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POVERTY DYNAMICS IN INDONESIA, 2008–2010[1]

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ABSTRACT

Although official figures show that poverty in Indonesia has declined, it remains one of the key development issues. The current static poverty approach in assessing poverty changes has not been sufficient to design effective and strategic policies for poverty reduction. This study analyses the dynamics of poverty in Indonesia using the 2008–2010 panel data of the Survei Sosial Ekonomi Nasional (Susenas), the National Socio-Economic Survey. This study uses a sequential transition matrix to depict the dynamics of poverty that are shown by the magnitude of changes in poverty status (especially transient and chronic poverty). The matrix indicates that the incidence of transient and chronic poverty for the period 2008–2010 was 23.2 per cent, much higher than the figure of 13.3 per cent derived by using the static poverty approach in 2010. This suggests that the magnitude of the poverty problem in Indonesia is indeed much higher than the common perception that is based on the usual poverty indicators. The results of a multinomial logistic model reconfirm the importance of investment in education, improvement in the agricultural and non-agricultural sectors, and reduction of dependency ratios to help cope with transient and chronic poverty. To help develop poverty alleviation policy and to design intervention programs, using the statistics of chronic poverty and the Human Development Index, there are eight provinces that could be considered as the core focus area. These provinces are Nangroe Aceh Darussalam, Lampung, East Java, East Nusa Tenggara, Central Sulawesi, South East Sulawesi, Maluku, and West Papua, and all need immediate intervention and accelerated poverty reduction programs.

Keywords: *Geographical targeting, Multinomial logistic, Poverty dynamics, Transient and chronic poverty, Sequential transition matrix*

JEL Classification: C35, I32

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I. INTRODUCTION

Although poverty in Indonesia has been declining (except in some years after the 1997 financial and economic crisis), it remains one of the key items on the development agenda as shown by the new Master Plan for the Acceleration of Indonesia's Poverty Reduction (MP3KI–Master Plan untuk Percepatan Penanggulangan Kemiskinan Indonesia). The importance of poverty reduction in the world is indicated by its nomination as one of the Millennium Development Goals.

It is very obvious that poverty must be reduced: it is a contributing cause of crime; it lowers the quality and possibilities of social and political life; and it disallows far too many from fulfilling their potential (Daryanto and Hafidzrianda, 2010). In fact, poverty reduction has been argued to be one of the indicators of development (Seers, 1979). Hence, the presence of poverty could be considered a sign of development failure related to past policies (Remi and Tjiptoherijanto, 2002).

Experience indicates that, although in some years Indonesia had periods of increasing poverty caused by the 1997–98 economic crisis (for instance, from 17.47 per cent in 1996 to 24.2 per cent in 1998), it managed only to reduce its poverty incidence to 12.5 per cent in 2011. However, the speed of poverty reduction needs to be accelerated because past goals of poverty reduction have not been met. For instance, the targets for poverty incidence for 2009, 2010 and 2011 were 8.2, 12.1 and 11.5 per cent respectively; but the estimated poverty incidence in those three years were 14.1, 13.5 and 12.5 per cent (TNP2K, 2011).

Currently, Indonesia has poverty alleviation strategies that can be grouped into three major clusters (TNP2K, 2011). The first cluster focuses on household-based social assistance, the second cluster comprises community-based poverty reduction programs, and the third cluster deals with strengthening micro and small-scale businesses. Some instances of poverty alleviation strategies of the first cluster are the conditional cash-transfer program, (Program Keluarga Harapan (PKH)); health insurance for the poor (Jaminan Kesehatan Masyarakat (Jamkesmas)); and the unconditional cash-transfer program, (Bantuan Langsung Tunai (BLT)), which was implemented at the time of the financial crisis.

The PKH provides cash transfers at selected locations to extremely poor households that meet some specific conditions, such as that there be pregnant women or children aged below 15 years in the household. The cash transfer will only be given only if the pregnant woman in the household has regular pre and post-natal checkups or that the children go to school. The program is to reduce the financial burdens of very poor households and, at the same time, to enable those

households to invest in their children's human capital to break the long-term, intergenerational cycles of poverty. The Jamkesmas provides health services to the poor and to vulnerable people. It is currently enabling health services to more than 76 million people in Indonesia. The BLT is given only in cases of crisis or shock in the country caused, say, by a reduction in fuel subsidies that leads to increases in the prices of other essential commodities. The main objective of this BLT program is to keep the consumption level of poor people stable when some shocks occur[3].

The strategies in the second cluster focus on the community empowerment using the Program Nasional Pemberdayaan Masyarakat (PNPM), and the strategies in the third cluster include increasing the opportunities for and access to credit for micro and small-scale businesses through Kredit Usaha Rakyat (KUR) and Kredit Usaha Bersama (KUBE).

Making comparisons of poverty incidence over time, a method that has been widely used in poverty analysis, could be considered as the static poverty approach because the estimates of poverty rates can be described as snapshots of poverty at various points in time. However, in recent years, accelerating poverty reduction requires additional analysis that investigates the number and process of people moving in and out of poverty. This approach, which could be called dynamic poverty approach, is used to understand better the conditions under which some households remain permanently (or persistently or chronically) poor and other households move in and out of poverty. The information on poverty dynamics could equip policy makers better for improving the current strategies and designing future poverty alleviation efforts. This view is in line with what Thorbecke (2004) states, that most of the remaining unresolved issues in poverty analysis are related directly or indirectly to the dynamics of poverty.

