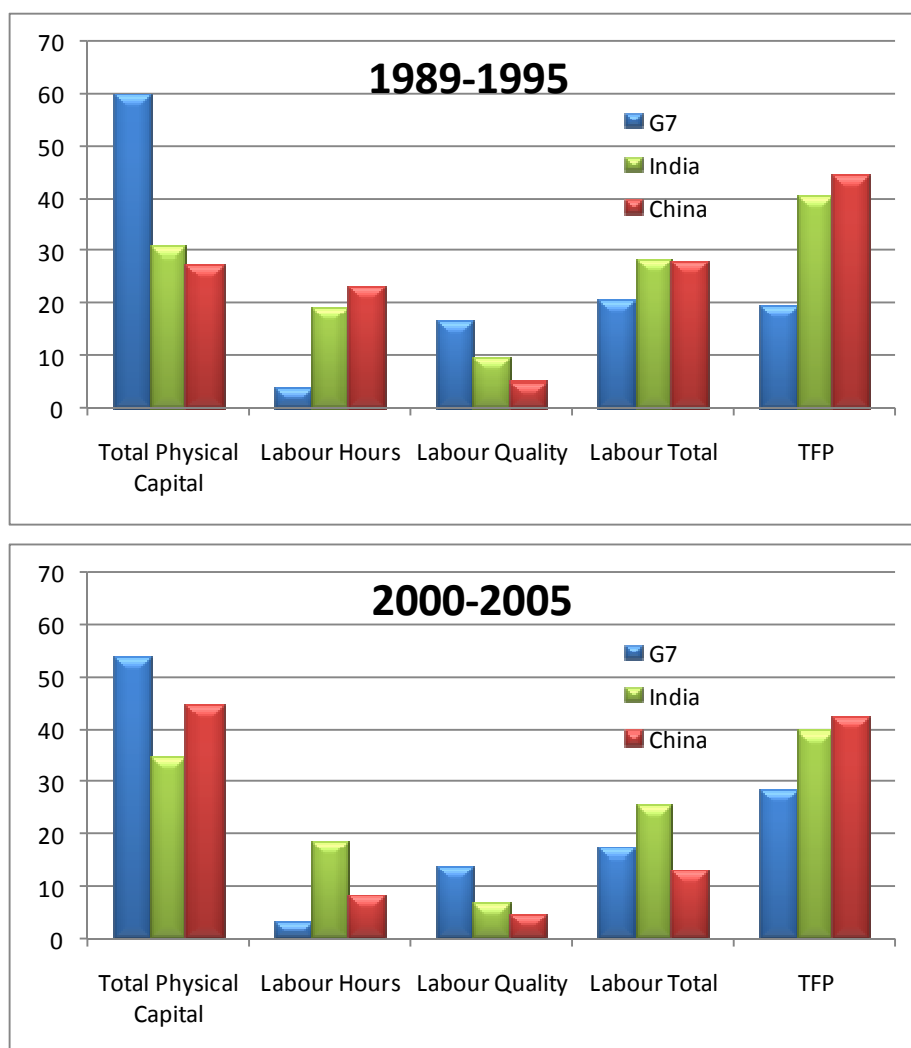
Figure 3.2 shows similar decompositions, again before and after 1997, but now comparing the three largest economies in ESE Asia, i.e., China, South Korea, and Japan. China's shift from labour hours to physical capital, already noted, is notable even in comparison with these other large Asian economies. The difference from Japan is most stark: in the latter physical capital's contribution more than halved from 94% to 40%, with the slack taken up entirely in TFP. South Korea's position, in contrast to both China and Japan, is remarkably invariant: before 1997 physical capital contributed 50% of growth, labour 26%, and TFP 24%; after 1997, physical capital 47%, labour 30%, and TFP 23%. If growth in South Korea had been overly intensive in physical capital before 1997, little seems to have changed.

