

LIVING BEYOND \$2 A DAY: HOW INDONESIA HAS PROGRESSED

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Abstract

Using data from a long-term series of household surveys and more information on regional variations in the living costs of the poor, and on inflation, we estimated the proportion of people living on less than \$2 a day (2005 PPP). We found that for the period from 1990 to 2012, the incidence of poverty, that is, for those who subsist on less than \$2 a day, has been declining at an average rate of 2.2 per cent per year and were down to 36.5 per cent in 2012. The rate of the decline over ten years from 2002 to 2012 (the Reformasi era) has been faster (2.9 per cent a year) than during the pre-Reformasi era, that is, from 1990 to 1996 (1.4 per cent a year). This is in contrast to a rather slower rate of the decline in the incidence of poverty shown by the national poverty line during the Reformasi era, when it was only 0.65 per cent a year. We also found that poverty, using the \$2 poverty standard, has been more prevalent among informal labor and agricultural workers. The difference between the rates of poverty, using the \$2 a day measure, between formal and informal labor was larger during the Reformasi era, a sign that the welfare of informal labor has lagged. During Reformasi, economic growth led to more inequality of income compared with the years before Reformasi and this economic growth did not advance the lot of the poor. This conclusion applies to the poor defined as those living below national poverty line and to those living on less than \$2 a day.

Keywords: poverty, \$2 per day, Indonesia

JEL Classification: O53, J21, I38

INTRODUCTION

The New Order government, from the time it assumed control in Indonesia until the 1997 Indonesian economic crisis, brought about an almost four-fold increase in income per capita. The increases in income of the average Indonesian has also been accompanied by an outstanding reduction in poverty.

The number of poor people fell from 54.2 million in 1976 (40.1 per cent of the total population) to 22.5 million in 1996 (11.3 per cent of total population) (Alisjahbana et al., 2003).

There are some indications that the rate of poverty reduction in the period after the financial crisis has been slower than the rate before the

crisis. Comparing the rate of poverty reduction over the 11-year period from 2000 to 2011 with the rate for the years between 1984 and 1996 (see Table 1) suggests that the concerns about the slow rates of poverty eradication are well founded. The rate of the reduction in the numbers of the poor population and in the head-count poverty index for the period 2000 to 2011 is a lot slower compared with the period from 1984 to 1996, more notably in urban areas.

Other than these concerns, the number of Indonesian who still living on less than \$2 a day (a more recent,

internationally recognised poverty line) is still large. Relative to its close neighbours, Indonesia is lagging in increasing the daily income of its people to more than \$2 per day. The national poverty line (which is quite close to the international absolute poverty standard of \$1.25 per day) is very far from a tipping point of income where people's lives in all aspects can be considered comfortable. To escape from this (defined) extreme poverty does not guarantee an improved life with dignity—it is bare survival. To increase the national standard to \$2 per day is urgent.

Table 1. Trend in Poverty Incidence and Numbers of Poor Population

Number of poor population (million, %)	1984	1996	1984-'96 ^a (%)	2000	2011	2000-'11 ^a (%)
Urban	9.3	7.2	-2.1	12.3	11.1	-1.0
Rural	25.7	15.3	-4.2	26.4	19.0	-3.0
Urban + Rural	35.0	22.5	-3.6	38.7	30.0	-2.3
Poverty incidence (%)	1984	1996	1984-'96 ^b (%)	2000	2011	2000-'11 ^b (%)
Urban	23.1	9.7	-1.1	14.6	9.2	-0.5
Rural	21.2	12.3	-0.7	22.4	15.7	-0.6
Urban + Rural	21.6	11.3	-0.9	19.1	12.5	-0.6

