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**MULTIDIMENSIONAL POVERTY IN INDONESIA:
HOW INCLUSIVE HAS ECONOMIC GROWTH BEEN?**

Arief Anshory Yusuf and Andy Sumner¹

Abstract: In this paper, we consider different approaches to assessing inclusive growth in Indonesia since 1994. We discuss the growth incidence curve, changes in the poverty headcount by the national monetary/consumption poverty line, and changes in inequality indicators. We then develop a measure of inclusive growth based on multidimensional poverty that expands the lens to include not only education, health and household assets, but also employment. We find that the reduction of poverty measured by the national poverty line is matched by the impressive reduction in education and health poverty, and expansion of household assets. However, some basic problems remain in terms of school completion and vaccination coverage, and progress on employment-related poverty in our assessment of inclusive growth has been minimal in the last decade. We argue that the use of multidimensional poverty to assess the inclusivity of growth draws attention to the successes of administrations in providing public goods, and the enormous remaining challenge of providing sufficient employment opportunities.

Keywords: Inclusive growth, multidimensional poverty, inequality, Indonesia

JEL codes: O1, O15, I3

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**MULTIDIMENSIONAL POVERTY IN INDONESIA:
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1. INTRODUCTION

Indonesia was one of the development success stories of the developing world up to the mid-1990s, so much so that it was grouped into the East Asian ‘miracle’ economies by the World Bank (1993). Indonesia experienced a sustained period of growth in average income and consumption, and significant poverty reduction by the (pre-1998) national poverty line in the two decades between the mid-1970s and the mid-1990s, up to the Asian financial crisis. Although Indonesia recovered and continued to grow after the Asian financial crisis of 1997/98, growth has been at a slower rate and also the rate of poverty reduction has slowed by the post-1998 national poverty line.

Looking ahead, Indonesia faces a set of challenges in achieving more inclusive growth. First, the rate of poverty reduction has been slowing in the last decade. It has been argued that Indonesia’s success in reducing poverty may be fragile because the national poverty line is set low in comparison to international standards, and many people live not far above the national poverty line. For instance Ravallion (2015) demonstrated that national poverty lines tended to increase at around a third of the rate of mean consumption indicating rising costs of living needed to attain the same standard of welfare and the rising standards of what societies consider to be poor. Hoy (2016, p. 13), using Ravallion’s analysis, suggests that the monetary value of national poverty in Indonesia ought to be 2.5 times higher if it were to fit the line of best fit. China and India would also have higher poverty lines. Indonesia’s current national poverty line is just above the national poverty line of the world’s poorest 15 countries, which was the basis of the new global poverty line of \$1.90 per day.

Second, inequality has been rising since the late 1990s. Estimates of Yusuf and Sumner (2014) suggest that inequality in Indonesia has been rising significantly in the period since the Asian financial crisis or the era of political reform and democratisation. The magnitude of recent inequality is rather startling. The Gini coefficient for Indonesia has risen from 0.33 to 0.41 between 1993 and 2013. Fuel subsidies are associated with this problem (Yusuf and Sumner, 2014) because the annual \$30 billion spend is highly regressive (see Arze del Granado et al., 2012).

Finally, Indonesia faces a set of issues related to sustaining both economic growth and structural change. Since the Asian financial crisis, the Indonesian economy has not returned to the higher growth rates of the 1980s and 1990s. Aggregate economic growth has slowed down to less than 6% per year. The slowdown of economic growth is likely to be linked to the decelerating growth in the global economy and in particular in China. However, structural bottlenecks such as poor infrastructure also play a major role.

In light of these three challenges, growth and inclusive growth are important policy areas for Indonesia. In this paper, we consider the inclusivity of growth in Indonesia since democratisation. We use the SUSENAS for all estimates in this paper (the National Socio-Economic Household Survey). We divide our analysis across periods of different administrations to assess the inclusivity of growth during each era.

Debates about the inclusivity of growth suffer from definitional questions and normative contentions about who is to be included, in what way and by how much. We discuss the meaning and measurement of inclusive growth and consider three different approaches to assessing inclusive growth in Indonesia. First, we consider the growth incidence curve, and relatedly, changes in inequality. Second, we consider the national monetary/consumption poverty line with the caveats noted previously. Third, we propose a measure of inclusive growth linked to multidimensional poverty that expands the lens to include not only education

and health poverty in terms of access and outcomes, as well as household assets, but also employment-related poverty, on the basis that this is an important part of the conceptual debates on inclusive growth. We discuss trends in Indonesia across the three approaches for each administration and look at prospects under the new administration.

The paper is structured as follows: Section 2 discusses the global debate on the meaning and measurement of inclusive growth. Section 3 focuses first on well-known approaches to assess the inclusivity of growth such as the growth incidence curve, the national monetary poverty line, and changes in inequality indicators and then outlines a measure of multidimensional poverty which we argue is suitable for assessing the inclusivity of growth. Section 4 then looks at prospects for inclusive growth under the Jokowi administration. Section 5 concludes.

2. INCLUSIVE GROWTH: MEANING AND MEASUREMENT

In general, economic growth is considered good for the poor in the sense that the income/consumption of the poorest rises in line with average income/consumption (see Kraay, 2006; Dollar et al., 2013). However, the growth elasticity of poverty can differ enormously across countries as can the shape of the growth incidence curve (see discussion of Edward and Sumner, 2015; Sumner, 2016). Much debate turns on whether inequality is high or rising, as high and rising inequality can hamper not only poverty reduction but also future growth prospects and thus future poverty reduction too.² This raises the question of what pattern of

² The debate on the relationship between inequality and growth received a detailed review in Cunha Neves and Tavares Silva (2014). Although numerous methodological issues remain, an emerging consensus is that inequality may support growth at low levels of average income, but rising or high inequality can hamper growth at the middle level. Brueckner and Lederman (2015), for example, found that, on average, if the Gini, a common measure of inequality, rises by one percentage point, GDP per capita will fall by 1.1% over five years. Importantly, they also found that increases in inequality raise GDP per capita in low-income countries but reduce it in middle-income countries. For these reasons, there is an instrumental case for governments in middle-income countries such as Indonesia to – at the very least – be concerned about distributional questions and rapid and substantial rises in inequality, owing to the potential impact of these rises on future growth and the rate of poverty reduction. In a

growth is desirable? The contemporary conceptualisation of this has been the lens of ‘inclusive growth’ but what is inclusive growth? Who is to be ‘included’, in what way and by how much relative to others? Should there be weighting of benefits to maximise the relative improvements of the poorest? It is immediately evident that debate about the distributional pattern of growth raises a number of normative issues. Should the poor by whatever poverty line see their standards of monetary and non-monetary living improve more than the non-poor? If so, where to draw the poverty line? At close to \$2/day, the Indonesian national poverty line is close to the World Bank’s new extreme poverty line as noted previously. So, should the poor under that line see their lives change faster than those above it? Or should the line be at median consumption or even at \$10 per day which is a line associated with permanent escape from the risk of falling back into poverty? Then once the line is taken and a normative decision is made to favour those below the line more so than those above the line, what are the intra-poor weightings? Again, this is a normative question. If the poor are 90% of the population, their lives could improve at a faster rate than the top 10% across the 90%, but within the 90%, should there be progressive weighting rising from the top of the group to the poorest groups by deciles or by other poverty lines, perhaps with the strongest weighting on the poorest decile (which coincides with Indonesia’s poverty rate at the national poverty line in March 2015)? All these questions point towards the complexity of defining precisely what an ‘inclusive growth’ episode would look like. Further complicating matters is that the above is solely about expenditure or monetary poverty, and similar questions could be raised concerning the non-monetary dimensions of poverty.

similar vein, Dabla-Norris et al. (2015, 6–7) showed that a higher net Gini is associated with lower output growth in the medium term, and found an inverse relation between economic growth and the national income share of the rich. They found that as the income share of the richest quintile increases, GDP slows in the following five years. Conversely, an increased share of national income to the poorest quintile increases future growth.

These are not new debates, of course. Discussion can be traced back, conceptually as well as empirically, to at least Adelman and Morris (1973) and Chenery et al. (1974). Distributional patterns of growth are determined by the starting point – initial inequality – and the subsequent distribution of the growth increment. The literature has tended to highlight the former, though attempts to characterise what kind of growth pattern is more desirable have also received considerable attention. There is a wealth of literature on ‘pro-poor’ growth and its evolution from earlier conceptualisations of ‘growth with equity’, ‘growth with redistribution’ and other iterations. ‘Pro-poor growth’ has been defined in numerous ways but has been particularly shaped by the works of Kakwani and Pernia (2000), and Ravallion (2004). Two types of definition can be outlined by outcomes after growth: those definitions that are based on whether the poor have benefited in an absolute way (the absolute poverty headcount rate falls at a given poverty line and/or the income/consumption of the poor rises, affecting, for example, the poorest 40% of the population); and those definitions based on the poor benefiting in a relative sense vis-à-vis the non-poor, that implicitly entails reductions in inequality.

There is a substantial empirical literature on poverty, inequality and growth, which is reviewed in Sumner (2016). Monetary or income/consumption poverty is directly related to average income/consumption and inequality in income/consumption, as a mathematical relationship (Bourguignon, 2003; Datt and Ravallion, 1992; Misselhorn and Klasen, 2006). The relationship between multidimensional poverty and growth is more complex. Rising income/consumption among the monetary or multidimensional poor can lead to improved nutrition intake and outcomes, or improved access to education and health and related outcomes, but public spending is important in terms of the provision of free or subsidised public education and health. Social policy such as redistributive transfers can further support the reduction of both monetary and multidimensional poverty (see Alkire et al., 2011, for discussion of countries with multidimensional poverty data over time; and Kabeer et al., 2012,

for a review of the effectiveness of cash transfers and other social policy and social protection measures).

Since the late 2000s, conceptual debates have widened the contemporary concept of ‘inclusive growth’ to encompass more than the outcomes of economic growth on monetary and non-monetary poverty. Studies have considered participation in the growth process itself, either by increased employment opportunities created during or by growth, and/or the transfer of public spending and wider access to public goods funded through the new resources created from growth. The fault-line in ‘inclusive growth’ debates is, as in earlier debates, between the necessity or not of falling inequality, and additionally a focus on inequality of opportunities. For example:

Growth is inclusive when it allows all members of a society to participate in and contribute to the growth process on an equal basis regardless of their individual circumstances. (Ali and Zhang 2007, p.10)

Klasen (2010, p. 3) similarly defines an inclusive growth episode as one that requires:

The participation by all members of society; meaning that it is nondiscriminatory... A declining inequality in non-income dimensions of well-being, such as health, nutrition and education; meaning that the episode of growth is disadvantage-reducing.

McKinley (2010) goes further and develops an inclusive growth index which includes an estimate for Indonesia (p. 27–29) based on the following components (p. 13), though at the time of writing not all data were available for Indonesia:

- (i) success in achieving growth, employment generation, and access to economic infrastructure—50% weight;
- (ii) success in reducing extreme poverty, moderate poverty, and inequality (including vertical, horizontal, and gender inequality)—25% weight;
- (iii) success in enhancing human capabilities (e.g., health, education, water, and sanitation)—15% weight; and
- (iv) success in providing basic social protection (especially for eliminating extreme poverty)—10% weight.