Finally, Figure 3.3 shows growth decompositions, before and after 1997, for Hong Kong, Singapore, and Taiwan, whose growth performance in connection with productivity has been studied intensively (Hsieh 2002, Young 1995). Here, the interest is in how that performance has varied before and after the Asian currency crisis. The most striking feature in, Figure 3.3 is the stability of TFP's contribution to growth in both Hong Kong and Singapore but its dramatic fall-away in Taiwan, where physical capital investment has surged after 1997. Singapore has reduced its

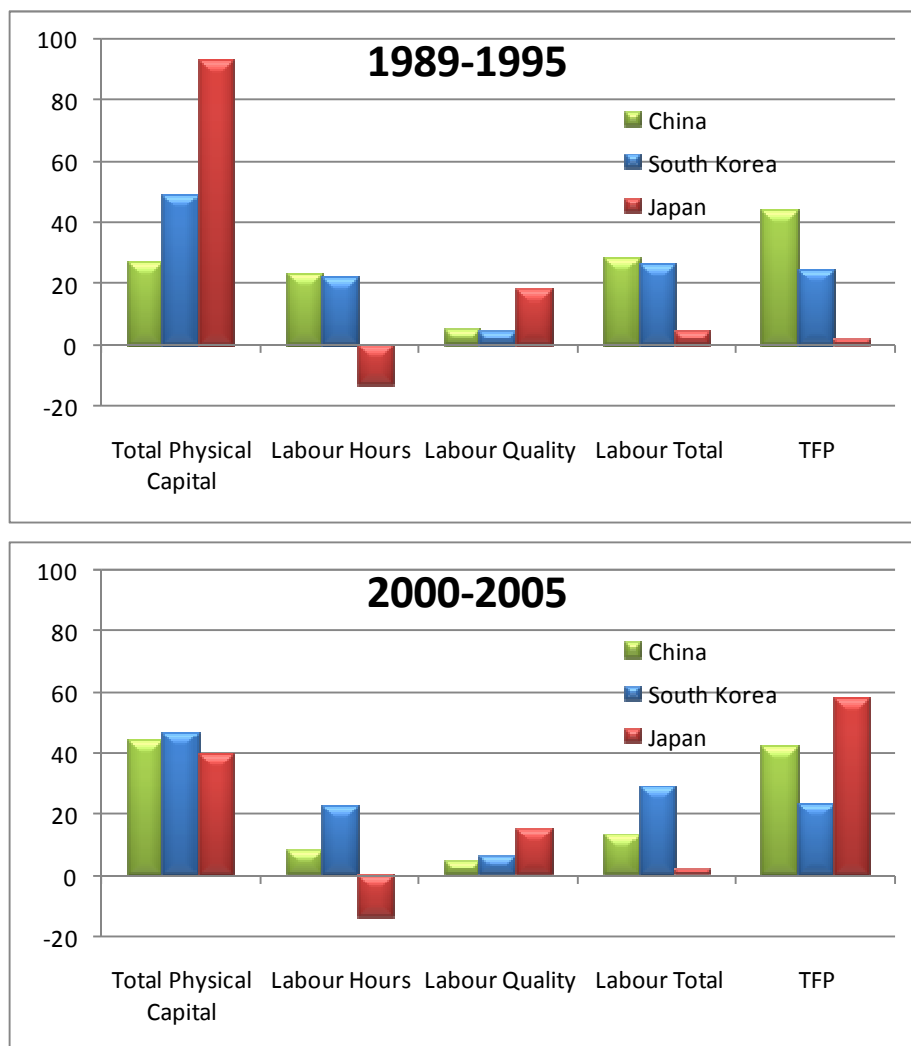
reliance on labour hours and increased the growth contribution from physical capital: the two changes together kept invariant TFP's contribution to overall growth.

