

The Strategy of Indonesia's Economic Transformation

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Arndt (1978, p. 28):

There is hardly an economic policy – whether for the levying of income tax or an urban real estate tax, or for tariff protection of domestic industry, or for subsidies to depressed industries, or for minimal regulation of foreign investment or of road traffic, or for conservation of forests or for provision of rural credit to farmers or for priorities in investment credit by state banks, or for social welfare services or development projects of every kind – which, whatever its economic or technical merits, does not now need to be weighed – and often ruled out – almost wholly on grounds of its administrative impracticability in the face of corruption.'

Boediono (2005, p. 323) on lessons learnt:

'Beware of possible disharmony between politics and economics ... Never take economic stability for granted. ... Institutions and governance should receive the highest priority in the overall strategy.'

Harberger (1984, p. 427):

'... there is no magic formula [for economic growth] – no combination of one or two or even ten or twelve policy buttons that, once pushed in the right order, will guarantee economic growth.'

Higgins (1968, p. 678):

A 'chronic dropout, ... Indonesia must surely be accounted the number one failure among the major underdeveloped countries.'

(Attributed to) Harry Johnson:

'The theory of the second best may be all very well in theory, but it's often devised by third best economists and implemented by fourth best bureaucrats.'

Keynes:

'It is better to be roughly right than precisely wrong.'

Lee Kuan Yew (2006):

'They (Indonesian policy makers) know that their labour laws are driving away investors. But the moment the government proposes an amendment, the unions riot. Why? I think they haven't understood what the world is. They think, "This is my minimum wage; you have to do this, you have to do that." Meanwhile, there's massive unemployment and no investments.' (quoted in the *AFR*, May 17, 2006)

Political economy 101 (courtesy of Chatib Basri):

'Governments may not be very good at picking winners, but losers are good at picking governments.'

Timmer (1973, p. 76):

""Getting prices right" is not the end of economic development. But "getting prices wrong" frequently is.'

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1. INTRODUCTION

Indonesia is successfully undergoing, in the words of Jack Bresnan (2005), 'The Great Transition'. It has recovered from the deep crisis of 1997-98, and it has navigated a long way down the road of the democratic transition, together with decentralization and far-reaching institutional change.

I am approaching the topic of my paper with caution and humility. I have had the privilege to work on Indonesian development issues for over three decades. I have always found Indonesian academics and officials remarkably frank and open about the issues facing their country, and also tolerant of the perhaps excessively intrusive foreign academic presence. But, equally, I am conscious that, even when I have worked on the country, sometimes intensively, I am always observing from afar and the outside. Inevitably, the political economy constraints are diminished, the inclination for 'first-best policy advocacy heightened, from a more distant perspective. Close up, as the distinguished policy makers will be quick to remind us, the world is much more complex, and the battle is often between the second-best and the *n*th best.

My paper is premised on the argument that the restoration of rapid economic growth is the single most important policy objective facing the government, growth that is broad-based, at least distributionally neutral, and recognizes environmental constraints. Growth most definitely is 'good for the poor' (Dollar and Kraay, 2002). Moreover, Indonesian economists and policy advisors have to operate in a very different political economy environment compared to the Soeharto era. That is, a presidency is not all powerful (though arguably has more 'legitimacy'), a weaker and less cohesive cabinet and bureaucracy, a much more powerful and assertive legislature, a very different set of centre-region relationships, and a more vocal and unpredictable civil society.

Three general points warrant emphasis at the outset. *First*, and most important, Indonesia has the immense benefit of experiencing rapid and long-term growth. That is, its policy makers have a deep understanding of the essential ingredients, and the community has appreciated the benefits in the form of rising living standards (and the concomitant downside of social disruption). This must surely be the central factor in any discussion of policy issues and options. Unless the growth was in some sense due to luck or it was fleeting – neither surely correct – one of the challenges is to replicate the positive lessons of experience, albeit in a different political and institutional landscape.

Second, Indonesia faces a tougher, more competitive global environment, and one in which key productive resources, capital and people, are ever more mobile across national boundaries. This is particularly the case for competition from the two Asian giants, China and India, and also significant-sized economies, most notably Vietnam. In the past decade, China's per capita income has already overtaken Indonesia's. If current growth differentials persist, the latter two could also surpass Indonesia, a proposition which would have been unthinkable a decade ago.¹

Third, and notwithstanding this intensifying international competition, the global macro circumstances currently and in recent past have been exceptionally favourable for Indonesia. That is, there is the highly unusual 'trifecta' of low (albeit rising) interest rates, strong global economic growth, and very high commodity prices. These conditions are unlikely to persist for much longer. But while they are present, they provide Indonesia with a historic window of opportunity to restructure and enact policy reform.

My paper is organized as follows. In Section 2, I briefly review the large and rapidly expanding growth empirics' literature, which attempts to explain long-term international differences in growth rates. Section 3 summarizes Indonesia's development record since the 1960s, in comparative perspective. Linking these two sections, Section 4 looks forward (and backward) and offers an assessment of some key development policy issues. The main conclusions are summarized in Section 5.

¹ I will not discuss the details of these countries in this paper, except to note that the slowest growing of the three over the past two decades, India, now appears to have permanently shed Deepak Lal's famous 'Hindu equilibrium' rate of growth, of 3-4%, implying long term annual per capita growth of 1-2%. The major reforms of 1991 and subsequently appear to have lifted the economy to a new growth trajectory, of 6-8%. Whatever backtracking occurs, the once dominant 'licence Raj' has become a historical relic. For recent surveys, see Pursell (2006) and Williamson (2006). The parallel with Indonesia is perhaps that, owing to complex political compromises (with unions, regions, business lobbies), it may not be able to achieve the really stellar NIEs/China growth rates. Conversely, perhaps the Indian (and Indonesian) rates are more durable since these countries have already established working democracies.

2. THE DETERMINANTS OF GROWTH: ELEMENTS OF AN ANALYTICAL FRAMEWORK²

There is now a very large literature attempting to identify the sources of long run economic growth and to explain international differences in growth rates. These range from growth decomposition techniques to large-scale econometric investigations. All are motivated in some way by underlying theory and empirical observation. The earlier literature tended to focus on partial correlations, often in the context of attempting to prove (or disprove) favoured theories of economic development. As more data bases have become widely available, and econometric techniques more advanced, inevitably the analysis has become more sophisticated quantitatively. However, endogeneity remains a serious obstacle, and the longer the time period (an important requirement since growth is a long-term phenomenon) the smaller the number of developing countries that are in the sample. Quantifying the impacts of new areas of interest in development economics, for example institutional quality, is particularly limited in this respect.

The empirical literature is usually arranged around three categories of dependent variables that either theory suggests is important or have been found to be robustly correlated with some measure of growth in empirical studies. These are: measures of factor accumulation and initial conditions (which capture the process of conditional convergence); government and policy related variables; and other relevant factors.

Theory and empirics posit a positive relationship between the rate of capital accumulation and output growth, with various proxies for the rate of capital accumulation found to be one of the variables most robustly correlated with long run growth rates.

In theory and empirical growth studies, there are typically two different roles for human capital in driving growth. First, if human capital represents a direct factor of production that does not suffer from decreasing marginal returns, higher rates of investment in human capital will drive faster growth. Second, as postulated in many endogenous growth theories, human capital may be important for creating knowledge or aiding knowledge diffusion from a more technologically sophisticated country, in which case higher levels of human capital would be expected to drive higher growth. On balance, the empirical evidence appears to lend greater support to the endogenous growth theory interpretation.

² This draws on section 2 of Hill and Hill (2005), which also contains a guide to the key literature. A good general review of the literature is provided by Temple (1999).

Nevertheless, a surprisingly large number of studies have found neither the stock nor rate of investment in human capital to be statistically important.

Aside from the inclusion of basic factors of production, many cross-country empirical growth studies include as one of the explanatory variables the initial (lagged) level of some measure of labour productivity. The coefficient on this variable is often found to be negative, supporting the β -convergence hypothesis that, *ceteris paribus*, poorer countries tend to grow faster than rich countries.

