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IN RESOURCE DEPENDENT COUNTRIES:
THE EXPERIENCE IN INDONESIA AND GHANA

ISSUES PAPER 2
PRODUCTIVITY POLICY RESEARCH PROGRAM

HC Coombs
Policy Forum
Crawford School of
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EXECUTIVE SUMMARY

This paper examines productivity growth in two resource dependent countries – Indonesia and Ghana – over the last three decades. We explicitly distinguish between resource abundant and resource dependent countries. Both have large physical and economic supplies of natural resources, but they differ significantly in how they use their resources for economic and social development.

The main point of the paper is that resource abundant countries use the wealth derived from their resource endowments to promote economic development and sustainably raise the living standards of their populations. Resource dependent countries do not. The principal difference is in the policy choices of their respective governments.

The paper examines key dimensions involved in promoting productivity, ie, increased output per unit of input. The literature has voluminous discussions of productivity growth, identifies many determinants and correlates, and provides some novel technical approaches to measure their contributions. None of them, however, captures the full complexity of the processes which underpin productivity growth. We discuss some of the challenges that have been dealt with in the literature and conclude that most are difficult to define, let alone measure. Among others, they include discovery, experimentation, imitation, honing of skills and capabilities, communication and information transfer, division of labour, cooperation, specialisation, incentives, organisation, competition, complementarity, substitution, invention, adaptation, innovation, dissemination, institutional formation, motivation, exchange and trade, intermediation, knowledge accumulation, and improvements in the capacity to understand and remember. For this reason, many scholars who have studied productivity the longest remain impressed at its impenetrability.

Taking data limitations into account, the most effective approximation of productivity growth in the countries we examine is the increase in real income per worker. With its direct link to rising standards of living, this remains one of the most robust measures of productivity available.

Indonesia and Ghana have large resource endowments. Neither country has used them to promote rapid inclusive growth and development. Over recent decades, both have grown at well below their potential. To illustrate, the increase in income per capita (a close approximation for real income per worker) for the three decades beginning in 1980 was 1.1 per cent per annum in Ghana and 2.4 per cent in Indonesia. Historically, neither performance is outstanding relative to each country's wealth or in relation to the growth rates achieved by comparator countries. Of more concern, however, is neither country has generated the capacity to improve on this performance. Ghana has not used any of its resource abundance to move up the value-added chain through the promotion of manufacturing or high-value services. Over the last decade Indonesia, which during the 1980s and early 1990s was one of the most rapidly industrialising countries in the World, has recently been de-industrialising as it progressively disengages from international production/distribution value chains.

To reverse these trends, both countries need to modify their development policies. For Ghana this will mean reducing its extraordinarily high levels of consumption which is boosted by subsidised fuel and electricity, an overvalued real exchange rate, and public investment which discriminates against rural development. For Indonesia, it will mean re-engaging with international production/distribution value chains by expanding public investment in infrastructure, raising the quality of its education and learning, moderating the degree of exchange rate overvaluation, and rationalising its political decision-making processes which at present are designed to be costly and ineffective. That is, Ghana and Indonesia need to move beyond their comfort zones of being quarries for industries in the rest of the world and begin the 'hard pounding' required to sustainably raise productivity. Both countries are fortunate in that with their productivity growth presently so low and their natural resources so large, they have huge upside potential. Appropriately managed, both countries could enjoy rapid increases in the standards of living for their whole populations (based on rising productivity) for decades to come.

There are policy lessons to be garnered from these experiences. Effective reallocation of capital and resources generated from resource rents towards activities that spur higher productivity, such as education and infrastructure developments, is needed in order to promote better management of goods and services. In a growing resource constrained environment, sound governance mechanisms need to form the cornerstone of a nation-building economic agenda. It is also important to consider how a rebalancing of responsibilities between government and societal stakeholders might be organised allowing the sharing of risk, responsibility and accountability.

INTRODUCTION

Resource dependent countries typically use their natural bounty in ways that impede and often block economic development.¹ There is now a large literature tracing the various channels (Dutch Disease, de-industrialisation, regional imbalances, rent-seeking, corruption, dualism, and 'two-speed' growth) through which this occurs.

Economic historians have widely documented the features and trajectories of resource-rich countries that have failed to develop. Many of them have regressed. Argentina, Zambia, Nigeria, Gabon, Zimbabwe, and Myanmar are examples. Measured in terms of per capita income, Argentina was among the world's wealthiest countries in 1900.² By 2009, it was ranked 85 and continuing to slide.³ When Zambia became independent in 1964, it had one of the highest per capita incomes in Sub-Saharan Africa, double that of neighbouring Botswana.⁴ By 1980, Botswana was growing rapidly while per capita incomes in Zambia were falling.⁵ Moreover, despite record high copper prices for most of the last decade, Zambia remains one of the least developed and most unequal countries in the world,⁶ with per capita income one-sixth that of Botswana.⁷

History has also shown that large resource endowments have not been an absolute barrier to growth and development. Wool and wheat comprised roughly 60 per cent of Australia's exports from the 1890s to the 1920s, and a large share of its GDP.⁸ Yet Australia managed to grow and develop. Similarly, Canada, the United States, Chile, Brazil, Botswana, Malaysia, Norway and other countries have benefited, often significantly, from their natural resources. These positive examples often do little to dispel the view that resource abundance can readily give way to resource dependence. Australia is an obvious case. Although the economic contribution of wheat and wool has shrunk dramatically,⁹ there has been much discussion (and considerable apprehension) about the structural impacts of the country's mineral endowment (Bucifal, George and Ahmed 2008; Goodman and Worth 2008; Robertson 2008; Eslake 2010; Stammer 2010; Banks 2011; Bloxham 2011; Corden 2011). Policymakers and commentators in Brazil, Chile, and Norway regularly voice similar concerns. This is a constructive response and some unease may be warranted. Nonetheless, the latter should not be overdone. There are dozens of resource-poor countries which would have no qualms bearing the angst in exchange for a share of the resource rents.

RESOURCE ABUNDANCE AND RESOURCE DEPENDENCE

The physical dimension of resource abundance is obvious. Botswana and Algeria and Australia do not (normally) have abundant physical supplies of water whereas Canada, Cambodia, and Congo (DRC) do. The economic supply of resources follows that of T.W. Schultz's (1951; 1953, Ch. 13) analysis of the economic supply of land in agriculture.¹⁰ Drawing on Von Thunen's theory of location and Ricardo's theory of land rent, Schultz defined the economic supply of land as the physical land base which yields a positive net return given current market conditions, the application of existing technology, and the capacities (including skills) of complementary factors. When resource supplies are viewed through this lens, Botswana and Central African Republic have abundant diamonds; Norway and Nigeria have abundant oil; Zambia and Chile have abundant copper; and Canada and Argentina have abundant crop land.