Note: a) annualized change (0%), B) average annual change

Source: BPS

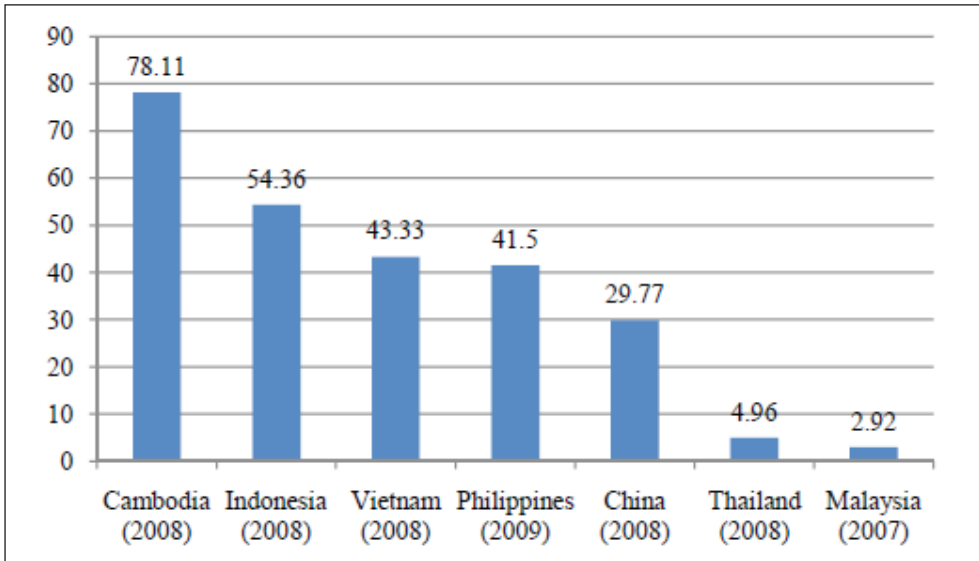
Figure 1 shows that, of its neighbouring countries (particularly South-East Asian countries), Indonesia was in a better position than Cambodia only (in 2008) in the proportion of people living on less than \$2 per day. Other countries, including the Philippines, were recorded as having less than 50 per cent of their populations living on less than \$2 per day. Understanding how Indonesia has progressed in reducing the number of people

living below the international standard poverty line (\$2 per day) is crucial to ensure that Indonesia's aspirations match what other developing countries have achieved.

Monitoring more closely the incidence of \$2 a day poverty and ensuring that the public is aware of its development has never been more relevant. However, to our knowledge, few studies have looked at this issue in depth. This paper is an attempt to fill this gap.

By looking closer at the development of this poverty indicator, we might be able to test some expected effects of economic growth and relevant government policies on the incidence of \$2 poverty for the period we are looking at. Some of the relevant hypotheses can be mentioned here.

First, the incidence of poverty (under the \$2 poverty line) will generally fall over the long term (in our case, the past two decades) as a consequence of constant economic growth. Second, poverty rates will have risen briefly during the Asian Financial Crisis. In regard to regional variations, it is to be expected



Source: POVCAL, World Bank

Figure 1. Poverty Incidence at \$2 per Day Poverty Line, Various Countries (% of Population)

ed that the incidence of poverty, under the \$2 poverty line, will be higher in rural than in urban areas. It is also to be expected that such poverty incidence will be higher in other regions of Indonesia compared with Java. However, there is no intuitive expectation on how the rate will differ between regions. In terms of employment status, it is to be expected that poverty incidence will be higher for those in informal occupations than for formal. It is also to be expected that poverty rates will

be higher in agricultural sectors than in other sectors of employment.

The objectives of this paper are, first, to calculate the percentage of people living below international poverty line of \$2 per person per day for each year from 1990 to 2012, or the past 22 years of Indonesian economic development. Because we are using the long-term series of household survey data, our second objective is to look at how various relevant regional socio-economic groups have progressed in moving out of \$2 per day poverty.

Those relevant groups are in urban and rural areas, in Java and other parts of Indonesia, and include formal and informal occupations, as well as between sectors of employment. Finally, we look at how the welfare of the people living on less than \$2 a day (also in comparison with other standard definitions of poverty lines) has improved in comparison with the overall economic growth or with the growth of the mean income.

RESEARCH METHODS

One reason for using \$2 per day as the threshold amount is that, based on a representative sample of national poverty lines from developed and from developing countries, the sample median poverty line is \$60.81 a month, or almost exactly \$2.00 a day (Ravallion et al., 2009). This implies that close to half of the countries in the world use \$2 a day as the standard in calculating their national poverty incidence.

To calculate the proportion of people living on less than \$2 a day, we need, first, to calculate the relevant poverty line. The \$2 a day is based on the World Bank survey in 2005 as part of its International Comparison Program (ICP) and estimated the purchasing power parity (PPP) of USD1.00 is equivalent to IDR4193. The general formula to calculate the \$2 poverty line (expressed as per month per person) is

$$PL_{i,t} = 2 \cdot 30 \cdot PPP_{2005} \cdot \frac{CPI_{i,t}}{100} \quad (1)$$

$PL_{i,t}$ is the \$2 poverty line that we try to measure, PPP_{2005} is the

purchasing power parity exchange rate, IDR to USD in 2005; the $CPI_{i,t}$ is the consumer price index. The index t is the year from 1990 to 2012 and the index i is the region, which comprises provinces and for each province we distinguish urban and rural areas.

We calculate four versions of this poverty line, depending on which of the four different consumer price indexes we use.