A range of policy variables are likely to influence technical and allocative efficiency, thereby impacting on growth outcomes directly, or by altering the incentives and opportunities for factor accumulation, impacting on growth indirectly. Amongst the most common types of direct policy variables assessed in empirical studies are policies relating to openness to international trade, macroeconomic stability, the size and nature of government expenditures and factors which come under the broad banner of institutional quality. A large body of empirical evidence, using different measures of both trade regimes and measures of revealed openness to trade, has found this variable to be strongly correlated with growth. However, many of these studies have been the subject of a wide ranging criticism relating to measurement error and especially endogeneity bias.

The orthodox view of economic management and growth contends that a relatively stable macroeconomic environment is a prerequisite for sustained growth. However, the precise theoretical linkages are not always clear. In addition, defining exactly what constitutes macroeconomic stability and assessing whether it has ongoing or temporary effects on growth is problematic and this is born out in some empirical studies.

The enforcement of contracts and the safeguarding of private property rights, one aspect of what might come under the broad banner of 'institutional quality', are fundamental to most forms of economic activity, including production and exchange. However, one of the key empirical challenges in examining this issue is accessing a good proxy for property rights security. Many studies employ indicators of investment risk and contract enforcement, constructed by private ratings agencies, either directly or in conjunction with an instrumental variable based on geographic or historical factors. Nevertheless, these variables are usually subjective in nature, and extended time series are rarely available, for developing countries at least.

The rapidly expanding literature has also experimented with many other variables. One is financial sector development, which is presumed to support growth directly, by providing signals on efficient resource allocation and indirectly, by encouraging savings and capital formation. A second is political stability. This is presumed to represent a necessary though not sufficient condition for growth. Empirical testing also has to deal with cases where there may be frequent changes in government, but where, perhaps owing to a stable and well established bureaucracy, policy settings are maintained. It is also generally hypothesized that a more open and competitive political system is more consistent with an environment conducive to productive economic activity. However, the results are mixed. As much of East Asia illustrates, authoritarian regimes can generate a sound economic environment and execute good policies, particularly in the early phases of development. A third set of explanatory growth-enhancing variables embrace concepts such as trust, social capital and social cohesion. A variant of this is ethnic fractionalization, which some have argued is a key factor in explaining poor growth performance in Africa. Fourth, there are a range of geographic and environmental factors, including a tropical climate (e.g., which may increase the prevalence of disease) and land-locked locations (which may limit the scope for participating in international commerce). Finally, there is a literature on the links between long run economic performance and intra-national inequality. Here, both theory and the empirics are ambiguous: high inequality may be conducive to saving and provide incentives for enterprise; but it may constrain growth to the extent that it breeds instability and excludes economic agents from the production process.

3. THE INDONESIAN RECORD

From Benjamin Higgins's 'chronic economic dropout', to the World Bank's 'East Asian miracle', and then from 'show case to basket case'. Could all these characterizations possibly apply to the same country? Yes, they do, to Indonesia! They illustrate not only the hyperbole which is sometimes associated with major changes in a country's economic fortunes, but also the reality that Indonesia's development record has been highly episodal. We have now had a reasonably accurate picture of Indonesian economic development, thanks to the meticulous, pioneering work of economic historians such as Thee Kian Wie and Pierre van der Eng. At the outset of the Soeharto era, the national accounts data suggest that the country's per capita income was similar to that in 1913, and about three quarters of that at the effective end of Dutch colonial rule, in

early 1942. In the next 30 years, the Soeharto era, income per capita rose almost four-fold. These figures are quite remarkable. That is, there was no net improvement in aggregate national welfare for over a half a century through to the mid 1960s, followed by a sharp increase (van der Eng, 2002, p. 145).

Thus, Indonesia certainly belongs to the ASEAN high-growth club. From 1966 to 2000, four of these economies grew very fast, by at least 4% per capita (Table 1). Singapore was the standout, with 6.6%; it also ranked top among the 59 countries for which there are data for all these variables over this period. The other three ranked in the top six. There is also a clear investment-growth correlate in most cases. Singapore invested very heavily, on average about 44% of GDP, and was also ranked number one in the sample.

Table 1
Southeast Asian Economic Performance Indicators, 1966-2000

	Indonesia	Malaysia	Philippines	Singapore	Thailand
<i>Outcomes</i>					
Per-capita growth	4.1	4.0	1.3	6.6	4.8
Investment share of GDP	13.5	21.3	15.0	44.2	30.8
Government share of GDP	19.8	18.8	16.9	8.4	16.1
Public spending on education (% GDP)	1.5	5.5	2.4	3.4	3.8
Average years of education	3.4	5.3	6.4	5.4	4.7
Trade to GDP ratio	47.1	123.8	57.6	329.8	60.0
Openness, Sachs-Warner measure	0.9	1.0	0.3	1.0	1.0
Inflation	56.6*	4.8	11.4	3.6	5.8
Contract intensive money	0.74	0.83	0.82	0.84	0.83
Political instability	0.00	0.03	0.11	0.00	0.06
<i>Ranking out of 59 countries</i>					
Per-capita growth	5	6	41	1	3
Investment share of GDP	37	17	33	1	4
Government share of GDP	42	37	32	7	29
Public spending on education (% GDP)	59	15	53	37	30
Average years of education	44	26	20	25	32
Trade to GDP ratio	39	2	25	1	23
Openness, Sachs-Warner measure	22	1	34	1	1
Inflation	55	7	35	2	10
Contract intensive money	47	26	31	23	25
Political instability	1	39	57	1	50

Notes:

Outcome figures are based on annual averages for period 1966-2000.

Rankings are based on sample of 59 countries corresponding to the period 1966-2000. A higher number is 'better' for all variables. For ease of presentation, the rankings are switched for inflation, government share of GDP and the political instability figures.

'Contract intensive money' represents the proportion of M2 held in forms other than currency, and is derived from *International Financial Statistics*.

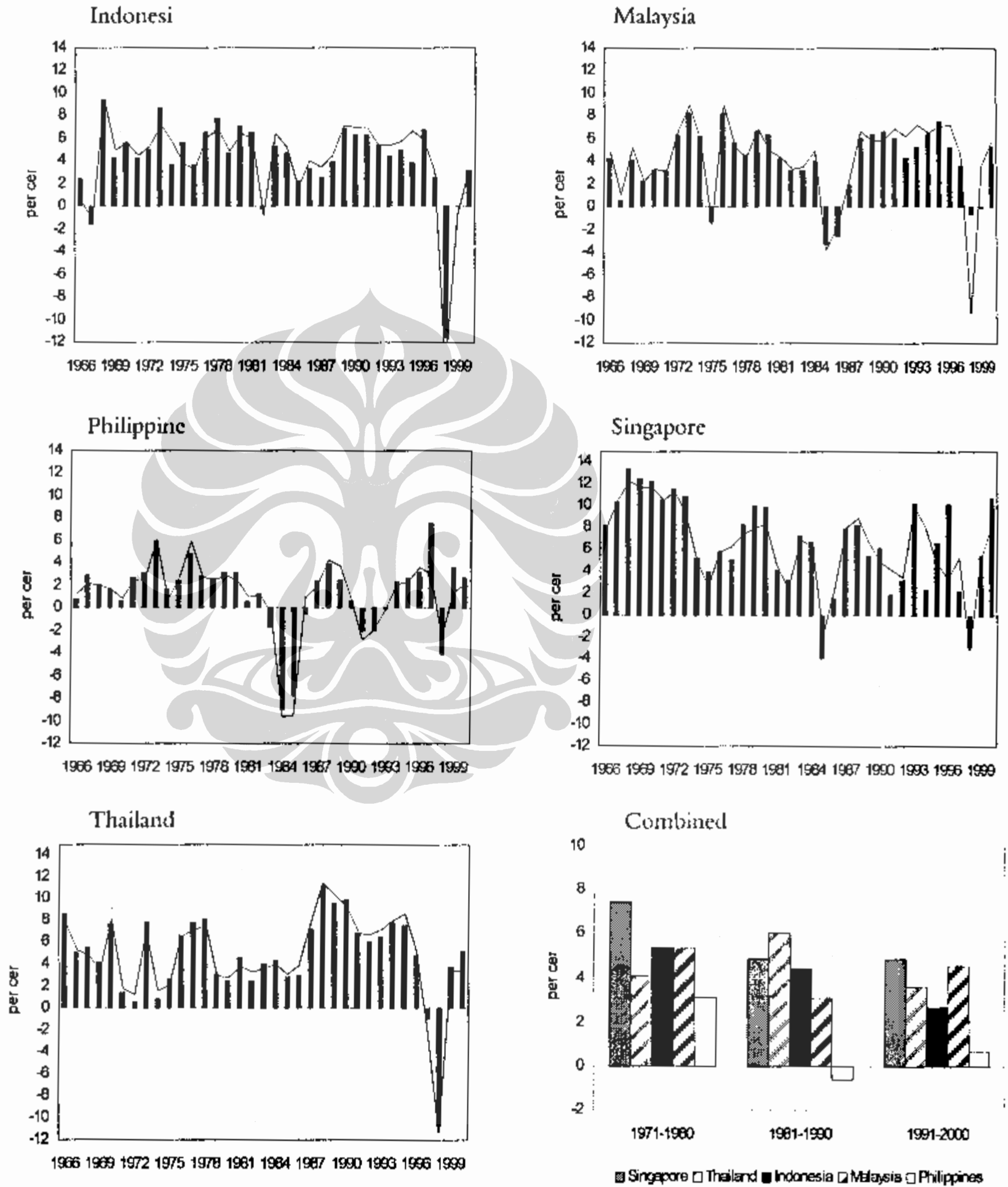
Data on public spending on education are from World Development Indicators, while the trade to GDP ratios are from Penn World Tables 6.1. For other variables used in regressions reported in table 2, see data appendix for definitions and sources.

