



Oxford Policy Management

Growth in Indonesia: is it sustainable?

An Overview

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Preface

Oxford Policy Management Ltd. (OPML) is delighted to present the study entitled ‘Growth in Indonesia: is it sustainable?’ The study present analysis on the sustainability of Indonesia’s economic growth model conducted for the UK Climate Change Unit (UKCCU) in Jakarta.

This paper provides a summary of the four papers authored as a part of the study ‘Growth in Indonesia: is it sustainable?’ The four papers review the environmental sustainability of growth, the political economy of deforestation, the impact of the commodity boom, and the drivers of recent economic growth. In this paper we use the World Bank’s ‘adjusted net savings’ framework to integrate these papers and to guide our conclusion to the main question asked in this study: ‘has Indonesian growth been sustainable so far?’.

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Table of Contents

Preface	i
List of Tables and Figures	iii
List of Abbreviations	iv
Introduction	1
1 Indonesian growth	3
1.1 Drivers of growth	3
1.2 The results of growth	4
1.3 Role of the commodity boom	5
1.4 Growth and the environment – carbon emissions and deforestation	6
1.4.1 The political economy of deforestation	7
2 The broad implications of growth	8
2.1 The ‘adjusted net savings’ framework	8
2.2 Alternative measure and limitations to data	12
3 Looking ahead	14
References	16

List of Tables and Figures

Figure 1 – Manufacturing exports' share of GDP.....	4
Figure 2 – The composition of 'adjusted net saving'	8
Figure 3 – Indonesia's 'adjusted net savings' based on revised data	9
Figure 4 – Total wealth in Indonesia (1995-2005)	12

List of Abbreviations

ADB	Asian Development Bank
AFC	Asian Financial Crisis
BRICS	Brazil, Russia, India, China and South Africa
BPS	Badan Pusat Statistik, Indonesia National Statistical Office
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GNI	Gross National Income
Gt	Giga tons
IMF	International Monetary Fund
LULUCF	Land Use, Land Use Change, and Forestry PISA Programme for International Student Assessment
MDG	UN Millennium Development Goals
MGI	McKinsey Global Institute
MoF	Ministry of Forestry
OECD	Organisation for Economic Cooperation and Development
OPML	Oxford Policy Management Ltd.
PISA	Programme for International Student Assessment
REER	Real effective exchange rate
VAT	Value-Added Tax
UNEP	United Nations Environment Programme
UNICEF	United Nations Children and Education Fund

Introduction

“The Republic of Indonesia is a nation blessed with almost all of the prerequisites for transformation into a great economic power. With its abundant natural resources, large, production and young population and strategic access to the global mobility network, these assets and access empower Indonesia to establish itself in its rightful place among the leading economies in the world.” – President Yudhoyono, Introduction to the Master Plan 2011-25.

Indonesia has shown impressive economic growth over the last decade. The economy almost doubled in size between 2002 and 2011; and real GDP per person rose from US\$816 in 2002 to US\$1,206 in 2011 (2000 prices). Indonesia’s economy has recovered from the devastation of the Asian financial crisis (AFC), benefited from a boom in commodity prices, and weathered the recent global financial crisis well.

With such strong performance why ask the question: ‘is growth sustainable?’ The reason is that sustainable growth is fundamental both to achieving bold power ambition, as well as to sustaining improved standards of living for Indonesians.

Of course, ‘sustainable’ has several meanings – and our use varies across all four papers. But what we ultimately mean by ‘sustainable’ is economic growth that results in an economy which can employ people set to join the labour force; allow people to upgrade the skills they have now, and thereby deliver rising living standards; and at the same time will not irreparably damage the environment.

Our study takes this holistic approach and reviews the sustainability of the recent strong growth performance in Indonesia. We analyse micro and macro-economic data and existing evidence to:

- **Explore the key drivers of growth since the AFC** – by looking at sectoral contributions and types of expenditures within the economy. We also explore the consequences of recent growth for poverty and inequality – both in terms of income distribution and spatial inequality across Indonesia.
- **Analyse economic consequences of the commodity boom** – both in terms of impact of natural resource-related revenues on public finances, and in terms of the consequences of strong commodity export performance for private investment. We also ask whether there has been an effect, perhaps transmitted through the real exchange rate, of a boom in commodity exports on the growth of tradables production, exports, and employment.
- **Examine environmental sustainability and its relation to growth** – in looking at environmental change, we focus on greenhouse gas emissions and then deforestation, as emissions from peat and land use, land use change, and forestry (LULUCF) are the largest emission sources in Indonesia. We review what has happened, and how – in terms of the formal procedures for cutting down a forest, and the informal realities of deforestation.
- **Understand the political economy behind growth** – an in-depth case study of the political economy of deforestation demonstrates how institutions, both formal and informal, affect both environmental and growth sustainability.

To assess whether Indonesia’s growth is sustainable we need a way to link economic performance with environmental change. We use the ‘adjusted net savings’ framework of the World Bank to understand the impact of growth on physical capital, natural capital and human capital. Although there are some weaknesses with this framework, it provides a straightforward

basis for linking environmental sustainability with broader economic sustainability –one which can also be linked to the two main bodies of economic growth theory.

Indonesia's 'adjusted net savings' are negative, implying that total wealth is in decline.