The information and analysis of poverty dynamics is needed for three purposes (Haughton and Khandker, 2009). First, the analysis distinguishes households that are poor occasionally (transient poverty) from those that are poor all the time (persistent poverty). It has practical importance, because the types of intervention to deal with the transient and persistent poverty are likely to be different. Second, the information about these various types of households (transient poor, chronic poor and never poor) is required for monitoring and evaluating the effects

[3] To integrate all the household-based social assistance programs, the government of Indonesia has created a database that includes the poor and vulnerable households throughout Indonesia. The database covers about 45 per cent of the entire population of Indonesia and is currently being used to determine which households and individuals will qualify for a particular program. This database is an important part of the national targeting system to reach those most in need and thus should be updated regularly.

of a specific shock, policy, or project on poverty mitigation. The examples include the studies about the extent microcredit schemes have benefited the poor. Third, tracking the evolution of poverty over time allows us to adjust the way in which poverty alleviation is targeted.

Unfortunately, most analyses of poverty in Indonesia have been based on the static poverty approach; only recently has the dynamic poverty approach has been used (Alisyahbana and Yusuf, 2003; Widyanti, Suryahadi, Sumarto and Yumna, 2009; Suryahadi and Sumarto, 2011). This paper updates the understanding of poverty dynamics in Indonesia, using the most recent 2008–2010 panel data of the national social-economic survey, the Survei Sosial Ekonomi Nasional (Susenas) conducted by the national statistics agency, the Badan Pusat Statistik (BPS). It provides an estimate of the components of poverty dynamics and discusses the determinants of changes in poverty status of households during the period 2008–2010. It also presents a geographical component, which could be used for ranking the provinces for poverty alleviation efforts. Section II of the paper provides a short literature review, Section III describes the data sources and analytical methods used, Section IV provides the results and Section V the conclusion.

II. LITERATURE REVIEW

2.1 Official poverty measurement in Indonesia

Poverty measurement in Indonesia has been conducted regularly by the BPS[4]. In recent years, the estimates of poverty indexes are provided every year using the cost of basic needs approach (Maksum, 2004; Avenzora and Karyono, 2008). This approach perceives poverty as an economic inability, measured by consumption expenditure, to meet food and other basic needs.

BPS uses monthly per capita consumption expenditure on food and non-food items as an indicator of welfare and determines a particular threshold, defined as the poverty line[5]. The food poverty line is the expenditure required to be able to acquire a BPS predetermined minimum food bundle (of 52 items) which satisfies the energy requirement of 2100

[4] BPS is one of the non-ministerial government institutions. Its main responsibility is to coordinate statistical activities in Indonesia. The first estimates of poverty were published in 1984.

[5] Consumption modules in the National Socio-Economic Survey (Survei Sosial Ekonomi Nasional–Susenas) 2008–2010 are used to aggregate the welfare indicator of households. The consumption module consists of 215 food commodities of staple food, dishes, vegetable, drinks, fruit, and other types of food items. It also covers 109 non-food commodities such as housing, transportation, education, health, and other types of non-food items. Then the expenditure of food and non-food commodities in a household is aggregated to create an indicator of wellbeing and expressed it as monthly per capita expenditure.

kilocalories per capita per day. The non-food poverty line is considered as the minimum expenditure required to cover the non-food basic needs of shelter, clothing, education and health (51 items). An individual is said to be poor if his or her monthly per capita income is below the poverty line. BPS calculated poverty lines for each provincial urban and rural area for the period from 2008 to 2010, which resulted in 33 provincial urban and 32 rural poverty lines[6].

2.2 Poverty dynamics

According to Asra (2012), it is economic well-being, which can be represented by income, expenditure or some welfare indicators, that is mostly utilised in poverty measurement. Viewed from the measurement aspect, as briefly indicated in the introduction, the approach to poverty analysis can be classified into two: static and dynamic. The static poverty approach includes the comparison of some estimates of poverty indexes, such as the well-known Foster-Greer-Thorbecke (FGT) indexes, for a number of years during a certain period. The dynamic poverty approach investigates the size and process of movement out of and into poverty during a period of observation.

From the dynamic aspect, Oduro (2002) indicates that there are different methods to measure poverty and most require longitudinal data sets. Recently, some methods have been developed to address the issues of vulnerability and chronic poverty using cross-sectional data sets. In short, the current methods include panel data and components approaches (cross-section). Jalan and Ravallion (2000) divide poor households at any date into three mutually exclusive groups: the persistently poor, who are poor at every date; those who are not poor at every date; and those who are only transiently poor.

However, there can be as many as five categories of poverty status over time (Hulme, Moore and Shepherd, 2001). They identify that there are those who are always poor, usually poor, churning poor, occasionally poor, and never poor. These five categories can be simplified to three: chronic poor (always and usually poor), transient poor (churning and occasionally poor), and never poor. The study of poverty dynamics also often includes the duration and severity of the household poverty status. Hulme and Shepherd (2003) mention that chronic poverty could be viewed as occurring when an individual experiences significant capability deprivations for a period of five years or more.

