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Can Indonesia Secure a Development Dividend from Its Resource Export Boom?*

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Abstract: *Indonesia has enjoyed a long spell of sustained and relatively rapid economic expansion, largely on the back of strong commodity prices. No commodity boom lasts forever, however, and threats to the continuation of this growth are mounting. Indonesia now faces the challenge of locking in gains and setting a course to sustain future development in less favourable times.*

Post-2000 growth differs from earlier experiences in that exports of agricultural products, especially palm oil, now play a leading role. In contrast to the country's earlier oil and gas export boom, the gains from agricultural export growth accrue mainly to private actors that include corporations, smallholders, and the agricultural labour force, with a much smaller share passing through to government budgets. Government can no longer simply mandate the use of funds for development purposes; many other actors and institutions are involved.

It is reasonable to assume that the benefits from such a decentralised export boom would be widely diffused, with relatively large effects on rural and farm households and lower-skilled workers. However, this boom has been accompanied by a sharp rise in inequality and virtually no real wage growth. Moreover, while spending rose robustly during the boom, it is not clear whether poor, farm-based households have chosen (or been able) to use the gains to smooth consumption or to invest for future generations.

The capacity to lock in gains at micro and macro levels is subject to significant policy influence. The maxim that 'while the sun is shining is the best time to repair the roof' applies: currently healthy global economic conditions present an opportune moment for Indonesian policymakers to reflect and to look ahead, with an eye towards achieving optimal development policy settings.

Keywords: development policy, commodity market, palm oil, poverty
JEL Classification: F16, J43, O11, O13, O15

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1. Trends in the Indonesian and Global Economies

The Indonesian economy maintained steady growth in 2017, with gross domestic product (GDP) expanding by a little more than 5%. Fourth quarter growth was especially strong at 5.19%, capping a year in which a vibrant global economy and accommodating domestic monetary policy stimulated economic activities across a wide range of sectors. The fourth-quarter growth lift was facilitated by a modest improvement in the external terms of trade. Inflation remained steady at 3.5% for the year – which is within the target band of 4% ± 1% – and remains on track to conform to the 2018 band of 3.5% ± 1%. Consequently, the rupiah, while falling slightly against the United States (US) dollar in line with the latter's global appreciation, remained broadly stable against other key currencies such as the yuan and the euro. Bank Indonesia held its benchmark repo rate unchanged at 4.25% in February 2018 for the sixth month in a row (Bank Indonesia, 2018), citing the need to continue to sustain credit growth (which has been slow) while maintaining stability in the macroeconomic and financial systems, and acknowledging risks from global monetary tightening as well as geopolitical risk.

The 2018 state budget (passed in late October) targets growth in the new year at 5.4% (compared with Bank Indonesia and international projections of close to 5.1%) while also predicting a decline in the budget deficit to 2.2% of GDP. Meanwhile, the Big Three constraints on long-run growth – education, infrastructure, and institutions – are almost unanimously acknowledged as continuing to present major challenges. Perhaps sounding a note of caution for the election year to come, the Central Bank advised during its December 2017 rate announcement that 'amidst the global economic gains and domestic economic stability achieved lies an opportunity to build stronger and more sustainable domestic economic momentum through consistent structural reforms' (Bank Indonesia, 2018).

1.1.The World: Post-GFC Expansion Continues, For Now

The world economy, after the extreme turbulence during the Global Financial Crisis (GFC), is now in a period of recovery and growth. The US and European Union (EU) economies (except the United Kingdom, which faces continuing uncertainty around its post-Brexit relationship with the EU) are undergoing a sustained expansion; China posted a surprisingly high GDP growth rate of 7% in 2017, and as of early 2018 even Japan had achieved eight consecutive quarters of growth for the first time since 1990. The International Monetary

Fund, in its most recent *World Economic Outlook*, predicts continuing solid growth for the next year or two, especially in the US, the larger EU economies, and China (IMF, 2018).

However, investment and productivity growth in the large GFC-affected economies remains low. Instead, much of the recent growth comes from the closing of output gaps. By late 2017, labour market slack was fast disappearing, and unless productivity growth picks up, it is inevitable that current growth rates will soon revert to their lower long-run values. The next global slowdown may even be under way already in early 2018, as world equities markets respond to monetary tightening and rising labour costs by marking down expectations on future profitability. Higher interest rates and lower growth in the advanced economies will dampen investment demand everywhere, including the emerging markets.

Beyond these cyclical trends, there are several other threats to continued global expansion. In the US, the Trump administration's hostility towards multilateral trade agreements and the system of rules by which they are administered poses as-yet unknown threats to the vitality of the world economic system. For example, Donald Trump's reluctance to support the appointment of new judges to the World Trade Organization's appellate body undermines that institution's efficacy by reducing its capacity to perform its dispute resolution functions (Nienaber, 2017). The US' imposition of Section 232 (national security) tariffs on imports of steel and aluminium, announced in March 2018, may yet provoke a further downturn in trade. Regardless of whether these tariffs actually materialise,[1] it seems clear that America's role as anchor of the world trading system is on hold, unless or until there are major changes in the staffing of the executive branch.

The global stock of corporate and public debt has risen to unprecedented heights, increasing overall vulnerability to ongoing monetary tightening and political uncertainty. The US federal tax bill of December 2017, which lowered the corporate tax rate from 35% to 21%, and the subsequent congressional budget deal of February 2018, will greatly expand the US fiscal deficit. In the short run, this will stimulate growth in the US and worldwide, but in the longer run, restoring macroeconomic balances will demand austerity (i.e. lower growth).

[1] The intention to impose a 25% tariff on steel and 10% on aluminium, announced via Twitter in a trademark Trumpian way and taking almost everyone by surprise, has been widely criticised around the world and even within his own party.

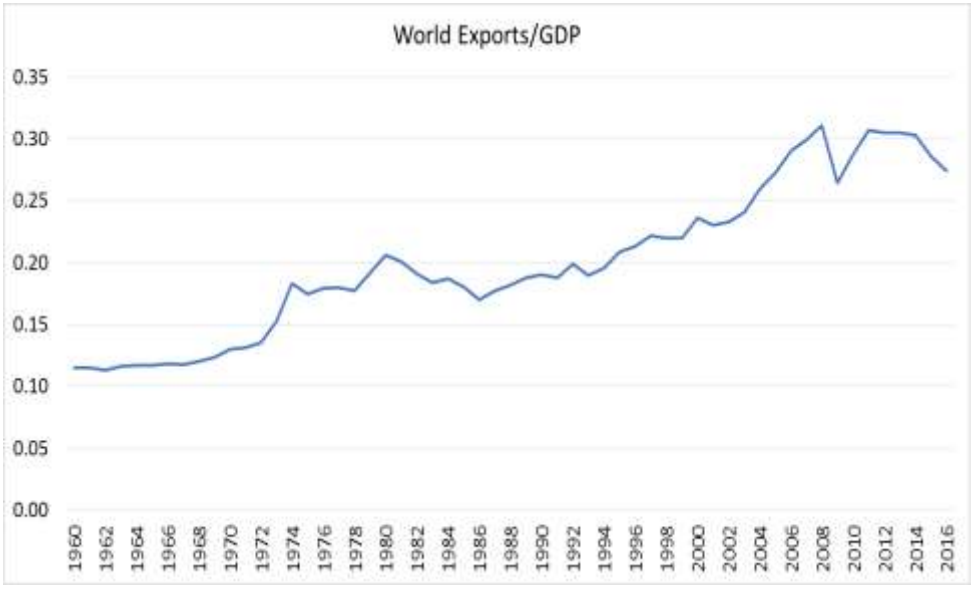
Looking beyond economics, geopolitical risks rose substantially in 2017 as populist and xenophobic ideologies gained prominence in the US and elsewhere.[2]

As the American economic and political footprint in Asia has contracted, China's prominence as a regional and global economic power has advanced. China's massive fiscal expansion during the GFC helped sustain Asian regional growth (not coincidentally, China became Indonesia's largest trading partner in 2012). In 2017, China too began to face trying times as Beijing attempted, by restricting credit and raising interest rates, to deleverage the debt created by such expansion ('How China's Debt Curbs,' 2017). These actions (if sustained) will drive up investment costs, slow down aggregate growth, and change the composition of demand towards a more consumption-driven structure – meaning that services will grow faster than tradable sectors. Accordingly, China's demand for energy, construction-related raw materials, and similar products from countries such as Indonesia will expand more slowly, and this in turn will soften global commodity prices. In the event of a slowdown, China's currency is likely also to depreciate, a move that will intensify competition with manufacturers in Indonesia and elsewhere.