Each of these countries is distinguished by its development trajectory. Botswana, Norway, Chile, and Canada have taken measures (thus far) to manage their resource abundance in ways that

have promoted national growth and development. Notwithstanding the odd misstep, they have sustained a prudent, balanced approach to their economic management (as reflected in the growth and distribution of public and private consumption and investment, and the accumulation of debt). More generally, they have created and sustained the institutional arrangements that prevented having the wage, income, and wealth effects in the booming resource sectors from progressively degrading the scale, scope, and dynamism of activities in the non-resource sectors. When interpreted within the framework of the *World Development Report 2009: Reshaping Economic Geography* (World Bank 2009), these countries have consistently and coherently used the surpluses (incomes and taxes) generated in centres and regions of high economic density to ameliorate (and often overcome) the difficulties associated with economic distance (such as marginalisation, isolation, and limited livelihood opportunities) and economic barriers (particularly the institutional impediments and disincentives that block economic integration).¹¹

The contrast between these experiences and that of resource-dependent¹² countries such as Central African Republic, DRC, Nigeria, Zambia, Venezuela, and Argentina (and others) is stark. These countries have typically used the rents generated in centres of high economic density in ways that compound the problems created by economic distance (particularly the high costs of transport and communication and economic and social intermediation) and have generally failed to counteract or dismantle economic barriers (especially the bureaucratic obstacles, delays and risks of business formation and enterprise).¹³ The outcome is a pattern of macro and micro behaviour reflected in actions (and failures to act) which block development and in extreme cases (such as Myanmar) result in economic regression.¹⁴ Although it has been tempting to blame external events for these outcomes, few if any of the responses has been (or is) dictated by outsiders.¹⁵

PRODUCTIVITY

Productivity is output per unit of input. It is not economic efficiency, or effectiveness, or technical change, or competitiveness, or comparative advantage.¹⁶ This point needs to be stated (and re-stated) particularly for those who formulate and implement policies related to productivity.¹⁷ Productivity growth in the long term provides for better standards of living through improved profits for firms which can generate higher investment in people and infrastructure raising levels of competitiveness. But, if productivity is to be promoted, influenced, boosted, or otherwise enhanced, what is being discussed needs to be clear. As Zvi Griliches (1979, 2000, 2001) regularly pointed out, that is not easy.

Productivity is simple to define but diabolically difficult to measure.¹⁸ It remains that way. The main issues are (identifying and) defining what should be measured; determining what has been measured; and deciding whether what was measured provides relevant information about productivity that can be used for policy, or other purposes.¹⁹

The following description (Griliches 1979, p.93) highlights where the difficulties lie:

Productivity and its growth are best discussed in the context of a 'production function,' $Y=F(X, \dots)$, which describes the relationship between various inputs X and final output Y . Productivity ($A = Y/X$) is then defined as the ratio of output (Y) to some index of the total input X and its determinants are then discussable in terms of the list of variables included in X , the mathematical form assumed for the production function $F(\dots)$, the particular empirical observations chosen to represent Y and X and the statistical methods used to infer the properties of $F(\dots)$ from the data.²⁰

The only simple part is the ratio $A=Y/X$. There are many ways to define the 'production function'. Following Solow (1957), the conventional approach has been to specify a Cobb-Douglas function with constant returns to scale. This implies that resources are used efficiently, factors are rewarded according to their marginal productivities, and technical change is represented by a shift of the production function.²¹ These restrictions have been widely tested using alternative specifications such as CES, AK, and translog specifications and stochastic frontier analysis. Other analysts have avoided using an explicit functional form $F(\dots)$ by developing a variety of non-parametric approaches to productivity measurement. This, too, has produced a range of decomposition techniques many of which are still widely used.

All of these methods involve some form of index numbers 'to represent Y and X'. To the extent that the data will allow, they help separate the elements related to productivity from other influences. And, while analysts are fully aware of their biases and limitations, index numbers remain indispensable to productivity decompositions. The decision to use parametric or non-parametric methods is typically only a small part of the task in measuring productivity. In practice, most methodological approaches adjust to the data available (or the data that are worth collecting) rather than the other way round.²²

PRODUCTIVITY: DIGGING DEEPER INTO HUMAN HISTORY

The main task in apportioning the contributions of productivity growth to economic growth remains one of understanding the literally dozens of factors involved.²³ This sand has been ploughed in the economics literature many times and much remains that can (and will) be done. To appreciate why, some speculative history might help. This artefact will enable us to focus directly on features that influence productivity growth without the distraction of econometric techniques, terabytes of data, index number difficulties, or the compulsion to crunch numbers first to see if there are any questions worth asking.

Historically, productivity has never been a mystery. Human survival initially, and human prosperity subsequently, have depended on getting at least as much output per unit of input as possible.²⁴ Indeed, some scholars, notably D. Gale Johnson (2000), observed that since the flows and stocks of natural resources upon which humans have drawn their sustenance and welfare were fixed before the dawn of human civilization, the only element which has enabled living standards to rise over time has been the sustained increase in labour productivity.²⁵

To move beyond mere survival, the first humans would have had to gain (or create) some mechanical advantage in modifying their environment. Although contemporary economists regularly assume that the necessary capital (sky hooks, jack-hammers, shovels, backhoes, and satellites) is available as 'manna from heaven,' pre-modern humans most likely started with rocks and sticks.²⁶ Various combinations of beating, poking, pushing, reaching, throwing, thumping, rubbing, and chopping would have provided the leverage needed to boost output. Imitation, necessity, and accident would have demonstrated the value of additional tasks or combinations of tasks.

What came first is of little consequence. Through repetition, trial-and-error, remembering, watching others, and habit,²⁷ the stick and rock users would have learned, grasped, or came to understand that particular sticks and rocks served some purposes better than others and even extended the known range of what could be done.²⁸ This pattern of tinkering, discovery, experimentation, and skill enhancement would have led to the realisation that some people were better at stick work

than rock work, or preferred one to the other. Indeed, various groups would have learned that through division of labour, specialisation of tasks, and cooperation they could jointly achieve higher output (more food, better shelter, improved security), increase the range and variety of products available, and reduce the risks to their community. According to scholars like Douglass North (1990, 1992, 1997), these organised efforts represented the emergence of institutions (or ‘rules of the game’) which expanded (and rationalised) the scope of social interaction by reducing the transactions costs involved. Others such as Coleman (1990) and Putnam (1993) would have seen it as evidence of the deepening of social capital.²⁹ Still others would see it as the emergence of the economies of agglomeration.³⁰

One might imagine that over time the successes and failures of the stick and rock users created opportunities and inspiration for additional invention, further innovation and adaptation. At some point, perhaps as Jacob Bronowski suggested in *The Ascent of Man*, someone or some group would have made the ‘outrageous guess’ that binding a rock to a stick would make stick and rock work more efficacious. No doubt other stick or rock users would observe this modification or learn about it through their various family and community connections and information networks. These spillover effects would stimulate others to copy the invention. With continued tinkering and adaptation, some of these stick/rock combinations would have been more conveniently shaped, weighted, and balanced.

A missing dimension is how stick/rock-using communities with emerging trust-generating, cooperation-inducing rules of the game and whose members experiment, imitate, invent, learn, innovate, produce, share, compete, exchange, network, and trade could build upon their rising labour productivity in a sustained way. Michael Kremer (1993) provided an answer when he enquired how humans had accumulated knowledge over time. His explanation begins with the explicit assumption that humans have not become inherently smarter (especially over the last 500 or so generations that coincide with the development of modern civilization). In his view, humans have progressed by organising themselves to systematically concentrate more resources on resolving pressing problems. This view essentially combines Lavoissier’s notion of ‘chance favours the prepared mind’ and Edison’s dictum that progress is 99 per cent perspiration and 1 per cent inspiration. The implication is that human progress has resulted from learning-by-agglomeration of effort and intellect. This is an adaptive, open-ended process with multiple spillovers replete with numerous false starts and dead-ends but which serve to stimulate further enquiry. It results in a social and economic development trajectory through which the self-reinforcing expansion of knowledge sustains improvements in labour productivity.