Some of the significant drawdown of natural capital has been transformed into physical capital. Part of this physical capital has been an expansion in construction – mainly Jakarta real estate, in the form of shopping malls and apartments. The drawdown of natural capital of the last decade has contributed to growth, but in a limited way, as construction cannot replace ecosystem services lost. At the same time, job creation has occurred mostly in the informal sector while there has been poor growth in the manufacturing sector. Growth has come at some cost, and in that sense it is not sustainable.

Growth is only truly sustainable if it maintains and accelerates job creation by improving firm productivity and export competitiveness in the international markets. But this has not been the case so far – job creation in tradable manufacturing has been weak and Indonesia's non-commodity exports have performed poorly.

This paper is structured as follows: Section 1 summarises the key findings from our four papers; Section 2 pulls them together using the 'adjusted net savings' framework to come to our overall conclusions of the broad implications for growth; and finally, Section 3 takes a look ahead on Indonesia's growth.

1 Indonesian growth

Indonesia has had strong economic growth since the AFC. Annual average growth rate per capita between 2002 and 2011 has been 4.3%, comparable to that of the neighbours, but lower than the BRICS¹ economies.

While Indonesian economic growth has been strong in aggregate, the level of income per person – US\$1,206 (2000 prices) in 2011 – remains low relative to its neighbours; and 46% of Indonesians were estimated to be surviving on less than US\$2 per person per day in 2010.

1.1 Drivers of growth

A large share of growth has been driven by services. Industry and services both make up 40-50% of GDP, which is a large share of the economy compared to agriculture. Services have accounted for the majority of GDP growth with average annual sector growth of 7.4% compared to 4.3% for industry.

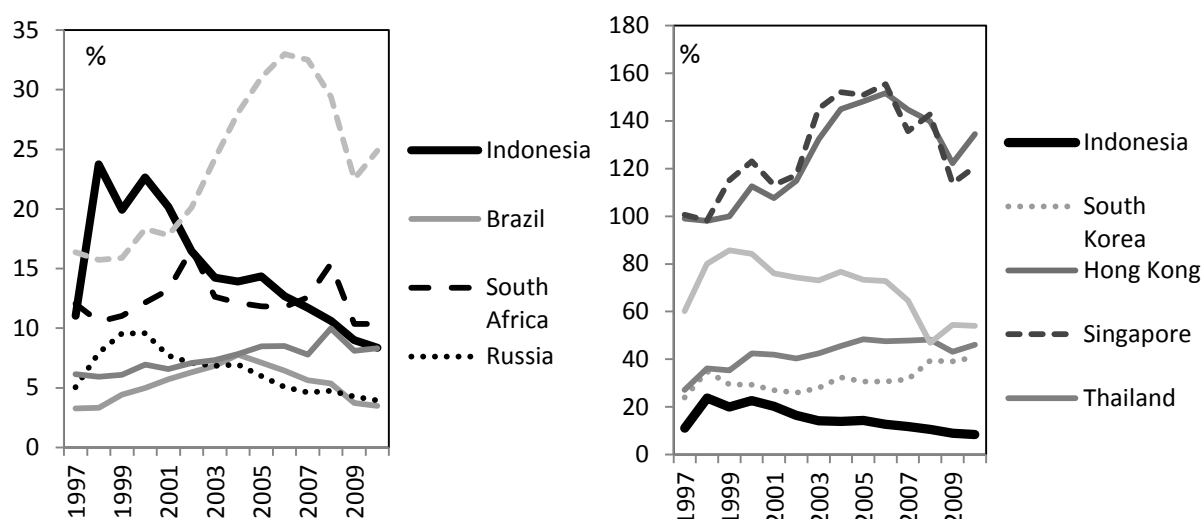
Another way of decomposing economic growth is patterns of expenditure. Private consumption has provided the largest single contribution to GDP growth since 2002. It seems likely that commodity and service exports have played an important role in driving private consumption. Recovery of investment has also been a key driver of recent growth: investment is predominantly private investment and financed domestically. As with the domestic consumption, growth in private investment may in part have been a result of the commodity price boom.

Net exports have contributed positively to economic growth but exports have declined as share of GDP in recent years. Manufactured exports have declined over the last decade; falling from 54% of export in 2002 to 37% of export in 2011. Indonesia has not been successful in adding value to its traditional exports. Moreover, non-commodity exports in particular have performed poorly since the AFC: commodity exports grew by 194% while manufactured exports grew by 68% between 2003 and 2008 (World Bank, 2012a).

Looking at Indonesia's recent growth through the lens of 'exogenous growth theory' suggests that capital investment can sustain growth in the short-run. In Indonesia investment has risen from 19% of GDP in 2002 to 32% of GDP in 2011. While industrial and manufacturing activities have attracted half of total investment, most new jobs have been concentrated in agriculture and services. One explanation for this is that most of the manufacturing sector's investments have been in technology that improved capital productivity and displaced labour.

However, growth in the long-run – as explained by the 'endogenous growth theory' – relies on productivity enhancing factors like on technology, knowledge externalities and innovation. In Indonesia's case reliance on natural resource exports has been associated with a weak manufacturing export performance. Investment in manufacturing has not led to much job creation. Indonesia lags in the process of linking into global manufacturing supply chains (particularly compared to neighbours Thailand, Malaysia and the Philippines), and has not created jobs separately from such international opportunities (see Figure 1).

¹ Brazil, Russia, India, China and South Africa.

Figure 1 – Manufacturing exports' share of GDP

Source: World Bank, 2012a; authors' calculations.