As it expands, the global economy also continues to undergo structural changes. One top-level indicator is the diminished role of trade. The share of exports in world GDP fell during the GFC, as it has during prior global recessions (Figure 1). Counter to its historical trend, this share has not since recovered. In 2016, world trade grew by only 1.3% against real GDP growth of 2.3%. The World Trade Organization estimates a modest improvement in 2017 but is less optimistic about 2018 (World Trade Organization, 2018).

[2] In January 2018, the 'Doomsday Clock,' an indicator of threats to humanity from nuclear conflict and other sources, was moved to 'two minutes to midnight,' a threat level last seen in 1953, during the early Cold War arms race ('It is now two minutes to midnight,' 2018).

Figure 1: Exports to GDP Ratio



Data source: World Bank World Development Indicators, various years.

The International Monetary Fund has attributed the global trade slowdown to a decade of slow overall growth plus other factors, including a trend towards greater protectionism (IMF, 2016). The increasing popularity and political power of leaders suspicious of free trade around the world is a cause for concern. In that rather gloomy setting, one of the few bright spots is the expansion of widely distributed international participation in manufacturing production – the so-called global supply chain. This is the continuation of a decades-long move away from vertically integrated national production systems. This trend (which explains robust within-Asia trade expansion even as world trade growth has remained lacklustre) poses a challenge to emerging market producers (including Indonesia) which, for various reasons, occupy the fringes of global manufacturing networks (Kimura and Obashi, 2011).

Given the trends towards lower overall trade growth and spatially distributed production, it is now clear that global trade expansion cannot be counted upon to help pull the wagon of economic growth in developing countries. Competition among specialised firms located in different countries continues to intensify. Firms that flourish in this environment do so in part because in their home base they enjoy access to business-friendly policies, a skilled and entrepreneurial labour force, and logistics and infrastructure services. These are, of course, reflections of the same three constraints to Indonesia's sustained growth mentioned above. In many quantitative indicators of the business environment, Indonesia's record remains weak by regional standards.

1.2.Indonesia's Experience[3]

China (and perhaps India) is likely to remain the most significant external driver of structural change for Indonesia, along with the rest of ASEAN's developing economies – especially if the US continues to move away from world trade participation. Continuing rapid growth in this region will increase demand for natural resource and agricultural products exported by Indonesia (Coxhead, 2007).

Indonesia's revealed comparative advantage in manufacturing has declined slightly since 2000 (Yu and Cui, 2017). Despite recent rises in labour costs, China remains competitive in broad areas of manufacturing. With the fragmentation of production processes across Southeast Asia (Ing and Kimura, 2017), there is an opportunity for Indonesia to specialise in specific tasks in the manufacturing value chain. However, on several product-based and country-based measures of density of global network participation, Indonesia has made little progress while newer entrants such as Viet Nam have excelled (Yu and Cui, 2017). Although the capital goods import data and other indicators of renewed manufacturing investment are showing positive signs (World Bank, 2017), the longer-term picture is one of an uphill climb for Indonesian manufacturers.

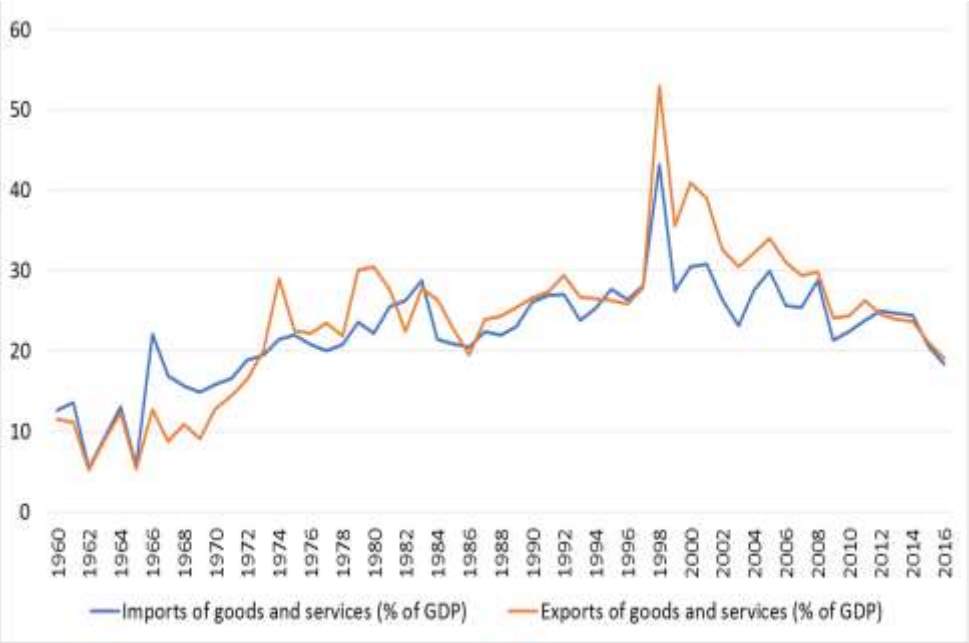
Labour productivity growth in 2017 was 2.8% year on year – as compared with increases of 5.7% in Cambodia, 6% in Thailand, and 6% or higher in the Philippines, Viet Nam, and China ('Indonesia Labour Productivity Growth', n.d.).[4] There are many reasons for low productivity growth, such as infrastructure and logistics performance, skills bottlenecks, adverse policies, market failures, and cost spillovers from expanding demand in non-traded sectors. Whatever the cause, the absence of a more vigorous productivity growth can hinder Indonesia's manufacturing sector from succeeding in a highly competitive regional and world environment. Moreover, low productivity growth also indicates a constriction in the pathway from a very respectable aggregate economic expansion to rises in real wages, which have risen very slowly.

On aggregate, the share of trade (average of exports and imports) to Indonesian GDP has approximately mirrored trends in the global economy: It has declined since 2000 after it had followed an upward trend for 3 decades until 1997. The trade–GDP ratio dipped from 30% to

[3] For a more detailed account and assessment of recent macroeconomic performance and for near-term forecasts, we refer readers to World Bank (2017: 1–30).
[4] The CEIC database defines labour productivity as GDP divided by employment.

24% during the GFC and has since fallen further, to 19% – its lowest level since 1972 (Figure 2).[5]

Figure 2: Trade to GDP Ratio for Indonesia



Source: World Bank, various years.

The reduced trade share does not, however, indicate reduced interdependence with the world economy. As Indonesia has lowered the barriers to trade in outputs and inputs, the structure of its tradable sector's production is increasingly a function of world market conditions. At the same time, higher GDP and employment shares of commodities (like coal and palm oil as discussed below) and of non-traded services means that the economy is more exposed to global economic volatility than ever before. This is so because first, relative to the prices of manufactures, commodity prices are notoriously volatile; and second, markets for services also embody greater volatility since they are subject to domestic income shocks, notably those coming through changes in the international terms of trade.

The increasing liquidity of global capital markets also has significant long-run implications for Indonesia. As seen in the so-called 'taper tantrum' of 2013, the global capital market votes with its feet in countries deemed vulnerable to poor financial policy or macroeconomic

[5] It is possible also to read the recent downward trend as indicating a secular increase in the share of services in GDP, a typical pattern of structural change that accompanies growth. We cannot rule this out without deeper investigation, although we note that no such trend is evident in the data during Indonesia's fastest growth spell in the decade before 1997.

management. There is a strong case that the quality of Indonesia's economic policymaking and its capacity and will for sound fiscal and monetary management has improved in recent years, but international perceptions may evolve more slowly than the reality in Jakarta. At the start of 2018, central banks in wealthy economies raised their benchmark rates, making them more attractive destinations for capital relative to Indonesia. The effects of those rate increases on net capital flows to Indonesia will unfold over the next year.