The inflation figure for Indonesia is magnified by hyper-inflation in 1966; the average inflation rate for Indonesia for period 1967 to 2000 is 23.1%.

Source: Hill and Hill, 2005, p. 322.

The episodic nature of economic growth has been a feature of some of these economies (Figure 1). By decades, average growth among the five ASEANs was highest in the 1970s. There was no mid-decade recession, as in the mid- 1980s, nor a deep crisis as in the late 1990s. Episodes are especially pronounced for those countries whose exports are dominated by commodities, where the quality of macroeconomic management has been variable, or where political instability has been present. Since these variables are country-specific, there are no broad growth cycles. But it is useful to distinguish between the stable, high growth economies and those whose performance has been more erratic.

Figure 1
Southeast Asian Economic Growth, 1966-2000



UNIVERSITAS INDONESIA

Indonesia clearly belongs to the latter group. Episodically, the key periods are the late 1960s, early-mid 1970s, early-mid 1980s, and 1997-98. Indonesia experienced rapid growth from the late 1960s, for the first time in its recorded history, with the adoption of 'orthodox' trade and macroeconomic policies, further boosted in the 1970s by large increases in international petroleum prices. The collapse of these prices in the early 1980s led to a sharp deceleration in growth, but quick and decisive reform promptly restored the momentum (Kuncoro and Resosudarmo, 2006). It then experienced a deep economic collapse in 1997-98 and political turbulence, with the economy contracting by over 13% in 1998, followed by significantly slower growth thereafter.

In the long sweep of development, a really striking feature of Indonesia's economic history is just how successful its reform efforts have been. This particularly so when:

- a united group of policy makers have been at the helm;
- they have been listened to and supported by a powerful president;
- the vested interests opposed to reform have either been neutralized or co-opted; and
- the international commercial environment and donor community have been supportive.

As we have seen, from the seemingly hopeless circumstances of the mid 1960s, the reform agenda of the early Soeharto era produced remarkably rapid economic growth within just a few years. The 1980s was just as crucial a period in the country's economic history. At the beginning of the decade, as oil prices first tapered off, and then fell sharply, Indonesia was highly exposed to the international oil market. Oil, gas and related minerals provided about two-thirds of government revenue and almost three-quarters of merchandise exports. Indonesia could well have followed other major developing OPEC members – notably Mexico and Nigeria – into a debt crisis.³ Instead, the decline in oil prices triggered a major reassessment of trade and industry policy. The political economy pendulum swung in favour of the technocrats and their supporters who advocated a more liberal economic agenda, including reduced protection, a more open posture towards foreign investment, and simplified export procedures (Basri and Hill, 2004).

³ See Gelb and Associates (1988) for an excellent comparative assessment of the management of the 1970s oil boom in selected developing countries. Indonesia emerges as the country which most effectively recycled its windfall oil boom revenues, and which adjusted most quickly to the downturn in prices.

What is the comparative evidence for Indonesia on a range of policy and geographical variables which are presumed to be growth-enhancing? Linking back to the framework enunciated in the previous section, we refer again to the data in Table 1 for the five ASEAN economies for which we have reasonably long-term data series.

All of the high-growth economies have a history of consistently good **macroeconomic management**, with a strong aversion to inflation and a predisposition to fiscal prudence. Inflation in Malaysia and Singapore has rarely exceeded 5%, while Thailand has almost always recorded single-digit inflation, even during periods of global inflation. For the period as a whole – which included episodes of significant global inflation – all three averages are in the 3-5% range (Table 1). They also rank among the very best performers. In this comparison, for the period 1967-96, Indonesia's average inflation rate was significantly higher. However, except for the early years of the 1970s oil boom, there was never a loss of macroeconomic control. In the wake of the 1960s hyperinflation, which peaked at about 1,000% in 1965-66, a key building block introduced by its economic policy makers was the so-called balanced budget rule, which stipulated that government expenditure could never exceed the combined total of taxation and aid receipts. There was again a loss of macroeconomic control during the 1997-98 crisis, mainly associated with bank refinancing, but monetary stability was restored, albeit somewhat precariously, by the end of the decade.

The five ASEAN countries display a similar divide with respect to their **trade regimes and openness** as they do on macro management. The three higher income countries were among the small number which Sachs and Warner (1995) classified as 'always open', and all rank at the top according to this measure. Their average tariffs have been relatively low, there has been limited resort to NTBs, they have been open to foreign investment, and black market exchange rates have not been present. Of course, the differences within this group have also been significant. Singapore is perhaps the world's most open economy, with the highest trade to GDP ratio in the sample of 59 countries (Table 1), virtually no trade barriers, and a huge FDI presence. Malaysia and especially Thailand are a good deal less open on all criteria, but the former still ranks second in terms of its trade to GDP ratio.

Indonesia is now a relatively open economy, but historically it was much more inward-looking, placing greater restrictions on trade and foreign capital. It has also lacked the consistency of the other three (Basri, 2001). The pendulum swung sharply towards openness in the late 1960s.

There was a retreat for much of the 1970s, before the reforms of the 1980s got underway. There were further reforms in the late 1990s as part of the government's LOI with the IMF. It now seems unlikely that Indonesia would turn inward to any significant degree. But one would hesitate to assert that openness is a deeply embedded feature of the policy regime. Nationalist critiques on openness continue to resonate, with the necessities of political party funding introduce additional pressures.

In terms of **social progress**, the record in the five has generally mirrored economic development. Here it is useful to distinguish between two key elements: human capital indicators and distributional outcomes. Both are broadly indicative of the extent to which economic growth has been 'inclusive', while the former is also commonly employed with a range of 'competitiveness' indicators.

Here it should be noted that the sub-groupings identified above for macroeconomic management and openness do not apply for these variables. Moreover, consistent with the East Asian record, educational outcomes have been quite widely distributed, in the sense that, unlike other developing regions, most children receive at least some education. However, unlike Northeast Asia, with the exception of the Philippines educational achievement could not be said to have 'led' economic development, in the sense that OECD-level educational indicators were achieved at relatively low levels of income. In addition, although some aspects of the distributional record are contentious, there is no evidence of any significant increase in immiserization in the presence of sustained growth in any of the five.