1. National CPI uniform across regions (provinces and urban–rural areas) (POV\$2.NAT), or:

$$PL_{i,t} = 2 \cdot 30 \cdot PPP_{2005} \cdot \frac{CPI_{i,t}}{100}$$

2. National CPI spatially adjusted using a spatial price index. The spatial price index is calculated from the annual, regionally disaggregated, national poverty line (POV\$2.REG), or:

$$PL_{i,t} = 2 \cdot 30 \cdot PPP_{2005} \cdot \frac{CPI_{i,t}}{100} \cdot \frac{PLN_{i,t}}{PLN_t} \quad (2)$$

Where $PLN_{i,t}$ is the national poverty line for each region and for each year, and PLN_t is the mean of poverty lines across regions for specific years.

3. Regional CPI calculated from regional inflation rates assuming that the CPI for all regions are all equal to 100 in 2005 (POV\$.NAT), or

$$PL_{i,t} = 2 \cdot 30 \cdot PPP_{2005} \cdot \frac{CPI_{R_{i,t}}}{100} \quad (3)$$

4. Regional CPI calculated from regional inflation and spatially adjusted using a spatial price index (POV\$.REG2), or:

$$PL_{i,t} = 2 \cdot 30 \cdot PPP_{2005} \cdot \frac{CPI_{i,t}}{100} \cdot \frac{PLN_{i,t}}{PLN_t} \quad (4)$$

To assess the ameliorative effects of economic growth on poverty we use the method developed by Ravallion and Chen (2003)². The rate of growth that affects the poor in a positive way is defined as the increase in income or consumption of people who are, in the initial period, classified as poor (using various definitions of a poverty line) in comparison with the average such increase for the whole population.

The data we used are from the National Socio-Economic Survey or SUSENAS for the period 1990 to 2012 obtained from Statistik Indonesia (BPS). The poverty line for the period 2007 to 2012 was obtained from the BPS website (www.bps.go.id) and the poverty line for the previous year is from the SMERU research institute³.

²We use the STATA-routine developed by Lokshin and Ravallion. The program is called Gicurve, which can be used to produce the growth incidence curve and to calculate a measure of the rate of pro-poor growth. The growth incidence curve gives growth rates by quintiles ranked by welfare measure. Integrating this curve up to the headcount index of poverty gives a measure of the rate of pro-poor growth. In addition, Gicurve calculates and can graph the rate of the pro-poor growth, growth at median, mean, and the mean percentile growth rate line (<http://go.worldbank.org/9877902MV0>).

³We'd like to thank Daniel Suryadarma for providing us with these poverty line data.

RESULTS AND DISCUSSION

The Evolution of the Incidence of \$2 a Day Poverty

Figure 2 shows, nationally, the evolution of the proportion of people living on less than \$2 a day. There are five different series, the four series described in the section on method and the one calculated using POVCAL from the World Bank website⁴. It shows that, in general, all series (which are measured using slightly different methods) look similar to the one calculated using the World Bank's POVCAL program. However, it is clear that the series that uses more information on spatial variations of the price index (regional inflation and spatial variations) is the lowest of all the series. For instance, in 2012, the incidence of poverty, measured using national CPI estimates only, showed that 44.5 per cent of the population were living on less than \$2 a day, but using a measure that took into account region-specific inflation and spatial price variation produced an estimate of 36.5 per cent. Our calculations, moreover, reveal that the discrepancy between World Bank POVCAL calculation and ours is larger for rural poverty incidence but not quite so large for urban poverty.

Looking at the evolution of poverty over time, it suggests that the population living on less than \$2 a day has been declining quite significant particularly over the ten-year period from 2002 to 2012, the era of reform

⁴Before 2005, the series from the World Bank's POVCAL program were calculated at three-year intervals only.