Inclusive growth would thus entail poverty reduction (at whatever poverty line taken) and – possibly – inequality reduction (which would be a normative aspect for some); enhanced capabilities via improved access to public goods such as health, education, water and sanitation; as well as substantive social policy/protection and employment generation.

In short, although a pro-poor growth episode has been generally defined as poverty-reducing growth and/or inequality-reducing growth (and thus by outcomes and typically by monetary poverty), inclusive growth, in contrast, expands the lens to include the process of inclusion or participation in growth processes themselves, in terms of employment and access to expanding capabilities via access to basic public goods. Thus, inclusive growth inherently includes consideration of multidimensional poverty. What unites the strands of the historical debate is an interest in why income/consumption of the poor or other aspects of poverty may or may not have been responsive to economic growth, or to what extent they are responsive. To date, as far as we are aware, discussion of inclusive growth in Indonesia has not been extensively linked to the Oxford Poverty and Human Development Initiative (OPHI)/United Nations Development Programme (UNDP) multidimensional poverty concept that was

launched in UNDP (2010), though some estimates for Indonesia have included employment-related indicators (see below).

In terms of initial starting points, it is commonly thought that Indonesia's Gini is low. This is the case if one takes at face value the consumption Gini from the National Socio-Economic Survey (SUSENAS) data and compare it internationally. However, the mismatch between the SUSENAS data and the national accounts suggests that the SUSENAS may be weak at capturing consumption of the richest (Edward and Sumner 2015). Further, Indonesia's Gini is based on consumption inequality, so adjusting consumption to income would raise inequality estimates considerably (see Lahoti, Jahadev and Reddy 2014). And adjusting the estimate of inequality using the taxation data of top incomes shows that the share of income to the richest is generally much greater in Indonesia than in other countries (see Leigh and Van der Eng 2010), and challenges the perception that Indonesia is relatively egalitarian.

Indonesia is also well known for its record of poverty reduction, but as noted, its national poverty line is one of the lowest in the world in terms of \$PPP comparison. Priebe (2014) also questions the comparability over time of national poverty line headcounts. As is well documented, many people in Indonesia live not far above the national poverty line. Perhaps a quarter to half of the population are therefore potentially vulnerable to falling back into poverty if, for example, growth slows or rice prices spike, as happened recently (see discussion of Sumner, Yusuf and Suara, 2016).

3. HOW INCLUSIVE HAS GROWTH BEEN IN INDONESIA?

3a. Growth incidence curves and changes in inequality

Figure 1 shows that, with the exception of the period of 1994–1999 Soeharto-Habibie (SHT-HB) era, the Indonesian growth incidence curve for all administrations before Jokowi has always been upward-sloping. Comparing the growth incidence curves (GICs) for four different administrations, one general observation is that the period of the Susilo Bambang Yudhoyono (SBY) presidency (2004–2014) is the period of the most rapidly rising prosperity. However, as can be seen from the slope of the GICs, these periods are also the most unequalising. The later SBY term (2009–2014) is notable in that during this period the expenditure per capita of the top 5% grew annually at 10% (see the second panel of Figure 2). This is the period where Indonesia experienced the greatest increase in consumption inequality (see below).

The rapid growth of the richest segment of the population during the second SBY period may be related to the commodity boom. Yusuf and Sumner (2013) discuss this specifically in an attempt to suggest reasons behind rising inequality in Indonesia during the 2000s. The commodity boom hypothesis is based on the premise that because natural resources sectors are typically capital-intensive, the proceeds from the production of these sectors (coal, copper and palm oil, for example) will disproportionately benefit the owners of capital and land, hence increasing consumption inequality. The commodity boom ended in 2011 during the middle of the second SBY period. From January 2011, world prices of commodities started to decline (see the first panel of Figure 2). If one draws two growth incidence curves using the commodity boom timelines, one finds drastically different GICs (see Figure 2). This would suggest that the period of rising world commodity prices coincides (or correlates) with the very steep growth incidence curve (2009–2011) while the period of falling commodity prices coincides with a flat growth incidence curve (2011–2014). The expenditure of the richest 5%, for

example, grows by almost 12% per year during the boom. Of course, this is insufficient to establish causation, although it does provide a clear correlation between rising commodity prices and inequality in Indonesia.

Looking carefully at the GIC of the poorest 30% of the population during the second SBY term, we can make two observations: first, up to approximately the 30th percentile the slope is downward-sloping. This means that the expenditure of the very poor increased more than the less poor. Second, the rural poor experienced higher expenditure growth than the urban poor.³

There was an important milestone in the development of social protection programmes in Indonesia during the second SBY term. This was the establishment of the Tim Nasional Percepatan Penanggulangan Kemiskinan (TNP2K), a new body replacing the earlier coordinating agency, the Tim Koordinasi Penanggulangan Kemiskinan (TKPK) (which did not have the authority, capacity and resources to the same extent). The TNP2K was given responsibility to oversee the coordination of household-based social assistance programmes, community empowerment programmes, and programmes to expand economic opportunities for low-income households (Sumarto and Suryadarma, 2011). Another important milestone during the SBY term was the introduction of a unified database for beneficiaries under the management of the TNP2K to support the implementation of targeted social assistance.

The major social protection programmes included rice for the poor (Raskin), conditional cash transfers (CCTs), and national community health insurance (Jamkesmas) (see Box 1). The negative slope of the GIC for the bottom section of the population could be explicable by the following (non-mutually exclusive) factors: (i) social assistance or social protection received by the poor generated larger proportionate increases in their income and

³ The expenditure of the poorest 30% of the population in rural areas increased by more than 4% per year, while the poorest 30% of the population in urban areas increased by less than 4% per year.

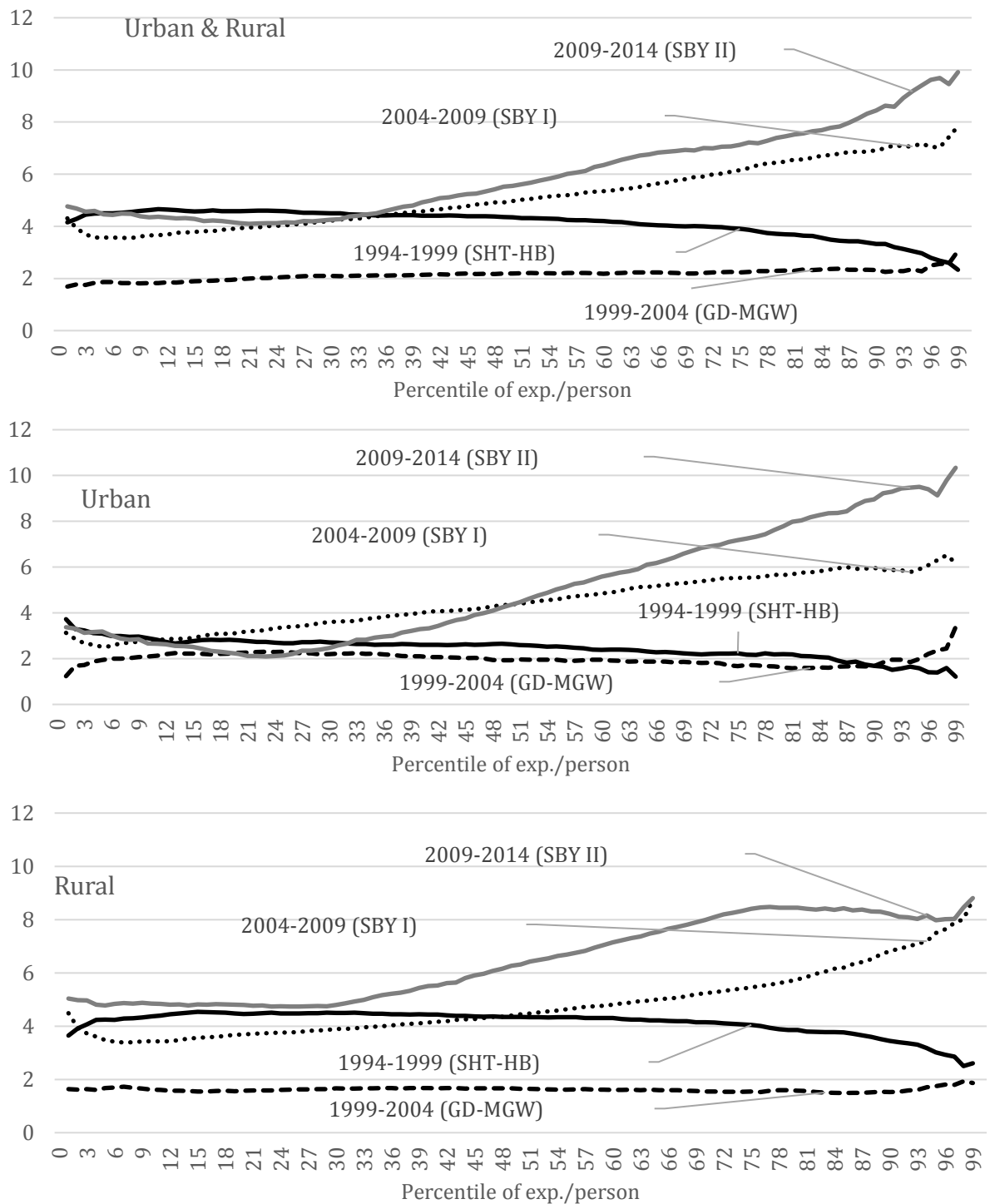
eventually spending, generating a downward-sloping GIC; (ii) some social protection programmes introduced during this period targeted the very poorest such as the conditional cash transfer programme (PKH). As above, further research is needed to establish causality between the social assistance programmes and the shape of the GIC during the same period.

A downward-sloping growth incidence curve also occurred during the Soeharto-Habibie period (1994–1999). During this period, everyone benefited from economic growth but the richer less so (proportionally to their initial level) than the poor. This may relate to the Asian financial crisis of 1997/98. The deterioration of Indonesian currency, and the collapse of the banking and financial sectors that happened during the crisis would have tended to hurt the rich more than the poor populations, though all of society was hit by the crisis.

The period of the recovery from the crisis (1999–2004) under the presidency of Abdurrahman Wahid (or Gus Dur) and later on Megawati was a period of the lowest growth in expenditure. The flatness of the GIC of this period indicates equal benefits of growth during that period.