Indonesia's starting point on these variables was dominated by low inequality, and educational neglect dating back to the colonial era. Particularly since 1970, there has been considerable catch up, but the country continues to record the lowest educational achievement among the five. Two education indicators are reported in Table 1. The widely used Barro-Lee years of schooling measure ranks the Southeast Asian countries according to their per capita incomes, except that the Philippines is number one, and Malaysia and Singapore are very similar. These three countries are grouped into the top half of the sample of 59, but none ranks highly. According to a second measure, public expenditure on education (as a percent of GDP), all but Malaysia rank in the bottom half of the sample, with Indonesia the lowest of all. Recall, though, that this sample includes most OECD economies.

Measuring **institutional quality** is an even more hazardous exercise. There is hardly a consensus as to what constitutes a robust set of

indicators. International comparisons need to make allowance for levels of development. Estimates based on subjective assessments of bureaucratic quality and corruption and extending back over more than two decades are not available. Common proxies such as the incidence of corruption are likely to be inconclusive, since there are cases of high corruption co-existing with both high and low economic growth. One also needs to distinguish between some sorts of notion of 'hard' and 'soft' states within, as much as between, countries. For example, Indonesia for most of the recent past, has been fiscally disciplined (and hence 'hard' in this respect), while highly vulnerable to capture in a microeconomic sense. In addition, proxies for political freedoms and democratic expression are empirically slippery.

For what they are worth, there is a broad consensus in rankings of institutional quality among the five, more or less following their per capita incomes. More focused indicators, such as the quality of the central bank and the legal system, which are widely used proxies for two key aspects of institutional quality, generate similar rankings. In these series, there is moreover a significant gap between Singapore and second ranked Malaysia, and between the latter and the other three economies.

For illustrative purposes, data on two widely available indicators are included in Table 1. On the first, political stability, Singapore and Indonesia rank very highly. Both are broadly accurate characterizations through to 1997. But, to illustrate the limitations associated with such indicators, Indonesia would of course be regarded as highly unstable during the six years following the collapse of the Soeharto regime. A second proxy is contract-intensive money, a variable used as an indicator of trust in the financial and legal system. Here the orderings broadly follow income per capita, with Indonesia the lowest among the five.

The growth literature generally finds a negative association between the share of government expenditure in GDP and growth. The effects on incentives (of a higher tax regime) and the possibilities of corruption are presumed to be important explanators, although much of course depends on a country's institutional quality. In Southeast Asia, Singapore has the 'smallest' government (and is again in the top ten for the sample), while Indonesia has the largest, partly owing to its large state-owned oil and gas sector (Table 1).

Of course, as noted, growth modeling has its limitations, and Indonesia's performance is typically underestimated in various attempts to quantify and explain its growth rates. Why has Indonesia grown a good deal faster than predicted? Conventional explanations for

Indonesia's rapid growth from the late 1960s draw attention to a conjunction of factors, in addition to the adoption of 'orthodox' policies of the type incorporated in the usual modeling. One is a range of fortuitous factors in its first decade of rapid growth (ie, through to the mid-late 1970s). These include the sharp increase in international oil prices; very strong donor support; and the rapid if delayed adoption of the high-yielding agricultural seed varieties at a time when that sector still contributed almost half of GDP. A second factor, reinforcing the favorable impacts of the first, was that, among the oil-exporting nations, Indonesia (and Malaysia too) recycled its 'petro dollars' more effectively than any other developing country. Especially important were the huge investments in physical infrastructure and agriculture, the latter resulting in Indonesia's transformation from the world's largest rice importer in the mid 1970s to self-sufficiency a decade later. Third, in spite of widespread corruption and centralized, authoritarian rule, the benefits of rapid growth were broadly distributed across households and regions, resulting in no significant change in distributional indicators. In particular, the low gini coefficients for household expenditure (the only distributional indicator consistently available from the late 1960s) were virtually constant throughout the Soeharto period. The entire community had a stake in the system. Fourth, although institutional indicators suggest low quality, the informal 'rules of the game' for the business sector, for which formal indicators like legal quality are largely irrelevant, were quite predictable and stable. Finally, the regime effectively handled the one potentially serious economic challenge in its first quarter century of rule – the debt crisis in the wake of the early 1980s oil price collapse – promptly and effectively.

Appendix 2 provides an additional set of comparative indicators, with greater focus on a range of 'competitiveness indicators'. In this context, I have found a useful intellectual exercise to be a framework which draws upon the "three I's", and then develops empirical proxies for each of them. These I's are *incentives*, *institutions*, and *infrastructure*. Incentives refer to domestic prices being more or less aligned with international price levels. Empirical proxies typically focus on openness to trade and foreign investment. Institutions revolve around the quality of governance and the legal system. Infrastructure embraces the pricing, regulation and quality of physical infrastructure, together with social infrastructure such as education and health that ensure that the benefits of growth are spread widely. In addition to these broad indicators, a number of specific measures related to technology and innovation are relevant to international comparisons of competitiveness.

How does Indonesia look in comparative East Asian perspective using such an approach? First, Indonesia is a 'late-comer' in practically all respects. Its educational base was hampered by colonial neglect and the absence of economic progress until the mid 1960s. It hardly possessed a modern industrial sector prior to the late 1960s, by which time almost all the private foreign capital had been driven out of the country. According to almost all indicators of science, education and technology, it is the laggard among these economies. The country also has a stronger natural resource base than most of its neighbours, hence dictating a somewhat different industrialization trajectory.

Second, technology policy has been sporadic and lacking in coherence. Prior to 1997, the government had begun to pay attention to technology issues, but its approach differed from its neighbours. That is, technology policy centered on a number of highly ambitious heavy industry projects, most especially a showcase aircraft factory, IPTN. State investment in the latter totaled at least \$3 billion, and involved a 'back-to-front' approach to high-tech industrialization involving aircraft assembly without the base of supplier industries to support it. Not surprisingly, in the wake of the crisis, state support for the venture evaporated. Like China's and India's earlier push for heavy industry, there are residual, albeit high-cost, technological benefits.

Finally, in other respects, the picture is mixed. Indonesia scores well on its prudent macroeconomic management, reasonably open trade and investment policies, and major investments in physical infrastructure and to a lesser extent mass education. However, indicators suggest that institutions remain weak.

4. DEVELOPMENT POLICY ISSUES AND CHALLENGES

These brief reviews of growth theory and empirics alongside Indonesia's development record point to some powerful lessons which can shape future policy directions and priorities. In this section we highlight what are arguably the key policy challenges, both in the positive and the negative. We offer these comments bearing in mind the wise guidance above of Boediono and Heinz Arndt on Indonesia, and Harry Johnson and Lord Keynes more generally, and also conscious of the current political economy frailties which dictate that, owing to scarce, high-level bureaucratic resources and complex reform processes, priorities matter.

I am deliberately casting the net wide, but not delving into these issues in any depth. In so doing, I do not of course mean to imply that the issues are simple. There is greater emphasis on microeconomic issues as

compared to the macro, since the more serious challenges appear to reside in the former domain.

4.1 Prudent Macroeconomic Policy

Since 1967, and with the exception of the mid 1970s and 1998, this has been one of Indonesia's strengths. Moreover, and thanks to the exemplary economic policy leadership in recent years, the incipient hyper-inflation immediately after the crisis has been firmly brought under control. Public debt will continue to be a serious challenge for years to come. But the fiscal deficit is now modest. Combined with ongoing debt restructuring and negotiations, the country can grow its way out of the debt over-hang, as it did in the late 1960s and late 1980s. In addition, the country has an independent central bank, and the exchange rate float appears to be working satisfactorily, arguably better than might have been expected when it was first adopted. The floating rate has, desirably, exerted a cautionary influence on Indonesian firms contemplating foreign currency borrowings. It also appears to be working as a discipline on domestic policy excesses.