Moreover, it is hard to attract foreign investment and unlock technology transfer owing to weak public investment in infrastructure and poor social indicators. Basic failures of public health and service delivery (for instance, poor child and maternal health) means further investment in human capital (skills development, training, labour productivity-enhancing technologies) will produce smaller returns. The quality of physical capital investment (in terms of technological progress, research and development, ideas and externalities) and of human inputs to production (enhanced through education, training, skill development) determines growth in the long-run.

1.2 The results of growth

Growth in Indonesia has been rapid and has brought out many people from poverty. The signs of growth are not just visible in Java and Bali but also in other regions where an increasing middle class is demanding consumer goods and services. However growth has not quite reached the poorest – poverty rates are still high and inequality levels are rising. Moreover, growth between regions has also been uneven; and has largely followed development patterns determined by resource endowment, geographical proximity to the centre and political concentration of power.

Within regions Java and Bali still dominate growth. They account for 62% of national GDP and have seen an average annual growth rate of 6.0% since 2005. This is far higher than the second richest region, Sumatra, which accounts for 21% to national GDP and has grown at an average annual growth rate of 4.6% since 2005. Kalimantan and the Eastern Islands, despite being rich in natural resources, account for only 17% of national GDP. The reason for this disparity is that economic activity continues to be concentrated in Java and Bali which dominate the manufacturing and service sectors. Kalimantan and Sumatra rely mostly on the extractives sector. Although the extractives sector has seen growth due to the commodity boom, the returns from this have not flowed entirely to the producing regions. This has as much to do with poor infrastructure – which takes value-added production away from producing regions – as with the political economy of revenue collection and taxation.

Although Indonesia went through 'big bang' decentralisation in 2001, revenue collection and redistribution of transfers is still centralised. District and provincial governments only collect a limited number of taxes. Centrally collected natural resource revenues are redistributed through a revenue sharing mechanism under the decentralisation law. The revenue sharing

arrangement to benefit (natural resource) producing regions is largely offset by other transfers. If the few natural resource-rich regions and Jakarta are excluded (having the highest per capita incomes as well as high transfers in many cases), most of the other regions receive more or less similar levels of revenue shares and transfers (per capita)(Agustina et al., 2012).

A reason why growth may not translate into beneficial outcomes, especially for the poorest, is poor accountability and transparency in how revenues are collected and spent. Insufficient checks and balances can also create inefficiencies in service delivery, reducing the intended impact of public expenditure. For instance although there is a positive relationship between spending and learning outcomes at the district level (World Bank, 2010a), evidence suggests that spending only raises school enrolment in the least corrupt districts, and has no impact in the most corrupt ones (Suryadarma and Sumarto, 2011). A similar relationship is found in global evidence on health expenditure and outcomes: cross-country studies have found that there is a weak relationship between higher health spending and improved health outcomes at the national level, due to differences in governance (Filmer and Pritchett, 1999; McGuire, 2006).

1.3 Role of the commodity boom

The global commodity boom began in 2002 and was exemplified by a steep rise in prices of commodities such as oil, coal, copper, coal, and palm oil. There are several ways in which this commodity boom could have affected Indonesia's growth performance: either through a supply response, or through the impact of increased export earnings.

We find that that except for coal and palm oil, most key commodity sectors have not experienced a strong supply response. Other key commodity sectors such as oil, copper, gas and nickel (excluding analysis of food commodities) have seen decline, stagnating or weak supply response.

Significant resource rents are linked to the boom in real estate investments. We estimate that between 2003 and 2011 resource rents² accounted for 4.5% of gross national savings each year. OECD (2012) also reports that one fourth of corporate taxes come from commodity related firms, indicating that these sectors earn relatively high profits. Theory suggests that a commodity boom is often reflected in investment in non-tradable capital: essentially a construction boom. Globe Asia reports that commodity conglomerates' revenues amounted to 7.4% of GDP in 2011, a clear indication to the economic importance of such companies. With activities across sectors, these companies are able to move around cash between sectors and industries – partly explaining the construction boom, in particular, in Jakarta.

Growth in the commodities sector, especially natural resources, can contribute towards government revenues. However the bulk of total government revenue comes from non-resource domestic taxes, in particular, non-oil and gas income tax and VAT. The share of resource revenues³ has decreased from 28% in 2002 to 20% in 2012, although they remain an important part of non-tax revenues.

Windfall revenues generated due to commodity price boom have been largely spent on subsidies. Energy (fuel and electricity) subsidies have made up an average of 16.4% of annual expenditures since 2005. Spending on fuel subsidies almost equals total resource revenues in 2011. Fuel subsidies have actually increased as a share of government revenues from 9.6% in

² The surplus value after all costs and normal returns have taken into account

³ This includes oil and gas tax revenues and all natural resource non-tax revenues. It does not include revenues from food based commodities.

2002 to 12.5% in 2011. Because wealthier segments consume more fuel, the richest 20% of the population received almost two thirds of the direct benefits of the fuel subsidies, while the bottom 10% received only 1% of the direct benefits in 2009. Similar results are also found for electricity subsidies (World Bank, 2007; Enrique et al., 2010).

Has the commodity price boom resulted in ‘Dutch disease’? A rise in export commodity prices, could impair firm productivity in tradable sectors, manufacturing in particular, by diverting investment and driving up wages and the ‘real effective exchange rate’ (REER) – a symptom of what is sometimes called ‘Dutch disease’. Our analysis – at a macro and firm level – provides no conclusive evidence of ‘Dutch disease’. Although the REER has risen during the commodity boom, declining exports in manufacturing; and poor performance in the agriculture sector cannot be attributed to this alone. Performance in manufacturing has not been uniformly poor: textiles, paper and wood manufactures have performed poorly but chemicals and machinery have done well. However, a decline in the share of exporting manufacturing firms, as well as higher labour productivity for manufacturing exporters could indicate that the appreciation of the REER resulted in exit for less productive firms.