**Figure 3.1 Growth accounting across the G7, India, and China, before and after 1997.**

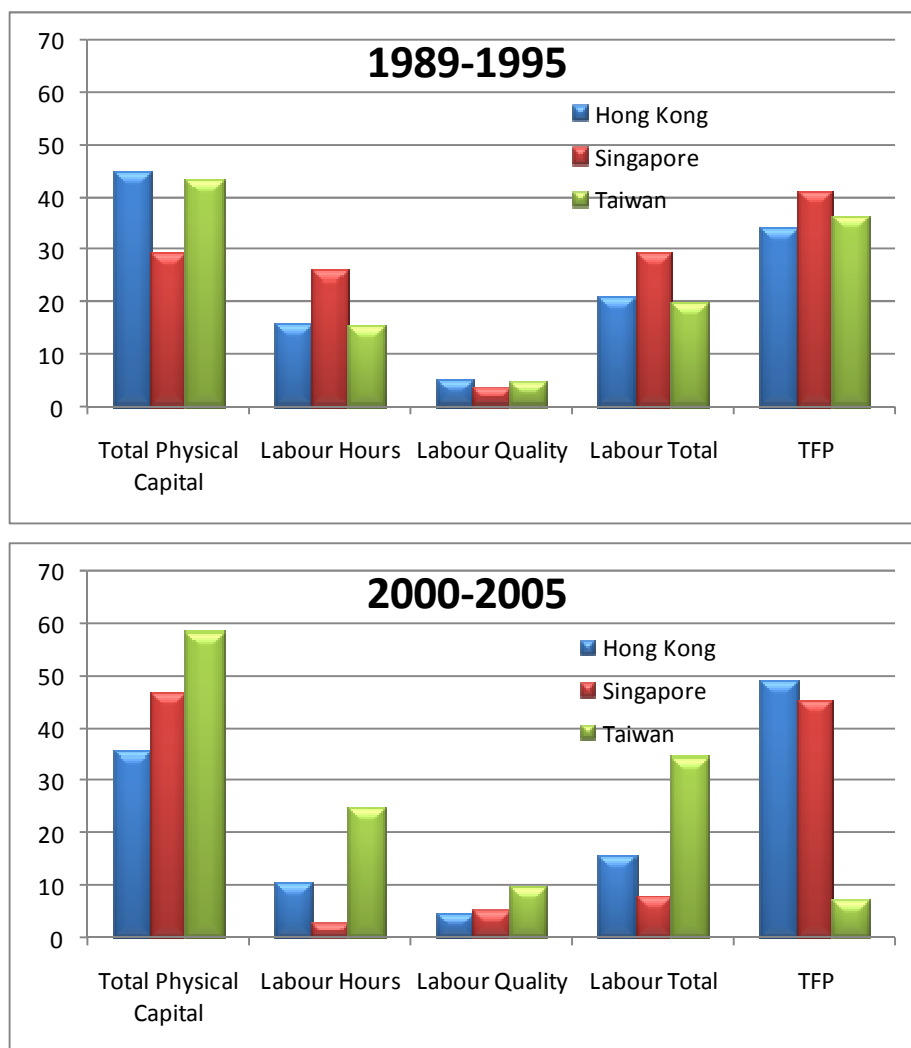
The figures show the percentage contribution of each factor input and of productivity to output growth. The single largest change is China's shift from growth through Labour Hours to growth through physical capita. Labour Total indicates the sum of the contribution from Labour Hours and Labour Quality; the latter takes into account formal education. The underlying data are from Jorgensen and Vu (2005) with subsequent updates kindly provided by Khuong Vu.



**Figure 3.2 Growth accounting across China, South Korea, and Japan, before and after 1997.** See notes to Figure 3.1. In contrast to the increased role of physical capital in China's growth, the contribution to growth from physical capital in Japan has shrunk markedly, with the discrepancy picked up in TFP.



**Figure 3.3 Growth accounting across Hong Kong, Singapore, and Taiwan, before and after 1997.** See notes to Figure 3.1. The most striking feature in the Figure is the stability of TFP's contribution to growth in both Hong Kong and Singapore but its dramatic fall-away in Taiwan, where physical capital investment has surged after 1997. Singapore has reduced its reliance on labour hours and increased the growth contribution from physical capital.