The government's fiscal status, as measured by the budget deficit relative to GDP, remains stable. The 2018 budget approved in late 2017 anticipates a deficit of 2.2% of GDP, down from 2.5% in 2016 and 2.7% in 2017. However, government revenues remain heavily dependent on energy prices and it is this, more than the magnitude of the deficit (which is moderate by comparison with other countries), that is the main source of concern.

A period of relatively strong growth such as the one seen in 2017 should ideally have been seized to practice countercyclical fiscal policy (Garnaut, 2015) – a means to ensure predictability in public spending on economic and social development. Seen in this context, a deficit of over 2% is relatively large for Indonesia, even though it may be small when compared with other nations. World prices of major Indonesian export commodities, which have been rising since 2016 (World Bank, 2017), will most likely decline as the post-GFC global growth surge passes its peak.

Meanwhile, Indonesia's goals for infrastructure and social spending remain ambitious, especially with the local elections coming up in 2018 and national and presidential races in 2019, and there are some signs that fuel subsidies are climbing, while total spending on other subsidies (i.e. for rice, electricity, fertiliser, and credit interest) will also rise in 2018 (World Bank, 2017). During an election cycle, when spending cuts are hard to deliver, a global downturn that reduces energy-related revenues could expand the deficit quickly.

Finally, given the extended period of solid GDP growth, it is both surprising and troubling that trends in several key indicators of current economic well-being – notably real wages, poverty, and inequality – do not consistently show that the gains from growth are reaching Indonesia's poor. Our analysis in the remainder of this paper examines aspects of this seemingly dichotomous development. A complete analysis is beyond the scope of this paper.

Accordingly, we focus on the implications of ongoing strong growth – arguably, a 'boom' – in palm oil exports for the current and future welfare of low-income households. Moreover, since palm oil exports have accounted for a large part (i.e. one-sixth) of Indonesia's recent

export growth, we also address the broader development implications of this boom. That there are serious environmental concerns accompanying the expansion of palm oil cultivation is well understood; however, our central message addresses a narrower concept of *economic* sustainability. In particular, we agree with Bank Indonesia's assessment (quoted at the start of this report) that the current growth spell creates an opportunity, and indeed a mandate, to lock in long-term poverty alleviation and development benefits through 'consistent structural reforms'. That is, in the words of a former US president, 'the time to repair the roof is when the sun is shining.'[6]

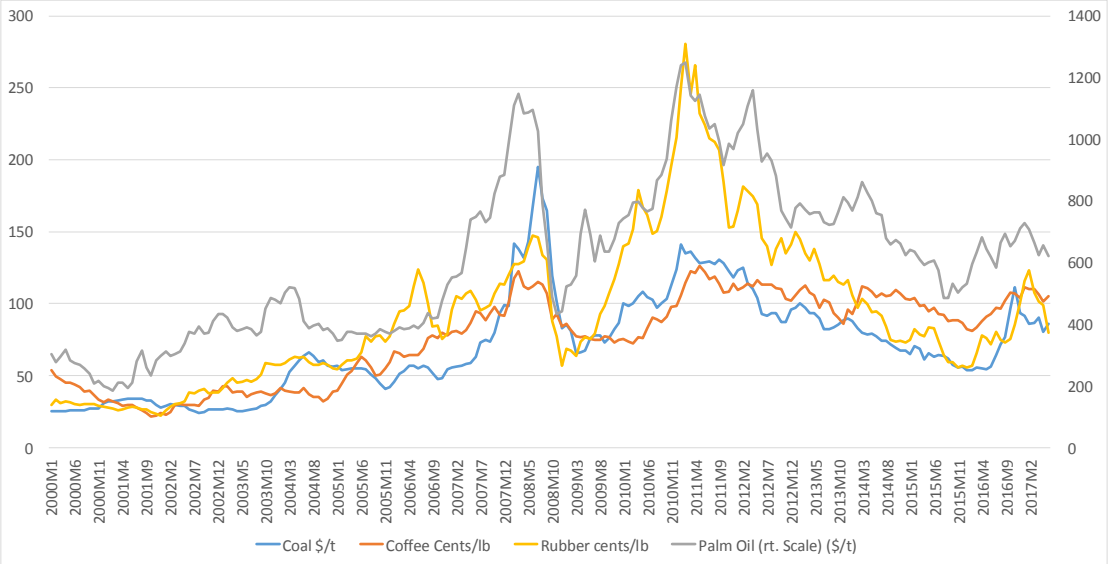
2. Sustaining Development beyond the Boom

2.1. The Continuing Commodity Boom

Indonesia's ongoing natural resource export boom provides the foundation for any discussion of current trends and Indonesian domestic welfare outcomes. Although commodity prices have risen across the board, the current boom was spearheaded by two products – coal and palm oil. The prices of each approximately doubled between 2001 and late 2005, then surged in 2006, reaching up to about five times their 2001 values by the start of 2009 (Figure 3). The GFC brought about a V-shaped dip: In the course of just over 2 years, prices dropped sharply, then recovered to above pre-GFC heights. Since 2011, both coal and palm oil prices have softened. As of mid-2017, however, they remained at several multiples of their pre-boom values. In May 2017, palm oil traded above US$600/t compared with US$50/t in May 2001, and coal at US$400/t compared with US$60/t in May 2001.

[6] J.F. Kennedy, Annual State of the Union address, 1962. http://www.presidency.ucsb.edu/ws/?pid=9082.

Figure 3: Global Commodity Price Trends, 2001–2107



Source: International Monetary Fund commodity price data.

From 2001–2014, the combined share of these two products in the value of Indonesia's merchandise exports rose substantially (e.g. palm oil exports grew at an average 12% per year) and in 2012, overall exports from agriculture and natural resources rose to a peak of 61% of total merchandise exports.[7] In 2016 and 2017, output and earnings for both commodities continued to exhibit strong growth despite prices of below their 2011 peak.

In 2017, the export values of palm oil and coal increased by 27.4% and 38.4%, respectively. That year, they comprised 13.3% and 11.7% of Indonesia's non-oil and gas exports.[8] The rise of palm oil is especially impressive considering that it made up just 2% of exports in 2001. Its growth accounted for 17% of all non-oil and gas export growth in 2000–2015, the last available year. Although prices remain volatile, Indonesia's resource boom is clearly continuing.

The magnitude and duration of this boom naturally prompts questions about its potential contribution to Indonesia's long-run development. Experience shows that the impact of a resource boom on broad-based, sustained economic growth is far from automatic. The role of policy is vital.

[7] Source: trade data in file eng_08_5.xls from bps.go.id, last accessed 3 February 2018.
[8] Oil and gas comprised 9.3% of Indonesia's export value in 2017.

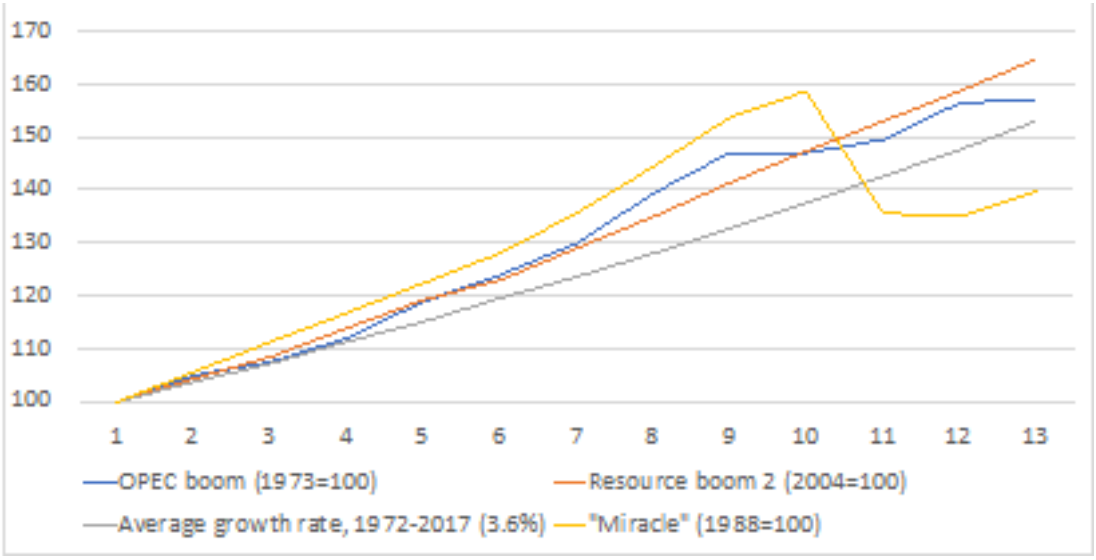
During the boom of the 1970s, Indonesia was remarkably successful in harnessing windfall earnings from the Organization of Petroleum Exporting Countries (OPEC) oil price boom for sustained economic growth (Woo et al., 1994). This was done mainly by channelling a large share of new revenue towards development expenditures. The oil boom catapulted the Indonesian government's revenues from energy exports up from less than 20% of total revenue in 1970 to a peak of 60% by 1981. Development spending from the national budget also rose, from about 20% of total spending prior to the boom to 40%–55% in the years 1973 to 1985 (Hill, 2000). The allocation of new development spending was broad, but education and (to a lesser extent) infrastructure were clear priorities: The share of education in national development spending more than doubled from 1969 to 1984 (Hill, 2000).