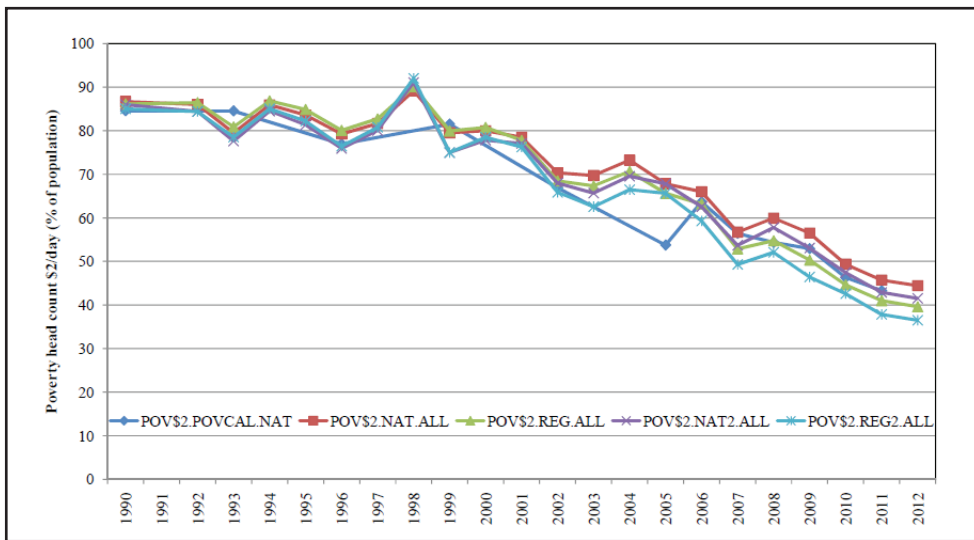


Figure 2. National Poverty Incidences at the \$2 A Day Poverty Line with Various Price Indexes and World Bank POVCAL

and democratization. It is clear from the figures that the rate of decline in poverty has been faster over the past ten years. For the period from 1990 to 2012, the proportion of people living on less than \$2 a day has been declining at an average rate of 2.2 per cent per year, down to only 36.5 per cent of the population in 2012. The rate of the decline in the past ten years (the Reformasi era, 2002–2012) has been faster (2.9 per cent a year) than during the pre-Reformasi era or the period from 1990 to 1996 (1.4 per cent a year).

In Figure 3 we compare the incidence of \$2 a day poverty with the incidence of poverty as defined by the national poverty line. Figure 3 contrasts the trend in the declining poverty incidence at the \$2 per day standard with the trend shown by the national poverty line. Although the rate of decline in the incidence of \$2 poverty is high, the rate of decline in

the incidence of poverty using the national poverty line is a lot slower for the same period. The incidence of poverty, judged by the national poverty line during the Reformasi era, improved by 0.65 per cent only a year, a lot slower than the rate of the decline in the incidence of \$2 a day poverty during the same period, which was 2.9 per cent per year. There are three possible explanations for this. First, it is harder to reduce poverty further when its incidence is already quite low, similar results to Brewer et al. (2003). Second, economic growth, which is one key factor in reducing the incidence of poverty, was relatively low during that period (Reformasi) resulting in lower rate of decline in poverty. The former explanation is a little inconsistent with the fact that, over the same period, the rate of decline seems faster for poverty that is defined as living on less than \$2 per day than it does for poverty defined

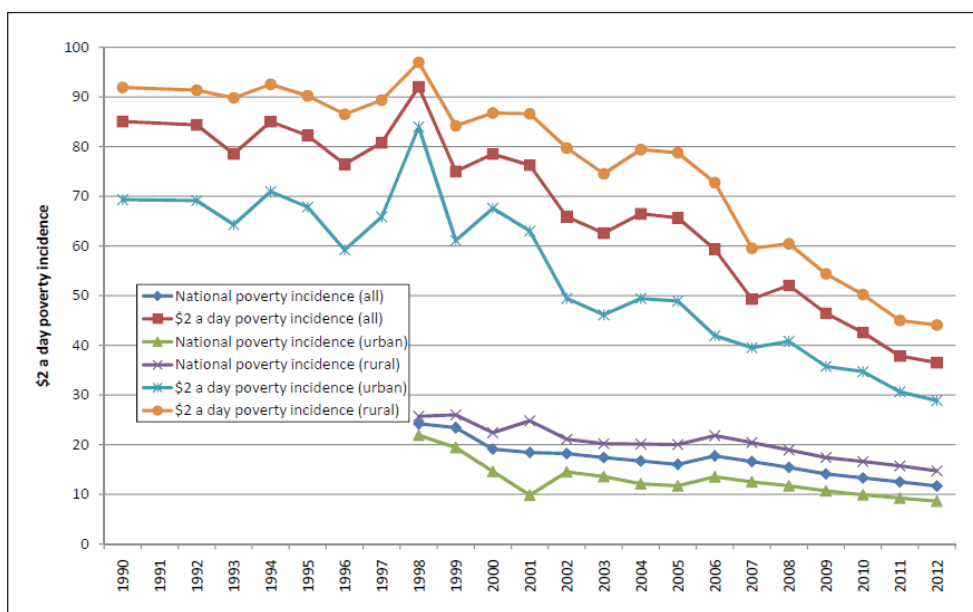


Figure 3. \$2 A Day Poverty Incidence and National Poverty Incidence

by the national poverty line. The third and more compelling argument is that the rapid decline in the incidence of \$2 per day poverty is more to do with a rising middle class rather than declining poverty per se. The World Bank (2008) and the Asian Development Bank (2010) define ‘middle class’ as a term to be applied to those whose income is between \$2 and \$20 a day in terms of 2005 purchasing power parity. In this sense, what can happen is that many Indonesian households meet this definition of middle class because their incomes have increased, allowing them more than \$2 a day for their living expenses, yet people who are living below the national absolute poverty line are lagging behind their fellow Indonesians who have managed to escape from the \$2 a day poverty trap.