[6] The numbers are not the same because Jakarta does not have a rural area.

2.3 Some studies on poverty dynamics

Jalan and Ravallion (2000) study poverty dynamics in rural China and test whether the transient poverty is determined by a process that is similar to the chronic poverty. The results show that the smaller the household and the more educated the household, the lower the probability of these households being chronically poor, but these variables matter little to transient poverty. Furthermore, living in an area with better health and education facilities reduces the likelihood of a household being in chronic poverty but these variables appear to be irrelevant to transient poverty.

Ribas and Machado (2007) find that between 1995 and 2003, 73 per cent of urban poverty in Brazil was chronic and is ascribed mostly to an initial persistent condition of poverty. In other words, the current set of poor people comes from those who were poor at the previous period. In addition, they also indicate that younger cohorts tend to exhibit downward mobility into poverty. Race and sex are found to be determining factors in keeping non-whites and women in poverty. With regard to education, they show that an elementary school diploma reduces the probability of cohorts falling into poverty and a middle school diploma decreases their chance of staying in poverty.

A study on poverty transition, using a multinomial probit model, was also done in Chile (Abufhele and Puentes, 2011). It is found that the older the household head, the greater the probability of the household leaving poverty. Furthermore, they show that education is an important determining factor for households to be able to move out of poverty.

In Indonesia, there have been some studies about the dynamics of poverty. For instance, the SMERU Research Institute conducted two such studies, using cross-sectional household data from the Susenas (Suharyadi and Sumarto, 2001; Widyanti, Sumarto and Suharyadi, 2001). It also investigated the relations between chronic poverty and household dynamics using 1993, 1997, and 2000 panel data of the Indonesia Family Life Survey (IFLS) (Widyanti et al., 2009).

The SMERU Research Institute finds that the greater the number of household members, the higher the probability of households being chronically poor. Comparing different types of household composition, it shows that households consisting of single females without children have the lowest probability of being either chronically poor or vulnerable to poverty, but households comprising single males with or without children have the highest probability of being vulnerable.

In addition, having a higher proportion of household members who have senior secondary or higher education significantly reduces the

probability of households being chronically poor or vulnerable to poverty. This result is in line with Schultz's education hypothesis, explained by Schultz (1975) in Glewwe and Hall (1998), that highly educated people are able to adapt to economic shocks easily, utilise assets, gain better credit and have a better chance to get additional income, resulting in wealth accumulation. Similarly, Alisjahbana and Yusuf (2003), using the Indonesia Family Life Survey (IFLS) 1993 and 1997 panel data sets, find that a higher standard of education of the household head decreases the probability of households being in transient or chronic poverty.

As indicated before, using the most recent panel data of the 2008, 2009, and 2010 Susenas, this paper improves the understanding of poverty dynamics in Indonesia. It is important to note that two studies of poverty dynamics in Indonesia (Alisjahbana and Yusuf, 2003; Widyanti et al., 2009) both used panel data of the 1993–1997 IFLS and 1993, 1997 and 2000 IFLS, respectively. In other words, these two studies cover the period of growth from 1993 to 1997 and from 1997 (a year of financial crisis) until the recovery of 2000, and this paper examines the condition of the post-recovery period.

In sum, this paper presents recent estimates of the numbers of the poor classified into three groups (never poor, transiently poor and always poor). It also explains factors behind people staying in or moving out of poverty. In addition, by using the much more extensive Susenas data, this paper derives estimates of the components of poverty dynamics at provincial level allowing the construction of geographical (provincial) targeting, which has not been done in the previous studies[7].

III. METHODS AND DATA SOURCES

3.1 Methods

As briefly stated in the introduction, this paper discusses poverty dynamics in Indonesia for the period 2008 to 2010 in three ways: by estimating the proportion of poverty movements; by studying the determinants of people leaving or staying in poverty; and by examining provincial targeting.

The estimation of the proportion of poverty movement, describing changes in the household poverty status during 2008–2010, is done by using a sequential transition matrix. The matrix is derived using monthly household per capita consumption data and BPS provincial (urban and rural) poverty lines for 2008, 2009 and 2010. In 2008, the households were classified as poor or non-poor.

[7] The IFLS can only provide data at the national level. Tim Nasional Percepatan Penanggulangan Kemiskinan (TNP2K) (2011) estimated the change in the poverty status during 2008–2010 using population, not households as done by this study.

These two groups were re-examined in 2009 with regard their poverty status. Thus, in 2009 there were four groups: those who were poor in 2008 and still poor in 2009, those who were poor in 2008 but became non-poor in 2009, those who were non-poor in 2008 and remained non-poor in 2009, and those who were not poor in 2008 but became poor in 2009. These four groups were again studied in 2010 regarding their poverty status, leading to eight groups[8]. The matrix, providing the estimate of the proportion of households moving from poor to non-poor and vice versa during the period 2008 to 2010, is derived using the information on the relative numbers of households in each of eight categories of household.