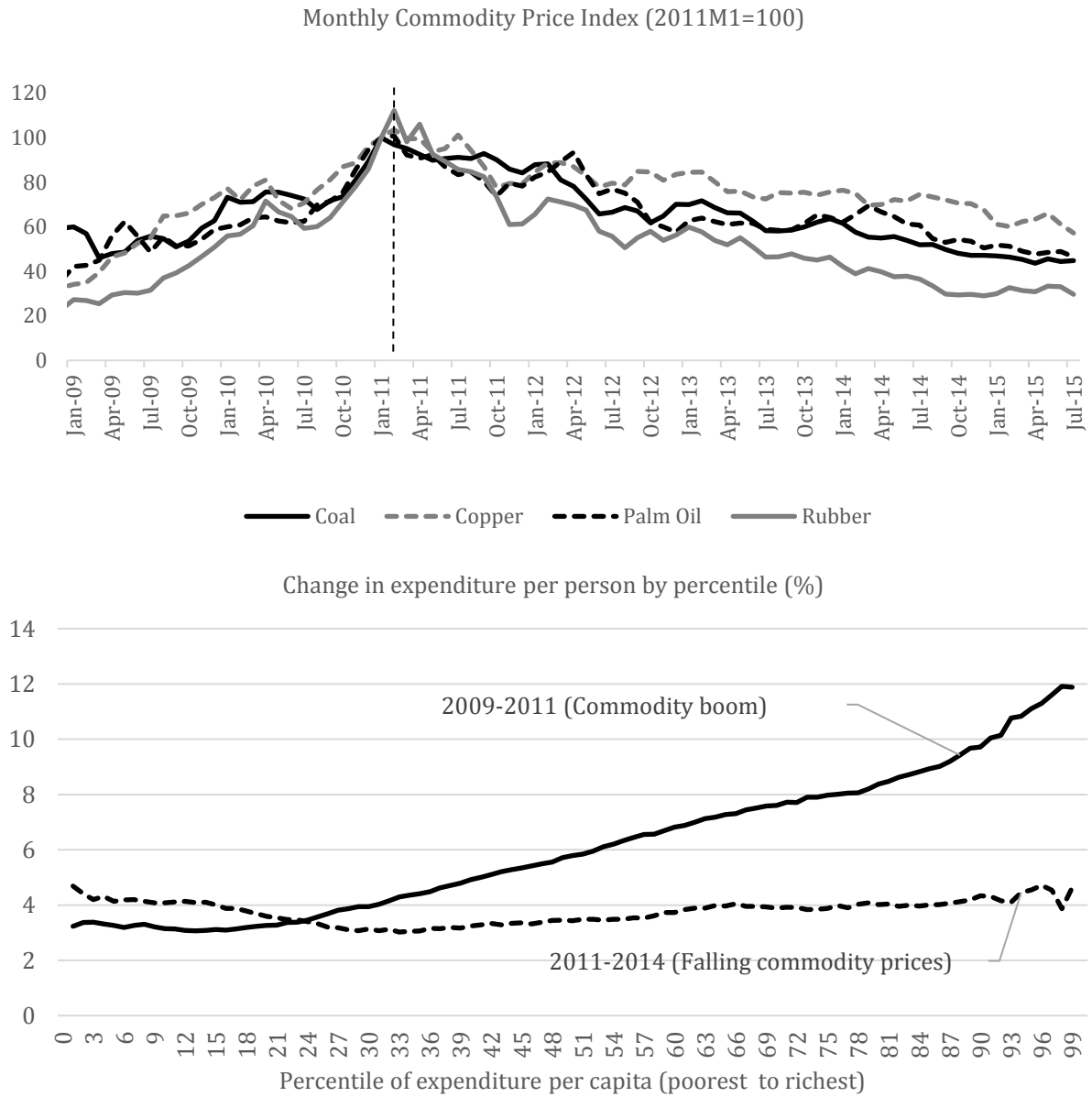
Next, we consider measures of inequality. Figure 3 shows the Gini coefficient and Palma ratio for 1994–2014. The patterns reflect the previous discussion on the GICs: consumption/expenditure inequality (measured by the Gini coefficient and Palma ratio) was constant from 1994–2004 (the period of Soeharto-Habibie and Gus Dur-Megawati) then rose very rapidly from 2004–2014 (the period of Yudhoyono’s presidency). The rising inequality is particularly clear in the Palma ratio. In 2014, the expenditure of the richest 10% was two times the bottom 40%, an increase in inequality of more than 50% in ten years. In urban areas (see Figure 3), the Palma ratio increased from 1.4 in 2004 to 2.2 in 2014, an increase of almost 60%.

Figure 1. Growth incidence curves under various administrations (percentage change in real expenditure per person by percentile of expenditure per person)



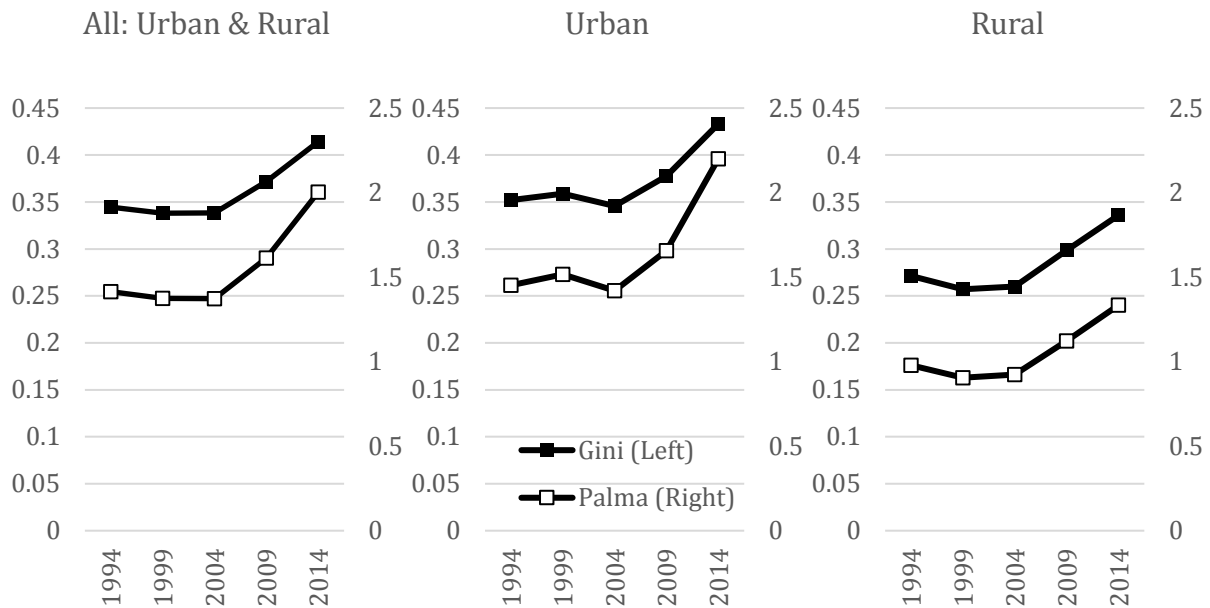
Note: SBY = Susilo Bambang Yudhoyono administration; SHT-HB = Soeharto-Habibie administration; GD-MGW = Gus Dur-Megawati administration. *Source:* Authors' calculation based on data from SUSENAS.

Figure 2. World commodity prices and growth incidence curve during and after commodity boom



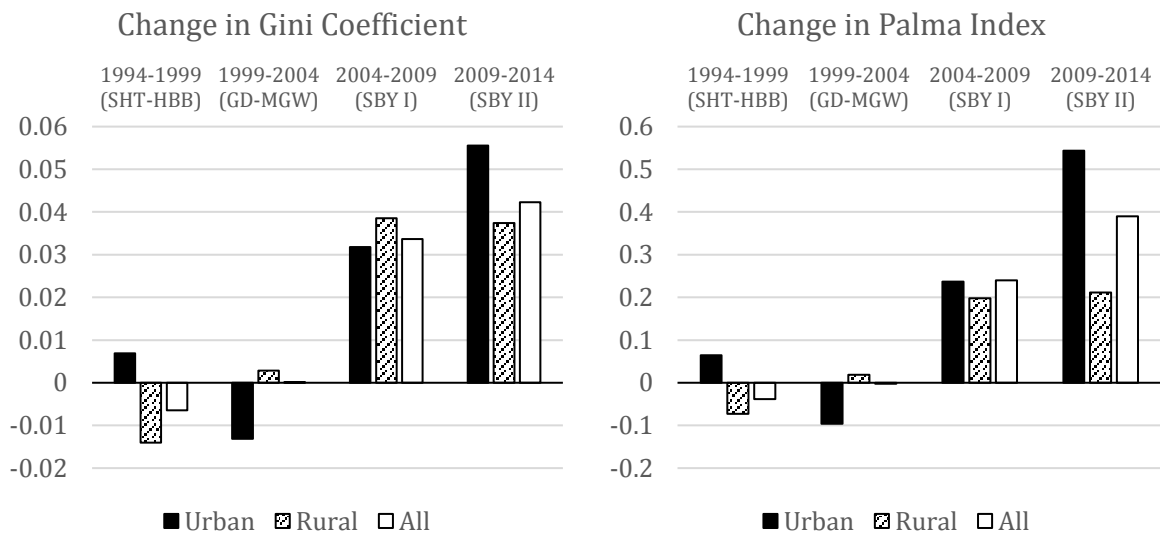
Source: CEIC database and authors' calculation based on data from SUSENAS.

Figure 3. Gini coefficient and Palma ratio 1994–2014



Source: Authors' calculation based on data from SUSENAS.

Figure 4. Change in Gini coefficient and Palma ratio under different administrations



Source: Authors' calculation based on data from SUSENAS.

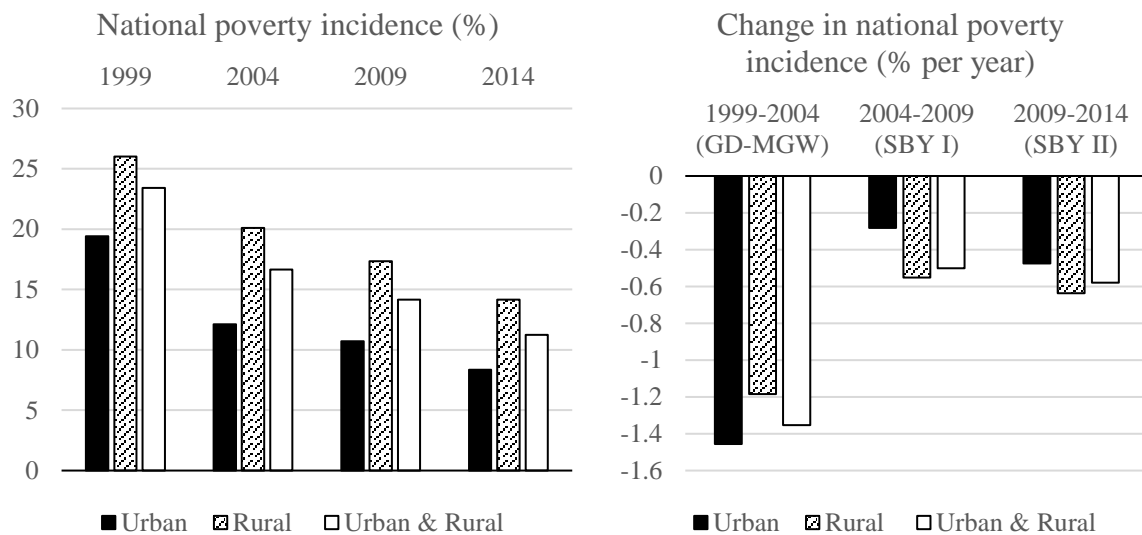
Figure 4 compares the change in Gini coefficient and Palma ratio between the period under the four administrations. It shows that inequality rose during both the SBY periods, with the largest increase in inequality occurring during the second of the SBY periods. Comparison of the Gini and the Palma ratio for the first and the second SBY period suggest that rising inequality during

the second SBY period was largely driven by the rapid increase of the consumption of the richest decile. The change in the Palma ratio between the two periods is much more striking than the change indicated by the Gini coefficient.