Figure 4 shows again the poverty incidence (using the \$2 a day poverty line) for urban and rural areas but with different versions of the series. This figure shows that, although the differences between the series are small, particularly for urban areas, these differences show a contrast between urban and rural areas. The differences in the series are caused by the use of different price indexes (from less to more inter-regional variation), which implies that inter-regional or spatial variations of poverty matter a lot more in rural areas of Indonesia. As we apply more inter-regional variation in the \$2 a day poverty line, the proportion of people living on less than \$2 a day becomes smaller. Ignoring the inter-regional variations then will tend to over-estimate the poverty incidence particularly in rural areas.

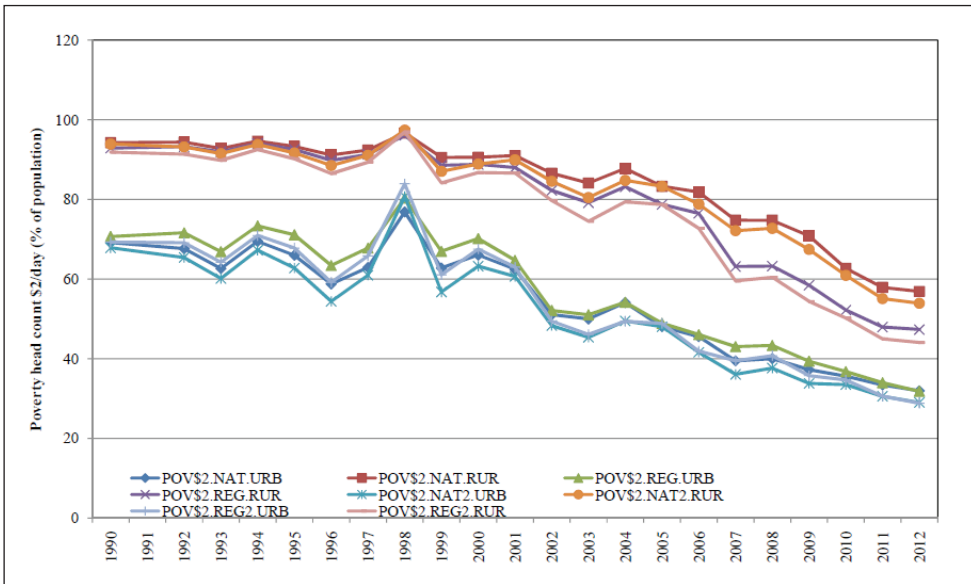


Figure 4. Urban and Rural Poverty Incidence at \$2 a Day Poverty Line with Various Price Indexes

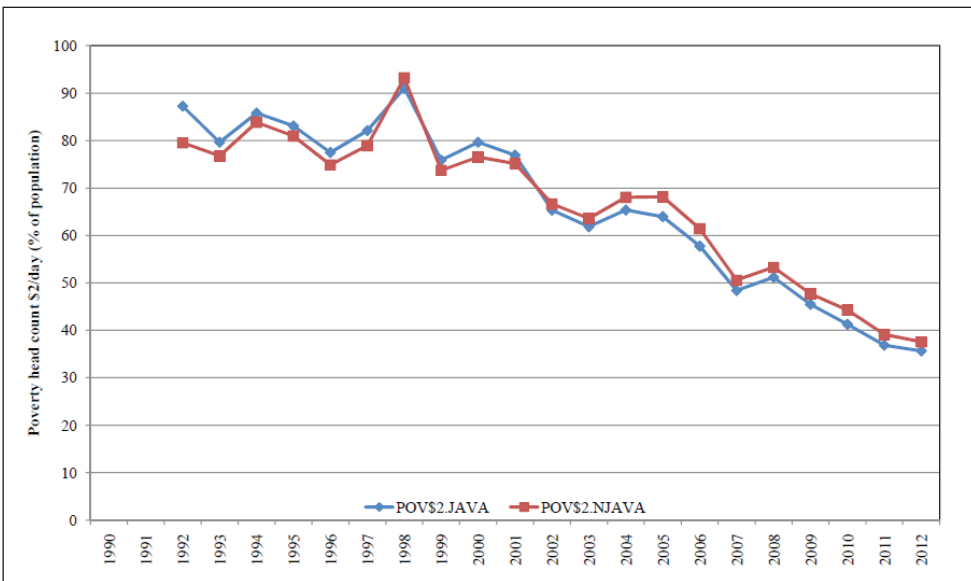


Figure 5. Poverty Incidence at \$2 a Day Poverty Line (Java and non-Java)