In explaining the factors behind transient and chronic poverty, the multinomial logistic model is used. As suggested by Alisjahbana and Yusuf (2003), the model estimation is undertaken separately for urban and rural areas[9]. The households are said to be never poor if they never fall into poverty in all three years (2008, 2009 and 2010), transient poor if they are poor once or twice in all three periods, and always poor (or, in this case, chronically poor) if they are poor in all three periods. The independent variables consist of the initial characteristics of the household head (age, sex, education, and employment status) and initial characteristics of households (proportion of household members working in agricultural and non-agricultural sectors, dependency ratio, source of energy for lighting, and location).

In this paper, we treat the never-poor group (Y = 1) as the reference with p independent variables, and the corresponding two logit functions are (see Hosmer and Lemeshow, 2000):

$$g_1(\mathbf{x}) = \ln\left[\frac{P(Y=2|\mathbf{x})}{P(Y=1|\mathbf{x})}\right] = \beta_{20} + \beta_{21}x_1 + \cdots + \beta_{2p}x_p \quad 1$$

$$g_2(\mathbf{x}) = \ln\left[\frac{P(Y=3|\mathbf{x})}{P(Y=1|\mathbf{x})}\right] = \beta_{30} + \beta_{31}x_1 + \cdots + \beta_{3p}x_p \quad 2$$

The three conditional probabilities of transient (Y = 2) and chronically poor (Y = 3) are given as follows:

[8] Poor in 2008 and 2009, and remaining poor in 2010; poor in 2008 and 2009 but became non-poor in 2010; poor in 2008 but non-poor in 2009 and remained non-poor in 2010; poor in 2008 but non-poor in 2009 and became poor again in 2010; non-poor in 2008, 2009 and 2010; non-poor in 2008 and 2009 but became poor in 2010; non-poor in 2008, poor in 2009, but became non-poor again in 2010; and non-poor in 2008, poor in 2009 and remained poor in 2010.

[9] This is considered better than combining urban and rural areas using a dummy variable (Alisyahbana and Yusuf, 2003).

$$P(Y = 1|x) = \frac{1}{1+\exp[\beta_{20}+\beta_{21}x_1+\cdots+\beta_{2p}x_p]+\exp[\beta_{30}+\beta_{31}x_1+\cdots+\beta_{3p}x_p]} \quad (3)$$

$$P(Y = 2|x) = \frac{\exp[\beta_{20}+\beta_{21}x_1+\cdots+\beta_{2p}x_p]}{1+\exp[\beta_{20}+\beta_{21}x_1+\cdots+\beta_{2p}x_p]+\exp[\beta_{30}+\beta_{31}x_1+\cdots+\beta_{3p}x_p]} \quad (4)$$

$$P(Y = 3|x) = \frac{\exp[\beta_{30}+\beta_{31}x_1+\cdots+\beta_{3p}x_p]}{1+\exp[\beta_{20}+\beta_{21}x_1+\cdots+\beta_{2p}x_p]+\exp[\beta_{30}+\beta_{31}x_1+\cdots+\beta_{3p}x_p]} \quad (5)$$

Model fitting assessment is done by estimating the value of the log likelihood ratio (G) and by employing a partial test using z-test to determine the significance of the coefficient of each independent variable on the response variable (the poverty status of the households).[10,11] In addition, to what extent the model can predict the poverty status of the households can be examined by calculating the so-called 'correct prediction of the model', which is obtained by comparing the predicted and actual poverty status for each category. For analysis, the odds ratio (OR) is estimated by) from the logit equations. The OR greater than one indicates a positive association between the explanatory variable and the outcome under consideration, and an OR smaller than one represents a negative relation. All calculations were derived using STATA 11.

The information about the poverty status of the households is used to determine which provinces need to be given priority in poverty alleviation efforts. The targeting is carried out by also employing the current provincial Human Development Index (HDI) which is hypothesised to be strongly correlated with the poverty status of the households.[12]

[10] G = - 2 ln $\left(\frac{L_0}{L_p}\right)$, this value is used to decide whether rejecting the null model (L0) in favour of the alternative model (Lp). is rejected if or p-value . [Comment: I have highlighted the first few characters of this footnote because it does not look right but I am not a maths person – not one tiny bit. Should the minus sign be right next to the number 2? Should -1n- be –In-?]

[11] zj = $\frac{\hat{\beta}}{Se(\hat{\beta})}$ where j = 1, 2, ..., p; is rejected if p-value < 0,05 or $z < -z_{\alpha/2}$ or $z > z_{\alpha/2}$.

[12] Pearson's correlation is computed and its significance is statistically confirmed.

3.2 Data sources

This paper uses the data from the core questionnaire of the BPS Susenas.[13] In addition, it also employs the data from the consumption module of the same survey (Susenas) that collects information on more than 300 items of food and non-food consumption expenditure.