The government also directed a large share of oil and gas revenues towards regional development through the *Inpres* programme. Here, too, education was a priority, accounting for about one-third of the regional development spending in the late 1970s and early 1980s. Furthermore, when such boom ended, the government was able to push through necessary reforms for industrial export-led growth (Wihardja, 2016).

What about the developmental impact of the current resource export boom? Although the experiences during the boom periods of 1972–1987 and 2001–2016 are similar in many ways, the more recent of the two has contributed to a growth period that has been more stable and long-lasting than either the oil boom or, indeed, the brief but intense 'East Asian Miracle' manufacturing-led growth experience of the early 1990s (Figure 4). This should be borne in mind when assessing impacts as well as prospects for longer-term gains.

But the two eras also differ in a more fundamental way. Whereas revenues from the 1970s' oil boom accrued primarily to national government and state-owned entities, revenues from palm oil exports have gone mainly to private corporations and individuals, including many relatively poor Indonesians who are either oil palm cultivators or employed in plantations where it is grown (resource rent revenues to government have also been structurally altered by decentralisation, with subnational administrations capturing much larger shares than previously). This changes our assessment of ways the revenues might be spent, over what period, and for whose gain.

Figure 4: Per-Capita Income Growth (in US$ of 2010) During Boom Periods



Note: The figure shows trends in per-capita income over 12 years following a boom, with initial year at zero. The early boom period corresponds to oil price shocks of the 1970s, and the late boom period to commodity price shock in the 2010s.
Source: World Bank World Development Indicators, various years.

The palm oil boom is not Indonesia's first experience of a decentralised, agriculture-based export boom, but it is by far the most substantial.[9] Across the developing world, in the few well-documented cases of export booms whose earnings went directly to producers, there was a high propensity of windfalls being saved. In areas where exceptions occurred, it was because political or macroeconomic circumstances undermined incentives or opportunities to save (Bevan et al., 1993). However, most private savings growth took the form of acquisition of real assets (such as land and vehicles). Accordingly, the microeconomic benefits of such booms are not always easily quantifiable. Of the booms of this type, the economy-wide gains from Colombia's coffee export boom of the 1970s is perhaps the most closely studied.[10] According to one analysis:

> Overall growth during [the boom] period was not clearly higher than before the boom; nor was overall growth after this period. It seems fair to say that Colombia's coffee booms did not have a lasting effect on either the level or growth in GDP (Sachs and Warner, 1999).

[9] The boom in coal exports, of slightly greater magnitude than that in palm oil, is a more familiar phenomenon and to save space we do not analyse it here.
[10] Although other shocks and countries are also relevant – for example, remittance inflows to lower-income economies (Guha, 2013).

Of the new spending from a boom, a portion is allocated to investment goods in the non-tradable sector: residential and non-residential construction by private investors, infrastructure construction and improvements by government, and so on. Some of these expenditures will pay off in higher longer-term productivity, but in the short run they also crowd out tradable sector activity. If higher returns to such investments also draw in foreign investment, then the associated capital inflows further appreciate the real exchange rate. Both effects were found in Colombia's case during that country's coffee export boom, an event that seems similar to the Indonesian palm oil scenario (Suescun, 1997; Poncela et al., 2017).

As noted, a feature of Indonesia's recent boom is that most export revenues accrue directly to producers and other players engaged in the sector, rather than being channelled primarily through the state budget, as was the case with mineral exports in an earlier era. Another feature is that a greater numbers of smallholders become involved in this sector. In 2015, smallholder farmers produced 10.7 million tons of crude palm oil, compared to 20.6 million tons by large estates. In 2013, plantation companies employed over 655,000 workers (Badan Pusat Statistik, 2014).

On paper, such a boom's potential to translate into large windfalls for farming households is tremendous. Since about a third of palm oil production comes from smallholder farms, the effects of a price boom (or bust) should impact their earnings directly along with those of corporate palm oil growers, millers and refiners, and traders. The impact should also extend to wage workers in corporate plantations.[11] Our back-of-the-envelope calculations suggest that potential windfalls for smallholders would have been US$6 billion from 2005–2012.[12] This figure is an approximate upper bound of the estimated gains to smallholders.

However, available (very limited) information suggests that smallholder farmers and workers did not receive the full benefits of the commodity price surge. A recent paper from an Indonesia-based research group presents anecdotal data showing that smallholder prices for fresh fruit bunches harvested from oil palms fluctuate, independently of changes in palm oil

[11] This labour force, moreover, is not confined within Indonesia's borders, but also supplies a great deal of labour to the Malaysian oil palm sector.

[12] If world prices are a reliable guide, the unit value of production has risen massively, even taking into account some softening since the peaks of 2009 and 2011 (Figure 3). Smallholder production growth has kept pace with overall production, rising from 3.5 million tons to over 10 million tons. Valued using the average export price, the gross value of smallholder production thus rose (in round numbers) from US$1.75 billion in 2005 to US$6.5 billion by 2015, with some much higher spikes in between. Thus, from 2005–2012 the industry as a whole experienced a net windfall gain due to a world price rise of about US$16 billion.

export prices (Daemeter, 2016). The farmer's position at the low value-added end of the supply chain, limited access to alternative means of livelihood, credit constraints, and land tenure issues all minimise their returns, but the full set of reasons could be larger. Daemeter (2016) also identified a policy lever – the so-called 'k-index' mandated by the Ministry of Agriculture but set at provincial level by committees composed of government and industry representatives. This index determines the share of market price passed on to growers. It varies by province, and even fluctuates across years within provinces. Moreover, the k-index does not apply to most independent growers who make up a significant and apparently expanding share of the smallholder producer population (Daemeter, 2016).

Whatever the mechanism and the magnitudes, it is most unlikely that growers and other non-corporate participants in the palm industry were completely shut out from the gains of the boom. At the other end, if price gains were fully passed on equally to all producers, the smallholder share of the windfall associated with the multiplication of prices from 2001–2011 should have been substantial. We next examine available evidence of economic outcomes and issues for this group.

Any effect of the decentralised boom should be most easily seen in the key production areas. In 2016,[13] just six provinces – Riau,[14] North and South Sumatra, Central and West Kalimantan, and Jambi – accounted for 75% of the Indonesian oil palm cultivation. Table 1 shows a summary of the palm production in highest-growing provinces. From 2012–2016, production grew at over 5% per year in five of these provinces (i.e. except Jambi, which also had the smallest share in total production in 2016). The fastest increase in recent years has been observed in Kalimantan, with output doubling between 2012 and 2016, albeit from a smaller base. These provinces are highly dependent on plantation agriculture, with employment shares above 30% in 2010.

[13] Most of the data we use to support our disaggregation by province is only available until 2016. We are interested in the trends in the data, which should not change markedly in 2017. Where available, we discuss figures from 2017.

[14] Riau is also rich in petroleum. However, the production of other plantation crops in these provinces (coconut, rubber, coffee, cocoa, sugarcane, tea, and tobacco) is dwarfed by oil palm.