Figure 5 shows the poverty incidence in Java and non-Java regions. It suggests that the proportion of people living on less than \$2 a day is somewhat similar between Java and the other regions. While Figure 6 shows the incidence of poverty according to the sector of employment of the household head. Three sectors are distinguished: agriculture, manufacturing and other. Figure 6 shows that people who live on less than \$2 a day in Indonesia are predominantly as agricultural workers or people who depend on the agricultural sector for their livelihood. Despite declining trends for all the sectors, the gap, or the difference in the incidence of poverty between agricultural and non-agricultural sectors, tends to persist over time. Moreover, if we compare an early year, such 1992, with a recent year, 2012, it suggests that the gap is now bigger than it was 20 years ago. It is also quite noticeable that dur-

ing the period of the Asian Financial Crisis, the increase in non-agricultural \$2 a day poverty was a lot faster than in the agricultural sector.

Figure 7 shows the poverty incidence among those who work in the formal and informal sectors. The proportion of the people living on less than \$2 a day declines over the years for both groups. However, the gap in the poverty incidence between the two groups has been larger during the past ten years compared with the period before the Asian Financial Crisis (or pre-Reformasi). There are many reasons for this but one of the most compelling is the tightening of the labour market because of stronger labour unions and labour regulations (for example, high severance payments) has been blocking informal workers from entering the formal labour market, which has meant that more and

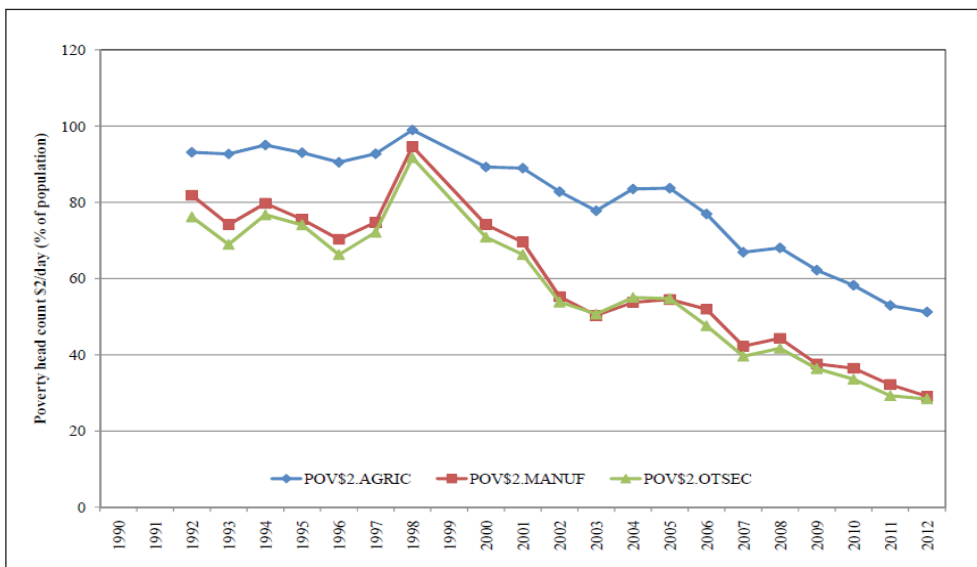


Figure 6. Poverty Incidence at \$2 a Day Poverty Line (by Employment Sector)

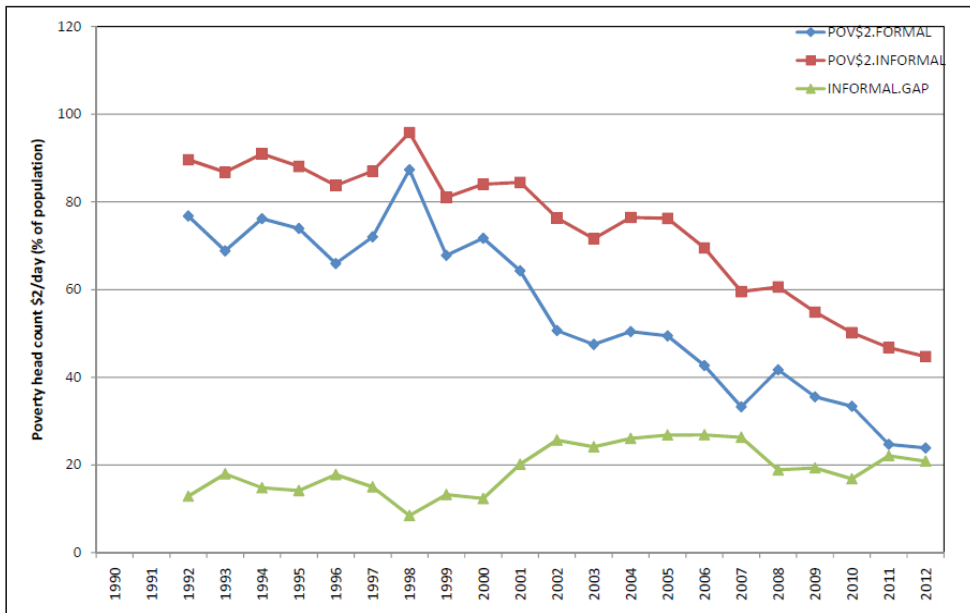


Figure 7. Poverty Incidence at \$2 a Day Poverty Line (Formal and Informal Sectors)