Since 2002, Susenas has been fielded twice a year (in February and in July).[14] BPS also collects panel data in the February survey every three years: the first panel data is for 2002–2004 and the most recent panel is for 2008–2010. In analysing the poverty dynamics, this paper uses the 2008–2010 panel data of the February Susenas. Of the households selected for Susenas sampling, our observations are restricted to those households that were in all three surveys (2008, 2009 and 2010). From the 66,724 households enumerated in 2008, there were 52,596 of them still available in 2010, which gives a 21.2 per cent attrition rate over the period.[15] This attrition rate is considered to be reasonably acceptable for panel surveys in developing countries (Alderman, et al. 2001).[16]

IV. RESULTS

4.1 Changes in household poverty status

The sequential transition matrix in 1 clearly depicts the short-term movement of poverty during the three years of observation. In 2008, 13.1 per cent of households in Indonesia lived in poverty and the remaining 86.9 per cent were non-poor (see Figure 1).[17] Of those classified as non-poor in 2008, 92.9 per cent of them were still non-poor in 2009 (which was equal to 80.8 per cent of households in 2009).[18] Of those households that were non-poor in 2008 and in 2009, 95.1 per cent of them were still non-

[13] Susenas contains a core section that has extensive information on individual characteristics including health, education and employment; and on household characteristics, such as dwelling, living and economic condition. In addition to the core questionnaire, it also includes a rotating module for culture, education, and settlement every three years that asks for more detailed information, as well as the regular, annual consumption module.

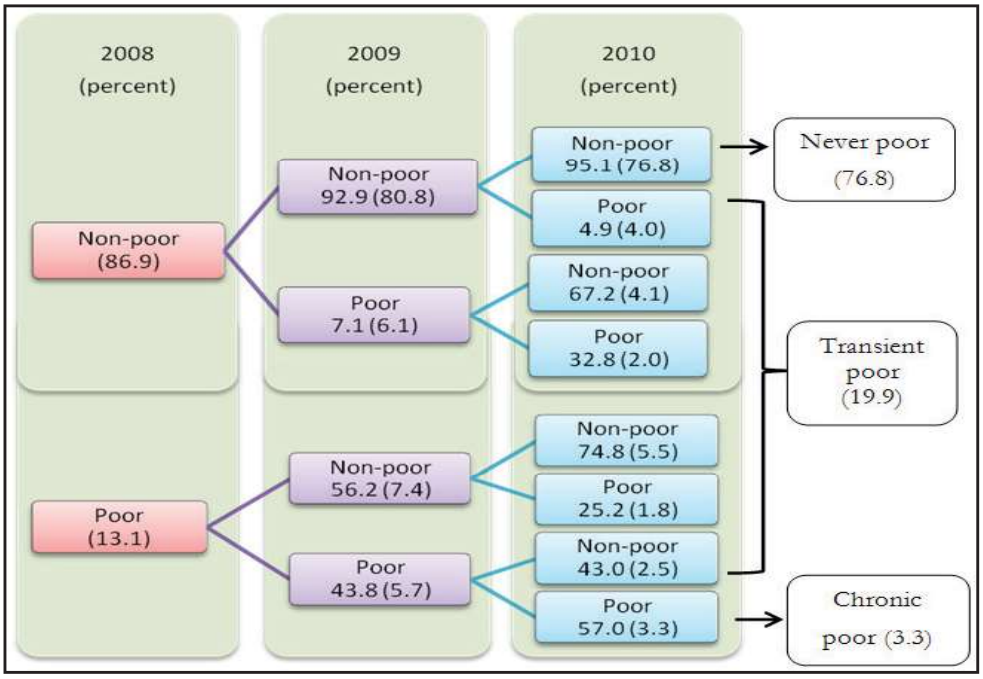
[14] In 2007, the February survey covered about 65,000 households across Indonesia allowing the estimation of the parameters at provincial urban and rural levels, but the July survey covers more than 250,000 households enabling district level estimation.

[15] The attrition rate is reflects the loss of observations during the stated period.

[16] Although the attrition rate is moderate, there is still a possibility of potential selection bias because of differences in poverty status between those who drop out and stay in the panel series and thus this possibility can give impact to the poverty dynamics.

[17] This number is slightly different from 15.42 per cent poverty rate in 2008 because of attrition in household sample in Susenas between 2008 and 2010.

[18] This figure is close to the percentage of non-poor population in 2008 who were also non-poor in 2009, which is 92.4 per cent, given by TNP2K (2011).



Source: Calculated from the BPS Susenas Panel 2008–2010.
Notes: Numbers in parentheses are the percentages of households by poverty status in related periods; numbers without parentheses are the percentages of households experiencing poverty changes within one-year

Figure 1. Sequential transition matrix in Indonesia, 2008–2010

poor in 2010.[19] Those households that were never poor during the period 2008 to 2010 were 76.8 per cent of the total observed households. They were called never poor households.

Of all poor households in 2008 (13.1 per cent), 43.8 per cent were still poor in 2009, which was equal to 5.7 per cent of households in 2009, (see Figure 1).[20] Of those households that were poor in 2008 and in 2009, 57 per cent were still poor in 2010.[21] The households that were always poor during the period 2008–2010 represent 3.3 per cent of total observed households in Indonesia. They could be considered chronically poor households.[22]

[19] This figure is also close to that of TNP2K, which is 92.7 per cent, using population as the unit of observation.

[20] Compared to 45.6 per cent, using population, given by TNP2K (2011).

[21] Compared to 46.3 per cent, using population, given by TNP2K (2011).

[22] They are referred to as chronic although the period of observation is short (three years). Ideally, to be able to reasonably call them the chronicly poor, we need at least a five-year period of observation.