## 4 TRADE

The analyses in previous sections of this paper have considered the growth performance of ESE Asian economies either individually or together as a bloc. However, to consider changing trade dynamics or to examine the role of China's growth on other economies in the region, we need to study bilateral or multilateral patterns of national engagement, where these interacting economies are explicitly identified.<sup>5</sup>

Figure 4.1 shows the evolving patterns of trade between the rest of ESE Asia and, in turn, China, Japan, and South Korea—the three largest economies in ESE Asia. Figures 4.1–4.4 break down further these trade patterns: the Figures display the changing trade relations for, respectively, China, Japan, and South Korea with each other and with the European Union and the US. The vertical axis in Figure 4.1 measures total trade (i.e., the sum of exports and imports) that each of the named economies undertakes with the rest of ESE Asia, as a percentage of that named economy's world trade. The vertical axis in Figures 4.1–4.4 measures total trade that the named economy undertakes with a specific trading partner, as a percentage of that named economy's world trade. Taken together, Figures 4.1–4.4 demonstrate trade within ESE Asia has been large, and for a range of measures that within-bloc integration has continued to rise relative to that with the rest of the world.

Figure 4.1 shows that trade for Japan and South Korea with ESE Asia have risen sharply, while that for China has remained consistently large. China's trade with the rest of ESE Asia grew to as high a share as 60% of China's overall international trade: however, that ratio has fluctuated, rising from 40% in the early 1980s to 60% ten years after, and then falling gradually back down again to 35% in 2008. By contrast, Japan and South Korea have had trade with the rest of ESE Asia only increase steadily. The share of ESE Asia in Japan's international trade doubled from 20% in the early 1980s to 40% in the mid 2000s. In South Korea's international trade the share of ESE Asia rose from 35% in the early 1990s to almost 50% in 2006.

Even after the decline in ESE Asia's share in China's international trade, however, Figure 4.2 shows that that share remains double that of both EU and US shares. China trades far more with ESE Asia than it does with either the EU or the US: this has consistently been so since 1980. Evident in the Figure is also how South Korea has seen a marked rise as trading partner for China, its share rising from only 0.5% in

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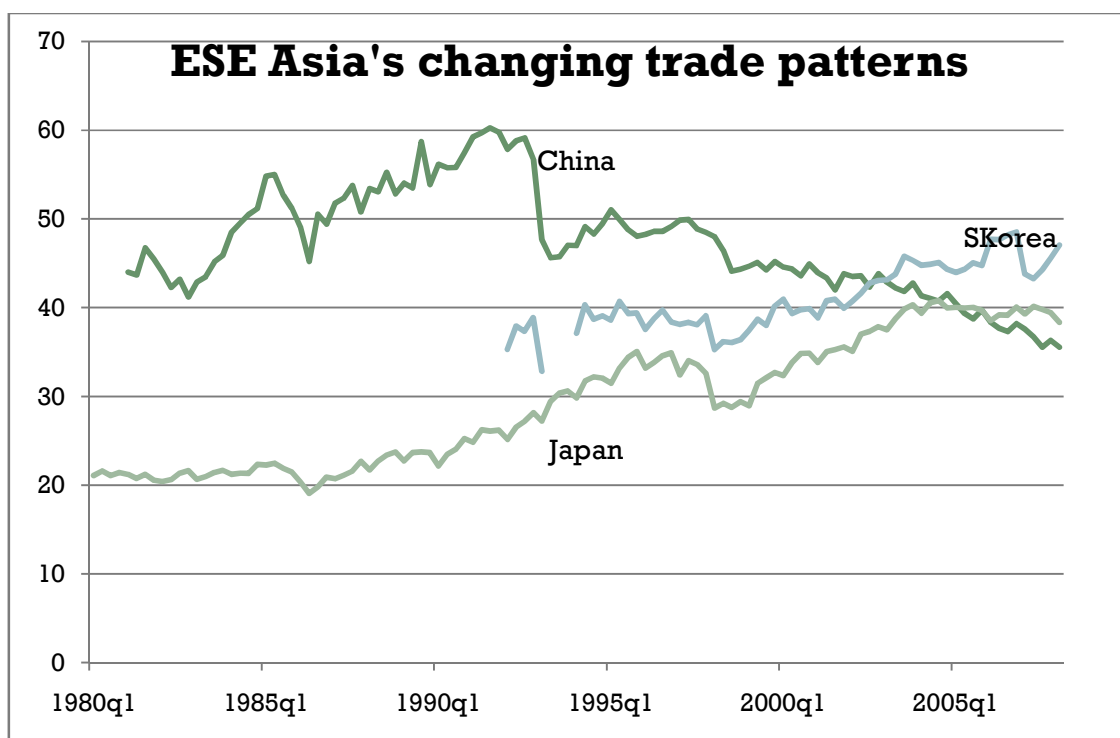
<sup>5</sup> Explicit identification of trading partners featured prominently in convergence clusters discussed in Quah (1997).