3b. Changes in the poverty headcount by national poverty line

In this section we focus on the 1999–2014 period as the national poverty line is not comparable to the earlier period. This is because major changes were made to the methodology in 1998 that led to a substantial increase in poverty headcount. Figure 5 shows the poverty incidence in Indonesia by national poverty line from 1999–2014. The poverty headcount by national poverty line fell over the entire period to 2014. The poverty incidence was 23.4% in 1999 but fell to just 11.2% in 2014. The rate of poverty reduction by national poverty line (right panel of Figure 5) was the highest during the Gus Dur-Megawati administration (1999–2004). During this period, poverty incidence declined by approximately 1.3% per year. During the SBY presidency, the rate of the poverty reduction was only 0.5% per year in the first term of office, and 0.6% per year in the second term of office. This is surprising as economic growth was much stronger in the SBY period. However, the Gus Dur-Megawati administration was a period of recovery from the crisis. Furthermore, the period of 2004–2009 was one of weakening economic growth due to the 2008/09 global economic recession. Yusuf⁷ (2015) analysis of the effect of recession on Indonesia's main trading partners and on poverty in Indonesia combined both a global trade model and a national general equilibrium model. The findings were that the impact of a recession in Europe, Japan or China on poverty in Indonesia is relatively small because Indonesia is a relatively less open economy. A combined 2% decline in GDP in Europe, Japan and China will increase Indonesia's national poverty headcount by only 0.19%.

Figure 5. Poverty incidence by national poverty line 1994–2014 and its annualised change by administrations



Source: BPS and authors' calculation based on data from SUSENAS.

3c. Multidimensional poverty

Multidimensional poverty (see Alkire and Foster, 2011; Alkire and Santos, 2014; Alkire et al., 2014) has received a considerable amount of attention globally and global estimates of multidimensional poverty have been released annually in the UNDP Human Development Report since 2010. Multidimensional poverty has also received attention in Indonesia in a set of studies. For example, Sumarto and De Silva (2014) present estimates for 2004–2013. Artha and Dartanto (2014) present estimates for 2011. Hanandita and Tampubolon (2015) present estimates for 2003–2013. And most recently, Prakarsa (2016) presents estimates for 2012–2014. Each of these use the SUSENAS but with slightly differing sets of components; weightings and consequentially differing estimates of multidimensional poverty are generated. We make a further set of estimates to cover consistently the 1994 to 2014 period using the following 11 indicators from the SUSENAS for 1994–2014 (see Annex for further details and

sensitivity analysis):

Education

1. Household head has not completed six years of education
2. No school-aged children (7–18 years old) are enrolled at school

Health

3. Childbirth is not assisted by skilled health workers

Skilled health workers include medical doctors, midwives and other paramedics

4. No child in the household has ever received a measles vaccination

Standard of living and household assets

5. No access to safe drinking water

Unsafe drinking water sources include unprotected wells, unprotected springs, rivers, rain water and others, as well as water sources where the nearest distance to a septic tank is ten metres or less

6. No access to improved sanitation

Inadequate sanitation is not private or is a shared facility, or the type of toilet is a squat-type toilet, or final waste disposal is into a septic tank

7. Inadequate housing conditions

Soil floor, bamboo wall or roof made of leaves

8. No electricity

Employment

9. Unemployed

10. Employed but informal

This includes a person that is solely self-employed, or is either a casual worker or an unpaid worker, as well as the employers that employ them.

11. Underemployed (working less than 35 hours per week)

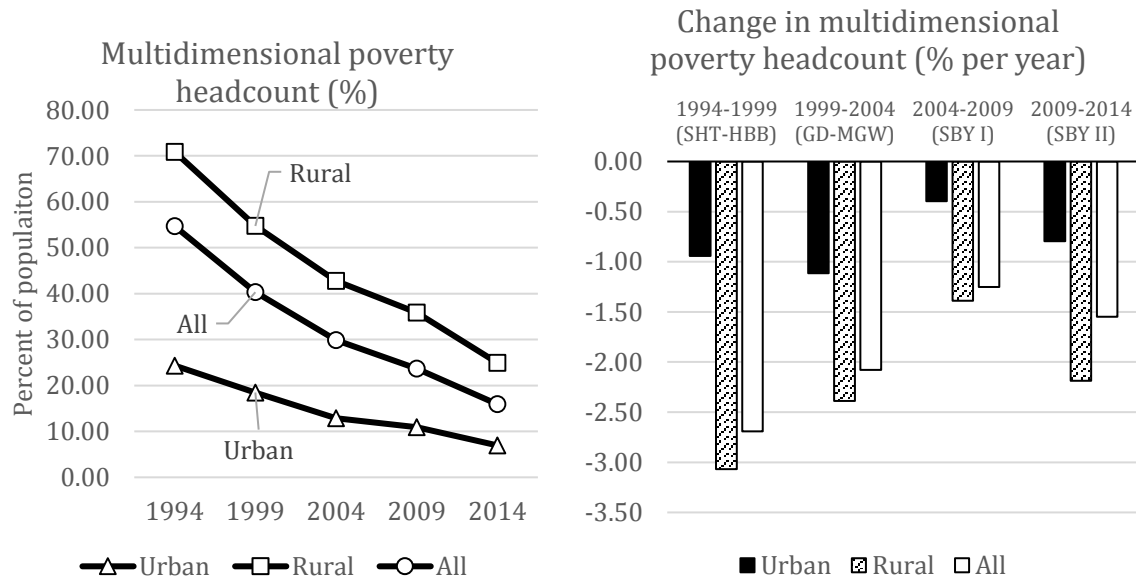
We focus not only on education, health and household assets/living standards but also on employment in order to gain a measurement of multidimensional poverty that is consistent with inclusive growth. Sumarto and De Silva also include informality and unemployment as part of household assets and standard of living. However, we increase the employment component to three indicators (informality, unemployment and underemployment) and weight employment as a dimension equal to the three other dimensions of education, health and assets/standards of living. As with other estimates, each household is assigned a deprivation score (0–100). We use a cut-off of 33.3% beyond which the household (and all family members living in it) are multidimensionally poor (see Annex for more detail, including sensitivity analysis to different cut-offs, different combinations of dimensions/indicators, as well as the relationship between multidimensional deprivation and monetary expenditure).

Figure 6 shows the proportion of the population considered multidimensionally poor from 1999–2014 in the left panel, and the annualised change in the right panel during the differing periods of administration. As Figure 5 shows (the left panel), Indonesia experienced an outstanding improvement in reducing incidence of multidimensional poverty. Multidimensional poverty was very high in 1994. We estimate that over half of the population, 54.8%, were multidimensionally poor in 1994 (70% in rural and 23% in urban areas). By 2013, the headcount rate had fallen to 15.9% (25% in rural and 7% in urban areas).

Comparing the headcount by multidimensional poverty with the national poverty line, one can make two observations: first, the rate of poverty reduction is faster by using multidimensional poverty than by using the national poverty line over the twenty-year period. Second, the difference between urban and rural multidimensional poverty is substantially higher than the difference between urban and rural poverty using the national poverty line. That said, the urban–rural disparity in multidimensional poverty is closing over time as the rate of

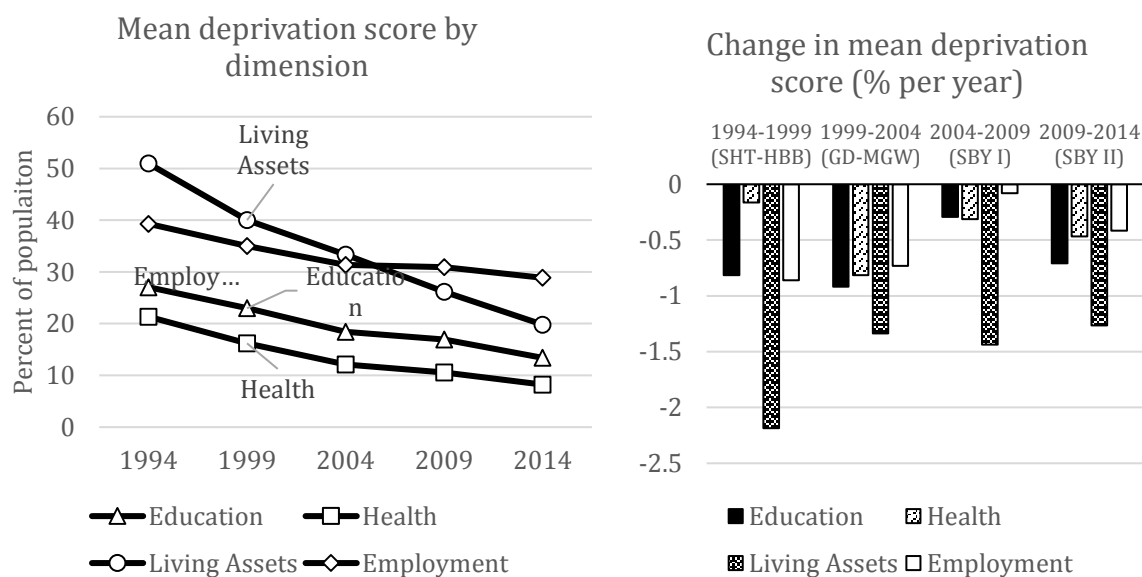
the reduction in rural areas is much faster than in urban areas.

Figure 6. Multidimensional poverty headcount (%) 1994–2014 and its annualised change by administrations