Table 1: Descriptive Statistics on Palm Production for Major Producing Provinces

	Palm oil production growth (% annual 2012–2016)	Palm oil production share (% national production, 2016)	Plantation Employment share (% total employment, 2014)
Sumatera Utara	9.2	16.4	29.4
Riau	8.3	25.6	38.6
Jambi	2.8	5.7	44.6
Sumatera Selatan	5.7	9.2	39.3
Kalimantan Barat	7.0	7.1	36.6
Kalimantan Tengah	7.3	11.5	34.6

Source: Authors' compilation from *Badan Pusat Statistik* or Central Bureau Statistics (BPS) for palm production and National Socio-Economic Survey (SUSENAS) 2014 for employment shares.

2.2.Poverty and Household Welfare

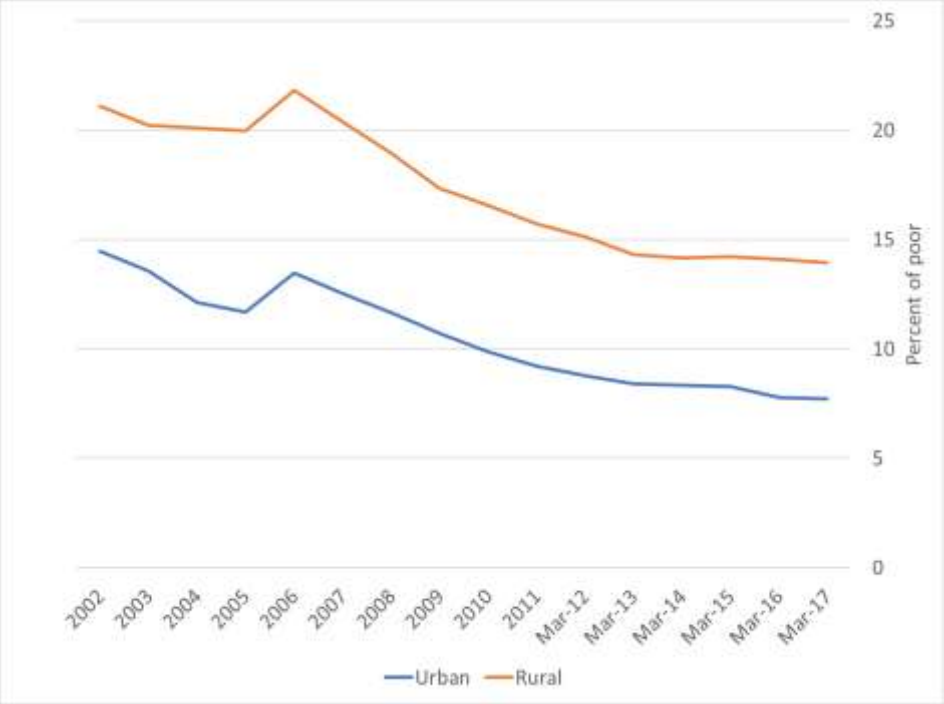
Our discussion of the impact of the palm oil boom on welfare belongs within the context of broad trends in poverty in Indonesia. Worryingly, the decline in poverty rates, a widely noted phenomenon in the early 2000s, has slowed down (Figure 5). As of September 2017, there were 26 million poor in Indonesia, comprising 10% of the total population. The poverty gap, having declined from 3% in 2007, fell marginally from 2% in March 2012 to 1.8% in September 2017 (Badan Pusat Statistik, n.d.). Other measures of poverty show a similar slowdown in progress.[15] At the same time, the Gini Index increased substantially in the course of the boom – from 0.26 to 0.32 in rural areas and from 0.34 to 0.4 in urban areas between 2002 and 2017.[16]

The Indonesian poverty line is very low by international standards, and many Indonesian households live close to the poverty line. Any slowdown in income growth could set back efforts to alleviate headcount poverty.

This lack of sustained progress in poverty reduction in recent years could have several explanations. The remaining poor might suffer from chronic poverty and therefore pose a greater challenge. Alternatively, there may be 'churning' as some households are unable to maintain expenditures consistently above the poverty line. In this case, some households move out of poverty while others fall back into it.

[15] Poverty severity index (P2) decreased from 0.36 in 2012 to 0.31 in 2017 in urban areas, and from 0.59 to 0.67.
[16] Although the Gini ratio declined slightly in the past 2 years; see Yusuf et al., 2017.

Figure 5: Poverty Trends in Indonesia, 2002–2017



Note: Starting in 2012, poverty data is reported separately for March and September. In this figure, we only use the March round to keep one observation per year. The trend looks similar if September data is used. .
Source: *Badan Pusat Statistik* (BPS).

Some churning is inevitable due to random fluctuations in households' fortune, but we should expect a net decline in the number of poor households during high growth periods. Studies that have decomposed Indonesia's poverty into its chronic and transient components found that 20%–40% of the poor are in chronic poverty (Mai and Mahadevan, 2016), although there are recent studies that suggest lower chronic poverty rates.

A significant proportion of the poor in Indonesia are known to be associated with agriculture. According to data from the National Team for the Acceleration of Poverty Reduction,[17] rice farmers comprise 30% of the poor, while plantation workers account for an additional 13%. The share of agricultural workers amongst the poor has remained close to 50% over the past decade. Overall, 54% of the poor are engaged in agriculture. As such, programmes

[17] The National Team for the Acceleration of Poverty Reduction was established by Presidential Decree No. 15 in 2010 to tackle the problem of poverty. Its strategies include coordinating the various poverty reduction programmes to improve targeting as well as improving the implementation of the conditional cash transfer (CCT) programme known as *Program Keluarga Harapan* (PKH). It also maintains a unified database of the bottom 40% households, which can be used by government agencies designing anti-poverty programmes for targeting.

and policies addressing agricultural growth as well as reducing dependence on agriculture for employment or income are important elements of the nation's anti-poverty effort (Warr, 2015).

Because of this prominence of agricultural activity amongst the poor, booms such as the one experienced by Indonesia's palm oil producers provide, in principle, a great opportunity for rapid poverty reduction. Because of the magnitude and duration of the export boom, our attention is particularly drawn to changes in the welfare of thousands of smallholder farmers or plantation workers in this sector. How do they respond to an unexpected income windfall, and what are the implications on their own welfare, on that of their succeeding generations, and on the economy as a whole?

In an important empirical contribution to determining the link between poverty and the palm oil boom, Edwards (2017) analysed poverty trends from 2001–2010 in oil palm-producing districts and found that the downward trend in overall poverty was much faster in these districts compared to other areas. The poverty headcount rate in oil palm-producing districts fell from 20% in 2001 to slightly less than 12% by 2010. Meanwhile, poverty in comparable non-palm districts fell from about 20% to about 13.5% during the same period. Edwards calculated that the drop in poverty in oil palm districts lifted 13% (or approximately 1.3 million people) above the poverty line over the study period.

An important question on the local impact of the boom is whether gains persist once prices begin to decline – as they did (albeit from a very high peak) from early 2011 to the end of 2015. If households benefiting from the early boom had built up their savings or diversified their income sources, then the price declines should not reveal major downturns in well-being. Recent work, however, raises doubt that this was the case. Using a data series extending through 2015, Derrick (2017) found that in oil palm-intensive districts, per-capita consumption rose slightly relative to that in non-oil palm districts in the early boom years, but declined (also slightly, but significantly in a statistical sense) during later years when prices dipped.

It also matters for sustained development that additional oil palm income was invested in infrastructure and amenities that improve the local economy and households' well–being. Edwards (2017) found some evidence for faster rates of road improvement and electrification in oil palm areas during 2001–2010, although there was no difference with other districts in terms of access to safe drinking water, a variable more specifically associated with improved household welfare.