1990 to over 7% in 2007. At the same time Japan's share has declined sharply, from a high of 31% of China's world trade in 1985 to only 11% in 2007.

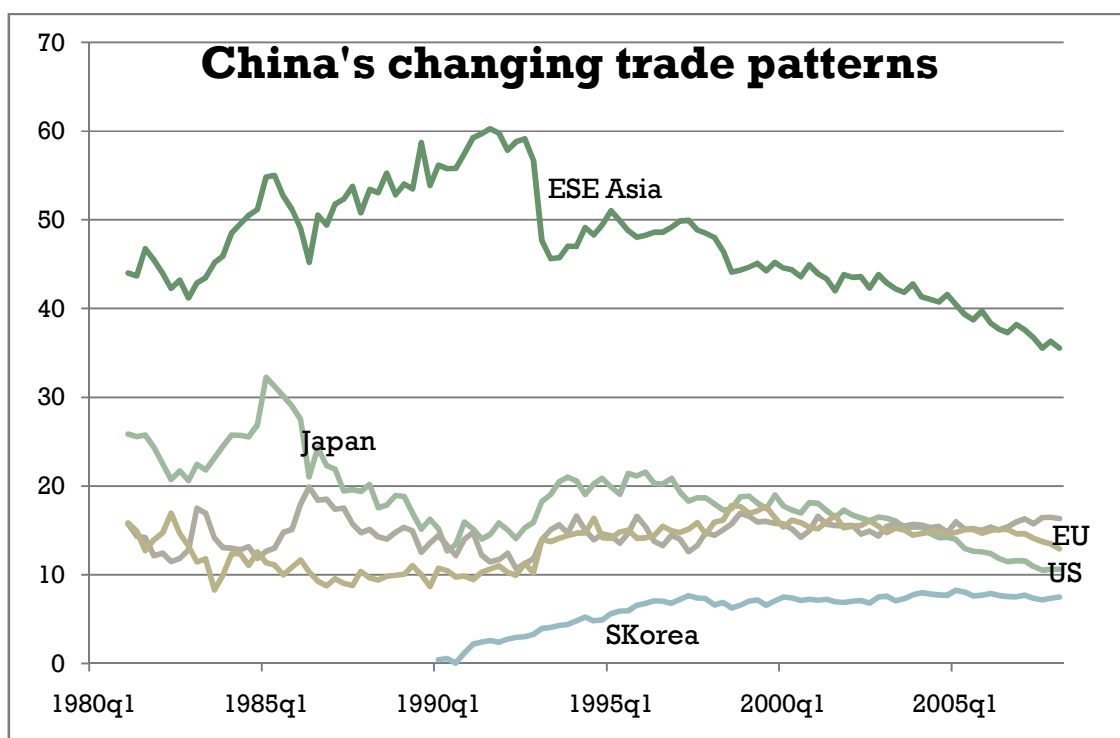
In Figures 4.3 and 4.4 the looming importance of China becomes apparent. Japan's trade with China rose from under 3% of Japan's world trade in 1980 to nearly 20% in 2006. By 2007 Japan was trading more with China than it was with the US, even though the latter had accounted for over one third of Japan's world trade in the mid 1980s.