The historical record shows that none of the features which influenced labour productivity materialised rapidly, readily, or even steadily. That record also confirms that none of the changes (then, as now) was independent of the prevailing social, economic, political and religious pressures. Moreover, all of them were affected positively and negatively by the human proclivity for plunder, pillage, domination, and conquest and the myths, ideologies, superstitions and loyalties which bind societies together, or rip them apart.

Over the millennia, some societies/nations have been more successful than others at making the transition from stick/rocks to iPads. Indeed, development economists devote most of their time understanding why this is the case and the types of activities that might boost the performance of countries which have lagged relative to one or more of several dozen benchmarks. That focus will continue while the ‘mysteries of [productivity] and growth’ (Solow 2003) persist. What we do know is that many changes provided humans with the mechanical and intellectual advantages that boosted labour productivity. What we still don’t know is what combinations of discovery, tinkering,

experimentation, trial-and-error, imitation, honing of skills and capabilities, communication, information transfer, division of labour, cooperation, specialisation, incentives, organisation, competition, complementarity, substitution, invention, adaptation, innovation, institutional formation, motivation, necessity, exchange, trade, inducements, dissemination, intermediation, knowledge accumulation, and improvements in the capacity to understand and remember (among others) currently stimulate and sustain productivity improvements. Perhaps more important, there is no obvious way how we can know what combinations of the above will be relevant to future productivity growth.

Taking this discussion into account, the following illustration neatly depicts the link between productive growth, profitable companies and consequently living standards.

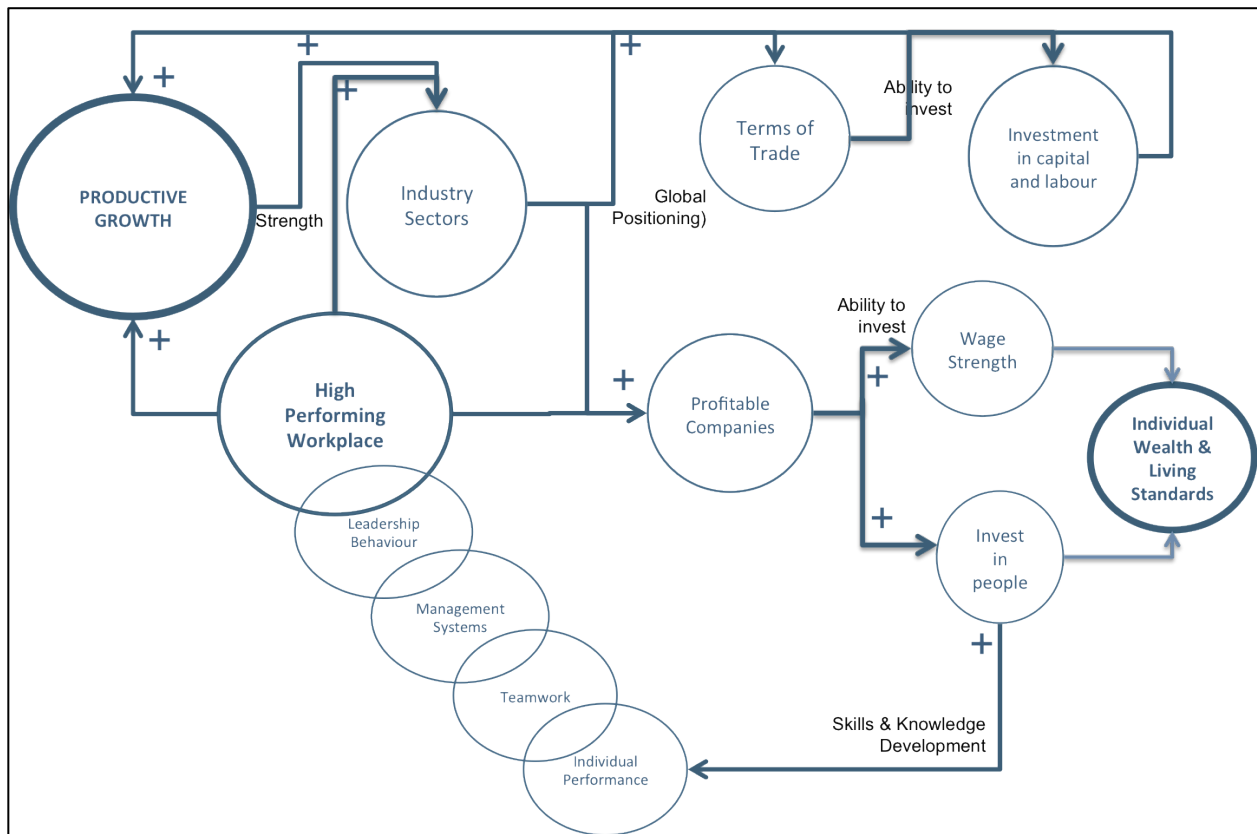


Figure 1: A Cycle of Productive Growth

While no single feature explains why progress did or did not occur across different societies, a common element has been learning.³¹ Whether it involved learning-how-to-learn or learning-by-failing, or learning-by-adapting, at some point our ancestors came to understand that using stones and sticks and other artefacts (such as fire) extended their capabilities.³² To their credit, and our benefit, they made learning a habit so that knowledge, skills, aptitudes and attitudes came to progressively shape what was achieved, and what was possible to achieve.

GHANA AND INDONESIA: PRODUCTIVITY PERFORMANCE

Ghana and Indonesia are examples of countries where particular patterns of learning and knowledge accumulation among their leaders, bureaucrats, and influential groups such as unions, cronies, and other insiders (particularly public sector workers) have progressively shaped what has been achieved and limited what can be achieved. Both countries display high degrees of resource dependence. Both have had relatively low rates of non-inclusive growth. The evidence is that poverty and inequality have remained well above rates that comparably placed economies have achieved.³³ The following data illustrate why.

Both Ghana and Indonesia have had common development trajectories although their starting point as independent nations differed. Ghana gained independence in 1957 without an armed struggle as one of the most advanced and wealthiest countries in Sub-Saharan Africa. Indonesia declared its independence in 1945 just days after the end of the Second World War but became politically independent in November 1949 when the Dutch gave up their armed attempt to re-impose colonial rule.

Both countries had charismatic leaders. Kwame Nkrumah had visions of pan-African development stimulated by public sector directed industrial development. His speech 'Africa Must Unite' at the formation of the Organization of African Unity in 1963 was both a roadmap and a plea for continent-wide cooperation and economic integration. His subsequent national development plans forced the industrialisation of Ghana in part to create broader region-wide spillover effects.

Kwame Nkrumah's presidency ended in February 1966 in a military coup. Several military regimes followed as the generals competed to divide the spoils. The economy regressed. A coup by Jerry Rawlings in 1979 restored civilian government. This was viewed as ineffectual and Rawlings resumed control in December 1981. After an unsuccessful attempt to impose his version of socialism, Rawlings negotiated a broad-based structural adjustment program with the International Monetary Fund (IMF) in 1983. The country experienced growth and relative stability for the next decade and a half. In response to growing popular unrest, Ghana adopted a new Constitution in 1991 and held its first democratic elections in 1992. Rawlings was elected president. Due to the robust and raucous nature of Ghanaian democracy, Rawlings failed in his attempt to extend his rule by having his wife succeed him. Since then, the voters have peacefully displaced several presidents and their political parties.