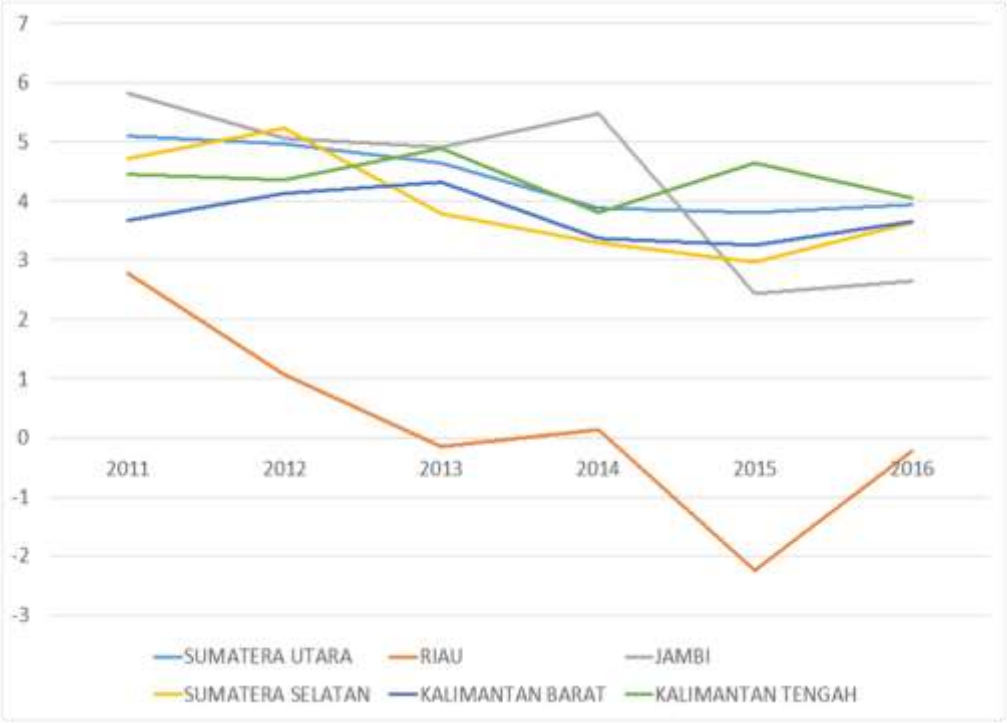
Looking at household spending on education and health, Derrick (2017) found no evidence of differential increases across districts during the boom years, and some evidence that as prices began to fall, households in oil palm districts actually *reduced* their spending on these items relative to non-palm districts. Overall (and acknowledging the difficulties inherent in working with data gathered in some very remote areas), these two studies seem to suggest a (1) robust reduction in household poverty during the period of fast-rising prices, but continuing household-level vulnerability during a downturn; and (2) some evidence for improvement in infrastructure related to agricultural expansion, but none for improvements specifically associated with household-level well-being or human capital investment.

The province-level evidence of persistent and/or more widespread gains from the palm oil boom is also weak. Growth in provincial GDP per capita has stagnated since 2012 in the six oil palm-intensive provinces (Figure 6). Moreover, poverty has fallen no faster since 2012 in these provinces than elsewhere in Indonesia. Figure 8 shows that even as the number of poor people in Indonesia has declined, the share of palm oil-producing provinces in national poverty has not decreased and, in some cases, may even have increased somewhat. Part of the reason could be the in-migration of poorer households from other regions, but their numbers would have to be large enough to impact the poverty measures. There is no evidence of such a migration surge at the provincial level (Edwards, 2017). Therefore, despite robust evidence at both district and provincial levels that poverty was reduced during the palm oil boom's initial price surge (Edwards, 2017), there is no proof of continued gains thereafter – even though output prices have remained far higher than in the pre-boom years.

2.3.Responses to the Boom

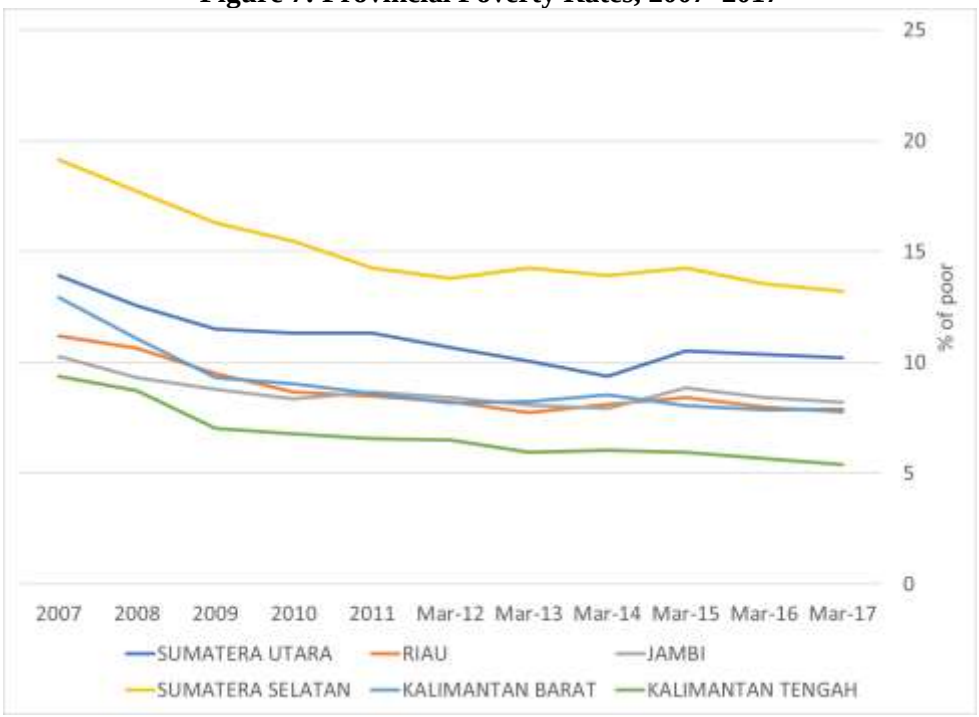
Even if there is no long-term gain in the aggregate poverty data, it may still be possible that resource rents have translated into investments in other known determinants of long-term welfare – net savings, diversification of household income sources, and schooling. The benefits of the improvement in these aspects are likely to occur with a lag, and may therefore not be immediately reflected in poverty numbers.

Figure 6: Growth Rate in Regional GDP in Palm-Intensive Provinces



Source: *Badan Pusat Statistik* (BPS).

Figure 7: Provincial Poverty Rates, 2007–2017



Source: *Badan Pusat Statistik* (BPS).

2.3.1. Labour allocation

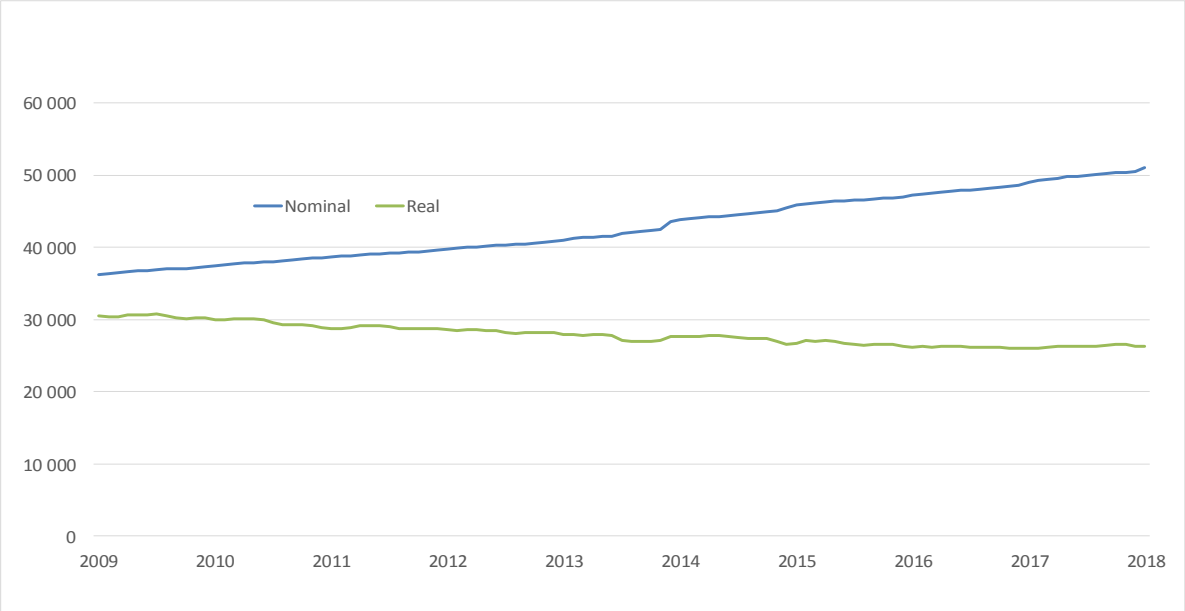
A question about the transmittal of gains to the next generation of Indonesians concerns their interactions with the markets for labour and skills. Mobility (especially out of agriculture) is a key asset since it implies an outside option in the event of a local economic downturn (or equivalently increased opportunity elsewhere). Our analysis of the 2010 Indonesian national socio-economic survey (SUSENAS) data shows that, at the height of commodity prices, households where adults over 30 are engaged in plantation work have 47.5% of younger members (aged between 20–30) also involved in plantation work. In comparison, only 10% of the younger members in non-plantation households engage in such work.