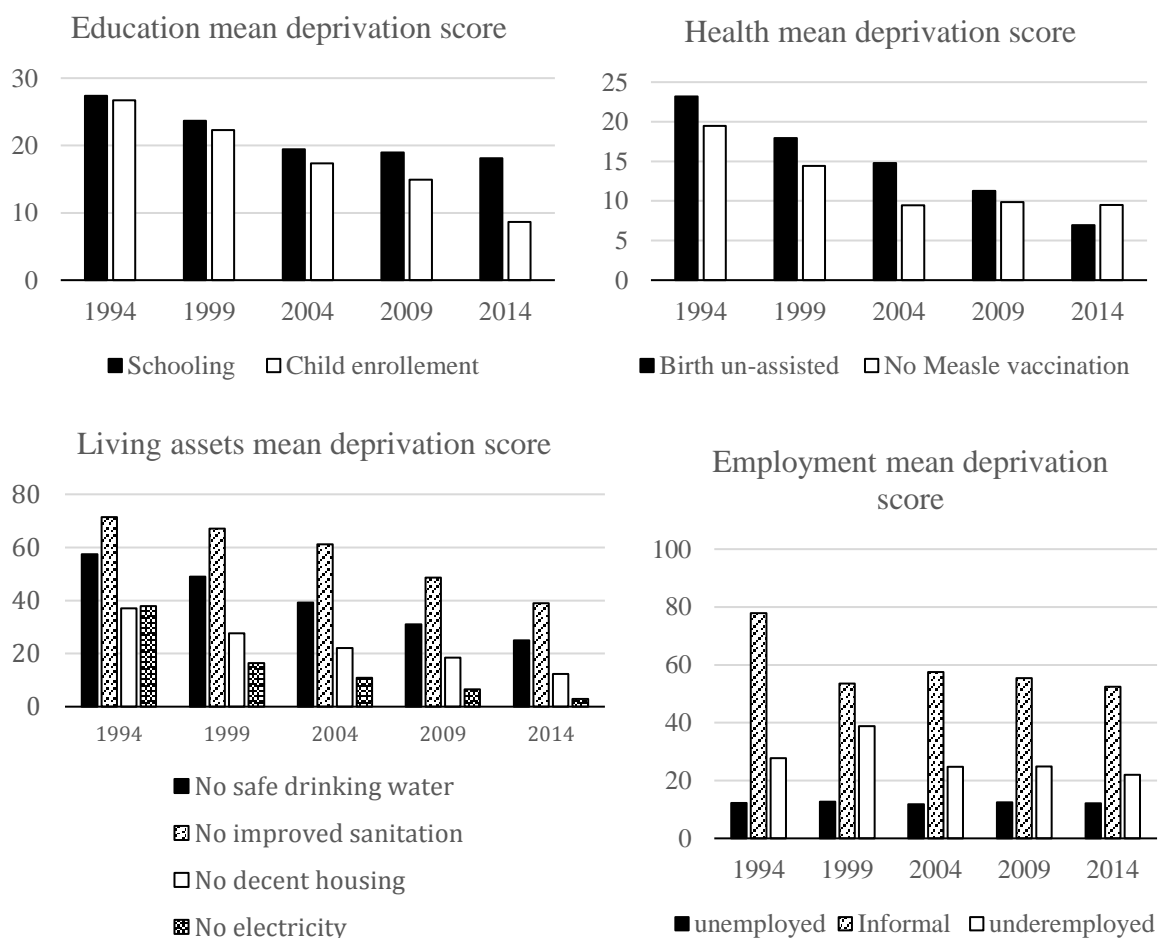
Source: BPS and authors' calculation based on data from SUSENAS.

Figure 7. Mean deprivation score by dimension 1994–2014 and its change by administrations



Source: Authors' calculation based on data from SUSENAS.

Figure 8. Mean deprivation indicators by dimension



Source: Authors' calculation based on data from SUSENAS.

In a comparison of the four periods under different administrations, we observe the following: first, the change in multidimensional poverty between the periods is less striking than poverty estimates using the national poverty line. If one takes the national poverty line, we would conclude that there was less progress during the SBY period than the Gus Dur-Megawati period. With multidimensional poverty, there is less visible difference. Second, as noted, the rate of change in multidimensional poverty is faster than the rate of change in the headcount using the national poverty line. For example, during the second SBY period, while the poverty measured by the national poverty line declined annually by 0.6% per year, the multidimensional poverty decline was 1.5% per year. Third, the period of 1994–1999 (Soeharto-Habibie's administration) is the period where the decline in multidimensional poverty is substantially the highest (2.7% per year) despite the Asian financial crisis. This may point towards the fact that multidimensional poverty is constructed from indicators that are less affected by income/expenditure. In the period 1994–1999, multidimensional poverty declined quite significantly. Fourth, multidimensional poverty fell more in the second SBY term than in the first SBY period. This is similar to the reduction of poverty by the national poverty line.

Figure 7 shows the mean deprivation score for the four multidimensional poverty dimensions. The scores are the basis for calculating the multidimensional poverty index. From this, we observe that the reduction in the deprivation score in living assets (which consist of safe drinking water, improved sanitation, decent housing and electricity) is the fastest over the period 1994–2014. The slowest improvement is employment (which consists of three indicators, namely informality, unemployment and underemployment). The improvement in living assets made most progress during the Soeharto-Habibie period (1994–1999) (Figure 7, left panel). The rapid improvement in household asset deprivation can be mainly attributed to

the rapid progress in the access to safe drinking water and improved sanitation (Figure 8, third panel). Other indicators such as housing quality and electricity improved, but to a lesser extent. Larger improvements in electricity access occurred between 1994 to 1999, during the period of the Soeharto-Habibie administration.

The reduction in employment deprivation was very slow during the first SBY administration and only slightly better during the second. When we disaggregate the employment component in Figure 8 (the fourth panel), we can see that this can be attributed to the lack of progress in reducing informality between 1999 and 2014, and during both SBY periods there was no improvement in the reduction of underemployment. Prior to the Asian financial crisis, the manufacturing sector was the primary source of Indonesia's rapid economic growth, employment creation and improvements in formal employment. Aswicahyono et al. (2010) estimated that during the period of 1990–1996, the implied output elasticity (percentage change in employment with respect to percentage change in output growth) of the manufacturing sector was 0.53 but after the Asian financial crisis (2000–2008) this fell to 0.18.⁴ Figure 8 (the fourth panel) shows that informality fell substantially between 1994–1999, but fell little after.

Finally, we compare poverty elasticity of growth among the four administrations (Table 1). The period of 1994–1999 (Soeharto-Habibie) was successful in reducing multidimensional poverty despite the crisis. As noted previously, the fact that the elasticity of multidimensional poverty to growth is high in the period interrupted by the economic crisis may suggest the lower correlation of multidimensional poverty to economic business cycles. We conclude that the SBY period was the least successful in terms of generating poverty reduction for every 1% of economic growth. This applies to both poverty incidence using the

⁴ One hypothesis is that this is due to changes in the labour market. For example, the minimum wage rose 90% between 1999 and 2002 (Aswicahyono et al., 2010).

national poverty line or multidimensional poverty incidence. In contrast, during the Gus Dur and Megawati periods multidimensional poverty reduced by 2% for every 1% of economic growth.

Table 1. Growth, change in poverty incidence by national poverty line and multidimensional poverty, 1994–2014

	Growth Rate (%)	Poverty incidence by national poverty line (change)	Elasticity	Poverty incidence by multidimensional poverty (change)	Elasticity
1994–1999 (SHT-HB)	1.36	-	-	-2.88	-2.12
1999–2004 (GD-MGW)	4.57	-1.35	-0.30	-2.08	-0.45
2004–2009 (SBY I)	5.63	-0.50	-0.09	-1.25	-0.22
2009–2014 (SBY II)	5.80	-0.58	-0.10	-1.55	-0.27

Source: Authors' calculation based on data from SUSENAS.

4. INCLUSIVE GROWTH UNDER JOKOWI

4a. Overview

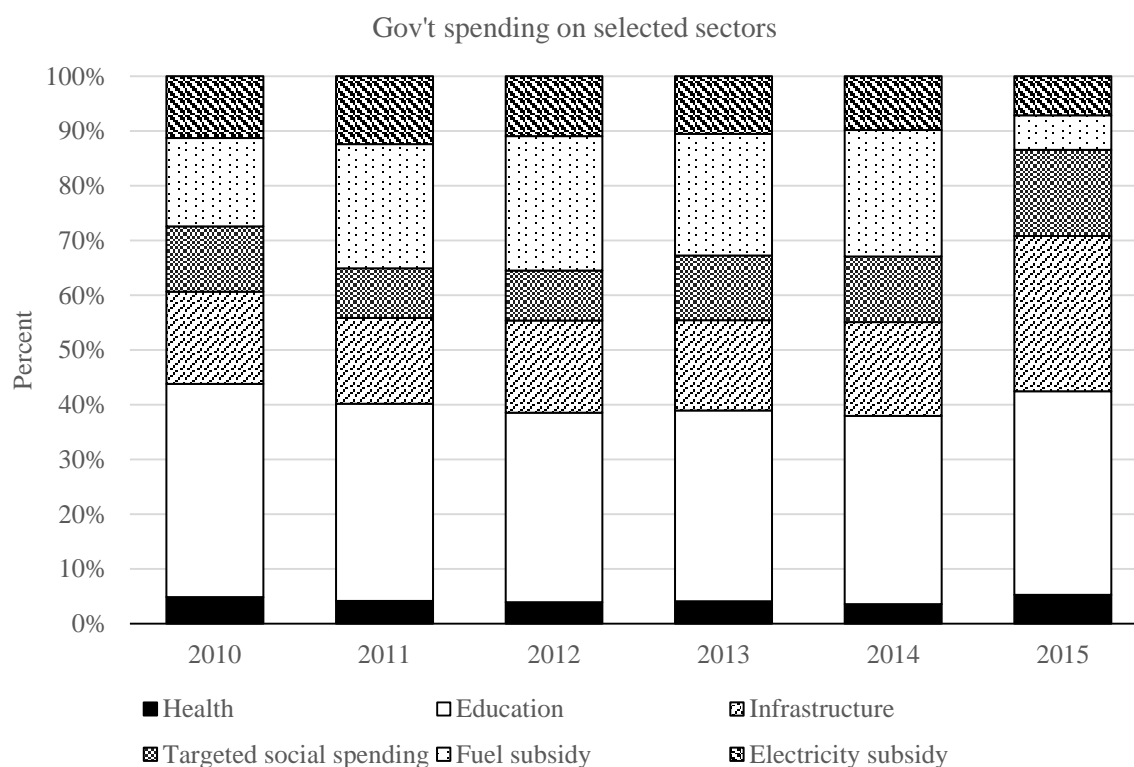
Jokowi's election platform and his previous policies as mayor of Solo and then governor of Jakarta suggest that he has a specific interest in improving the living standards of the poorest and raising people out of poverty. This requires policies on growth and often also short-run transfers, as well as changes to social policy and entitlements. It can also require greater medium-term investment in education and health care to redistribute the benefits of economic growth and future opportunities. The question as to which part of Indonesian society has benefited most from economic growth and trends in inequality during democratisation was raised in mid-2014, during the presidential campaign, not only because Jokowi was known for enacting specific social policies as mayor and governor but also because of his (humble)

origins. During the campaign, he came to be viewed as a pro-poor figure.

These matters resonate with the government’s National Medium-Term Development Plan in that, for the first time, an explicit target for the Gini coefficient of 0.36 has been set alongside a target rate of national poverty rate of 7–8% by 2019. The government aims to achieve these targets by creating employment, providing basic services, and implementing social protection policies (Bappenas 2014).

On 17 November 2014, just a few weeks after his inauguration as the new president, Jokowi announced an increase in subsidised fuel prices of 2,000 Rupiah per litre, to Rp 8,500 for gasoline (31% increase) and Rp 7,500 for diesel (a 36% increase) (Damuri & Day, 2015).

Figure 9. Government spending by various sectors, 2010–2015



Source: Ministry of Finance (2015). *Note:* y axis reads 0–100%, but the six sub-components are approximately 60% of the government’s total spending.

There are two main reasons that made these reforms possible. First, declining global oil prices.

By the end of November 2014, world oil prices had fallen by around one third from their level at 1 July 2014.⁵ Second, the political leadership of Jokowi himself. Jokowi understood, as can be seen from his campaign, that the allocation of the public budget is key for achieving his promised development targets. Previous governments have struggled with constrained fiscal space as a result of fossil-fuel subsidies. Figure 9 illustrates this point. Since 2011, fuel subsidies have become larger than the combined total of infrastructure spending and social spending. In 2014 (before Jokowi took office), the fuel subsidy was 25% higher than infrastructure spending and 93% higher than targeted social spending. In the 2015 budget, this was reversed. The fuel subsidy became only a fraction of these two allocations: the fuel subsidy was reduced to 22% of infrastructure spending and 40% of targeted social spending.