Sukarno, born Kusno Sosrodihardjo, had been actively organising and agitating for Indonesian independence from the late 1920s. He was formally recognised as President when he led the group that declared independence from the Netherlands in August 1945. Despite a socially progressive agenda and numerous grand plans during Sukarno's tenure, Indonesia saw little material progress.³⁴ In 1959, Sukarno suspended the operation of parliament replacing it with a program of 'guided democracy'. This led to economic stagnation capped by hyperinflation over the period 1964 to 1966. An attempted coup in October 1965 resulted in the imposition of military rule and Sukarno's eventual removal in March 1967.

General, then President Suharto, succeeded Sukarno. His 'New Order' government stabilised the political situation, provided massive public support for national food security and rural development and brought the macro economy back into balance. The expansion of the oil industry during the 1970s together with the OPEC-induced price increases sharply boosted export earnings and

government income. That boom ended with the decline of oil prices in the early 1980s. Suharto's regime lasted over three decades but was swept aside by the Asian Financial Crisis in 1997-1998. Following Suharto's resignation in May 1998, the country democratised and decentralised. Several peaceful elections have now been held with a succession of presidents and other elected officials.

Both countries are resource abundant. Ghana has gold, oil, cocoa, rubber, timber, and significant quantities of arable land. Indonesia has oil and gas, rubber, palm oil, copper, timber, coal, gold, large areas of land, and abundant supplies of water.

As the data below show, neither country has successfully used its resources to stimulate rapid economic transformation or to promote high rates of inclusive growth. For illustrative purposes we focus on the period 1980 to 2008. It spans several business cycles and local and international crises and disruptions. For Ghana, it covers the demise of military dictatorship and Rawlings' tenure both as dictator and elected president. It also covers the country's re-engagement with the international community which produced a large inflow of foreign assistance. After several structural adjustment programs, Ghana met the conditions for the Highly Indebted Poor Country (HIPC) initiative support reaching that program's 'completion point' in 2005. This resulted in the elimination of more than \$5.5 billion in foreign debt that Ghana was not servicing and could not service. The debt relief, however, proved temporary. To celebrate its new-found creditworthiness Ghana borrowed \$750 million on commercial terms just before the Global Financial Crisis engulfed world markets. An election-driven budget blow-out (with a cash deficit of 12 per cent of GDP and arrears of 8 per cent of GDP) added to its debt difficulties. Ghana negotiated a new IMF program in 2008. That program, which has achieved mixed results, remains in place (IMF 2012).

For Indonesia, the period covers the rapid growth in export earnings in the early 1980s due to the increase in petroleum prices. Following their collapse, Indonesia adopted numerous fiscal and monetary reforms and introduced measures to ensure that the exchange rate remained appropriately valued. This produced a period of rapid expansion of manufacturing. Basic reforms continued throughout the 1980s and, though wide-ranging and generally growth enhancing, they did not include the type of financial reforms that would have insulated the economy from the excesses of crony banking. The resistance to financial reforms was part of overall dissipation of the reform effort under the growing depredations of Suharto, his family, and their associates. The Asian Financial Crisis which began in Thailand engulfed Indonesia. Real GDP fell by 13.1 per cent in 1998, external debt rose from 65 per cent of GDP in 1996 to around 168 per cent of GDP in 1997; and the official exchange rate depreciated from Rp 2,909 in 1997 to Rp 10,014 to the US dollar in 1998. The situation was a mess. As noted above, Suharto resigned and a democratic government took over. Reflecting the population's deep distrust of centralised control, many administrative functions were decentralised to the district (kabupaten) level. Several years of instability ensued. Real GDP (in PPP terms) did not surpass the level achieved in 1997 until 2003. The situation began to stabilise with the election of President Susilo Bambang Yudhoyono in 2004. He was re-elected in 2009.

The data below provide a partial summary of the performance of both Ghana and Indonesia. They are taken from the World Bank's online MetaData series. The advantage of using one source is that the series have been consistently assembled and our results and conclusions can be verified and elaborated further if required. The disadvantage is that some more specialised sources are ignored. The selected interval is a compromise. An earlier beginning encounters major data gaps; setting the end beyond 2008 includes the effects of the Global Financial Crisis. In the event, 29 years of data tells the main story about resource dependence and productivity. As the literature shows, adding more years and more series does not change the basic conclusions.³⁵

Basic Data 1980-2008	Indonesia	Ghana
GDP per capita (% increase p.a.)	3.5	1.1
Agricultural value added (share of GDP, %)	18.7	44.3
Manufacturing value added (share of GDP, %)	22.1	9.3
Industry value added (share of GDP, %)	41.8	20.9
Gross domestic savings (share of GDP, %)	30.6	6.0
Natural resource rents (share of GDP, %)	12.7	4.7
Gross domestic capital formation (share of GDP, %)	24.6	16.9
Net foreign aid (share of GDP, %)	~1.0	8.4
Depreciation of exchange rate (% p.a.)	-9.9	-32.5
Consumer price inflation (% p.a.)	11.1	31.9
Increase in money supply (% p.a.)	21.6	37.6
Domestic credit from banking system (% GDP)	30.9	24.3
Average deposit rate (% p.a.)	14.8	18.8
Labour force growth (% p.a.)	2.5	3.2
Exports of goods and services (share of GDP, %)	29.5	23.8
Imports of goods and services (share of GDP, %)	25.7	34.8
Consumption – public (share of GDP, %)	8.6	10.7
Consumption – private (share of GDP, %)	60.7	83.4
GDP per worker (% p.a.)	2.4	1.1
Agricultural GDP per capita (% p.a.)**	3.4	0.04
Non-agricultural GDP per capita (% p.a.)**	0.9	1.4

Source: World Bank online data GHA_Country_MetaData_en_EXCEL(1).xls and IDN_Country_MetaData_en_EXCEL(1).xls (accessed February 2012)

** Calculation based on rural and non-rural populations. Over the period examined, the labour force participation rate in Ghana averaged 74 per cent while for Indonesia it increased from 63.3 to 68.3 per cent.

To place the discussion in context, in 2008 the World Bank reported that Ghana's Gross National Income per capita was \$630 and its purchasing power parity (PPP) adjusted GNI was \$1,320.³⁶ By the latter measure, it was ranked 182nd in the World. Corresponding data for Indonesia were \$1,880, \$3,590 and 147th respectively.

Indonesia's annual per capita income growth over the period averaged 3.5 per cent. It averaged 1.1 per cent in Ghana. For Indonesia, this was below the achievements of other lower middle income countries (LMICs); for Ghana it was close to the average of LICs. Neither performance can be considered robust particularly in view of the recent pronouncements by the governments in both countries that they aspire to become upper middle income (industrialised) nations within the next two decades.

The basic structure of both countries has differed markedly. Indonesia has sustained a high rate of savings and investment, maintained balance in its trade accounts, and kept government consumption at levels consistent with that of other LMICs. Indonesia has had minimal levels of foreign assistance with much of it used for training and technical assistance. Ghana has differed substantially in all of these features. It is a high consumption economy with chronic trade imbalances. Its average saving rate has been low (6 per cent of GDP) with investment largely supported by the inflow of foreign aid. To argue that these data are consistent with a 'two-gap' model misses the point. That model presumed that foreign inflows would supplement rather than supplant local resource mobilisation.