Recent analysis from the Indonesian Family Life Survey panel data suggests a 'Hotel California' effect within the farm sector. That is, individuals who begin their working life in farming very rarely transition to non-farm jobs, or at least those outside rural areas (Suryahadi et al., 2018). Labour movement out of agriculture occurs across generations more than within them. If so, the high propensity for younger members of palm-producing households to join the family business suggests a doubling-down, in terms of family labour resources at least, in this industry. While prices are high and production is expanding, this family labour allocation may be optimal from the perspective of current farm profitability. But whether it is optimal from a longer-term viewpoint is debatable.

Accompanying this low labour mobility is the likelihood that the resource boom has contributed to the low dynamism in Indonesian manufacturing. Instead, new job growth in the post-Asian Crisis years has occurred largely in low-skill services sectors. Average earnings in these industries reveal only a small premium over those in agriculture.

Nor has the ratio changed much. Other than in Jakarta and Central Java, real wages in both services and manufacturing have only risen slightly despite sustained GDP growth. *Badan Pusat Statistik* or Central Bureau Statistics (BPS) data show, meanwhile, that the average real farm wage has *declined* steadily – by 14% from January 2009 to January 2018 (Figure 8). In a previous BIES Survey on poverty and inequality, Yusuf and Sumner (2015) highlighted the role of stagnating farmer wages in the slowdown in poverty alleviation. Low mobility and a lack of productive economic opportunities outside agriculture both preserve the concentration of poverty in rural and agricultural areas.

Figure 8: Average Real Farm Wages (in rupiah)



Source: *Badan Pusat Statistik* (BPS).

2.3.2. Human capital investments

Poor households' chances of breaking the cycle of chronic poverty depends greatly on their ability to invest in the next generation. The trend in schooling, a commonly used indicator of human capital, has been mixed in the past 5 years. While Indonesia has inched closer towards universal primary education and adult literacy, secondary and tertiary enrolment rates remain low, earning only modest gains from 2011–2016 (World Bank, 2017). Both secondary and tertiary net enrolment increased by 6 percentage points to 66% and 21%, respectively. Public expenditure in education hovered between 3% and 4% of GDP during this period. At the same time, the quality of Indonesian education, as measured by how students fared in international standardised tests, remains low.

While data are scarce, the human capital investments in Indonesia's oil palm areas do not deviate much from the national numbers. For example, BPS data on the net enrolment ratio at the senior level in Sumatera provinces is very similar to the national average, indicating that the boom have a remarkable impact. However, senior enrolment rates remain low in Kalimantan, with West and Central Kalimantan garnering rates that are respectively 7 and 10 percentage points below the national average (60% senior enrolment rates) in 2017.

By comparing trends in oil palm-intensive districts relative to the rest of the country, Derrick (2017) found that district-level household spending on health and education did not

rise during the boom; it in fact fell, along with total household expenditure, as prices declined from 2012–2015. It is quite possible that the boom, by increasing the opportunity cost of formal schooling, has pulled some children into farm employment rather than kept them in school, as households with rising income would typically do.

2.3.3. Savings

We noted above that smallholder households in the lower part of the income distribution may not have received the full benefits of the palm oil price gain. This itself may be a consequence of institutional conditions that undermine their ability to capture rents and/or benefits from a price surge.[18] Even if households did capture significant gains, whether these translate into broader or longer-lasting improvements in welfare depends on household behaviour. Behavioural responses to windfall gains are influenced by household circumstances as well as by the availability of local public services and options for resource mobilisation and allocation, through markets for land, labour, and capital.

A windfall gain presents households with three options for what to do with the gains: increased consumption, net savings, or direct investment. Increases in consumption spending may be further allocated between durables (such as housing) and non-durables. Indonesian householders, like some other developing nations, exhibit a preference for savings in tangible assets, e.g. houses, land, and perhaps jewelry or gold. Table 2, using household data from the most recent (2014) round of Indonesian Family Life Survey, shows the assets owned by farm households in palm-producing provinces (thus excluding Java).[19] It reveals that less than 15% of poor households (i.e. those in the lower two quintiles) hold any formal savings. Vehicles and jewelry are the most common forms of assets owned by poor households.

[18] The palm oil industry is complex and fast-changing, with an institutional structure that may be biased against smallholders. For details, we refer the reader to the book-length treatment by Cramb and McCarthy (2016).

[19] We define 'farm households' as those that cultivated any agricultural commodity in the previous year. Welfare levels are determined by the household per capita consumption level relative to others in the same province and urban/rural area. We divide households into three bins: 0–20 percentile, 20–40 percentile, and above 40 percentiles.

Table 2: Asset Ownership – Indonesian Family Life Survey

	(1) Below 20th percentile	(2) Between 20–40th percentile	(3) Above 40th percentile
Vehicles	0.57	0.63	0.64
Savings, CDs, stocks	0.10	0.14	0.23
Receivables	0.03	0.07	0.14
Jewelry	0.20	0.33	0.37

CDs = certificates of deposit.
Note: Table shows proportion of households owning each asset. Consumption percentiles are relative to province and urban/rural. Includes provinces in Sumatera and Kalimantan islands only.
Source: Authors' calculations from the Indonesian Family Life Survey 2014.

Wealth in these forms, however, exposes households to greater risks (for example, from theft or natural disasters) and volatility. Moreover, when the gains from a windfall are held in these forms, few benefits accrue to the broader economy. The range of direct investment options is limited to local opportunities and constrained by complementary resources such as roads, schools, and information flows. Household or local investments thus increase, rather than reduce, specialisation in a volatile industry.

The low bank utilisation rates reported in the Indonesian Family Life Survey are not necessarily due to exclusion by financial institutions. More than a decade ago, a six-province study found that even amongst Indonesia's poor households, 40% 'were deemed creditworthy, even using [Bank Rakyat Indonesia]'s relatively conservative criteria', yet only 10% accessed formal credit from the banking system (Johnson and Morduch, 2008).[20] Yet the use of banks in rural Indonesia is rare because the financial intermediation system in rural areas is not strong. It is more likely that access is costly (on average, there are just four bank branches per 10,000 households in Indonesia, according to data from the Village Potential Survey of 2014), and this discourages saving through the financial system. In 2015, only 12% of rural Indonesians were active users of bank accounts (Intermedia, 2015). Thirty-one percent of respondents reported a rural bank branch (BPR, Bank Perkreditan Rakyat) within 5 kilometres of their residence, although many more have access to a local and informal point of service, which may be a local moneylender.

As noted, because of the low rates of participation in the formal financial system, households experiencing unexpected income growth face a severely limited range of options

[20] Amongst the poor household sub-sample, 85% operated a family enterprise (Johnson and Morduch, 2008).

at their disposal. If these options are effectively limited to their local economy, it is most likely that new income will be spent either on debt reduction, current consumption, or durables such as housing, or expansion of the farm operation. These are not inherently bad choices: saving and investing strictly within the local economy may be the highest-return activity, given the lack of outside options. However, any strategy for consumption smoothing that remains completely tied to a local economy is likely to be correlated with that of its dominant industry. As such, the strategy is likely to be inferior for consumption smoothing and asset accumulation relative to other savings and investment options.