Yusuf and Sumner (2015) find that there is only a minor change in targeted social programmes (see Box 1). Jokowi's government has generally continued the programmes that were in place during the SBY era. In fact, the KIP (Kartu Indonesia Pintar) programme, which was central to Jokowi's presidential campaign was in fact the continuation of SBY's Bantuan Siswa Miskin (BSM) programme with only a small modification. The difference between the targeted social spending programme under SBY and Jokowi is outlined in Box 1. From 2014 onwards, there has been a serious effort made to restructure the budget under the nomenclature of *bantuan sosial* (social assistance) after a recommendation from KPK. Previously, this budget was scattered across various ministries and agencies in both central and regional levels, with very small impact and almost no impact evaluation.

Jokowi's proposed increase to infrastructure spending, if realised, would create substantial additional employment, potentially reducing spatial inequality across the country. There are no guarantees, however, that the economic growth created by infrastructure

⁵ Jokowi had always been a strong proponent of removing fuel subsidies. When he was governor of Jakarta, he wrote a formal letter requesting central government to abolish the fuel subsidy for private car users in Jakarta.

investment will benefit the poor more than the rich, or that this investment will boost economic growth and reduce inequality more effectively than social spending targeted at poor or near-poor and vulnerable households. Physical infrastructure investment, for instance, may give the poor greater access to employment opportunities. It may even create more jobs for unskilled workers than for skilled workers. And local multiplier effects are very likely to be created (e.g. roadside food sellers near construction sites). Yet it may also complement private physical and human capital and therefore yield a higher return in richer areas, which are relatively abundant in private capital. This could even increase inequality rather than reduce it. To date, the empirical validity of an association between physical infrastructure and inequality has not been examined sufficiently (Calderón and Chong 2004).

Social spending is also not guaranteed to reduce inequality. It depends who benefits and to what extent. The budget for social spending overall is dominated by education. Combined with other education spending, the total education budget is Rp 408.5 trillion or a fifth of the total budget.⁶ However, even with this sizeable funding, there are substantial problems in education spending. First and foremost, the large amount spent has not translated into improved learning outcomes, as assessed internationally by the Organisation for Economic Co-operation and Development (OECD) Programme for International Student Assessment (OECD 2014). Furthermore, there are large regional disparities in the quality of education delivered. In contrast to that of other countries, Indonesia's spending on secondary education is not pro-poor and its spending on tertiary education is regressive (see Lustig 2015).

⁶ See GoI (2015) APBNP.

Box 1. Targeted social programmes of Indonesian central government

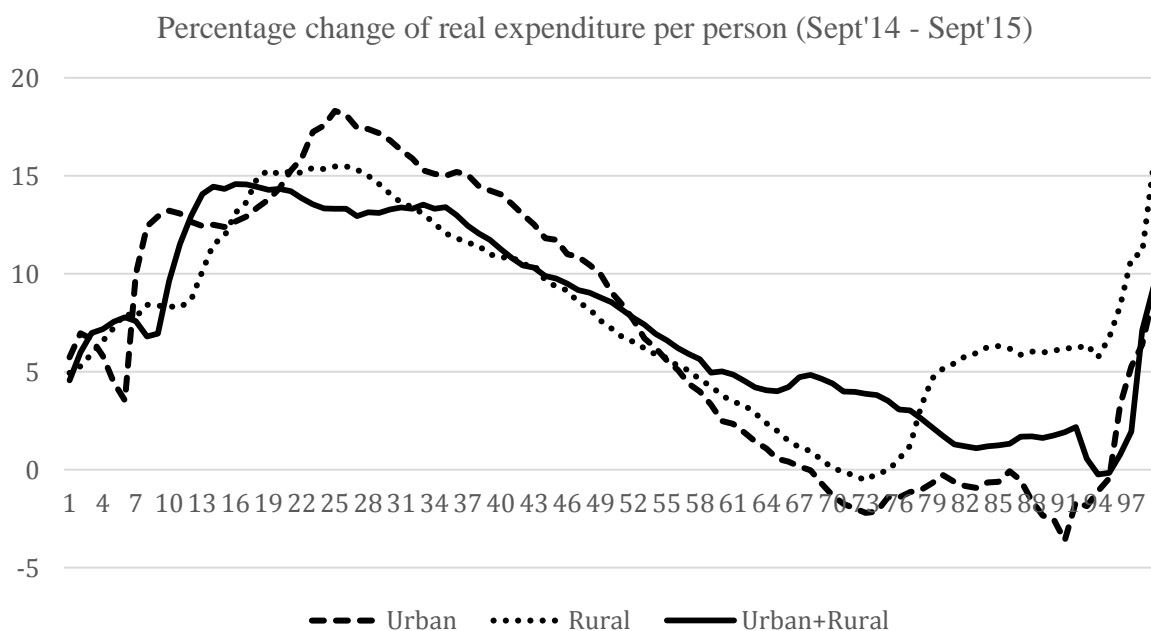
1. School operational assistance (Bantuan Operasional Sekolah/BOS). BOS provides non-personnel funding to elementary and secondary schools as a part of the implementation of the nine years of compulsory education programme. This programme started in 2011 and continues under Jokowi's government without any significant change.
2. The Smart Indonesian Programme (Program Indonesia Pintar/PIP). PIP gives educational grants to all children of school age (6–21 years old) from poor families. Under the previous administration, the programme was called the Cash Transfers for Poor Students (Bantuan Siswa Miskin/BSM) programme. The new programme extends the beneficiaries to include students enrolled in non-formal schools. The nominal amount of the assistance per student is the same as under the previous government.
3. The Welfare Family Saving Programme (Program Simpanan Keluarga Sejahtera/PSKS) provides transfers to poor households to protect them from rising prices due to fuel subsidy reductions such as the reduction in November 2014. Under the previous administration, the programme was called Cash Direct Assistance (Bantuan Langsung Tunai) or People Direct Temporary Assistance (Bantuan Langsung Sementara Masyarakat). The programme is similar to those of the past.
4. The Rice for the Poor programme (Beras Miskin/RASKIN). RASKIN provides subsidised rice to the poor. This programme has been in place since 1998.
5. The Hopeful Families Programme (Programme Keluarga Harapan/PKH). PKH provides conditional cash assistance to very poor households. In the short term, it aims to reduce the financial burdens of the poor; in the long term, it seeks to break the inter-generational transmission of poverty through access to health and education services. The programme started in 2007. Jokowi's government plans to increase beneficiaries from 4.4 million to 6.4 million households. From 2014, the PKH has been piloted in some regions including another component for parenting education (Family Development Session), aimed at graduating beneficiaries.
6. The Healthy Indonesian Programme (Program Indonesia Sehat/PIH). PIH or Social Health Insurance (Jaminan Kesejahteraan Masyarakat/JamKesNas) is a social assistance programme that provides health care for the poor and near-poor. It has been operational since 1 January 2014 with the establishment of BPJS Kesehatan as the sole national operator.
7. The Community Empowerment Programme (Program Nasional Pengembangan Masyarakat/PNPM-Mandiri). PNPM-Mandiri consists of 12 poverty alleviation programmes that implement community empowerment approaches and are managed by various ministries/institutions. The programme is characterised by the utilisation of a community participation approach; the improvement of community institutions; and programme activities that are managed by communities. The programme has evolved into the Village Fund programme under Jokowi.
8. The Village Fund (Dana Desa). This programme has been implemented under the 2014 Village Law that dictates that the central government will transfer up to 10% of total intergovernmental grants of the state budget to villages in the form of 'village funds'. The fund can be used to finance basic infrastructure projects in around 74,000 Indonesian villages.

4b. Jokowi's period as president

It is too early to assess the Jokowi administration. However, one year can give a glimpse of the direction of the administration in terms of growth inclusiveness. Our assessment here is necessarily preliminary and to be updated in due course.

Jokowi's administration should be judged against the baseline of his predecessors. We concluded previously that economic growth between 1994 and 2014 has been accompanied by an impressive decline in multidimensional poverty and moderate progress in reducing monetary poverty incidence. Inequality, however, has risen to an unprecedented magnitude, particularly during the period of SBY (2004–2014). Moreover, the rate of the reduction in both monetary poverty and multidimensional poverty has been slowing.

Figure 10. Growth incidence curve for Jokowi's presidency, September 2014 to September 2015



Source: Authors' calculation based on data from SUSENAS.

Figure 10 shows the growth incidence curve for the first year of the Jokowi presidency, from September 2014 to September 2015. Before discussing several important observations reflected in Figure 10, we should note that the first six months of Jokowi's presidency experienced the slowest economic growth in recent years. In the third quarter of 2015, the Indonesian economy grew by just 4.7% (year on year), as it had in the first and second quarters. Economic growth has been slowing since the fourth quarter of 2010, when it peaked at 6.8% (Yusuf and Sumner, 2015). This slowing is visible across almost all sectors but most notably in mining and quarrying which contracted by -5.6%. This is also reflected in the data on provincial economic growth: the economies of Aceh, Riau and East Kalimantan (the natural resource-dependent regions) contracted during the second quarter of 2015.

Furthermore, in the first six months of Jokowi's term, food inflation was very high. The price of rice reached its peak in March, when the Indonesian Central Bureau of Statistics (BPS) conducted the SUSENAS survey. The price of rice increased by around 16% over the six months (Yusuf and Sumner, 2015).

Figure 10 shows that the poor (at least the 10% poorest) experienced a decline in expenditure per person. This happened both in urban and rural areas. This is consistent with the official report of an increase in poverty incidence over that six months (September 2014–March 2015). From Table 2, we can see that from September 2014 to March 2015, poverty incidence by national poverty line increased by 0.26% (and increased 0.13% in urban and 0.45% in rural areas). This sounds like a small increase but represents one million extra poor people. The increase in poverty is most likely due to: (i) the slowing down of economic growth and hence weaker employment growth; (ii) an increase in the price of rice⁷; and (iii) the delayed disbursement of cash compensation intended to protect the poor from the impact of the fuel

⁷ Our simulation, using SUSENAS data, suggests that for every 1% increase in the price of rice, the national poverty headcount will increase by more than 1% (with other factors held constant).

price increase in November 2015⁸ (see Yusuf and Sumner, 2015).

Table 2. Changes in poverty incidence and inequality under Jokowi’s administration

	Poverty incidence			Gini coefficient			Palma ratio		
	Urban	Rural	All	Urban	Rural	All	Urban	Rural	All
September 2014	8.16	13.76	10.96	0.43	0.34	0.41	2.20	1.33	2.00
March 2015	8.29	14.21	11.22	0.43	0.33	0.41	2.16	1.34	1.95
September 2015	8.22	14.09	11.13	0.42	0.33	0.40	2.03	1.30	1.80
Sept. 2014–March 2015	0.13	0.45	0.26	-0.01	0.00	-0.01	-0.04	0.01	-0.05
March 2015–Sept. 2015	-0.07	-0.12	-0.09	0.00	-0.01	0.00	-0.04	0.01	-0.05
Sept. 2014–Sept. 2015	0.06	0.33	0.17	-0.01	-0.01	-0.01	-0.17	-0.03	-0.20
Growth Sept. 2014–Sept. 2015	-	-	4.73						
Elasticity	-	-	0.04						

Source: Authors’ calculation based on data from SUSENAS.