The monetary accounts show some divergence in performance, although not enough to have had a major impact on their respective growth trajectories. By world standards, both countries have experienced high rates of inflation and exchange rate depreciation. When allowance is made for international inflation (around 2.5 to 3 per cent for the period being covered), the real exchange rates in both countries have appreciated. Ghana and Indonesia have had sustained rates of growth of money and credit that, taken together, illustrate the shallowness of their respective financial systems and the fundamental incapacities of their governments to manage monetary policy so that it enhances rather than detracts from economic growth. Indonesia appears to have been aware of the damage created by the exaggerated increase in money and credit. Its average real deposit rate has been positive. For Ghana, the real deposit rate has been highly negative, undercutting any incentive for financial deepening or for local asset holders to abandon their use of foreign exchange for local transactions.

This pattern of monetary mismanagement is consistent with resource dependence. With ample revenues and incomes being generated for the government and insiders by resource exports (supplemented by buoyant inflows of foreign aid) there was little sustained pressure for the government to adopt (or the private sector to push for) fundamental financial reform.

Both countries have experienced a high rate of labour force growth which, given the labour force declines in Japan, Russia, and much of Europe, is increasingly seen by development economists as an advantage. Indeed, much is now made of the potential 'demographic dividend' particularly if bolstered by the appropriate growth-oriented policies. Up until 2008 at least, neither Indonesia nor Ghana has seen this advantage translated into higher rates of growth. Formal sector employment creation has been low in both countries (around 30 per cent in Indonesia and roughly half that in Ghana). Indeed, in Indonesia, there is a disjunction between the rates of income growth per worker and per capita. That does not arise in Ghana. In Indonesia, workforce participation increased sharply over the period examined as more people sought employment in informal activities. Ghana's labour force participation rate, already high, has remained relatively stable.

For Indonesia, labour productivity measured as GDP per worker rose by 2.4 per cent between 1980 and 2008. For Ghana, the increase was 1.1 per cent. Data limitations preclude much additional dissection of these estimates. But we go one more step by estimating labour productivity in agriculture and non-agriculture. For Indonesia, that computation shows that there

was a relatively high increase in productivity per person in agriculture but minimal improvement in non-agriculture. This is the result of the rapid rate of rural-urban migration combined with a continued solid expansion of agricultural output (palm oil, cocoa, coffee, sugar and maize). Some of the latter can be attributed to the carry-over effects of investment during the 1970s and 1980s in agricultural research, rural infrastructure and the expansion of rural credit facilities. Some of it is the result of the higher commodity prices especially for palm oil. The generally slow growth in non-agricultural income is the result of the decline in manufacturing growth from the mid-1990s onwards and the increased reliance on the services sector to absorb labour. Both of these coincided with the structural shift in Indonesia through which resources (palm oil, copper, coal, and liquefied natural gas) became the main source of economic expansion. Several Indonesian scholars have pointed out that this effectively recreates the dynamic of the resource-based colonial economy.³⁷

For Ghana, the situation is unenviable. Over the period examined, estimated labour productivity in agriculture stagnated. This is the outcome of the limited decline in rural employment and relatively sharp decline in the contribution of agriculture to GDP.³⁸ The increase in labour productivity in non-agriculture is symptomatic of an economy which depends on growth in public sector and informal services with a minimal contribution from manufacturing or industry.³⁹ Lacking dynamism, Ghana has an economic structure that locks it onto a low income, low employment generation trajectory. The recent discovery and exploitation of oil will, at best, provide a temporary respite. According to World Bank and IMF projections the oil rents will average around \$1 billion (currently around 5 per cent of rebased GDP) for the next two plus decades. Without further major oil discoveries, the present oil boom and the expectations of a development bonanza that it has generated will be temporary.

IMPLICATIONS FOR FUTURE PRODUCTIVE GROWTH

The economic effects of their current degrees of resource dependence differ for both countries. At one level, Indonesia's basic economic structure is consistent with that of a LMIC whose policymakers recognise that they have to mobilise finance domestically to sustain the investment needed for growth and development. The challenge for Indonesia for the future is not to modify the structure of expenditure, income, and production. Rather, Indonesia needs to shift the allocation of expenditure within the broader aggregates in ways that boost the supply of public goods and services (infrastructure, R&D, quality education, and basic health) by diverting expenditures that now support consumption (energy and fertilizer subsidies in particular). Part of the reallocation of expenditures will need to be supported by a real depreciation of the exchange rate to stimulate the tradable sector. With these modifications, the manufacturing sector is likely to revive, helping to more deeply and broadly integrate the economy into global value chains. This would help regenerate some of the dynamism and rapid inclusive growth that accompanied the expansion of manufacturing exports and sharp rise in labour productivity that occurred from the early 1980s to the mid-1990s. Without these changes, Indonesia will continue its current pattern of resource dependent expansion, the principal features of which are rising inequality and structural sclerosis.

At present, the consumption boom in Indonesia has been met by an increase in manufactured imports, largely from China and Vietnam. Conveniently, these imports have been paid for by the proceeds of the resource boom (palm oil, liquefied natural gas, timber, copper, coal). However, it does not support inclusive growth (because workers cannot readily move out of low income jobs in the rural areas), it does not improve the distribution of income (since resource rents remain concentrated), it does little for environmental sustainability (since the resource extractors can

readily make deals with those responsible for their oversight), and it is only sustainable so long as resource prices remain high. Since history has shown that most, if not all, resource booms end in chaotic busts, resource dependence is unlikely to continue driving growth (and productivity) in Indonesia.

For Ghana, the situation is relatively straightforward. Whereas Indonesia had a period of rapid growth in manufacturing which boosted productivity throughout the whole economy, that has never been the case in Ghana. To illustrate, over the period 1983 to 1996, Indonesia grew at an average of 7.4 per cent per annum during which time the share of manufacturing in GDP rose from 12.7 to 25.6 per cent. Over that same period, Ghana's growth rate averaged 4.2 per cent annum and the average contribution of manufacturing to GDP was 9.5 per cent. The Ghanaian economy has been trapped on a slow growth path by several interacting factors. One has been the high level of aid dependence which, among other things, has undercut the ability and willingness of Ghanaians (including the Government) to save. Another factor has been the chronically overvalued exchange rate which has taxed tradable goods and subsidised non-tradables. A third element has been the irrelevance of debt in economic management. Most of Ghana's external debt had not been serviced for decades and then, under the enhanced Highly Indebted Poor Country Initiative (HIPC) and multilateral debt relief initiatives, it was written off. Accordingly, the need to limit its borrowing has never been a constraint on the government specifically or the public sector more generally. Consequently, the budget has been chronically in deficit, loss-making state-owned enterprises (SOEs) are regularly refinanced with government guaranteed loans or by SOE banks. The latter has been readily accommodated by the Bank of Ghana. As the data in the above table show, this carousel of credit has resulted in a dramatic expansion of credit, high-sustained rates of inflation and an exaggerated depreciation of the exchange rate. Yet, as also noted earlier, because the rate of depreciation did not offset the combined effects of domestic and international inflation, the real exchange rate has been chronically overvalued. This has further undercut the dynamism of the productive sectors and blocked growth and development.

CONCLUSION

The abundant natural resources in both Indonesia and Ghana have stimulated patterns of production and expenditure, savings and investment behaviour, and fiscal, monetary, debt and exchange rate management that keep both economies on a slow growth trajectory. Indonesia could possibly deal with resource dependence a little more readily than Ghana. It has already demonstrated that capacity, particularly following the collapse in resource prices in the early 1980s. But Indonesia has been unable to move beyond the structural impediments associated with resource dependence. This is evident from the rapidity with which it reverted to its former 'comfort zone' as resource prices rose over the last decade.