There are arguably three principal macro policy challenges. First, while managing inflation effectively, Indonesia has never quite been able to achieve the consistently low inflation of its neighbours, for example, Malaysia, Singapore, and Thailand. There do not appear to be any structural, policy, or analytical reasons why a low inflation targeting regime could not be achieved, one which is sufficiently flexible to be able to accommodate external shocks (e.g., sharp movements in commodity prices) or unforeseen policy developments (eg, the delayed petroleum price adjustments in 2005). A second macro policy challenge is to improve the revenue raising efforts, so as to be able to fund all the public investments necessary for development. Third, after the experience of 1997-98, the government is understandably cautious about large-scale foreign borrowings. But, especially in the area of infrastructure, there are almost certainly long-term investment projects where the social rates of return exceed the costs of borrowed funds, the more so where those funds are available on concessional terms.

4.2 An open Economy

The theoretical and empirical arguments for openness are very powerful. As noted, they are also supported by Indonesia's development experience since the mid 1960s, in that the country has grown more rapidly during periods of decisive liberalization.

It is important to remind ourselves that the dynamic and interactive effects associated with openness are much greater than the 'static triangles' story. Open trade and investment regimes combine to deliver higher quality FDI, since the nature of these investments shift from 'rent-seeking' a la the old 'tariff factory' model, to efficiency-seeking. That is, in an outward-looking regime, foreign firms enter the country in search of an internationally competitive production environment, rather than fiscal incentives and protection. They demand different things from governments – better infrastructure and a more skilled workforce, for example – which are likely in turn to be growth-promoting. The 'spillovers' to domestic firms, in terms of enhanced productivity and efficiency, are also likely to be greater.⁴ Openness has additional indirect benefits, of the type which were illuminated in the pioneering Bhagwati-Krueger NBER series and subsequently. In low-wage economies, it shifts the growth towards a more labour-intensive trajectory, and hence it is more likely to deliver on poverty and employment objectives. It creates a more competitive environment, and hence sweeps away rents in the traded goods sectors, more effectively than complicated bureaucratic structures are able to. It is also more likely to lift institutional quality, since firms operating in internationally competitive markets are going to want better services from their government.

Indonesia is now a largely open economy, but arguably precariously so. There has been no significant backtracking on the decisive trade reforms of the 1980s (Basri, 2001). Yet the additional reforms introduced in 1998-99 are seen as politically odious in some quarters, since they were part of the infamous LOI with the IMF. Moreover, in the democratic era, the imperative of funding political parties and campaigns has introduced new protectionist pressures.

The investment regime is reasonably open, but investors continue to hold back owing to political and policy uncertainty. Hence capital flows into Indonesia in recent years have gone predominantly into short-term projects such as real estate and the stock market. The country's service sectors remain a good deal less open than the goods sector, while international labour inflows are among the more restrictive in ASEAN (Manning and Sidorenko, 2005).

⁴ There is a large literature on the impact of the trade regime on domestic spillovers. For an excellent recent Thai study, see Archanun (2006). Della Temanggung is exploring these issues in the Indonesian context in an ANU dissertation in progress.

Of course, openness is a necessary but not sufficient condition for development. The benefits need to be managed. It requires an efficient financial sector and infrastructure facilities, a workable legal system, and investments in the population which ensure that the workforce can grasp the opportunities. Connecting to global financial markets introduces major challenges, as was illustrated during the 1997-98 crisis. The financial sector, in particular, needs to be supervised conservatively and prudently. Perhaps there is a case for some light-handed measures to curb short-term capital flows, although in some circumstances the cure can be worse than the disease.

Clearly, the political economy of Indonesian trade policy has changed. The highly effective 'low politics' of the 1980s (Soesastro, 1989) presumably have to adapt to the new circumstances of fluid democracy and the politics of vested interests. Public persuasion is the new imperative. Mechanisms have to be established which demonstrate the costs of intervention via protection and regulation, and which require the proponents in business and the bureaucracy to make their case in public and subject to independent scrutiny.⁵

4.3 A simple and Transparent Business Environment

Indonesia ranks rather low in international comparisons of regulatory complexity and, as a corollary, corruption. In the East comparisons, the country particularly lags.⁶ Business start-up times are long, ports and customs services lag, labour issues are more uncertain, and contract enforcement is regarded as weak. Admittedly, these surveys are subjective and not very rigorous. But together they paint a reasonably consistent story, and they explain why Indonesia has not been an attractive FDI destination since 1998.

During the Soeharto era, business learnt to adapt to such an environment, since there was the compensation of high growth, predictable rules of the game, and ample opportunities to short-circuit the system, albeit to the detriment of the public exchequer. In an era of lower growth, less predictable policies and intensified international competition, the case for reform is all the stronger.

⁵ See Bird *et al* (2006) for a discussion of these issues, including a range of policy/institutional options.

⁶ See for example the various business surveys, such as the IFC/World Bank's annual *Doing Business* report, the JETRO surveys, the *Global Competitiveness Report*, and UNCTAD's *World Investment Report*.

Regulatory complexity benefits only the bureaucrats who are empowered by it, and the existing firms who are sheltered by it. Should it really have to take 151 days to register a business? This is the figure reported by the World Bank's *Doing Business* survey, compared to the East Asian and OECD averages of 61 and 27 days respectively.⁷

Regulatory reform is of course a highly complex, long-term and multi-faceted reform issue. First, as the initial quote from Heinz Arndt almost three decades ago reminds us, against the backdrop of a populist agenda resonating in the media and the DPR, all policy proposals need to be evaluated according to the likelihood of capture and corruption. Second, civil service reform is a key element: competitive salary structures, clear mandates and mission statements, modern management systems, and harsh penalties for malfeasance (see McLeod, 2005). Third, many of the country's laws and regulations are outdated, vaguely worded, and confer much discretionary authority of bureaucrats. Fourth, there needs to be more independent regulatory scrutiny of government operations, via a better resourced Audit Office and Competition Commission.⁸ Fifth, over time, decentralization may deliver better governance at the regional level, and via competitive regional processes, this may impact on the national level. However, at best this is a long-term prospect, and it will impact only if decentralization is implemented in a stable, efficient and predictable manner.⁹

Finally, although I am generally skeptical of the merits of 'big bang' initiatives, the opposition to regulatory and civil service reform is so powerful that bold measures may be required. There are successful examples from Indonesia which illustrate this proposition: in 1985, customs was by-passed with the stroke of a regulatory pen, while an able senior official administered a highly effective duty drawback scheme for exporters, which had a similar effect. These were key ingredients of Indonesia's export success. In the 1990s, Batam was run as a free trade

⁷ In fairness, it should be noted that these numbers are contentious. Alternative estimates suggest the actual figure is much lower. According to the LPEM survey, the figure may be a (still lengthy) 80 days, still well above comparative norms.

⁸ For example, although in its infancy, the KPPU (Commission for the Supervision of Business Competition, *Komisi Pengawas Persaingan Usaha*) appears to be operating more effectively in promoting a competitive business environment than was perhaps initially expected, especially given its origins as part of the LOI agreement, and given the implicit political agenda of some proponents of the commission. See Thee (2006).

⁹ It is worth noting the Philippine experience in this context. The country decentralized a decade before Indonesia, and with more preparation. Pockets of good governance have emerged among regional administrations, but there is not yet any generalized picture of competition among them lifting standards nationally. See Capuno (2006).

zone, and for a period investors voted with their feet, as the region generated about half of the increment to the country's manufactured exports. These measures might be considered 'second best', as compared to systemic reform. But they were highly effective interim steps.

4.4 Sharing in Development

Liberal reforms and rapid growth are durable only if the benefits of growth are widely distributed. Here too the international evidence and Indonesia's record provide many useful pointers. A useful framework starts with the proposition that the poor have only their labour to sell. Therefore, besides growth, the key elements are:

- increasing the demand for the services, that is a labour-intensive growth path;
- reducing the prices of the goods and services they consume intensively, that is, through competition, open borders and efficient infrastructure/logistics systems; and
- providing key productivity-enhancing services, most notably education and health.