The growth incidence curve (for the first year of the Jokowi administration) shows that the upper middle-income group, particularly those close to the top 10% saw their expenditure fall, particularly in urban areas. Some caution is required, however, in giving an interpretation of this. This dynamic is most likely cyclical and related to the nature of the slowing down of the economy which is characterised by the resource- and capital-intensive (and most likely skill-intensive) sectors being the hardest hit. This is supported by the figure which shows that the urban upper-middle class suffered most.

The nature of the distribution of economic growth (as shown by the GIC curves) implies a slight decline in inequality nationally and in urban areas. However, the magnitude of the change is not that significant and discussion of a change in inequality over such a short period of time is questionable.

The official BPS poverty estimates based on the SUSENAS suggest that poverty

⁸ As a form of compensation, on 18 November, the government started to distribute family welfare deposits to Family Welfare Card (or KKS) cardholders – 15.5 million disadvantaged families who receive the lowest level of welfare that comprise 25% of households in Indonesia. In the first stage of the KKS programme, each target family received Rp 200,000 in both November and December that totalled Rp 6.2 trillion (Damuri and Day, 2015). Monies from the second stage of the programme, however, will not be dispersed until April 2016, due to slow parliamentary approval and other administrative issues.

incidence still increased over the one-year period. However, there is a small improvement on the March 2015 position, but the poverty incidence in September 2015 is still higher compared to the previous year. It suggests that during the first year of Jokowi's administration, the poverty incidence rose nationally by 0.17% (0.06% in urban areas and 0.33% in rural areas). As a result of this, and in contrast to the previous four administrations, Jokowi's first year has seen a positive growth elasticity of poverty. This means specifically that for every 1% of economic growth generated, poverty has increased by 0.04% percentage points.

In sum, despite aspirations and the budgetary reforms, the first year of Jokowi's presidency has been less successful in terms of the inclusiveness of growth compared to previous administrations. That said, the outlook for the remaining period of the current administration is likely to be more positive, given changes in social spending. The inclusivity of growth will depend on whether the large increase in physical infrastructure investment generates inequality-reducing economic growth via its employment generation impacts; whether the government's budget, particularly in targeted social spending, in education and health, will significantly improve equality of opportunity in access to good quality education and health services; how price volatility in staple foods such as rice is managed in the future; and how Indonesia continues to respond to a very difficult global economic environment in terms of commodity prices and the Chinese growth outlook.

5. CONCLUSIONS

In conclusion, how inclusive has growth been in Indonesia? We have discussed the growth incidence curve, changes in the poverty headcount by national poverty line and changes in inequality indicators. We then considered a measure of inclusive growth based on multidimensional poverty that expands the lens to include not only education, health and

household assets, but employment-related poverty on the basis that this is an important part of inclusive growth.

What did we find? When assessing the inclusivity of growth, we would argue that multidimensional poverty measurement is a useful approach as it draws upon the range of dimensions of poverty including education, health, living standards and assets, and also employment. Our findings based on a broader definition of inclusive growth in terms of reducing multidimensional poverty are the following:

- No post-reform administrations are any better than the Soeharto-Habibie administration pre- and during the Asian financial crisis;
- In the post-reform era, it is the Gus Dur-Megawati administration that was the most successful (though this may be because there was a higher baseline after the economic crisis) and that SBY's term 2 was better than term 1;
- In terms of education, that is good progress on school enrolment, but the number of households with heads not completing primary school has been stagnant for the last decade;
- In terms of health, there was good progress on assisted births but virtually no progress on measles vaccinations since 2004;
- On living standards and assets, there was unequivocal and impressive progress;
- There was little improvement in employment growth since the late 1990s.

The reduction of multidimensional poverty in health, education and household assets is matched by the national (monetary) poverty line in trends, but the SUSENAS data show multidimensional poverty to be present for one in six of the population, rather than one in ten of the population as the national (monetary) poverty line shows. Further, whilst monetary

poverty, access to public goods and household assets have improved dramatically since the 1990s, some basic problems remain in terms of school completion and vaccination coverage, and progress on employment-related poverty is limited over the period. In short, the use of multidimensional poverty to assess the inclusivity of growth brings to light the successes of previous governments, but also the remaining challenges of addressing employment-related poverty in particular for the Jokowi administration.

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ANNEX I: METHODOLOGICAL ISSUES

A1 Dataset

The data source for the growth incidence curves (GIC), the Gini coefficient, the Palma ratio, and multidimensional poverty estimates is the SUSENAS for the years 1994, 1999, 2004, 2009, 2014 and 2015. The SUSENAS is a regular large-scale multi-purpose socio-economic survey initiated in 1963–1964. The SUSENAS was conducted every two or three years between 1984 and 1989 and annually since. Since 1993, the SUSENAS survey has covered a nationally representative sample typically composed of around 200,000 households. Each survey contains a core questionnaire which consists of a household roster listing gender, age, marital status and educational attainment of household members, supplemented by modules covering about 60,000 households that are rotated over time to collect additional information such as health care and nutrition, household income and expenditure, and labour-force activity (Surbakti 1995).

A2 Growth incidence curve

The growth incidence curve (GIC) plots the expenditure growth rate at each percentile of per capita. The GIC graph allows us to compare the incidence of growth in poorer segments of the population with that of richer segments. More formally, if we rank the observations in each of our household datasets by per capita expenditure from poorest to richest, we can use the expenditure for a given percentile p at two different points in time, $t=0$ and $t=1$, to calculate the growth rate for percentile p :

$$g(p) = 100 \left(\frac{y_1(p)}{y_0(p)} - 1 \right)$$

With different periods, the average annual growth can be calculated as:

$$g_{annual}(p) = 100 \left(\left(\frac{y_1(p)}{y_0(p)} \right)^{\frac{1}{N}} - 1 \right)$$

Where N is the number of periods.

A3 The Gini coefficient

The Gini coefficient is the most common expenditure or income inequality indicator. The Gini represents the extent to which the distribution of expenditure or income among households deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total expenditure or income against the cumulative number of recipients, starting with the poorest individual or household. The Gini coefficient measures the area between the Lorenz curve and a hypothetical line of absolute equality. A Gini coefficient of 0 represents perfect equality, while of 1 implies perfect inequality. More formally, the Gini coefficient is calculated with the following formula:

$$G = \frac{1}{n} \left(n + 1 - 2 \left(\frac{\sum_{i=1}^n (n + 1 - i) y_i}{\sum_{i=1}^n y_i} \right) \right)$$

where y_i is expenditure per capita of household i , and $i = 1$ to n indexed in non-decreasing order ($y_i \leq y_{i+1}$).

A4 The Palma ratio

The Palma ratio is the ratio of the expenditure/income share of the richest 10% of the population to the expenditure/income share of the poorest 40% of the population. It is based on the work of Palma (2006, 2011). The Palma ratio is based on the observation that the ‘middle’ deciles (D5–D9) tend to capture around 50% of national expenditure/income, and the other half of national expenditure/income is shared between the richest 10% and the poorest 40%. Cobham and Sumner (2013) argue that the ease of interpretation of the Palma Ratio provides a more policy-relevant indicator of the extent of inequality and expenditure/income *concentration* in each country, and may be particularly relevant to poverty reduction policy. The Palma ratio is easy to interpret. If the ratio value is 0.25 this is perfect equality. There is no upper limit of the index. If the ratio value is 2, this means that the richest decile has twice the share of the national expenditure/income of the 40% poorest.

A5 Poverty incidence by national poverty line

Poverty incidence by national poverty line is the proportion of the population whose expenditure per person is below the official national poverty line set by the Indonesian Central Bureau of Statistics (BPS). The estimates are taken directly from BPS.

A6 Poverty incidence by multidimensional poverty

Following UNDP (2010), the headcount ratio, H , is the proportion of the multidimensionally poor in the population:

$$H = 100 \frac{q}{n}$$

Where q is the number of people who are multidimensionally poor and n is the total number of the population. In our estimates, the multidimensional poor are identified as follows: each

household is assigned a deprivation score according to deprivations based on 11 indicators in four dimensions (education, health, living assets and employment). The maximum score is 100. When a household deprivation score is more than 33.3%, that household is considered (multidimensionally) poor and therefore all the household members are counted as poor. The indicator and weights can be seen from Table A1.

Table A1. Dimensions and indicators of our estimates of multidimensional poverty

Dimension	Weight	Indicators
EDUCATION (1/4)	1/8	Household head has not completed six years of education
	1/8	No school-aged children (7–18 years old) are enrolled at school
HEALTH (1/4)	1/8	Birth is not assisted by skilled health workers <i>Skilled health workers include medical doctors, midwives and other paramedics</i>
	1/8	No child has ever received a measles vaccination
STANDARD OF LIVING AND HOUSEHOLD ASSETS (1/4)	1/16	No access to safe drinking water <i>Unsafe drinking water sources include unprotected wells, unprotected springs, rivers, rain water and others, as well as water sources where the nearest distance to a septic tank is ten metres or less.</i>
	1/16	No access to improved sanitation <i>Inadequate sanitation is not private or is a shared facility, or the type of toilet is a squat-type toilet, or final waste disposal is into a septic tank.</i>
	1/16	Inadequate housing conditions <i>Soil floor, bamboo wall or roof made of leaves.</i>
	1/16	No electricity
EMPLOYMENT (1/4)	1/12	Unemployed
	1/12	Employed but informal <i>This includes a person that is solely self-employed, or is either a casual worker or an unpaid worker, as well as the employers that employ them.</i>
	1/12	Underemployed (working less than 35 hours per week)

A7 Sensitivity analysis of multidimensional poverty headcount

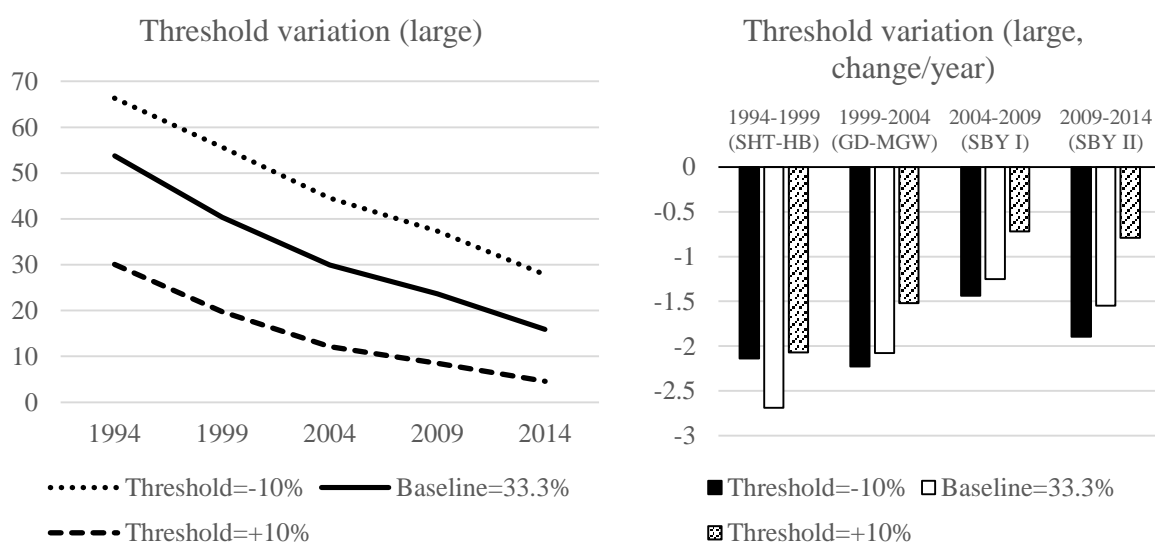
We conduct sensitivity analysis to assess the extent to which changing the thresholds or dimensions or indicators in each dimension will change the conclusion of the analysis discussed in the paper.