1.4 Growth and the environment – carbon emissions and deforestation

The greenhouse gas emissions and deforestation link to economic growth. Indonesia is one of the world’s 15 largest emitter of greenhouse gases, generating around 4.5% of global greenhouse gas emissions (2.4 Giga tons (Gt) of carbon dioxide equivalent (CO₂e) per year).⁴ Over two-thirds of these emissions are caused by peat and LULUCF emissions mainly driven by deforestation, but emissions from the energy sector are expected to rise exponentially in the next 10 years.

The impact of climate change caused by carbon emissions poses a potentially large threat for Indonesia, and the country could lose 6.7% of GDP by 2100 (ADB, 2009). Being an island group, Indonesia is vulnerable to any increase in frequency of extreme weather events. The occurrence of prolonged droughts or heavy rainfall leading to intense floods will have harmful effects on agriculture and industry (World Bank, 2008; PEACE, 2007). In Indonesia 16% of the population is exposed to droughts, floods, and extreme temperatures, threatening food security and livelihoods, and 11% of the population lives at an elevation below 5 metres (World Bank, 2012b).

Approximately 1% of Indonesia’s forest cover is cut down every year. Due to different definition of forest and uncertainty around total forest cover, there is a high degree of uncertainty around the extent of deforestation. We estimate that the cost of forest loss could amount to around 5% of GDP per year between 1990 and 2005.

Our analysis does not uncover a systematic causal link between economic growth and natural resource depletion. However, the expansion of estates such as oil palm and timber are established at the expense of forest cover. From 1990 to 2010, 90% of land converted into oil palm plantations in Kalimantan was previously forested (BPS, 2007; BPS, 2011). It is estimated that between 1990 and 2005, at least 56% of oil palm expansion in Indonesia occurred at the expense of forests (Koh et al., 2008). With future planned deforestation, oil palm plantations will continue to cause deforestation: the government has set aside 12% of forest land for future conversion to palm oil (Indrarto et al., 2012).

⁴ Estimates vary, with some studies citing Indonesia as 3rd largest to 13th largest emitter.

The real cost of mining to deforestation is unknown. The Ministry of Forestry data report that lease-use permits for mining covered around 0.3 million hectares until 2008. However, this figure is much higher as many mining operations, including those authorised by regional government permits, do not operate under lease-use permits (Indrarto et al., 2012). In addition, there are many small-scale illegal mining operations in forest areas (Resosudarmo et al., 2012).

The Ministry of Forestry estimated in 2010 that around 30 million people depend on directly on forestry for their livelihoods, including fishing, hunting, collecting forest products such as rattan, honey, resins, and medicinal plants for use and sale, obtaining water, flood prevention, and tourism (Forest Watch, 2009; TEEB, 2010). Forests also have substantial value in terms of their store of biodiversity (around half of all synthetic medicines have a natural origin), and as a carbon store. Climate change in Indonesia is expected to increase the frequency and severity of extreme weather events including floods, landslides, and drought, having a disproportionate impact on the poor who are least well equipped to manage these shocks, threatening their livelihoods and food security (Measey, 2010).

1.4.1 The political economy of deforestation

When looking at the law, regulation and policy that govern the forestry sector, or the ‘macro’ level, the main driver of deforestation is inconsistency in the regulatory framework at national and regional level – in particular, the uncertainty around the demarcation of forest boundaries.

At the centre of the institutions and rules, or the ‘meso’ level, that govern deforestation lies the forestry permitting and licensing system. The deforestation process itself is unclear with three tiers of governments allowed to issue permits. The system provides incentives for local authorities to exploit the system for their own benefit. In addition to the lack of oversight in the application process, licensing regulations contain numerous loopholes that allow leakages in forestry revenues and enable illegal logging. Underlying this process is a severe lack of enforcement capacity: insufficient regulatory knowledge and technical means to assess whether illegal activities are being committed, which produces a high number of overlapping permits

The relationship between citizens and local authorities in forest management, or the ‘micro’ level, also play a role in the deforestation process. Here poor community participation linked to the lack of accountability and transparency drives deforestation.

The political economy outside the forestry sector also affects deforestation. The decentralisation process, the level of corruption, the existing political culture and the problem of land tenure all influence the problems identified around the forestry sector and deforestation. These are cross-cutting issues affecting the ‘macro’, ‘meso’ and ‘micro’ of the political economy of deforestation.

2 The broad implications of growth

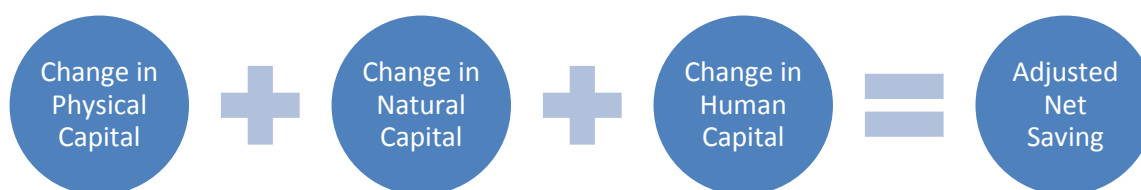
“Gross domestic product, the leading economic measurement, is outdated and misleading...It is like grading a corporation based on one day’s cash flow and forgetting to depreciate assets and other costs.” — J. Stiglitz.