Ghana is a different matter. It has no former period of non-resource dependent growth to use as a reference point. Moreover, its leaders and citizens face the dual problem of restructuring and reallocation. It has to change expenditure allocation (cut consumer subsidies, reduce public sector over-employment, rein in loss-making SOEs) and reform the production structure and income generation in ways that stimulate higher productivity tradable goods and services.

The analysis shows that, under current circumstances, neither Ghana nor Indonesia can achieve high sustained rates of productivity growth. This is the first cost of resource dependence, namely, higher rates of inclusive growth are unattainable. A second cost is the persistent shallowness of the financial system. This keeps high the costs of intermediation (as reflected in high borrowing costs

both formal and informal) which sharply reduces the scale and scope of productive and profitable activity. A third cost is that reforms that reduce the degree of resource dependence will be extremely difficult to implement.

These reforms will be problematic for both countries. Many arrangements that currently benefit influential groups will have to be over-turned or re-negotiated if the needed re-balancing in the structure of output and expenditure and allocation and efficiency of investments are to be enhanced. More important, while commodity prices remain buoyant, most politicians will continue to see the hole as being in the other end of the boat.

Yet, if the changes were made in both countries, there would be major gains in terms of growth and the welfare and wellbeing, particularly for the majority of the population in both countries. Realigning the exchange rate, diverting public resources from subsidies to infrastructure investment, and supporting productivity-improving R&D (especially in agriculture) would raise the livelihood prospects for the rural population and expand employment opportunities outside of agriculture. None of this is rocket science. Some countries, like Norway, have created the circumstances, which ensured that the resource rents were used to develop the economy rather than enrich a select few. As already noted, the economic geography framework described earlier highlights how sustained inclusive growth can be promoted through the reduction of impediments to enterprise and entrepreneurship created by distance and division.

For Ghana and Indonesia, this could be achieved by switching policy direction – from the current emphasis on restricting opportunities to influential insiders to making those same options for enterprise, experimentation, risk-taking, and entrepreneurship available to everyone who is willing to work. This change in direction would raise productive growth in both countries through one or more of the channels described earlier. In the process, it would provide the sustained boost to living standards that is unavailable with the current resource-dependent growth strategy.

ANNEX 1: SOME DEFINITIONS

The sources vary. Relatively consistent definitions can be found in Wikipedia, *The New Palgrave Dictionary of Economics* (Eatwell, Milgate and Newman 1998), *The MIT Dictionary of Economics* (Pearce 1989) and the *Oxford Dictionary of Economics* (Black 1997). Apart from the conflation of ideas that occur from time to time (examples are given below), most of the definitions are 'settled'.

Comparative advantage: Lower opportunity costs in providing particular goods and services than other economic entities. The term is applied to countries, regions, or firms.

Competitiveness: Relates to the relative ability of a firm, sector, region or nation to sell and supply goods and/or services to a particular market. [Its determinants are discussed further below.]

Economies of scale: The factors which make it possible for larger organisations to produce goods and services more cheaply than smaller ones.

Economies of scope: The benefits that arise from carrying on related activities.

Effectiveness: The degree of coherence between the actual and expected outcome of a particular activity (as in a policy or strategy).

Efficiency: Obtaining any given result with the smallest possible inputs, or producing the maximum possible output from given resources.

Gains from trade (or exchange): Gains which accrue to individuals or entities (including countries) when their relative productivities differ across similar goods or services.

Opportunity cost: The opportunity cost of an action (eg production or consumption of goods and services) is the value of the foregone alternative action.

Productivity: The ratio of some measure of output to some index of input use.

Resource: Anything which contributes to economic activity.

Technical change: The increase in the amount of outputs produced by the same inputs (or: the reduction in the cost of inputs per unit of output).

Technical progress: Improvements in knowledge of possible techniques. [Hicks-neutral technical progress is a pure shift in the production function, ie, where for any given factor proportions, the average and marginal products of all factors increase in the same proportion.]

Determinants of Competitiveness

Several of these notions tend to be conflated. For example, Eslake (2010) stated:

Productivity is a measure of how effectively or efficiently a workplace, a business or government agency, a region or a nation as a whole uses the resources at its disposal to produce goods and services which are in turn, valued, in some way by those who consume or use them.⁴⁰

The World Economic Forum in the 2009-2010, *Global Competitiveness Report* (p.3) defined competitiveness as '*...the set of institutions, policies, and factors that determine the level of productivity of a country.*' The most recent report shifted the emphasis when it noted 'Competitive

economies have in place elements driving the productivity enhancements that support high incomes and that, at the same time, ensure that the mechanisms enabling solid economic performance going into the future are in position.’⁴¹ The article then describes the ‘12 pillars of competitiveness’ – institutions; infrastructure; macroeconomic environment; health and primary education; higher education and training; goods market efficiency; labour market efficiency; financial market efficiency; technological readiness; market size; business sophistication; and innovation. The first five comprise ‘basic requirements’ and are seen as being ‘key for factor-driven economies’. The next six are ‘efficiency enhancers’ which are ‘key for efficiency-driven economies’. The last two are described as ‘innovation and sophistication factors’ which are ‘...key for innovation-driven economies’.⁴² The GCR assembles data on all of these variables, weights them as described in the Report, and computes the outcome. Based on the results, Australia is one of 35 innovation-driven (Stage 3) economies. Indonesia is one of 28 efficiency-driven (Stage 2) economies and Ghana is one of 37 factor-driven (Stage 1) economies. Complicating this picture is that 24 economies are ranked as being in the transition from stage 1 to stage 2 while 18 economies are in transition from stage 2 to stage 3.⁴³ These categories help rank countries according to their ‘stage of [competitive] development’.

The recent shift to ‘cluster analysis’ by Michael Porter and his associates (Ketels 2011; Porter and Rivkin 2012; Adams 2012) has broadened the notion of competitiveness even further. It now has three dimensions: microeconomic, macroeconomic, and endowments. Microeconomic competitiveness encompasses the ‘sophistication of company operations and strategy’, ‘state of cluster development’, and ‘quality of national business environment’. Macroeconomic competitiveness comprises ‘social infrastructure and political institutions’, and ‘quality of macroeconomic policy’. Endowments cover ‘natural resources’, ‘geographic location’, and ‘size’. Factors which contribute to competitiveness within this framework include (among others) higher quality universities, the context for entrepreneurship, innovation infrastructure, sophistication of firm management, quality of capital markets, protection of property rights, flexibility of hiring and firing, strength of clusters, communication infrastructure, availability of skilled labour, logistics infrastructure, regulations, efficiency of legal framework, macroeconomic policy, K-12 education system, effectiveness of the political system, and complexity of the tax code.

Most analysts would suggest that this is a lot of water for one concept to have to carry.

ANNEX 2: GRILICHES 'REMINDERS FOR TRAVELING THE RESEARCH ROAD AHEAD'

Although Griliches (2000, Ch. 6) intended these reminders for academics and researchers, his observations are also relevant to policymakers and their advisers. He made six points.