In spite of notable successes in microfinance (especially those of Bank Rakyat Indonesia; see Revindo and Gan, 2017), the rural population remains largely 'unbanked' as measured by access to or utilisation of savings accounts or other secure savings instruments. Despite the widespread use of mobile phones (79% of respondents), the awareness and usage of digital financial services such as mobile money for savings and borrowing is negligible, affecting less than 5% of the total population and a far smaller proportion in rural areas.[21] Participation rates were found in the survey to be increasing over time, but from very low initial levels.

3. Implications for Policy

As of the end of 2017, palm oil remains an important export commodity, and growth prospects remain buoyant (Rusmana, 2018). Total palm oil production in Indonesia increased by 18% year-on-year in 2017 (Indonesia-Investment, 2018). According to BPS, the share of palm oil in non-oil and gas export was 13.3% in 2017, and the total export value grew by over 27% between 2016 and 2017 (*Badan Pusat Statistik*, 2018).

The prominence of the palm oil economy may continue to rise even if growth in the affluent economies and in China decelerates. Palm oil exports to India – which account for almost one-fourth of Indonesia's export value and its largest export market (by value), and a fast-growing economy itself[22] – grew by 42% in 2017. In addition to exports, there is a greater push towards

[21] For comparison, mobile money penetration in East Africa is far higher – 20% of population on average, and as high as 58% in Kenya (Demirguc–Kunt et al., 2017).
[22] In comparison, exports of palm oil to China comprised 13% of total value in 2017.

stimulating domestic demand through regulations mandating use of palm oil as a biodiesel mixture.

Buoyant revenues in a significant subsector of agriculture with the largest number of poor people present an opportunity for poverty reduction. Our reading of available data and analyses, however, is that under current institutional conditions and policy settings, efforts to lock in these gains in the form of accelerated poverty reduction for current generations and enhanced opportunity for those to come will fall short of expectations that are based on previous booms.

The resource export boom's decentralised nature presents a dilemma for Indonesia's development agencies and fiscal authorities. The best policy response to a resource export boom that is known to impose large social costs such as ecosystem destruction and pollution,[23] to have significant negative spillover effects on other sectors such as manufacturing, and to be temporary, is well established and broadly agreed. Countercyclical fiscal policies should be used to smooth consumption, and some combination of sterilisation and sectoral policies should be used to minimise current spending effects, minimise environmental harm, and promote the acquisition of productive assets such as infrastructure and human capital in exchange for the depletion of natural capital stocks.

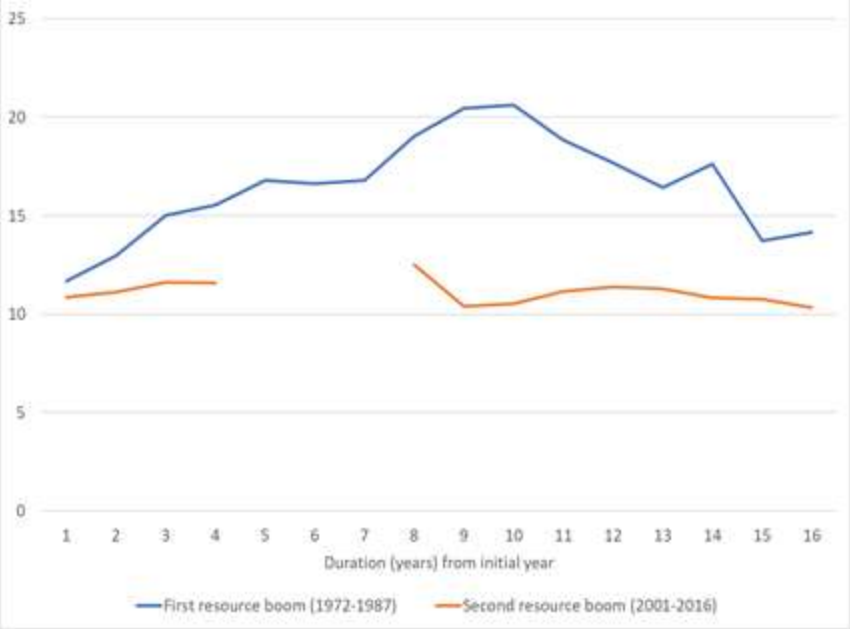
Given current policy, however, the share of resource rents captured by the government appears to be very low. Fiscal authorities lack the tool needed to effectively capture resource rents. Currently, revenue from the crude palm oil export tax, whose value varies with price, goes into the Indonesian Oil Palm Estate Fund (BPDP–KS) established in 2015. In 2016, the fund collected US$879 million on exports of US$17.8 billion – equivalent to only about 5% of the export revenue. In fact, the collection is a smaller fraction still of the total value of the palm oil produced, since much of what is produced is not exported at all.

The low marginal tax from resource rents during the second boom is a sharp break from Indonesia's earlier experience, as Figure 10 demonstrates. During the first resource boom, as noted above, taxes as a share of GDP rose from 12% (in 1972) to 21% (in 1981), at which point oil and gas revenues accounted for 60% of total government revenue (Hill, 2000).

[23] In addition, consumers in developed countries who are becoming more conscious of their environmental footprint have demanded stronger action against products that are deemed to have negative environmental consequences. Environmental issues surrounding palm oil feature prominently in this discussion. This negative publicity spills over into other areas of economic activity.

This run-up also created an enabling environment for reforms initiated after the boom had ended. During the current boom, the tax/GDP ratio has ranged between 10% and 12% with no discernible trend. Without access to resource rents, efforts to pursue countercyclical budget policies must rely on other tax revenue instruments; the tax/GDP ratios show that this has not been successful.

Figure 9: Tax Revenue as Share of GDP during First and Second Boom



Source: World Bank World Development Indicators.

Nor (as we have argued) is there any evidence that private sector actions might substitute for those that government might undertake to sustain gains from boom. Those currently receiving the majority of the rents – private plantation corporations and their shareholders, trading and milling companies, and (to a lesser extent) the numerous smallholders and plantation employees – have neither the obligation nor the incentive to take broader national development goals into account when deciding how to use, save, invest or spend their earnings. At present, direct gains in the smallholder sector and in the provinces where most palm oil production takes place are only evident when prices are sharply rising. Thus, in the longer run, the current pattern of rent distribution is unlikely to lead to a large reduction in the number of poor– at least not by comparison with gains in previous booms.

Whether due to lower income gains or to transactions costs and other barriers to participation in broader markets for labour, skills, and financial capital, smallholders have

seemingly continued to specialise further in the palm industry and have not evidently invested in a way that reduces reliance on the agricultural commodity sector in the future. This leaves them vulnerable to future commodity earnings volatility.

At the microeconomic level, there is likely to be a net gain from efforts to accelerate and improve access to financial services in rural areas. Low bank branch penetration suggests that there may be policy or regulatory innovations that should be considered to lower the cost of extending banking into more sparsely settled areas. Financial inclusion of more small producers should be part of the strategy to capture and lock in gains. Innovations such as branchless banking (i.e. expansion of bank services through agents such as shopkeepers) and digital technologies such as near-field communication chips on conventional mobile phones can overcome high fixed costs of financial intermediation and rapidly increase Indonesian farmers' access to formal banking.

In their recent global survey of financial inclusion strategies and outcomes, Demirguc–Kunt et al. (2017: 19) concluded that savings accounts and digital payment systems can potentially alleviate rural poverty, but warn that 'realizing the benefits of financial inclusion depends on an adequate financial infrastructure and a regulatory environment that is conducive to innovation'. Expanding their choice on savings, borrowing and investment will benefit farmers and rural communities and increase the pool of savings to be deployed throughout the banking system. The latter confers a positive national-level externality.

In 2017, Indonesia's economy continued to record robust economic growth and low inflation. Its GDP increased by over 5% (year-on-year) in the last quarter of 2017, capping a healthy year. Non-oil and gas manufacturing also posted an above 5% growth for the second consecutive quarter, faster than in the previous 6 quarters. Global economic growth is expected to remain healthy in 2018 (IMF, 2018). Thus, external economic conditions are favourable for robust economic growth and employment in Indonesia as long as complementary conditions and policies exist. For as long as the economic sun continues to shine, policies should focus on locking down gains from Indonesia's longest (and continuing) period of stable and sustained economic growth in ways that will alleviate poverty and enhance prospects for future generations.

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