In order to understand the implications of growth so far – in a period characterised by a commodity boom, high deforestation, a declining manufacturing sector and an expanding services sector – we use the World Bank’s ‘adjusted net savings’ framework. We use the ‘adjusted net savings’ framework to provide measurements of changes in key inputs to economic growth and then explain what this means for sustained economic growth.

2.1 The ‘adjusted net savings’ framework

The ‘adjusted net savings’ framework adjusts saving and investment in physical capital with simple measures of changes in natural and human capital. In other words, it captures changes in the broader national balance sheet. Negative ‘adjusted net saving’ rates imply that total wealth is in decline and that the current growth path is ultimately unsustainable.

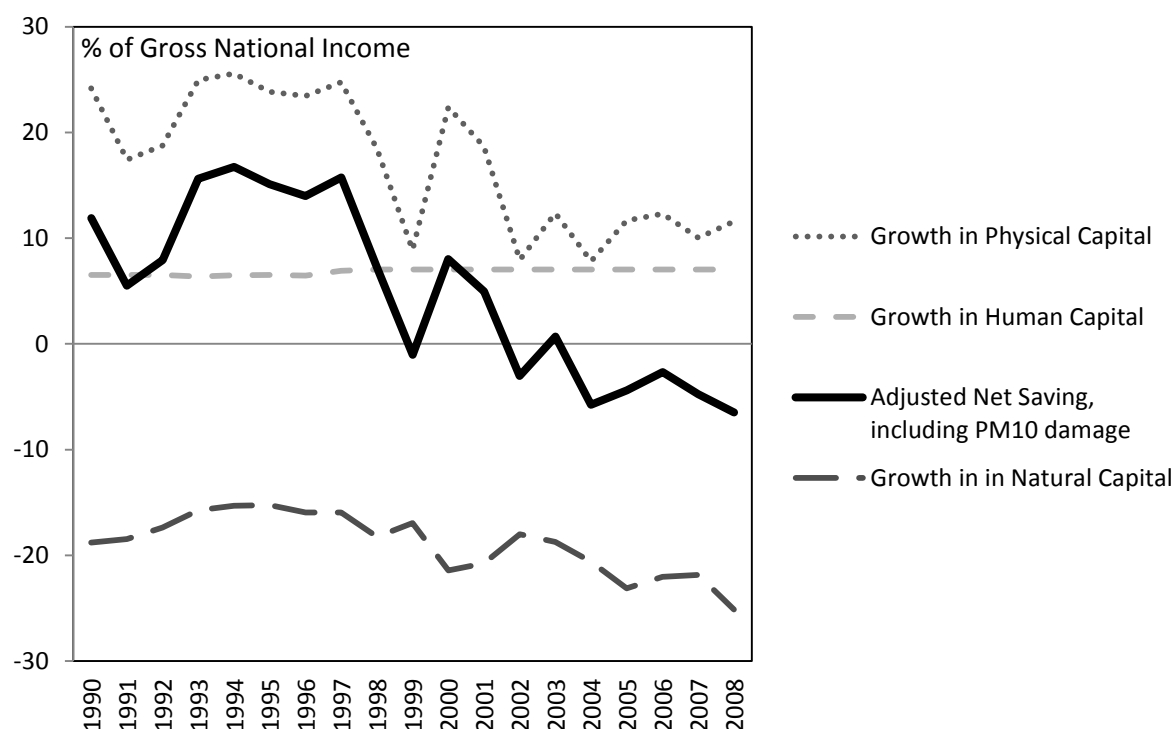
Figure 2 – The composition of ‘adjusted net saving’⁵



We produce new estimates of ‘adjusted net savings’ based on the World Bank’s methodology and a modified approach, which includes private education spending and total health spending as positive components, and deforestation as a negative component. We revise the World Bank’s ‘adjusted net savings’ analysis as it puts growth in ‘net forest depletion’ in Indonesia at 0% of GNI per year; in spite of overwhelming evidence of deforestation in the past few decades. The World Bank’s estimates also exclude expenditure on private education and health, which as we explain later in this section, are crucial components of human capital investment.

Our calculations show that ‘adjusted net savings’ for Indonesia dropped into negative territory over the past decade, implying that growth is no longer sustainable (see Figure 3 below). Our estimates show that ‘adjusted net savings’ have been around -5% of GNI per year since 2004. On closer inspection, the recent change has been driven partly by a fall in traditional physical capital – lower national savings and more depreciation of physical capital – but also a rise in natural capital depletion, including deforestation and energy depletion.

⁵ Change in Physical Capital= Gross National Saving - Consumption of Fixed Capital; Change in Human Capital = Education Expenditure; Change in Natural Capital= Net Forest Depletion + Energy Depletion + Mineral Depletion + C02 Damage + PM10 Damage.

Figure 3 – Indonesia's 'adjusted net savings' based on revised data

Source: World Bank, 2011; authors' calculations.

Natural capital – natural resources and deforestation

Growth in natural capital investment shows a decline in our analysis highlighting natural resource depletion underlying the rapid growth of recent decades. This trend is also true for the World Bank analysis although the latter puts the current rate of deforestation in Indonesia at 0% of GNI – which is anomalous given the overwhelming scale of deforestation in the past few decades.

The World Bank's 'net forest depletion' is based on the value of timber ignoring other benefits associated with forests. There are many environmental aspects which are not captured well – externalities such as ecosystem benefits, and assets which are not owned by individual or groups of people, such as the atmosphere, oceans and uncultivated forests.