Since the mid 1960s, Indonesia has performed well in most of these respects. The expenditure-based gini ratios and inter-regional inequalities (using the more relevant non-oil and gas series) have been broadly constant; meaning that, in high growth periods, the incidence of poverty has fallen rapidly. The spread of mass education has been quite rapid, while life expectancy and infant mortality indicators have improved significantly. Particularly in its education priorities, Indonesia has been 'East' not 'South' Asian, in that subsidies have tended to be directed at mass-based primary and secondary education. Rural development and infrastructure, through recycling the oil boom revenues, worked better than in most other developing country oil exporters.

This experience suggests that, as with much else, Indonesia has had a policy framework which by and large 'works'. Therefore, the reform agenda is substantial but essentially incremental. Among the policy challenges are measures to improve the public health and education systems, especially their reach and quality at the primary level. Partly owing to the historical backlog, Indonesia's indicators in this area are modest, even as compared to countries with a similar per capita income. Sanitation and water quality are also areas where the country lags. On the revenue side, taxes remain weakly, if at all, progressive, and there can no doubt that the tax effort and compliance for better-off urban communities could be lifted.

4.5 Avoiding Policy Dead-ends

Indonesia's development experience also highlights some potential policy pitfalls and dead-ends. We illustrate this with reference to industry and labour policy.¹⁰

Debates on industry policy have moved on from the earlier unproductive discussions surrounding 'picking winners'. Markets can and do fail, and there will be particular promotional measures which governments deem useful. Malaysia for example gained its unrivalled ascendancy in tropical crops with the assistance of high quality research institutes. Taiwan's SME dynamism was enhanced by the Industrial Technology Research Institute, ITRI. In both these cases, open economies and excellent infrastructure under-pinned the success. This draws attention to the fact that these interventions will be most effective where the emphasis is on efficiency and outward orientation. As Stiglitz (2001, p. 521) observes:

'In the light of market and government failures, there are two alternative strategies: to focus on one and ignore the other or to try to address the weaknesses in each, viewing the public and private sectors as complementary. Singapore illustrates nicely the advantages of the latter approach.'

A decade ago, I advanced the skeptical case for Indonesia's industrial policy approach (Hill, 1996). Promotional measures seem to have been prone to abuse, implementation has been sporadic and often short-lived, and there has been little systematic attempt to prescribe conditionality, in the sense of linking incentives to tightly defined performance criteria. It is therefore hardly surprising that it is difficult to detect any relationship between inter-industry variations in government assistance (for example, through protection and credit subsidies) and subsequent (lagged) performance, according to a variety of measures. That is, it is difficult to mount the case that the selective policy instruments introduced or extended in the 1970s and 1980s – protection, credit subsidies, state enterprises – 'worked' according to a range of subsequent performance criteria. By extension, Chatib Basri's (2001) detailed econometric investigation of inter-industry variations in protection consistently detected a 'crony' variable, even if admittedly the latter was a somewhat arbitrary construction. Similarly, it would be difficult to argue that the estimated \$3 billion invested in high-tech

¹⁰ Some of the arguments advanced here link back to earlier critiques of Indonesian economic policy debates. See for example Glassburner (1978) and Hill (1997).

projects could not have been more effectively spent in raising general education standards, together with some targeted industrial extension programs.

This suggests that, if the Indonesian government is going to experiment with any form of industry policy, it would be advisable to observe at least the following set of principles:

First, the 'fundamentals' adumbrated above need to be in place, and not just taken for granted (as is frequently evident in the industry policy literature). Openness especially is crucial, as it immediately subjects any intervention to some sort of market test, as in the Singapore approach.

Second, if there is to be any industry-level selectivity, it is important to establish just what, precisely, is the infant industry or distributional case for intervention. Moreover, the case need to be made bearing in mind that one industry's subsidy is another's tax.

Third, to the maximum extent possible, R & D efforts should be demand, not supply, driven, with an agenda set by the scientific community and the private sector.

Fourth, the selection of policy modalities and instruments is crucial. For example, as much as possible, assistance should be:

- industry rather than firm-based (and as a corollary it should be 'contestable');
- contain clear, non-negotiable provisions for a sunset clause;
- provided in the form of subsidies rather than tariffs and (especially) quantitative restrictions;
- completely transparent and fully costed; and
- insulated from political processes, once broad priorities and budgets are specified.

Finally, purely for political economy reasons, there may be a stronger case for supporting export industries, simply because a market test (ie, sales in internationally competitive markets) is more readily available. This is especially the case for countries with a long history of protection.

The less these conditions can be met, the weaker the case for any forms of selectivity and the stronger the case for non-discretionary interventions such as education and infrastructure.

A similar set of arguments can be advanced in the case of SME policy. This has long been an article of faith for Indonesian policy makers, and there are interesting examples of SME dynamism from which lessons

can be learnt (Berry et al, 2001). The Bali garment industry, which grew spectacularly in the 1980s and is almost exclusively based on small firms, was practically an 'accidental' case of industrialization (Cole, 1998). Another much studied case is the export-oriented SME furniture manufacturers in Jepara.¹¹ These studies suggest a model of successful and innovative SME development based on at least four features. These are some basic industrial competence in a particular activity; a supportive macroeconomic environment; reasonably good physical infrastructure, especially connecting to international buyers and export markets; all combined with injections of technical, design and marketing expertise which link small producers globally to new ideas and major markets.

It is also worth emphasizing that neither of these successes resulted from any deliberate government promotional measures. Rather, and linking back to Section 2 of our paper, it was the general policy environment which facilitated their growth. Moreover, as Thee Kian Wie (1994) and others have amply illustrated, further deregulations will work to the benefit of SMEs. This is because there are pecuniary economies of scale in dealing with a complex licensing regime, which in effect operate to the detriment of these firms.

Thus, in sum, SMEs are neither 'beautiful' (Schumacher) nor 'stupid' (Beckerman). Like firms of any size, they benefit from a clean and simple commercial environment. If the government is able to develop dynamic, demand-driven industrial extension programs, as in Taiwan, it is probable that these firms would be the primary beneficiaries. But the case for targeted SME assistance programs is unpersuasive. If welfare objectives are the main concern, there are more effective policy instruments, especially in public education and health. It is needs to be noted that, contrary to widespread impressions, size was not an important explanatory variable in firm survival and recovery following the 1997-98 economic crisis. This is clearly illustrated in the important firm-level investigations of Narjoko (2006). He concluded that foreign ownership and prior export orientation were the two main explanatory variables, and that they were especially significant in their interactive effects. The effects of size were generally inconclusive; if anything, larger

¹¹ In spite of their past success, both groups of firms have been experiencing difficulties in recent years. In the case of Bali, falling international tourism in the wake of the two terrorist attacks has affected business. In Jepara, timber supply shortages have been reported. The (sensible) removal of the log export ban and growing demand from China have apparently been contributing factors.

firms seemed to manage better.¹²

Labour market policies in the post-Soeharto era constitute a second cautionary policy lesson.¹³ During the Soeharto era, Indonesia's employment patterns very much conformed to the East Asian model of rapid growth and structural change, rising real wages, minimal interference in the operation of the labour market, and very limited labour freedoms (Manning, 1998). Since 1998, there has been a welcome improvement in the freedom of labour to organize and negotiate. Moreover, another desirable outcome was that, initially, labour market flexibility enabled the adjustment to the crisis to occur mainly on the price (ie, real wages) rather than the quantity (ie, employment), and thus there was not a major increase in open unemployment. But in other respects, labour market policies and outcomes have deteriorated, as intimated above by Singapore's former prime minister. Labour market populism has resulted in mandated minimum wages rising sharply, while employment regulations have become among the most restrictive in East Asia, and on a par with India. For example, the regulated minimum wage series increased by over 90% in the three years, 1999-2002. Severance pay entitlements have also been increased, and are now among the highest in East Asia. There has also been pressure to convert contract workers into permanent employees.

The results have been largely predictable. Employment in the modern ('formal') sector has declined, while informal sector employment, typically lower paid and less secure, has been rising (Bird and Manning, 2002). Suryahadi et al (2003) found a negative and statistically significant impact on employment in the urban formal sector. The negative effects are greater for female, young and less educated workers, who are thereby forced to relocate in the informal sector with its lower wages and poorer working conditions. Moreover, as a result of these labour policies, and combined with the increased regulatory complexity in international trade, Indonesia has become a less attractive location in intensively competitive, footloose labour-intensive industries.