more people are stuck in the informal sector and remain in poverty (Manning and Roesad, 2006; Aswicahyono et al., 2010; Yusuf et al., 2013).

The Rate of Pro-Poor Growth

Table 2 shows the growth rate in the real per capita expenditure during four distinct periods: the long-term period or the past 22 years from 1990 to 2012, the pre-Reformasi era (1990–1996), the Reformasi era of 2000–2012, and the Reformasi era of 2002–2012. The last period, from 2002 to 2012, may better represent the Reformasi era because it was already four years after the Asian Financial Crisis. The growth rate in the annual real expenditure per capita is calculated for various groups; the mean population, the median population, the poor defined by the national poverty

line, the poor defined by the \$2 a day poverty line, and another five groups under the 30th percentile. Looking at the long-run growth from 1990 to 2012, Table 2 shows that although the growth rate in expenditure per person of the mean of population is 4.21 per cent per year, the growth rate of the \$2 a day poor and of the national poverty line poor grew by 3.53 per cent and 3.17 per cent respectively. In other words, the expenditure per capita of the average population was 33 per cent faster than that of the poor (defined by the national poverty line) whereas it was 19 per cent faster than that of the poor defined by the \$2 a day poverty line.

Comparing the pre-Reformasi and Reformasi periods, it is clear that the pro-pooriness of growth has been deteriorating considerably. For

Table 2. The Rate of Pro-Poor Growth

	1990 - 2012		1990 - 1996		2000 - 2012		2002 - 2012	
Growth rate in mean	4.21	<i>1.00</i>	4.50	<i>1.00</i>	5.96	<i>1.00</i>	5.05	<i>1.00</i>
Growth rate at median	3.66	<i>1.15</i>	3.70	<i>1.22</i>	4.54	<i>1.31</i>	4.06	<i>1.24</i>
Mean percentile growth rate	3.80	<i>1.11</i>	3.93	<i>1.15</i>	4.96	<i>1.20</i>	4.26	<i>1.19</i>
Rate of pro-poor growth (nat. pov. Line)	3.17	<i><u>1.33</u></i>	3.29	<i><u>1.37</u></i>	3.40	<i><u>1.75</u></i>	2.88	<i><u>1.75</u></i>
Rate of pro-poor growth (\$2/day)	3.53	<i><u>1.19</u></i>	3.63	<i><u>1.24</u></i>	4.26	<i><u>1.40</u></i>	3.49	<i><u>1.45</u></i>
Rate of pro-poor growth								
10th percentile	3.29	<i>1.28</i>	3.39	<i>1.33</i>	3.41	<i>1.75</i>	2.89	<i>1.75</i>
15th percentile	3.27	<i>1.29</i>	3.39	<i>1.33</i>	3.41	<i>1.75</i>	2.90	<i>1.74</i>
20th percentile	3.27	<i>1.29</i>	3.40	<i>1.32</i>	3.43	<i>1.74</i>	2.93	<i>1.72</i>
25th percentile	3.27	<i>1.29</i>	3.41	<i>1.32</i>	3.46	<i>1.72</i>	2.97	<i>1.70</i>
30th percentile	3.29	<i>1.28</i>	3.43	<i>1.31</i>	3.51	<i>1.70</i>	3.02	<i>1.67</i>

Note: Numbers in italics are ratio of the growth rate in mean to the corresponding growth rate

example, in the pre-Reformasi era (1990 to 1996) the growth in income of the average population was 37 per cent faster than the income growth of the poor (national poverty line). During the Reformasi era of 2002 to 2012, the expenditure per capita of the average person was 75 per cent higher than the growth rate in expenditure of the poor. These differences still apply when the comparison is made using the definition of the poor as those living on less than \$2 a day. From 1990 to 1996, the growth rate of the expenditure per person (in real terms) has grown by 4.5 per cent a year, the growth rate in expenditure of the people living on less than \$2 a day was only 3.63 per cent a year. This implies that the growth in expenditure of the average population

was 37 per cent faster. However, in the Reformasi era, the growth in income of the average population is faster by 45 per cent. In general, the difference between the two periods is the speed at which expenditure per person grew—roughly twice.