Indonesia may have lost around 5% of GDP per year between 1990 and 2005 due to deforestation. One valuation of forest loss in the two major island groups of Kalimantan and Sumatra puts the value of forested land at US\$10,000 per hectare (VV.AA., 2011). If we assume that the same valuation applies to the entire forested area of Indonesia, then approximately 16 million hectares of forest were cleared between 1990 and 2005 and the loss to Indonesia from deforestation would be around US\$160 billion, or 5% of annual GDP.⁶

Physical capital – infrastructure and equipment

Growth physical capital also show a decline over time, particularly since the beginning of the commodity boom is a result of poor investment in infrastructure. Although infrastructure

⁶ For illustration purposes and consistency we continue to use the deforestation estimate of 1.1 million hectares per year (MoF, 2008). Note, Hansen et al., (2009) and VV.AA (2011) report higher deforestation figures for the same period (1.2 million hectares).

investment has been growing since the AFC (as a share of GDP), this growth has not high enough to close the financing gap or reach pre-AFC levels: Indonesia has to invest 2% of GDP, or US\$6 million annually, to reach the pre-AFC level (World Bank, 2007). It is a large task to address the backlog of past underinvestment, while also undertaking major new projects to meet expanding demand and further drive growth. The current lack of infrastructure investments impacts economic growth. Poor infrastructure reduces the competitiveness of Indonesian products. It inhibits greater processing of commodities and the export of higher value-added products. For instance, it is 2.7 times more expensive to transport a container from Jakarta to Padang than the same container to Singapore (Enrique et al., 2010).

At the same time private investment in physical capital has been strong, particularly in non-tradable sectors. The last decade has seen huge returns from investment in certain commodity sectors; as well as the rise of large, profitable Indonesian conglomerates. One hypothesis is that Indonesian conglomerates have re-cycled surpluses from the commodity sectors into construction fuelling a real estate boom, especially in Java. Recently, there has also been a trend for big conglomerates to spread their investment to banking and financial sectors as well, presumably due to the fact that corporate expansion needs cash flow and they prefer to use the internal one. Although the expansion of real estate and financial services sectors has increased capital investment per se, it does not reflect an increase in productive capital which can sustain long-term economic growth. If the stated hypothesis is true, then changes in future commodity prices can affect the real economy⁷ in Indonesia.

Part of the investment in physical capital comes from the manufacturing sector. The Indonesian manufacturing sector has declined in recent years in terms of contribution to growth but has not shown a fall in labour productivity. This is partly a result of capital intensive investment in manufacturing.

Human capital – education, health and labour markets

Growth in human capital formation shows an increase, this is also true for the World Bank's 'adjusted net savings' analysis, which measures human capital solely using public education spending. In general 'adjusted net savings' analysis ignores the actual impact of education expenditure and does not address the quality of human capital.

Public education spending is relatively low in Indonesia. Education spending was around 3% of GDP in 2005, below the 20% target of government expenditure mandated in Indonesian Law. Over the last decade, education spending has shown no substantial growth and accounts for a smaller share of GDP than Malaysia and Thailand as well as the average 6% of GDP found in OECD and G20 economies. In contrast, private spending on education in Indonesia is relatively high at around 3.7% of GDP.⁸

Nevertheless, Indonesia has achieved very high primary enrolment rates, which have risen substantially over the last decade. But, in terms of quality of education, or learning outcomes, Indonesia has performed worse than most of its neighbours in East Asia. The number of primary age out-of-school children has fallen from 1.6 million in 2000 to 106,000 in 2010 and there is close to universal enrolment overall in the 5-14 age group (World Bank, 2012a). However, Programme for International Student Assessment (PISA) test scores – a cross country

⁷ The part of the economy that is concerned with actually producing goods and services, as opposed to the part of the economy that is concerned with buying and selling on the financial markets.

⁸ This is calculated on the following basis: on average education expenditure is around 6-7% of household income (across all households). Household spending amounts to 56% of GDP (World Bank, 2012a), meaning that household spending on education as a percentage of GDP amounts to 3.3%.

comparison of learning outcomes – show that Indonesia since 2000 has performed worse than its regional peers. Although, Indonesia's reading scores have shown improvement.⁹

Investment in health can also be considered as investment in human capital. Better health improves the possibility of better learning outcomes, as well as directly raising productivity. Total (public and private) health spending in Indonesia is 2.4% of GDP (2009) which is lower in comparison to the OECD average (9.6%) and the BRICS economies (6.3%). Although Indonesia has made some progress in addressing malnutrition – it is on track to meet the MDG 1 of reducing underweight¹⁰ prevalence – it continues to perform worse relative to many of its neighbours and income peers in addressing this issue. Indonesia still has the fifth highest number of children under-5 who suffers from long term malnutrition, or stunting, globally (World Bank, 2010b; UNICEF, 2009). Based on World Bank and UNICEF calculations, Indonesia loses over US\$ 2.6 billion in GDP annually to vitamin and mineral deficiencies – hidden hunger, which results in lost lives and diminishing productivity. Gains from economic growth have thus not been used sufficiently to address crucial health issues, such as child malnutrition and mortality, which can raise future productivity.

Private education expenditure and total health spending sum to about 5.7% of GDP. Around a third of this is already captured in the World Bank's data on 'adjusted net savings' through investments in physical capital. We add an additional previously uncounted 3.8% of GDP to the positive side of the 'adjusted net savings' equation. Although this is not enough to compensate for the previously uncounted cost of deforestation and emissions, it is a positive aspect of recent growth.