In the early 1990s China accounted for 3% of South Korea's trade; by 2006 that ratio had risen to exceed 20%. In 2003Q3 South Korea's trade with China exceeded that with the US for the first time. This difference has grown larger ever since, even though the US share of South Korea's trade had been as high as one third in the mid 1980s

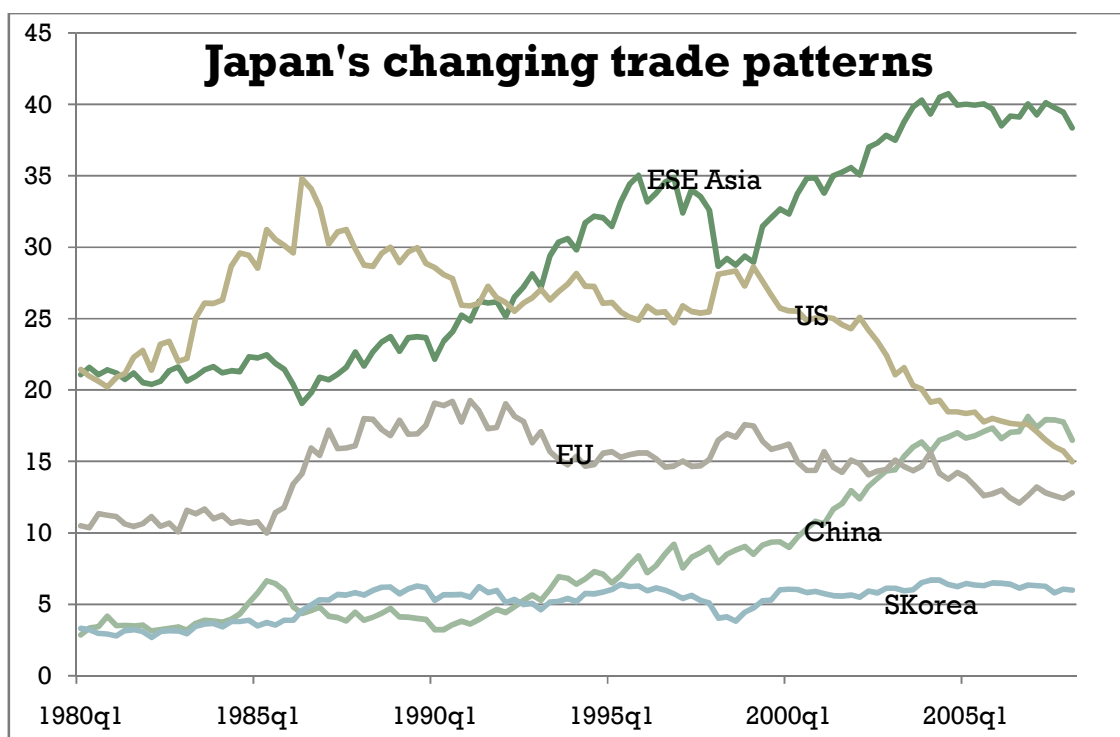
**Figure 4.1 Changing trade patterns in ESE Asia.** The Figure shows bilateral trade (exports and imports) between each of China, Japan, and South Korea, in turn, and the rest of ESE Asia, reported as a percentage of total trade between each named economy and the rest of the world. Trade with ESE Asia for Japan and S Korea have risen sharply, while that for China has remained relatively high. Source: Author's calculations based on International Monetary Fund (IMF), Direction of Trade Statistics (DOTS) October 2008, ESDS International, (Mimas) University of Manchester.