Figures 8 illustrate these differences in the growth incidence curves. Those figures complement the argument that the long-run Indonesian economic growth (over the past 22 years, the period before and after the Reformasi) has never led to less income inequality. However, during the Reformasi era, growth led to a lot more income inequality and was a lot less pro-poor relative to growth during the period before the Reformasi.

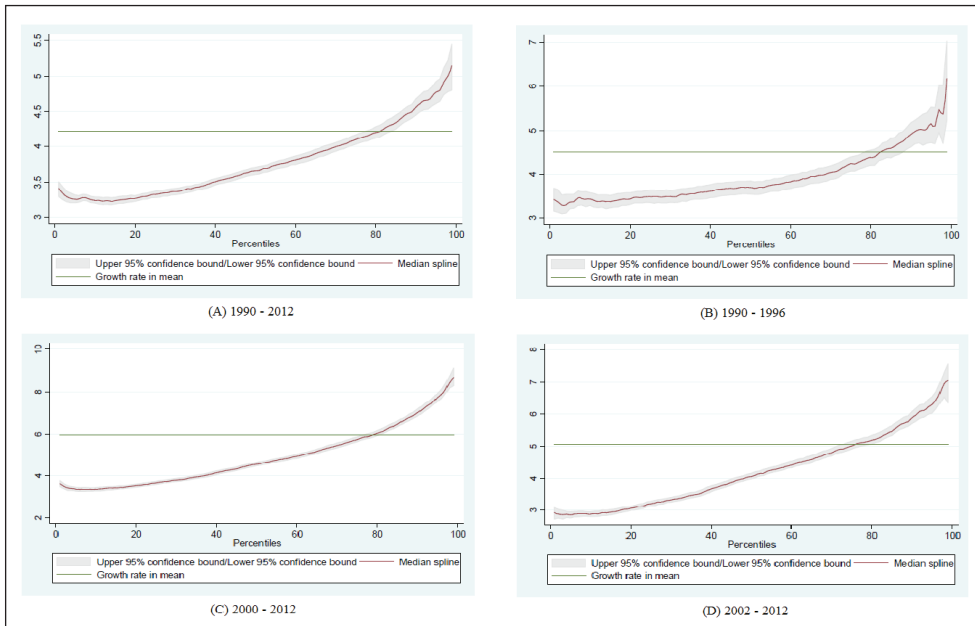


Figure 8. Growth Incidence Curve, (A) 1990–2012, (B) 1990–1996, (C) 2000–2012, (D) 2002–2012

CONCLUSION

From the public policy perspective, concerns that the national poverty line is set too low are being expressed more often in public discussions. Monitoring more closely the incidence of \$2 a day poverty and making the public aware of its development has never been seen to be relevant. Few studies look at these issues in detail: this paper is an attempt to redress this gap in research.

This paper first calculated the percentage of people living below international poverty line of \$2 per person per day for each of the years of the period from 1990 to 2012, or the past 22 years of Indonesian economic development, and compared and con-

trasted the evolution of poverty during the Reformasi era (2000–2012) with the pre-Reformasi era (1990–1996). Second, we also looked at how various relevant regional and socio-economic groups (urban and rural areas, Java and non-Java, formal and informal workers, as well as some sectors of employment) have progressed and have been able to move out of the cohort of those living on less than \$2 per day. Finally, we looked at how the welfare of the people living on less than \$2 a day (also in comparison with other standard of poverty) have grown in comparison to the overall economic growth or the growth of the mean income.

Using a long-term series of household survey data (SUSENAS), we estimated the proportion of people living on less than \$2 a day (2005 PPP), using more information to take into account regional variations in the poor's living costs, as well as regional inflation, in calculating the 2005 \$2 poverty line. Our calculations suggest that, for the period from 1990 to 2012, the proportion of people living on less than \$2 a day has been declining at an average rate of 2.2 per cent per year and stands at only 36.5 per cent in 2012. The rate of the decline in the past ten years (or Reformasi era, 2002–2012) has been faster (2.9 per cent a year) than during the pre-Reformasi era, the period from 1990 to 1996 (1.4 per cent a year). This is in contrast to a rather slower rate of the decline (of only 0.65 per cent a year) in the poverty incidence measured against the national poverty line during the Reformasi era. We also found that the long-run Indonesian economic growth (over the past 22 years, the periods before and after the Reformasi) have never led to a more equal distribution of income. Adding to the note, however, that during the Reformasi era, the growth was a lot more income-inequalising and a lot less pro-poor relative to growth during the period before the Reformasi era. This applies to the poor defined as those living below national poverty line and to those living on less than \$2 a day.

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