¹² It should be noted that these results, from the BPS *Statistik Industri* series, refer to firms with at least 20 employees. It is possible that firms in the cottage industry sector behaved differently, but I am unaware of hard data on this group.

¹³ I draw here on the authoritative work of my colleagues Chris Manning and Kelly Bird.

5. SUMMING UP

This paper has briefly surveyed Indonesia's long-term economic performance in the context of modern theories of economic growth and development. Although a contested field, there is a general consensus concerning the factors which explain why some countries consistently grow faster than others. As we have seen, the more Indonesia has adopted 'orthodox' economic policies – prudent macroeconomics, opening up to the global economy, broadly predictable commercial rules of the game, and investing in its people and its infrastructure – the faster its economy has grown, and the more rapid has been the improvement in community living standards. Unshackling the economy, combined with good governance, has in the recent past produced remarkable dividends.

And yet, notwithstanding this success, a puzzling sense of pessimism seems to permeate some policy and academic circles in Indonesia, particularly on whether the country can compete with China.

Although the management of a vast and diverse country like Indonesia is highly complex, the key elements of economic policy are relatively straightforward. For 30 years, the gifted economists who ran the economy illustrated that growth is not rocket science. It needs to be remembered that they inherited an economy much poorer, less connected to the global economy, and relatively more debt-laden than is currently the case. Moreover, they set about their task against a widespread belief that Indonesia was in some sense an inherently non-developmental state. It is important to remember that few developing countries have grown as fast as Indonesia over this 30-year period. Therefore, the challenges are not so much what to do, as how to do it. Similarly, this suggests not that a 'new paradigm' is needed, but rather that the lessons need to be re-learned by the next generation of economists and officials, who will nevertheless have to operate in very different institutional and political circumstances.

This paper is premised on the assumption that the return to 'inclusive', high growth is the most pressing economic policy challenge facing Indonesia. The more difficult issue, where economists need advice from political scientists and public administration specialists, is how to achieve good policy in much more challenging circumstances, where it is no longer 'simply' a matter of the technocrats deciding on a certain policy objective, and then persuading the president of its desirability.

I suspect that, during this transitional phase of bedding down democratic institutions and practices, uncertain and perhaps unstable politics will be with Indonesia for some time to come. The question then

becomes how to construct a policy making system which preserves these democratic achievements but which 'takes the politics out' of key economic policy decisions, or in the words of Professor Sadli, which build a 'cordon sanitaire' around key institutions.

There are already examples where this process is underway. An independent central bank has been established and, although it is still in the transition phase, its low-inflation charter is clearly established. The floating of the exchange rate has similarly worked well, perhaps better than could have been expected in retrospect. There is a broad consensus that fiscal deficits have to be curbed, and that governments wishing to introduce new spending initiatives have to either spend their resources more efficiently or raise more revenue. There is a prospect that, as decentralization becomes firmly established, good governance at the regional level will be rewarded with a reform dividend of more investment and employment. This notion of 'islands of good governance' has also extended to some of the export zones, in that much of the manufacturing export growth since the mid 1990s has been generated by such facilities. Moreover, despite the massive economic contraction of 1997-98, Indonesia has not turned inwards.

In these new rules of the game, the role of public intellectuals is obviously critical. Economists have to win the policy battles as much, and perhaps more, in the public arena as in the presidential suite. I have the impression that that, post-crisis, public commentary on economics issues has become more populist and more nationalist. Perhaps this is the greatest challenge currently facing Indonesian economists: persuading the public that business-friendly, prudent, liberal economic policies, combined with strategies which ensure that the poor can participate in growth are in the best interests of the nation.¹⁴

As Sachs (2005) has persuasively argued, the key to poverty alleviation is growth, and a pre-requisite is that all members of the community are at least on the first rung of the ladder of economic development. And as Coleman's (2004) historical survey from the eighteenth century onwards has illustrated, from Smith to Keynes and beyond, 'anti-economics' sentiments are never lurking far beneath the surface, especially in times of political turbulence and economic uncertainty. Much of what passes for economic commentary in Indonesia, as in many other countries, has little to do with serious economic policy

¹⁴ In Hill (2005), I offered examples of how some of Indonesia's leading economists had played a role in shaping public policy debates in the post-Soeharto era.

reform, and instead distracts impossibly busy reformers in government from more important issues. Can the Indonesian economics profession be the force that reshapes the nation's economic policy debates, thereby enabling the reformers within government to accelerate the pace of economic reform?

Appendix 1.
*East Asia: Comparative Development
and 'Competitiveness' Indicators*

	PRC	Indonesia	Korea	Malaysia	Philippines	Singapore	Thailand	Taiwan
GENERAL ECONOMIC INDICATORS								
GDP, 2003 (\$ billion)	1,410	208	605	103	79	91	143	286
GDP per capita PPP, 2003 (\$)	4,995	3,364	17,908	9,696	4,321	24,480	7,580	24,560
GDP per capita growth, 1990-2003 (%)	8.2	3.1	5.1	3.9	1.0	3.5	4.2	4.4
Annual average inflation, 1990-2003(%)	5.6	12.8	5.0	3.0	8.0	1.6	4.0	2.1
Total external debt/GDP, 2002 (%)	13	76	23	51	76	266	47	12
GDP per capita 2003/1980	6.1	2.2	3.7	2.2	1.1	2.5	2.9	3.3
OPENNESS								
Trade								
(Exports + imports)/GDP, 1990 (%)	29.9	54.5	58.4	154.8	62.9	373.8	79.7	88.5
(Exports + imports)/GDP, 2003 (%) ⁱ	65.7	64.0	74.3	213.9	113.9	352.0	128.7	109.0
Export growth, 1990-2003 (%) ⁱⁱ	18.0	8.1	9.3	11.3	10.7	9.1	10.3	8.2
Average tariff rate, 2001 ⁱⁱⁱ	14.3	5.4	9.2	5.8	4.0	0.0	9.7	3.5
Index of economic freedom, 2004 ^{iv}	3.6	3.8	2.7	3.2	3.1	1.6	2.9	2.4
Investment								
FDI as % of total capital inflows, 1990-2003 ^v	93.0	-48.2	16.6	129.0	52.2	33.4	-19.2	19.1
Total FDI inward stock, \$ billion, 2003 ^{vi}	501.5	57.2	47.5	59.0	11.5	147.3	36.9	33.9
Total FDI outward	37.0	2.7	34.5	29.7	1.0	90.9	3.3	65.2

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stock, \$ billion, 2003 ^{vii}								
Total FDI inward stock as % of GDP, 2003	35.6	27.5	7.8	57.2	14.5	161.3	25.8	11.9
Total FDI outward stock as % of GDP, 2003	2.6	1.3	5.7	28.8	1.2	99.5	2.3	22.8
HUMAN CAPITAL AND INNOVATION								
Years of education, 2000 ^{viii}	5.7	4.7	10.5	7.9	7.6	8.1	6.1	8.5
Gross tertiary enrolment rate (%), 2001	12.6	14.6	77.6	28.2	31.2	46.0	35.3	83.4
R&D expenditure as % of GDP, 2002 ^{ix}	0.6	-	2.6	0.2	-	1.4	0.1	2.3
Number of internet users as % of total inhabitants, 2003	6.3	3.8	61.3	34.5	4.4	54.8	9.7	39.0
Public spending on education as % of GDP, 2001 ^x	2.1	1.3	3.6	7.9	3.2	3.1	5.0	6.4
International ranking in quality of math & science education ^{xi}	55	57	41	27	84	1	53	7
Total R&D employment, thousand, 2001 ^{xii}	956.5	-	165.7	10.1	-	19.5	14.0	138.4
R&D employment per 1 million population, 2001 ^{xiii}	752	-	3,500	432	-	4,709	236	6,177
Utility patents data, 2003 ^{xiv}	0.2	0.0	82.7	2.0	0.3	99.3	0.4	234.4
% of manufactured exports which are 'high tech', 2002 ^{xv}	23.3	16.4	31.5	58.3	65.3	60.3	31.4	43.2
PHYSICAL INFRASTRUCTURE^{xvi}								
	60	45	23	22	87	6	39	21
INSTITUTIONAL QUALITY AND RISK								
Corruption								
Corruption perceptions index, 2003 ^{xvii} (country ranking)	3.4 (66)	1.9 (122)	4.3 (50)	5.2 (37)	2.5 (92)	9.4 (5)	3.3 (70)	5.7 (30)
Country risk								
Composite risk ranking, 2002	75.0	58.3	79.8	77.5	71.0	90.0	76.3	82.0
Property rights								
Index of economic freedom ^{xviii}	4	4	2	3	4	1	3	2