1. Productivity growth is not technical change, and vice versa.
2. R&D is not the source of all productivity growth.
3. Knowledge is not a free good. It takes effort to develop it, to transfer it, and to absorb it.⁴⁴
4. Neither the world, nor the economy, nor the individuals in it are in continuous equilibrium.
5. Accounting is not explanation.
6. Increases in total factor productivity are not synonymous with increases in social welfare.

And while he did not label it a seventh point, it serves as one. He concluded: 'There is much that remains to be learned about productivity, especially in understanding its economic determinants and social consequences' (*ibid.*, p. 90).

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ENDNOTES

¹ Economic development has the conventional meaning – economic growth plus structural transformation. In addition to industrialisation, urbanisation and the demographic transition, it now regularly encompasses equity, governance, regional representation and gender empowerment.

² Based on data compiled by Angus Maddison at www.nationmaster.com. To place in context the subsequent discussion, Australia had the second highest per capita income after New Zealand. The United States was third. Ghana was 39th.

³ *World Development Indicators 2011*, Table 1.1, p.10

⁴ Data from IMF *International Financial Statistics Yearbook 1990*, pp.244-247, 766-769. Zambia's economic performance has been covered in Baldwin (1966), McPherson (1980) and Hill and McPherson (2004).

⁵ The Berg Report (World Bank 1981, Tables 1, 33) reported GDP per capita (in 1979 prices) for Zambia of \$500 and Botswana of \$720. Over the period 1960 to 1979, Zambia's per capita GDP had declined by around 2 per cent per annum. The corresponding datum for Botswana was an increase of close to 7 per cent per annum.

⁶ *WDI 2011*, Table 1.2, p.12

⁷ Of the 177 countries for which data were reported by UNDP, Zambia was the only one in which under-five mortality increased over the period 1970 to 2005 (UNDP HDR 2007/2008, 2008, Table 10, p.264).

⁸ Attard 2008, Table 4

⁹ Agriculture contributes between 4 and 6 per cent of GDP.

¹⁰ Schultz (1951) highlighted the declining contribution of land as a factor of production. He showed that although land remained fundamental to agricultural production, its marginal contribution to output had been falling over extended periods. At the margin, the productivity of other factors had been increasing over time.

¹¹ World Bank 2009, pp.33-43; 283-285

¹² The problem with using a word such as 'dependence' in development economics is that it has become a 'code-word' with particular meanings in different contexts. The centre-periphery framework of the '*dependencia*' theorists (such as Raul Prebisch, Hans Singer, Andre Gunder Frank, Fernando Henrique Cardoso, Samir Amin, Celso Furtado) use the term to mean that a country's development path is determined by the actions of outsiders who trade with, finance, or supply technology to the country. According to this view, foreign trade and other foreign influences reinforce 'unequal development' with the actions of the centre/core countries (typically the United States and Europe) systematically undermining the growth and development prospects of the countries in the periphery. The main empirical basis of *dependencia* theory is that the terms-of-trade systematically turn (and remain stacked) against poorer, resource-exporting countries. Dependence connotes habit, reliance, addiction, compulsion, or conditioning that result from the behavioural changes derived from shifting expectations and anticipations. Resource dependence is not forced by outsiders on a particular country. It results from local macro and micro responses to resource abundance. These responses have adverse consequences for growth and development. For many countries, particularly in Africa, foreign aid has generated patterns of aid dependence in which government officials come to rely on (become conditioned to) the regular inflows of 'aid.' For their part, aid donors come to expect that aid-recipient countries will continue needing support and plan their programs to ensure aid flows will endure. The outcome has been the decades-long persistence of adverse expectations that have generally undermined economic performance (McPherson and Gray 2002, Ch.9; McPherson 1999). Policymakers and urban consumers (typically) become habituated to the easy access to foreign exchange associated with resource booms. They come to expect that the artificial gain in their standard of living can be sustained.

¹³ There are all-too-many examples. Nigeria used to be the world's second largest exporter of groundnuts and a major producer of palm oil. Both sectors collapsed after the expansion of oil production and the oil-embargo induced price increases during the 1970s. Zambia had a large and prosperous floriculture business before the dramatic increase in copper prices from 2003. Much of that activity has become uncompetitive.

¹⁴ McPherson and Zinnes (1992) and Zinnes and McPherson (2002) provide a model (based on endogenous growth theory) demonstrating that the dynamics of economic regression is regular and systematic. In practice, it takes a highly determined effort to create the conditions which degrades an economy.

¹⁵ The development literature has volumes on the problems imposed by structural adjustment and the so-called 'Washington consensus' or 'neoliberal' approach to economic reform. (A Google search 'structural adjustment, developing countries' returns 10.2 million hits) Since the first modern structural adjustment program was Lenin's New Economic Plan, much of this criticism has been misdirected, especially the liberal or neoliberal part. A key problem is most of the countries that needed structural adjustment assistance (especially in Africa) created the difficulties by local actions that accentuated their dependence. For example, it was not structural adjustment programs (of any sort) that undermined growth and development in Zambia or Ghana. Through their actions (such as the exuberant creation of state-owned enterprises, most of which were loss-making, and exaggerated levels of foreign borrowing) and inactions (unwillingness to control credit creation or keep their exchange rates competitive), both governments had their countries in deep trouble (debt, deficits, food insecurity, regional disparities, corruption) well before formal IMF/World Bank/donor-supported reform programs were devised.

¹⁶ These terms are defined in the Annex 1.

¹⁷ Perhaps the most trenchant statement of this position was by Krugman (1994). He objected to the all-too-prevalent opinion – especially among politicians, their advisers, and business executives – that nations are in economic competition like firms and corporations. Krugman argued that countries have high (and rising) living standards because they are productive not necessarily because they are internationally competitive. That, in turn, is derived from a multiplicity of firm, sector, and macro level features (see Annex 1).

¹⁸ For example, Griliches (1979, p.113) noted that the '...major impediments to progress in this area' are '...the lack of relevant data and the conceptual poverty of our models.' And although he had seen some encouraging progress in the interim, two decades later he stated: 'I am inclined to be optimistic about the underlying technological trends but pessimistic about our ability to measure them correctly' (Griliches 2000, p. 85, and Ch. 6). This was pretty much his last word on the topic. Professor Griliches died in November 1999.

¹⁹ Griliches (1979, p.93). Similar views were expressed by the Sarkozy Commission (2009, p.9): 'The decisions they [ie policymakers] make depend on what we measure, how good our measurements are and how well our measures are understood.'

²⁰ Since production and cost are dual, this could be rewritten in terms of cost function (Aschauer 1989; Giandrea 2006).

²¹ Under these conditions, any shift in the production function is pure technical change. Competitive factor prices rules out gains from factor substitution and constant returns to scale are imposed by adding up restrictions.

²² This is evident in the approach of the U.S. Bureau of Labor Statistics and the OECD (OECD 2001; BLS 2007, 2008). These agencies collect the data that fit their methodological approach with regular efforts to upgrade their methods as more data become available. Barro (1999) provides (perhaps) the most tortured attempt by an established growth analyst to fit the data to his procrustean model.

²³ Georgescu-Roegen (1970) pointedly criticised conventional approaches to production and productivity analyses highlighting a range of factors that were conveniently ignored in the assessments.

²⁴ At one level, national 'survival' has also depended upon at least breaking even. One of the many factors that undermined the Soviet Union was widespread value subtraction with the value of inputs regularly exceeding the value of output. This phenomenon has been a key determinant of the poor performance of aid-dependent countries in Sub-Saharan Africa as well. To give an example, over the thirty plus years from 1975 to 2001, Zambia received net foreign aid of just under 20 per cent of GDP per annum yet, over that period, income per capita declined by more than 1 per cent per annum (Hill and McPherson 2004, p. 446n2).