Strong aggregate economic growth has not led to strong reductions in poverty in Indonesia. Although national poverty rates have fallen from 18% in 2002 to 13% in 2011, almost half of Indonesia's population continue to live on less than two dollars a day. Income distribution data shows that inequality has increased since the AFC, especially in recent years: the Gini Index¹¹ has risen from 33 in 2002 to 41 in 2012 (BPS, 2012). Economic growth has benefitted richer people more than the poorer ones. This matters for long-term growth because as the world economy has advanced, human capital has become scarcer than machines – or physical capital. Income inequality means that accessing education and health for large numbers of people is difficult (Milanovic, 2011).

Investment in human capital affects the supply of skilled labour. In a rapidly growing economy, labour supply must meet labour demand. MGI (2012) identify skills as one of four key areas posing a challenge to Indonesia's continued growth. They estimate that by 2030 Indonesia will need 113 million skilled workers, from today's level of 55 million, and that to reach this goal there may be a financing gap of \$8 billion a year by 2030. So far, job creation in Indonesia has been limited and restricted to informal jobs in agriculture and services. Data shows that the employment-to-population ratio (among 15+ age category) has broadly remained sticky in the range of 60% for the last 15 years. The sustainability of Indonesia's growth will improve if more jobs are created in the formal sector matched by a supply of skilled workers.

⁹ http://www.oecd.org/pisa/pisa2009keyfindings.htm#Country_notes

¹⁰ Underweight is low weight for age; and is a composite measure indicating both short term and long term malnutrition

¹¹ Gini index measures the extent to which the distribution of income or consumption expenditure among individuals or households within an economy deviates from a perfectly equal distribution. Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.

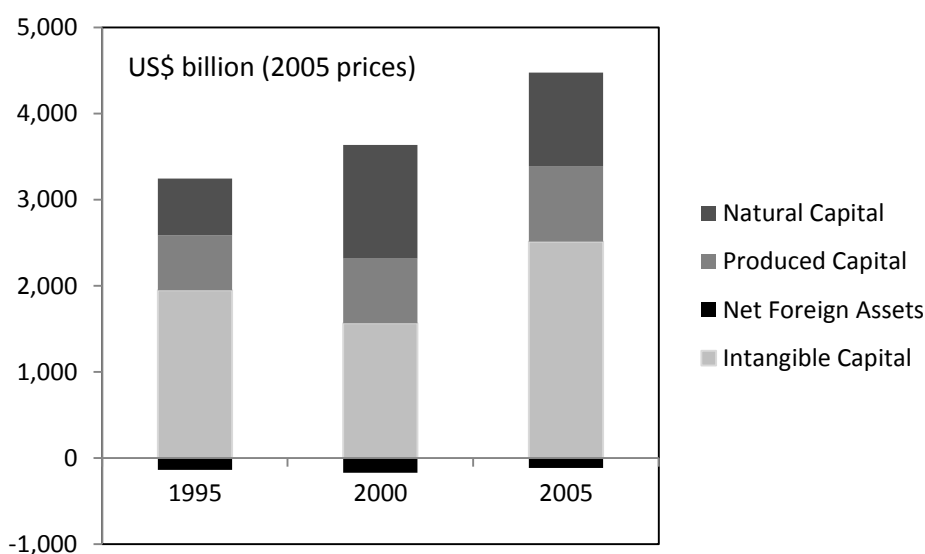
2.2 Alternative measure and limitations to data

‘Wealth accounting’ takes a slightly different approach to measure the sustainability of growth. It is a medium term perspective estimating the ‘stocks’ of physical, natural, and human capital. Whilst ‘adjusted net savings’ data represent a ‘flow’ of additions/subtractions to wealth, ‘wealth accounting’ data represents the ‘stock’ of capital/wealth at points in time. The two measures are closely linked conceptually, but are estimated based on different sources of data. ‘Wealth accounting’ looks at the same three broad groups of capital; produced (or physical) capital (buildings and machinery), natural capital (forests, wetlands, and agricultural land) and intangible capital. Intangible capital covers only human capital in the ‘adjusted net savings’ framework. ‘Wealth accounting’ also includes social capital, covering the rule of law, institutions, and changes in technology as part of ‘intangible’ capital.

‘Wealth accounting’ supports the conclusions from economic growth theories. They suggest intangible capital¹² is the key long-term driver of growth. According to ‘wealth accounting’, ‘intangible capital’ is the largest component of wealth in Indonesia – a norm for most countries.

Total and per capita wealth has grown in real terms between 1995 and 2005. Over time the values of produced, intangible, and natural capital have all increased. This is consistent with the ‘adjusted net savings’ data, in which our revisited figures do not show a decline in wealth until 2004. However, we cannot confirm the unsustainability of growth in more recent years found with the ‘adjusted net savings’ framework due to lack of ‘wealth accounting’ data.

Figure 4 – Total wealth in Indonesia (1995-2005)



Source: World Bank, 2010c.

There are some data caveats to findings based on the two frameworks measuring ‘sustainability’. Although the concept of ‘adjusted net savings’ is a sound one, the practicalities of implementation are subject to the constraints and difficulties of the measurement and valuation of complex goods. We have already seen that the World Bank’s ‘adjusted net savings’ calculations misrepresents deforestation costs and does not account for private education and health expenditures. Besides the things not measured in ‘adjusted net savings’ and ‘wealth accounting’, the two frameworks also have a number of conceptual weaknesses:

¹² Often referred to as Total Factor Productivity or the residual in economic growth theory.