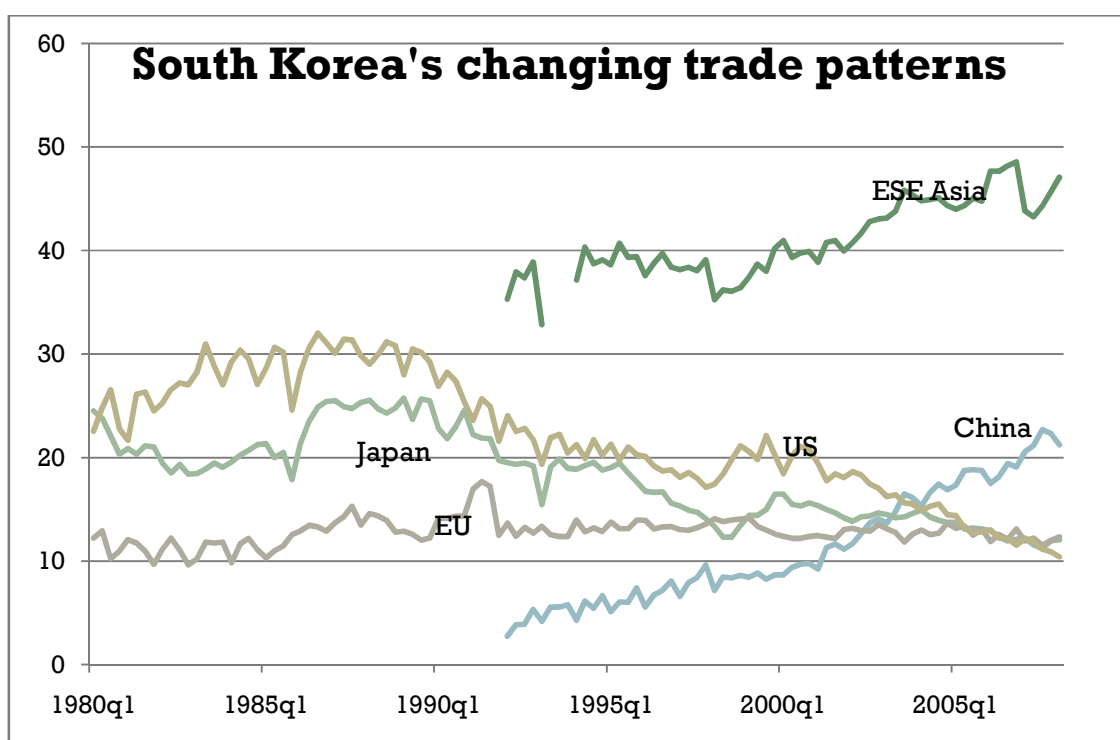
**Figure 4.2 China's changing trade patterns.** The vertical axis measures total trade (exports and imports) China undertakes with a particular trading partner—here the rest of ESE Asia, Japan, South Korea, US, and the EU in turn—as a percentage of total trade undertaken with the world. Trade with Japan has declined sharply; that with South Korea has risen markedly, although still remaining relatively small. Trade with both the US and EU have fluctuated but not trended significantly up or down. Source: Author's calculations based on International Monetary Fund (IMF), Direction of Trade Statistics (DOTS) October 2008, ESDS International, (Mimas) University of Manchester.



**Figure 4.3 Japan's changing trade patterns.** The vertical axis measures total trade (exports and imports) Japan undertakes with a particular trading partner—here China, South Korea, US, and the EU in turn—as a percentage of the total undertaken with the world. Trade with China has risen sharply; that with the US has fallen markedly. Japan's trade with China rose from under 3% of Japan's world trade in 1980 to nearly 20% in 2006. By 2007 Japan was trading more with China than it was with the US, even though the latter had accounted for over one third of Japan's world trade in the mid 1980s. Source: Author's calculations based on International Monetary Fund (IMF), Direction of Trade Statistics (DOTS) October 2008, ESDS International, (Mimas) University of Manchester.



**Figure 4.4 South Korea's changing trade patterns.** The vertical axis measures total trade (exports and imports) South Korea undertakes with a particular trading partner—here China, Japan, US, and the EU in turn—as a percentage of the total undertaken with the world. Trade with China has risen sharply; that with the US has fallen markedly. In the early 1990s China accounted for 3% of South Korea's trade; by 2006 that ratio had risen to exceed 20%. In 2003Q3 South Korea's trade with China exceeded that with the US for the first time. This difference has grown larger ever since, even though the US share of South Korea's trade had been as high as one third in the mid 1980s. Source: Author's calculations based on International Monetary Fund (IMF), Direction of Trade Statistics (DOTS) October 2008, ESDS International, (Mimas) University of Manchester.



## 5 CONCLUSION

This paper has provided a large-scale, global perspective on growth in East and Southeast Asia since the 1990s. It has traced, in particular, the importance of the rise of China and changes in the region since 1997, when the Asian Currency Crisis appeared to diminish economic prospects following decades of rapid economic growth.