The remaining households that were either non-poor or poor in 2008, and changed their poverty status in 2009 or in 2010, were named transiently poor households. Hence, during the period 2008–2010, there were 19.9 per cent households in Indonesia that changed their poverty status in any one year. In total, the incidence of chronic and transient poverty in Indonesia during the 2008–2010 period was 23.2 per cent, much higher than in 2010, based on poverty statistics approach (13.3 per cent).

The size of the chronically poor group is relatively similar between urban and rural areas, albeit slightly higher in rural areas (Astuti, 2012). However, the key difference between urban and rural poverty is that the rate of transient poverty in rural areas is much higher. This finding is consistent with the study by Alisjahbana and Yusuf (2003) suggesting that location (in this case, urban and rural) plays a major part in explaining the opportunities available to households to be able to change their poverty status. The same observation has been made of other developing countries (McKay and Lawson, 2003; cited by Alisjahbana and Yusuf, 2003).

4.2 Determinants of chronic and transient poverty

Information about some key factors influencing the change in poverty status of the households over time is important for designing poverty alleviation strategies. This paper uses a multinomial logistic model to examine the determinants of poverty dynamics. Table 1 shows that, based on the two indicators of goodness of fit (the value of log likelihood ratio-G2 and the percentage correctly predicted), the urban and the rural models could be considered good. The two G2s are both significant at the 5 per cent level and the overall percentage of the models is relatively high (82.22 per cent for urban and 72 per cent for rural). These overall percentages could be considered reasonably good by Alisjahbana and Yusuf (2003), who obtain an overall percentage of 78 per cent for their urban study.[23]

The urban and rural models both show that the greater the age of the household head, the probability of the household to be in transient or chronic poverty decreases (OR is less than 1) (see Table 1). This finding may be because the higher the age of household head, the longer the work experience, which leads to increased productivity and household income. This finding is in line with the results of Abufhele and Puentes (2011), Jalan and Ravallion (1998), McCulloch and Baulch (2000) and Alisjahbana and Yusuf (2003). The coefficient of the sex of the household head is significant

[23] The same level of overall percentage is also found in some studies in other developing countries (cited by Alisjahbana and Yusuf, 2003).

in urban and in rural areas, implying that male-headed households tend to be in transient or chronic poverty compared with female-headed households. The above findings are consistent with a Nepalese case (Bhatta and Sharma, 2006), indicating that age and sex of the household head are found to be significantly related to transient and chronic poverty.

As expected, educational attainment of the household head in urban and rural areas is found to be significant and negatively associated with either transient or chronic poverty (OR is less than 1) (see Table 1). It is interesting to note as well that, similarly for Nepal (Bhatta and Sharma, 2006), the estimated ORs for chronic poverty are substantially smaller than those for transient poverty. They suggest that a one unit increase in educational attainment of the household head decreases the odds of being chronically poor more than the odds of being transiently poor.

The results show that, holding other variables constant, the higher the educational attainment of the household head, the lower the chance that this household would become transiently or chronically poor. In urban areas, for instance, a household with its head having elementary education tends to transient poverty 0.63 times and to chronic poverty 0.46 times compared with a household head without schooling (see Table 1). So too with household heads having senior secondary or above, those households tend to be transiently poor 0.14 times and chronically poor 0.06 times compared with households whose head is without schooling (see Table 1).

In addition to the age, sex, and education of the household head, there is another variable related to the household head, that is, employment status. However, only in urban areas, for the transiently and for the chronically poor, the result shows that household heads working in agriculture is positive and significantly related to being transiently and chronically poor (OR is more than one) (see Table 1). In rural areas, the coefficient of the household head working in agriculture is not significant. For the variable of household head working in a non-agricultural sector, the coefficients for transient and chronic poverty in urban and in rural areas are not significant.

Other independent variables are related to the household characteristics. One of them is the proportion of household members working in agriculture, which is considered to affect the likelihood of a household being in transient or chronic poverty. A higher percentage of household members working in agriculture is associated with a higher probability of the household becoming one of transient or chronic poverty (OR is greater than 1) (see Table 1). In urban areas, for instance, the estimated OR for the

Table 1. Multinomial logit results by urban and rural areas

Independent variables	Urban				Rural			
	Transient poor		Chronic poor		Transient poor		Chronic poor	
	Coeff.	OR	Coeff.	OR	Coeff.	OR	Coeff.	OR
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Age of HH head	-0.02*	0.99	-0.03*	0.97	-0.01*	0.99	-0.03*	0.97
HH head is male (reference: female)	0.16*	1.17	0.36*	1.44	0.17*	1.18	0.63*	1.88
Education attainment of HH head (reference: no schooling)								
Elementary	-0.46*	0.63	-0.78*	0.46	-0.34*	0.71	-0.56*	0.57
Junior secondary	-0.95*	0.39	-1.51*	0.22	-0.72*	0.49	-1.20*	0.34
Senior secondary and above	-1.95*	0.14	-2.78*	0.06	-1.21*	0.30	-1.83*	0.16
Working status of HH head (reference: not working)								
Working in agriculture	0.58*	1.78	0.80*	2.21	0.11	1.12	-0.03	0.97
Working in non-agriculture	0.11	1.11	0.05	1.05	-0.04	0.96	-0.28	0.75
Proportion of HH members working in agriculture	1.69*	5.40	2.07*	7.92	0.54*	1.71	0.62*	1.86
Proportion of HH members working in non-agriculture	-0.79*	0.46	-1.50*	0.22	-0.93*	0.39	-1.27*	0.28
Dependency ratio	0.66*	1.93	1.12*	3.06	0.53*	1.69	0.96*	2.62
Lighting source: electricity (reference: others)	-1.24*	0.30	-1.90*	0.15	-0.66*	0.51	-1.17*	0.31
Living in Western Indonesia (reference: Eastern Indonesia)	0.06	1.06	-0.14	0.87	-0.11*	0.90	-0.37*	0.69
Constant	0.43*		-0.05		-0.24*		-1.35*	
No. of observations	19,406				33,190			
Log likelihood ratio (G)	3244.37*				4087.93*			
Percentage correctly predicted	82.22 %				72.65 %			