²⁵ Other authors point to the critical contribution of labour productivity. For the 'bottom billion' described by (Collier 2007), labour (time) is essentially their only asset. The implication is that under current arrangements improvements in labour productivity are the only way members of this group will raise their incomes and wellbeing. Krugman's (1990, p.9) assertion that 'A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker' was derived from the limits to the capacity of any economy to raise its consumption per capita on a sustained basis by saving and investing less, devoting more time to work, and borrowing (locally or abroad). These limits imply that the only feasible long-term source of rising living standards is increased labour productivity. Finally, within the frame of

reference developed by John Locke, David Ricardo, and Karl Marx, labour was seen the only fundamental source of value was labour. In their schema, all items of value could be measured in terms of the direct and indirect input of 'socially necessary' labour in their production and distribution (Vianello 1998).

²⁶ The rock record, beginning from Oldupai Gorge over 2.5 million years ago, has been well researched. The stick record, even from the dawn of modern man 50 thousand years ago, is shaky at best. Like others, we speculate that rock stick usage co-evolved.

²⁷ Other primates have been observed using sticks and rocks to hit, bang, poke, and dig. They do not, however, make a habit of it. Nor do they carry them from one task to the other.

²⁸ The 'Darwin Awards' indicate that that there would have been many monumental mistakes which would have purged particular practices (and often their practitioners).

²⁹ Olson (1965, 1998) and Arrow (1974) both emphasise that a key feature of organised activity (ie involving two or more people) is that the outcome is substantively different from what can be achieved by an individual acting alone. North focused less on the consequences of organised activity than the arrangements (rules, understanding, customs) upon which the activities were based. Fukuyama (1995, 1995a, 2001) enquired why some institutions rather than others evolved and persisted in different societies. He repeated this point in a lecture at Harvard Kennedy School (April 10, 2012) entitled 'Democratic Development and Democratic Decay.'

³⁰ Arthur 1989; Romer 1986; Krugman 1991; Grossman and Helpmann 1995; World Bank 2009

³¹ Learning features in many explanations of economic processes and progress. A sample includes learning-by-travelling (Adam Smith 1776, 1937, p.728); learning-by-'littles' (Abraham Lincoln, quoted by Freedman 1987); learning-by-teaching (Henry Adams 1918, Ch. 20; Duckworth 1996, p. 162); learning-by-migrating (Robinson 1932, 1967); learning-by-doing (Arrow 1962; Solow 1997); learning-by-using (Rosenberg 1982, Ch. 7; Ruttan 2001, pp.89-95); learning-by-searching (Gross 1980); learning-by-trading (Tobin 1996, p. 205; Pissarides 1997; OECD 1998); learning-by-adapting (ILO 1998); learning-by-competing (Lander 1999); learning-by-reforming (McPherson 2000; Hill and McPherson 2004, Ch. 13); learning-by-participating (Outlook 2001); and learning-by-sharing/networking (Gardner 1993, p.23; Roberts 2003; Prensky 2004); learning-by-trial-and-error (Ruttan 2001, p. 132); and learning-by-failing (Burns and Stalker 1961; O'Rourke 2002, Farson and Keyes 2002). There are others. Yogi Berra who said that you can observe a lot by watching would no doubt believe in learning-by-observing (doctors get key elements of their training this way). Gregory Bateson (1972) focused on 'learning how to learn' (which he called 'deuteron-learning'). Macroeconomists suggest that senior policymakers (particularly central bankers) can learn through policy coordination (Blackburn and Ravn 1993), more recently, peacekeepers have been learning-by-managing conflict (Cross, Leidtka and Weiss 2005), and educators have been stressing life-long learning (World Bank 2003).

³² Margaret Mead was known for asking her students what distinguished humans from animals. The answer she sought was 'pockets'. Humans, unlike other animals, prepare for and anticipate the future by carrying their artefacts with them.

³³ To illustrate, Uganda and Zambia in 2009 had similar PPP adjusted per capita income (approximately \$1,200). In 2005, Zambia's poverty rate relative to the \$1.25 benchmark was 64 per cent and its Gini coefficient was 0.51. Corresponding data for Uganda were 52 per cent and 0.43. Until the recent discovery of oil, Uganda had few resources. There are few countries with per capita income close to that of Indonesia. Vietnam, however, which has a large population and limited land offers some perspective. Its per capita income in PPP adjusted terms was roughly \$1,000 less than that of Indonesia. Its Gini coefficient was the same (0.38), but its poverty rate was lower namely 22 per cent versus 29 per cent for Indonesia. (Data from *World Development Indicators* 2009, Tables 1.1, 2.8, 2.9).

³⁴ The doctrine of *Pancasila*, first proposed in June 1945, was based on five principles – nationalism, internationalism, democracy, social justice, and belief in God. Recast as the Jakarta Charter with five tenets – belief in God; a civilised and just humanity; the unity of Indonesia; democracy through representative consensus building; and social justice for all – it became the foundation of Indonesian independence.

³⁵ Frimpong-Ansah 1991; Gyann-Baffour and Betsy 2001; Firdausy 2005; Njikam, Binam, and Tachi 2006; Easterling, Fox and Sands 2008; Baptist and Teal 2008; Waldkirch and Ofusu 2008; Ananta, Seokarni, and Arifin 2011; and Zhou 2011

³⁶ In 2010, Ghana rebased its national accounts resulting in a 60 per cent boost in per capita income. This adjustment served short-term political ends even though it did not change the underlying structure of the economy. Indeed, when Ghana began pumping oil in November 2010, its resource dependence intensified. Thus, while the boost in income reduced specific indicators such as the budget deficit, debt stock, trade ratio, money stock, aid flows, government expenditure, and public sector wages when measured against GDP, it did nothing to change or moderate the rate of inflation, the imbalance in the trade accounts, the monetary impact of the budget deficit, the growth rate of money and credit, the degree of overvaluation of the real exchange rate, the rate of interest, the growth rate of public sector wages, the poverty rate, the share of labour in agriculture, the size of the energy subsidies in the government budget, or the losses of the state-owned enterprises. In effect, the rebasing (which all other countries could have done just as easily) had no substantive impact on the economy or its prospects. The main disadvantage was that it prematurely pushed a low-income country into the lower middle income category without modifying the structural features (balance budget, low debt dependence, minimal reliance on aid, a competitive exchange rate, balance in the trade accounts, declining poverty) that will be needed to keep it in this category.

³⁷ Thee Kian Wie personal communication, March 2012.

³⁸ Between 1980 and 2008, the share of agriculture in GDP fell from 60 per cent to 31 per cent whereas the share of agricultural labour (based on shifts in rural population) fell from 69 per cent to 50 per cent.

³⁹ In 1980, industry was 12.3 per cent of GDP. Its contribution to GDP peaked at 28.7 per cent in 1997 and declined to 20.4 per cent in 2008.

⁴⁰ This is repeated in Eslake (2011).

⁴¹ Sala-i-Martin *et al.* (2012, p.4)

⁴² *Ibid.*, Figure 1, p.9

⁴³ *Ibid.*, Table 2, p.11

⁴⁴ Following Griliches (1960), learning and adapting to what is learnt also takes time, sometimes lots of time, especially when there are risks and information is limited.

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