Many of the important conclusions have already figured in the Introduction. But they are numerically memorable and so might be useful to repeat here. Even with 1997 having dramatically perturbed growth in ESE Asia, the region has more than doubled its share of world GDP at market exchange rates. Much of that has been due to China alone.

Over periods of short sharp slowdowns in the rest of the world, ESE Asia has continued to grow in sufficient absolute volume of goods and services, and thus has stabilised the world against yet sharper downturns. China by itself has brought over 600 million people out of extreme poverty in the last quarter century, accounting for pretty much the entire reduction in extreme poverty in the world.

Productivity growth in the region overall varies, but in the main is neither consistently better nor worse than that elsewhere: In one reading productivity growth has improved since 1997. The data here, however, vary considerably across different sources.

In trade, ESE Asia has become ever more tightly integrated. Both Japan and South Korea used to have one-third of their international trade with the US alone. However, since the mid 2000s, their trade with China has consistently exceeded that with both the US and the EU. In all three of these—ESE Asia's largest economies—trade with the rest of ESE Asia has become by far the largest meaningful share of their trade with the rest of the world.

## 6 APPENDIX

This Appendix details sources and construction for the data used in this paper.

As explained in footnote 1 East Asia in this paper means China, Hong Kong China, South Korea, Taiwan, and Japan, while Southeast Asia denotes Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam.

Wherever possible, for consistency, data are taken from (WDI) World Development Indicators (2008). Thus, GDP and population data are from WDI (2008), augmented by data on Cambodia, Taiwan, and Vietnam from Jorgensen and Vu (2005) and Asian Development Bank (2008). The World Bank does not report data on Taiwan separately; nor are Taiwan's numbers added to those for China, although they are put back in to make up world GDP.<sup>6</sup> WDI contains no GDP data for Cambodia and Vietnam prior to 1993. Trade statistics are from IMF (2008). Like the World Bank the IMF does not report data on Taiwan and so the latter's trade statistics have not been available to use in this paper.

The term G7 refers to the collection comprised of Canada, France, Germany, Italy, Japan, the UK, and the US.

In 1960 East and Southeast Asia (or ESE Asia), with 33% of the world's population, generated at market exchange rates 12% of world GDP. That year the region's per capita income was 35% of the world average. By 2006 per capita income in ESE Asia had risen to 79% of world average. Holding then 31% of the world's population, ESE Asia produced at market exchange rates over 24% of world GDP. In 2006 world GDP, measured in constant year 2000 US dollars, was \$37.9 trillion, while the world's population comprised 6.54 billion people.

Over this period, 1960–2006, per capita income in ESE Asia grew at 3.7% per year, exceeding the annual growth rate in overall world per capita income by 1.8 percentage points. Indeed, taking out ESE Asia, the rest of the world had per capita income growing at only 1.5% per year over 1960-2006.

In Figures 2.6–2.9 EAP stands for East Asia and the Pacific region; ECA Eastern Europe and Central Asia, LAC Latin America and the Caribbean, MENA the Middle East and North Africa, SA South Asia, and SSA Sub Saharan Africa. The poverty data are taken from Chen and Ravallion (2008), with some minor calculations added by this author. The PPP income data are from WDI (WORLD BANK, 2008). Both variables

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<sup>6</sup> <http://go.worldbank.org/44YJTN9WY0> (accessed September 2008).

use PPP constant year-2005 US\$. PPP income data for Eastern Europe and Central Asia are unavailable before 1989, and so the ECA bubble does not appear until 1990.

The GIF animation

<http://econ.lse.ac.uk/staff/dquah/p/2008.09-wpdyn-2005.gif>

has first each underlying image generated in Microsoft Excel and printed as a collection of Postscript files. Then the entire sequence is strung together in LaTeX, emitted as PDF, and finally converted to animated GIF by ImageMagick:

```
% latex 1-wpdyn-2005
% dvips -pp 2-10 -o - 1-wpdyn-2005 | ps2pdf - - | convert -delay 80 - 2008.09-wpdyn-2005.gif
```

(of course, alternatives to achieve the same outcome are available along each step of the way: the piped Unix commands shown simply provide a particularly compact summary of the procedure).

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