Source: Calculated from BPS Susenas Panel 2008–2010.
Note: Dependent variable: poverty status (1 = never poor; 2 = transient poor; 3 = chronic poor), with base category poverty status = 1, never poor. * = significant at 5%. HH = household. OR = odds ratio.

proportion of household members working in agriculture for transient poor is 5.4, but the OR for chronic poverty is 7.9.

On the other hand, the proportion of household members working in non-agriculture will reduce the probability of households becoming either transiently or chronically poor (OR is less than 1) (see Table 1). For instance, in urban areas, the OR of the proportion of household members working in non-agriculture for the transient poor is 0.46 but for the chronic poor it is 0.22 (see Table 1).

The above facts are in line with the common view that, compared with other sectors in the economy, the agri-

cultural sector has lower productivity. The World Bank (2007) indicates that households in the agriculture sector have lower expenditures (higher risk of transient or chronic poverty) than those households in the industrial and services sectors.

It is also interesting to note that, except for urban areas, although the employment status of a household head does not have much effect on the poverty status of the household, the proportion of working household members (either in agriculture or non-agriculture) does indeed have a significant effect. It supports the assertion of Rosenhouse (1994) that, as a sole indicator of welfare, headship fails to take into account the roles of other household members. Thus, the use of the household head as a variable in analysing the determinants of household poverty status may not be appropriate where multiple-earner households are the norm (as in Indonesia).

The dependency ratio indicates the economic burden of households because of the presence of non-productive members of households. An increasing dependency ratio in urban and rural households will increase the burden for households, which can increase the probability that they will fall into poverty (transient and chronic). Table 1 shows the positive and significant relations between the dependency ratio and the chances of a household being transiently or chronically poor. The ORs for urban areas are estimated to be more than one (1.93 and 3.06 for transient and chronic poverty, respectively) but for rural areas the corresponding estimated ORs are 1.69 and 2.62. This finding supports the views of Jalan and Ravallion (2000) and McCulloch and Baulch (2000).

With regard to the use of electricity, as expected, it has a negative and significant association with the chances of households being in transient or chronic poverty in urban and in rural areas (see Table 1). As stated by Usman, Sinaga and Siregar (2004), increasing the access of households to electricity will decrease their energy expenditures by seventy-five per cent, enabling poor households to increase savings and to allocate income to improve education and health of their household's members. This will then decrease significantly their chances of transient or chronic poverty. Finally, it is only for rural areas that the location (western or eastern Indonesia) seems to have a significant effect on the chances of being in transient or chronic poverty (see Table 1). The result shows that rural households in the western part of Indonesia have a lower probability of falling into transient and chronic poverty than do rural households living in eastern Indonesia.

To sum up, although with different magnitudes, there are some similarities between urban and rural areas in terms of the determinants of transient and chronic poverty. In urban and in rural areas, factors behind

transient and chronic poverty include household-head characteristics (age, sex and education) and characteristics of the household (the proportion of household members working in agricultural and non-agricultural sectors, dependency ratios, and source of energy for lighting). The variable, household-head working in agriculture, is significant only for urban areas, and location is significant only for rural areas.

4.3 Geographical targeting of poverty

In the past, poverty reduction programs were usually carried out by indirect interventions, such as fostering economic growth. Recently, the direct intervention strategy has been added, such as the PKH, the cash transfer policy (BLT) and Jamkesmas. The shift from indirect to direct intervention leads to the increasing importance of targeted interventions. Indeed, one cannot help poor people without knowing who they are (Haughton and Khandker, 2009) and where they are.

Based on the provincial 2008 Human Development Index (HDI) and the incidence of chronic poverty, the 33 provinces can be grouped into four. The first group comprises those provinces with an HDI higher than the national HDI and their incidence of chronic poverty lower than the national rate. The second group comprises those provinces with an HDI and their incidence of chronic poverty higher than the corresponding national figures; the third group comprises those provinces with an HDI and an incidence of chronic poverty lower than the corresponding national figures. Finally, the fourth group comprises those provinces with an HDI lower than the national figure and their chronic poverty incidence is higher than the corresponding national figure.