- **By focusing on capital, the framework has little to say about economic growth from increase in productivity.** Similarly, little detail is gathered about the components of intangible capital – which aspects of institutions and social capital are particularly important (UNU-IHDP/UNEP, 2012);
- **The measures used for assessing change in physical and human capital do not take into account the quality of investment undertaken.** Roads may be poorly constructed and the investment in schools may not improve learning outcomes for children. Also, there is no way of assessing if the best investment choices have been made, in terms of lowest cost or greatest impact;
- **Many environmental aspects are not captured well.** Externalities such as ecosystem benefits and assets, which are not owned by individual or groups of people (such as the atmosphere, oceans and uncultivated forests);
- **There is no account of the end-beneficiaries of production.** International trade, natural capital use and emissions embodied in production in one country may not equal the resources used in consumption. Although this insight does not change the nature of the sustainability calculation facing Indonesia. It raises questions about global action to address climate change. Some of Indonesia's emissions and resource depletion is carried out to satisfy the demand of other countries; and
- **They assume that it is possible, at the margin, to make some substitution between natural capital and other types of capital** (World Bank, 2011; World Bank, 2012; Bolt, 2002). Whilst it may be acceptable to allow for some substitution of forest for physical investment, there is a physical limit.

Despite the data limitations in 'adjusted net savings' and 'wealth accounting' frameworks, a clear finding emerging from our analysis: national savings in Indonesia are dangerously low and very plausibly negative, implying a shift towards an unsustainable growth path. The estimates of 'adjusted net savings' for Indonesia almost certainly underestimate the cost of deforestation, but perhaps also underestimate positive investments in human capital and improving governance.

3 Looking ahead

Sustainable development is *"development that meets the needs of the present without compromising the ability of future generations to meet their own needs."* — Brundtland Commission (World Commission, 1987).

While Indonesia's overall growth performance has been strong, it has not been wholly sustainable. The 'adjusted net savings' framework helps answer the question whether there has been a sustainable conversion of the natural capital from forests and minerals into physical and human capital that can support future economic growth and job creation. It shows that Indonesia's genuine savings are already the lowest in the region, excluding some of the costs of deforestation which are not captured, implying that growth is unsustainable.

The growth process is not just a function of human, physical and natural capital, but also the underlying political economy of policy formation and implementation. An example of this is the forestry sector where a national shift towards decentralisation has created opportunities for rent extraction and leakages. Another instance is the uncertainty around exploration and the non-conducive business climate which has contributed towards falling oil production volumes in recent years.

Indonesia's export performance, especially in manufacturing, has been weak. Exporting manufactured goods is a source of productivity improvements, jobs, and sustained economic growth, in a range of countries. Weak performance is therefore cause for concern.

However Indonesia's expanding working-age population means that there could be a 'demographic dividend'¹³ over the next couple of decades. Indonesia's working age population is set to rise: by 2030 the total population will have risen from 240 million in 2010 to 280 million. Its dependency ratio – a measure of working age population to dependents - is expected to fall from 48% in 2010 to 44% in 2030. But a 'demographic dividend' is not automatic. It requires the growing numbers of workers to acquire skills and obtain jobs, hence the need for greater investment in human capital.

Investment in human capital through public expenditure on education is intended to yield positive returns: which means higher incomes. Estimates at the micro level of the economic returns to investment in education in Indonesia vary but are positive and broadly in line with international experience – between 5% and 10% (Duflo, 2001; Sohn, 2013). Rates at upper secondary level are higher – between 14% for 'marginal' students and 27% for the average student (Carneiro et al., 2011). This implies that substantial gains can be realised through increased investment in schooling, especially at the pre-school and upper-secondary level. Moreover, life expectancy has risen steadily in Indonesia from 62 years in 1990, 65 years in 2000, to 70 years in 2012. This also increases the returns to investment in education through longer working lives, as well as it directly increases productivity.

In general, spending on education or health will only yield a positive impact if service delivery is transparent and governance is good. Since the political fall-out of the AFC new checks and balances have developed in the political architecture of Indonesia, with the potential of increasing the level of accountability and transparency. However, corruption and poor governance remain important problems, particularly at a regional level. These will continue to adversely affect the path of growth unless there is systematic reform on key issues.

¹³ A 'demographic dividend' arises when a growing working-age population supports relatively fewer dependents, with relatively more income available for investment and further economic growth.

Indonesia's macro-economic indicators are stable. The central government's debt situation has improved significantly. Macroeconomic stability and fiscal consolidation have been the underlying forces for growth so far. However, growing fuel subsidies impose serious demands on the national exchequer and are fiscally unsustainable. Moreover they represent unproductive investment, posing risks to productivity in manufacturing and exports.

Sustained growth which creates jobs hinges on a strategy focussed on sorting the business environment, bringing in foreign direct investment (FDI) and new ideas to build firms with capabilities to compete both in the domestic market as well as in international markets. Growth in manufacturing exports can provide jobs in the long-run and become a source of sustainable growth for Indonesia. At the same time, value addition in commodity exports can also sustain economic growth. This is conditional not only on increased infrastructure investment but also a sustainable use of natural resources. Underlying this strategy must be also be a willingness to resist protectionist measures and engage in the opportunities provided by the international supply chain to scale up Indonesia's manufacturing and service sectors.

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