Bureaucratic quality								
Public institutions index, 2004 ^{xix} (country ranking)	4.39 (55)	4.12 (68)	4.81 (41)	5.06 (38)	3.21 (99)	6.21 (10)	4.71 (45)	5.56 (27)
FISCAL/FINANCE								
Stock market capitalization as % of GDP, 2003 ^{xx}	48.3	26.2	54.5	163.2	29.3	115.4	84.4	130.6
Highest corporate tax rate, 2003 (%)	33	30	27	28	32	22	30	25

- ⁱ Data for Singapore are for the year 2002.
- ⁱⁱ Data for Singapore are for the period 1990-2002.
- ⁱⁱⁱ Data for Indonesia, Korea, Malaysia, and Thailand are for 2000, 2002, 1997, and 2000 respectively.
- ^{iv} Index of economic freedom ranges from 0 mostly free to 5 highly restricted.
- ^v FDI: Foreign Direct Investment.
Total capital inflows = Direct investment + Net Increases in portfolio investment liabilities + Net Increases in other investment liabilities.
FDI as % of total capital inflows = FDI inflows / total capital inflows.
- ^{vi} FDI inward stock:
Data for Korea are accumulated since 1962.
PRC, Korea, Philippines, and Thailand: Stock data after 2002 are estimated by adding flows.
Indonesia: Stock data after 1999 are estimated by adding flows.
Malaysia: Stock data after 1994 are estimated by adding flows.
Taiwan: Stock data after 1988 are estimated by adding flows.
- ^{vii} FDI outward stock:
Data for Korea are accumulated since 1968.
PRC: Stock data after 1989 are estimated by adding flows.
Indonesia: Stock data after 1999 are estimated by adding flows.
Korea, Malaysia: Stock data after 2002 are estimated by adding flows.
Taiwan: Stock data after 1988 are estimated by adding flows.
- ^{viii} Years of education are average years of school over age 25.
- ^{ix} Data for Malaysia are for the year 2001. Data for Indonesia and Philippines are unavailable.
- ^x Data for the PRC, Singapore, and Taiwan are for 1999, 1995, and 2003 respectively.
- ^{xi} Based on the 1-104 country ranking in the Global Competitiveness Report 1=best.
- ^{xii} Data for Malaysia and Thailand are for 2000 and 1997, respectively. Data for Indonesia and Philippines are unavailable.
- ^{xiii} Data for Malaysia and Thailand are for 2000 and 1997, respectively. Data for Indonesia and Philippines are unavailable.
- ^{xiv} US utility patents granted per million of population.
- ^{xv} Data for Thailand and Taiwan are both for the year 2001.
- ^{xvi} Based on the 1-104 country ranking in the Global Competitiveness Report 1=best.
- ^{xvii} The index ranges from 0 highly corrupt to 10 highly clean. The world average for the 133 countries covered is 4.2, with a maximum of 9.7 and a minimum of 1.3.
- ^{xviii} The property rights index is a composite from the index of economic freedom developed by the Heritage Foundation. The range is from 0 very good to 5 very poor.
- ^{xix} The public institutions index is based on survey data and ranges from 2.47 to 6.59 across 104 countries. The Higher the index, the higher the quality.
- ^{xx} Data for Singapore are for the year 2002.

GENERAL ECONOMIC INDICATORS	
GDP, 2003 \$ billion	<i>The Global Competitiveness Report 2004-2005.</i>
GDP per capita PPP, 2003 \$	<i>The Global Competitiveness Report 2004-2005.</i>
GDP per capita growth, 1990-2003 %	World Bank, <i>World Development Indicators Online.</i>
Annual average inflation, 1990-2003%	World Bank, <i>World Development Indicators Online.</i>
Total external debt/GDP, 2002 %	Total External Debt: World Bank, <i>World Development Indicators Online.</i> Inter-Agency Task Force on Finance Statistics, "Joint BIS-IMF-OECD-World Bank Statistics on External Debt," http://www.oecd.org/dac/debt/
GDP per capita 2003/1980	World Bank, <i>World Development Indicators Online.</i>
OPENNESS	
Trade	
Exports + imports/GDP, 1990 %	World Bank, <i>World Development Indicators Online.</i>
Exports + imports/GDP, 2003 %	National Statistics, Roc. http://www.dgbas.gov.tw/
Export growth, 1990-2003 %	
Average tariff rate, 2001	Heritage Foundation, http://www.heritage.org/research/features/index/
Index of economic freedom, 2004	Heritage Foundation, http://www.heritage.org/research/features/index/
Investment	
FDI as % of total capital inflows, 1990-2003	FDI: UNCTAD, <i>World Investment Report,</i> http://stats.unctad.org/fdi/
Total FDI stock, \$ billion, 2003	Total capital inflows: IMF, <i>International Financial Statistics.</i> http://www.imfstatistics.org/
Total FDI stock as % of GDP, 2003	Central Bank of China, ROC Taiwan. http://www.cbc.gov.tw/
HUMAN CAPITAL AND INNOVATION	
Years of education, 2000	Barro-Lee Education Data, http://www.nber.org/pub/barro.lee/
Gross tertiary enrolment rate %, 2001	<i>The Global Competitiveness Report 2004-2005.</i>
R&D expenditure as % of GDP, 2002	World Bank, <i>World Development Indicators Online.</i> National Statistics, ROC Taiwan. http://www.dgbas.gov.tw/
Number of internet users as % of total inhabitants, 2003	<i>The Global Competitiveness Report 2004-2005.</i>
Public spending on education as % of GDP, 2001	World Bank, <i>World Development Indicators Online.</i> UNESCO Institute for Statistics, http://www.uis.unesco.org "Indicators of Educational Statistics of the Republic of China," by the Ministry of Education, ROC
International ranking in quality of math & science education	<i>The Global Competitiveness Report 2004-2005.</i>
Total R&D employment, thousand, 2001	UNESCO Institute for Statistics. http://www.uis.unesco.org
R&D employment per 1 million population, 2001	National Statistics, Roc. http://www.dgbas.gov.tw/

Utility patents data, 2003	<i>The Global Competitiveness Report 2004-2005.</i>
% of manufactured exports which are 'high tech', 2002	World Bank, <i>World Development Indicators Online.</i> "Monthly Statistics of Exports and Imports Taiwan Area, ROC" by the Ministry of Finance, ROC
PHYSICAL INFRASTRUCTURE	<i>The Global Competitiveness Report 2004-2005.</i>
INSTITUTIONAL QUALITY AND RISK	
Corruption	
Corruption perceptions index, 2003 ^{xx} country ranking	Transparency International, http://www.transparency.org/
Country risk	
Composite risk ranking, 2002	UNCTAD, <i>World Investment Report</i> , http://stats.unctad.org/fdi/
Property rights	
Index of economic freedom ^{xx}	Heritage Foundation, http://www.heritage.org/research/features/index/
Bureaucratic quality	
Public institutions index, 2004 ^{xx} country ranking	<i>The Global Competitiveness Report 2004-2005.</i>
FISCAL/FINANCE	
Stock market capitalization as % of GDP, 2003 ^{xx}	World Bank, <i>World Development Indicators Online.</i> Taiwan Stock Exchange Corporation.
Highest corporate tax rate, 2003 %	Heritage Foundation, http://www.heritage.org/research/features/index/

Source: Hill and Chu, 2006, pp. 20-25.

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