It is clear that the first (highest) priority for poverty alleviation should be given to the fourth group, which needs immediate interventions (but lacks human capital resources). This is a group of eight provinces: Nangroe Aceh Darussalam, Lampung, East Java, East Nusa Tenggara, Central Sulawesi, South East Sulawesi, Maluku, and West Papua (see Figure 2). Chatterjee, Asra, and Estrada (2006), utilising the Human Capital Base and Poverty Allocation Index, also find that two of these eight provinces (East Java and Maluku) are core focus areas for poverty reduction. These two provinces were also indicated by Yulianingsih (2011) as targeted provinces because of their high vulnerability to food shortages.

Provinces with the lowest priority for intervention include North Sumatra, West Sumatra, Riau, Riau Islands, Jambi, Bangka Belitung, South Sumatra, DKI Jakarta, Central Kalimantan, East Kalimantan and North Sulawesi. The remaining provinces (West Java, Banten, Bali, West Kalimantan, South Kalimantan,

West Sulawesi, South Sulawesi, North Maluku, Bengkulu, Central Java, Yogyakarta, West Nusa Tenggara, Gorontalo and Papua) could be considered to be given the second priority once the resources have been allocated to the first priority group of provinces. Figure 2 presents the map of Indonesia with targeted provinces.

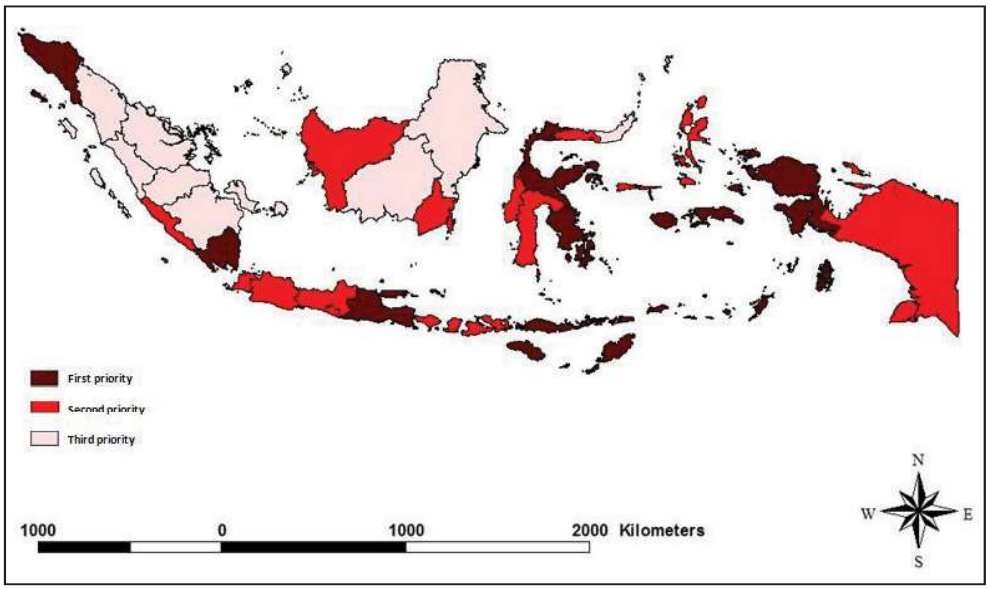
V. CONCLUSION

During 2008–2010, the Indonesian economy grew by 5.34 per cent per year and static poverty declined from 15.4 per cent in 2008 to 13.3 per cent in 2010. However, the total transient and chronic poverty during this period is found to be 23.2 per cent, much higher than the official static poverty incidence of 13.3 per cent (BPS, 2011). Hence, from the dynamic view of poverty, the magnitude of the poverty problem in Indonesia is indeed much higher, thus poverty needs urgent attention by policy-makers.

Most of the changes in poverty are to and from the category of transient poverty, which indicates the highly fluid nature of poverty in Indonesia. It suggests the need for regular poverty monitoring and for designing appropriate strategies for mitigating this type of transient poverty. However, although the extent of chronic poverty is relatively low, the government should also have concrete policies and strategies to address it because tackling chronic poverty is more difficult.

Furthermore, the significant relation between the education of the household head and transient and chronic poverty highlights the continued need for investment in education, especially for low-income households. It might include, for example, increasing the number of scholarships for poor households or free education at least until secondary school. The significant and negative relation between the proportion of household members working in non-agricultural occupations and transient and chronic poverty suggests that enriching the agricultural sector and enlarging the non-agricultural sector should remain high on the development agenda of the government. Finally, the dependency ratio is indeed one of the significant factors behind transient and chronic poverty, indicating the need to reduce it, perhaps through the revitalisation of the family planning program, as part of in the overall effort for poverty alleviation.

Using the incidence of chronic poverty and HDI, eight provinces have been identified to be given the first priority in poverty alleviation efforts: Nangroe Aceh Darussalam, Lampung, East Java, East Nusa Tenggara, Central Sulawesi, South East Sulawesi, Maluku, and West Papua. The fact that most provinces in eastern Indonesia have more households in a state of transient or chronic poverty suggests that development in eastern Indonesia must be accelerated.



Source: Calculated from HDI provinces 2008 and BPS Susenas Panel 2008–2010.
Notes: National HDI 2008 is 71.17; national chronically poor incidence is 3.3 per cent; correlation between HDI and chronically poor incidence is – 0.56.

Figure 2. Geographical targeting of chronically poor households

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