A: Different thresholds

A1 Large variation ($\pm 10\%$)

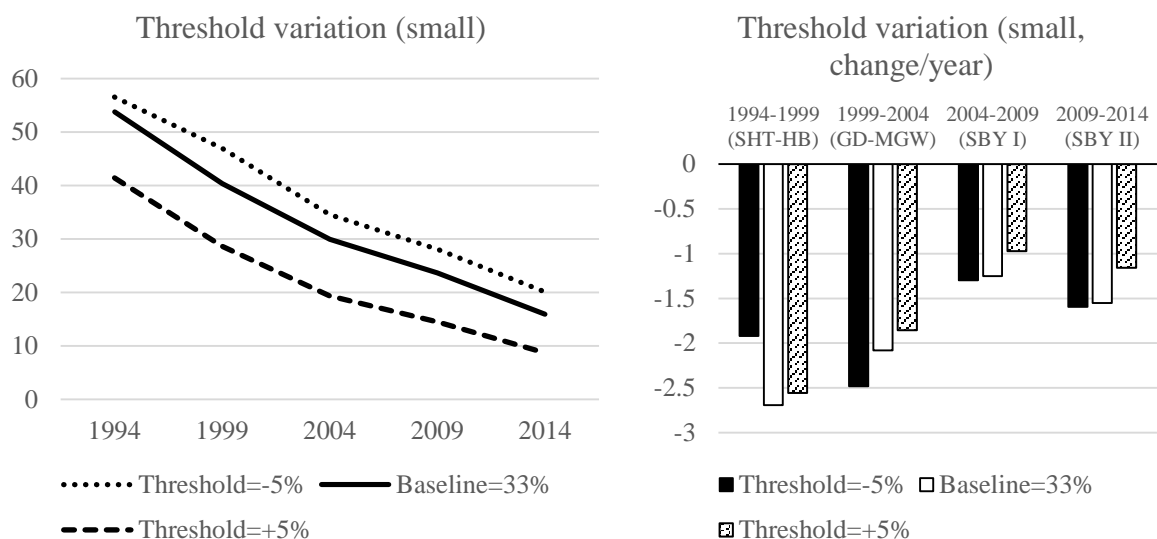
Figures A1 and A2 show the multidimensional poverty headcount 1994–2014 by various thresholds. We conclude the following: first, although the magnitude of the headcount is sensitive to thresholds, this is to be expected. We note that reducing the threshold slightly (-5%) is less sensitive than increasing the threshold by the same amount ($+10\%$) as Figure A2 suggests.

Figure A1. Multidimensional poverty headcount (and its change) with threshold $33.3\% \pm 10\%$



Source: Authors' calculation based on data from SUSENAS.

Figure A2. Multidimensional poverty headcount (and its change) with threshold 33.3%±5%



Source: Authors' calculation based on data from SUSENAS.

The conclusions we draw from comparing the change in multidimensional poverty over the period 1999–2014 are generally not sensitive to threshold changes, in the sense that we still find that the reduction in multidimensional poverty over the period of 1999–2004 (Gus Dur-Megawati) is larger than in both SBY periods. However, we do find that the change in multidimensional poverty over the period of 1994–1999 (Soehart-Habibie) is quite sensitive to the downward adjustment of the threshold. When the threshold is reduced (from 33.3% by both 5% and 10%), the reduction of poverty in this period becomes lower than the preceding period (Gus Dur-Megawati) which is not consistent with our conclusion using the baseline threshold. However, the same is not the case when the threshold is revised upwards.

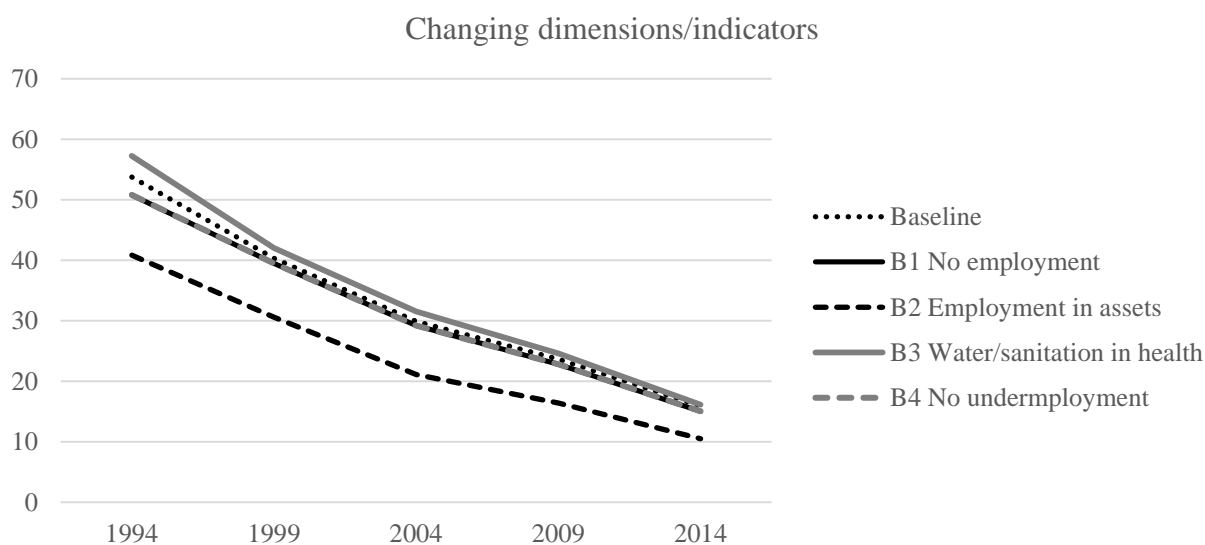
B: Changes to dimensions and indicators

To check the sensitivity of the deprivation score to varying dimensions and indicators, we calculate the deprivation score with the following variations.

- B1 Removing the employment dimension (to compare to UNDP, Alkire and Santos)
- B2 Combining employment with living standards/household assets (to compare to Sumarto and De Silva)
- B3 Categorising water and sanitation as a health dimension (to compare to PRAKARSA)
- B4 Removal of underemployment (to compare to Sumarto and De Silva)

The results are shown in Figure A3.

Figure A3. Multidimensional poverty headcount by variations in dimensions and indicators

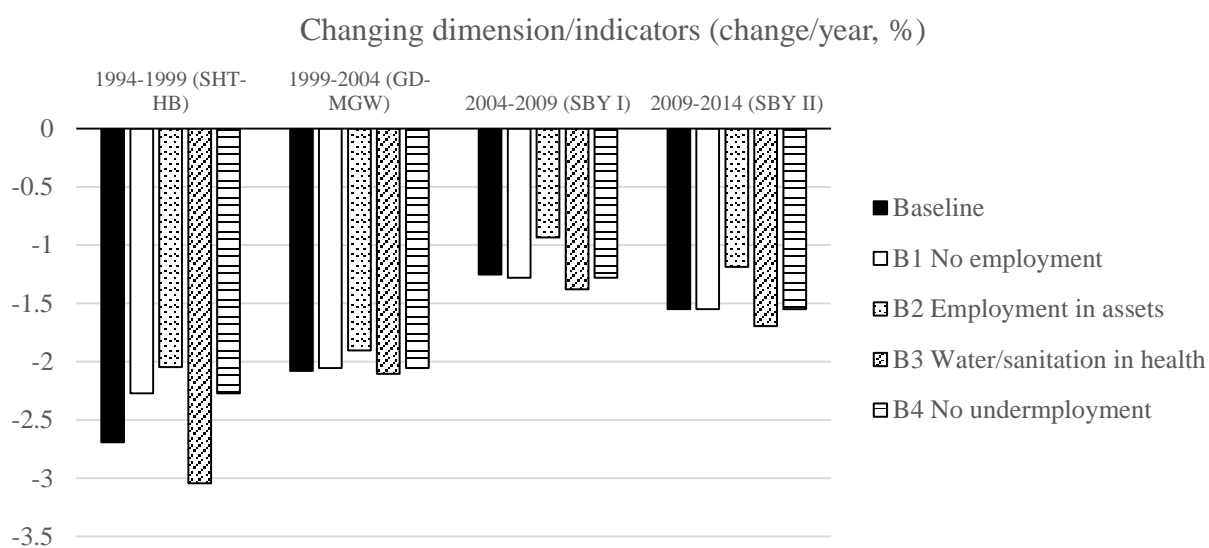


Source: Authors' calculation based on data from SUSENAS.

As can be seen from Figure A3, except for the variation B4 (when the employment dimension is merged into living standards and household assets), the multidimensional poverty headcount is relatively insensitive to the variation in dimensions or indicators. As employment is the

dimension that has generally high deprivation scores, merging it into living assets (which generally has a low deprivation score) reduces the score quite significantly, and changing the poverty headcount substantially.

Figure A4. Change in multidimensional poverty headcount by variations in dimensions and indicators



Source: Authors' calculation based on data from SUSENAS.

When we consider the trends and make a comparison across periods of different administrations, the general ranking, and hence conclusions drawn from the comparison are not sensitive.

A8 Relationship between deprivation scores and expenditure per capita

Figure A5 shows how mean deprivation scores are highly related to expenditure and this strong relationship is relatively independent or robust to the variation of dimensions/indicators. This

confirms that households in higher income groups are most likely to be less deprived in multidimensional poverty than a household in a lower income group.

However, as shown in Table A2 (where the multidimensional deprivation score is regressed against expenditure per person), despite the statistical significance of expenditure per person (including its non-linearity), the R-squared of the estimated model linking expenditure to deprivation score explains less than a 20% variation in the deprivation score. This means that there are many other factors that explain the deprivation scores other than monetary expenditure or income.

Figure A5. Mean deprivation score by percentile of expenditure per person in 2014



Source: Authors' calculation based on data from SUSENAS.

Table A2. Relationship between deprivation score and expenditure per person (2014)

	Baseline	B1	B2	B3	B4
Expenditure per person (log)	-0.599	-0.726	-0.616	-0.668	-0.597
	(62.74)**	(68.97)**	(64.11)**	(66.17)**	(62.83)**
Square of log of expenditure per person	0.019	0.023	0.020	0.021	0.019
	(53.73)**	(60.66)**	(55.80)**	(57.12)**	(53.60)**
Intercept	4.818	5.639	4.859	5.323	4.822
	(74.30)**	(78.98)**	(74.49)**	(77.67)**	(74.72)**
R^2	0.19	0.17	0.16	0.19	0.19
N	285,400	285,400	285,400	285,400	285,400

* $p < 0.05$; ** $p < 0.01$

Source: Authors' calculation based on data from SUSENAS.

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