

Assets and poverty status dynamics in 5 main regions in Indonesia

Purna Fitria

Graduate Programme in Economics, Faculty of Economics and Business, Universitas Indonesia, Indonesia.

E-mail: fitriapurna@gmail.com

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Abstract

Comparing household expenditure and national poverty line, about 24.78% of households in Indonesia experienced poverty (expenditure below the poverty line) at least once within 14-year period. By utilizing the Ordered Logit Model, this study examines the determinants of household poverty status and analyses the relative effect of different household assets and characteristics on their poverty status. Employing three waves of Indonesia Family Life Survey (IFLS) consisting of household level data from the year of 2000, 2007 and 2014 and categorized households into five main regions based on their location. This study finds that assets (building, vehicle, jewellery, and savings) play important role in determining poverty status of households in Indonesia. Some demographic and socio-economic variables are confirmed to be statistically significant to poverty status in Indonesia. However, the determinants of poverty status vary within regions.

Abstrak

Membandingkan pengeluaran rumah tangga dan garis kemiskinan nasional, sekitar 24,78% rumah tangga di Indonesia mengalami kemiskinan (pengeluaran di bawah garis kemiskinan) setidaknya sekali dalam periode 14 tahun. Dengan memanfaatkan Logit Model, penelitian ini menganalisis faktor-faktor penentu status kemiskinan rumah tangga dan mengkaji pengaruh relatif dari aset dan karakteristik rumah tangga yang berbeda pada status kemiskinan mereka. Menggunakan tiga Survei Kehidupan Keluarga Indonesia (SKKI) yang terdiri dari data tingkat rumah tangga dari tahun 2000, 2007 dan 2014, rumah tangga dikategorikan menjadi lima wilayah utama berdasarkan lokasi mereka. Studi ini menemukan bahwa aset (bangunan, kendaraan, perhiasan dan tabungan) memainkan peran penting dalam menentukan status kemiskinan rumah tangga di Indonesia. Beberapa variabel demografis dan sosio-ekonomi yang dikonfirmasi secara statistik signifikan untuk status kemiskinan di Indonesia. Namun, faktor-faktor penentu status kemiskinan bervariasi dalam daerah.

Introduction

As one of the developing countries, Indonesia has made enormous efforts both through government and NGO with social assistance programs, community-driven development programs and many other programs to eliminate poverty. However, many people are still vulnerable to poverty and even non-poor groups of the society face the possibility of becoming poor in the near future. Indonesia enjoys increasing growth as well as a decreased poverty rate but the rate of decline is getting slower and slower as we can see in Table 1.

Table 1. Poverty rate and Gini ratio of Indonesia (2006-2014)

		2006	2007	2008	2009	2010	2011	2012	2013	2014
Relative	Poverty (% of population)	17.8	16.6	15.4	14.2	13.3	12.5	12.0	11.4	11.3
Absolute	Poverty (in millions)	39.3	37.17	34.96	32.53	31.02	29.89	28.59	28.55	-
Gini coefficient/ Gini ratio		-	0.364	0.350	0.370	0.380	0.410	0.410	0.413	-

Sources: World Bank and Statistics Indonesia

The fact that poverty is still exist and the rate of decline is slowing down lead some to challenge the efforts that have been formulated and executed as ineffective or not on target. To answer that challenge, many studies have been conducted but most research on poverty in Indonesia still focus on a static poverty analysis that analyzes the proportion of people being poor in a given single point of time (Afandi, Wahyuni,

& Sriyana, 2017; Hariadi, 2009). However, when we discuss policy related to the poverty problem, we need to consider that there is a lag between policy implementation and the emergence of the results, such as the impact of subsidy on education or return to assets on poverty. These studies, that only investigate the factors of poverty in a static or short term period study, fail to account for that lag.

Balisacan & Fuwa (2007) mentions that the main cause of poverty or economic mobility is a low level of assets endowment, low return to assets and the inability to cope with negative income shocks. Narschold (2012) introduces the concept he calls “stock of assets” to explain how a household’s economic well-being can be analyzed as that which, accumulated over a period of time, makes it possible for the household to move out of poverty through income gain using those assets. The next question would seem to be, to what extent assets endowment could help the poor? Could higher assets endowment assure that vulnerable people will not be poor in the future or even be better-off?

Therefore, the objectives of this study are: 1) to examine the determinants of household poverty status divided into categories such as chronic poor, transient poor and never poor; 2) to understand to what extent household assets and other household characteristics measured in the initial period affect the dynamics of household poverty status in the following periods.

Research Method

This study employ the last three panel survey of Indonesia Family Life Survey (IFLS) data, a longitudinal socioeconomic and health survey conducted by The RAND Corporation: IFLS3, IFLS4 and IFL5, selecting the household which were re- interviewed for all three waves making a total of 9,229 households. The advantage of using the IFLS datasets to analyze poverty dynamics is due to this high re-contact rate. This survey enables us to track the same households and follow their welfare dynamics over time, even though a household may have migrated to another region.

The analysis of poverty dynamics starts from defining poverty. This study defines poverty in each given year as expenditure of a household below the poverty line. Data of expenditure was gained from IFLS 2000, 2007 and 2014 datasets by aggregating the data on food expenditure and non-food expenditure calculated monthly, in real terms. To get per capita expenditure, the monthly expenditure was divided by household size.

The poverty line used in this study is gained from the rural-urban specific per capita poverty line published by Statistics Indonesia for year 2000, 2007 and 2014. Statistics Indonesia defines this poverty line on the basis of the calculation of essentials food and non- food estimates combined. To estimate minimum food needs, the rupiah value to fulfill 2,100 kcal/day energy intakes monthly per capita is used and for the non-food, the rupiah value of basic monthly per capita needs including housing, clothing, schooling, transportation and other basic needs are used. (2011, pp. 6). Next, this study compares the per capita expenditures to the official poverty line, to obtain the data of “poor” and “non-poor” household in each year.

After determining who the poor are, the severity levels of their poverty are classified in terms of length. This classification is based upon the foundational concept of spells of poverty. Using this approach, we construct the poverty status as the explained variable with categorization into the following spells: (1) Chronic poor, if a household is poor three times; (2) Usually poor, if a household is poor only two times; (3) Occasionally poor, if a household is poor once; and (4) Never poor, if a household never falls into poverty. with these specifications:

Table 2. Poverty status description

Poverty Status	Description	Cases
1= chronic poor	Poor 3 times	(P, P, P)
2= usually poor	Poor 2 times	(P, P, NP); (P, NP, P); (NP, P, P)
3= occasionally poor	Poor 1 time	(P, NP, NP); (NP, P, NP); (NP, NP, P)
4 = never poor	Poor 0 time	(NP, NP, NP)

Source: Author, adapting Hulme, Moore, & Shepherd (2001)

Using an ordered logit model, these poverty status categories were regressed on the factors that determine them. The ordered logit model was utilized for the reason that the poverty status categories have an order of preference where one status is better and preferred over the others. The order of poverty status is “never poor” > “occasionally poor” > “usually poor” > “chronic poor”. The most preferred poverty status is “never poor” and the least preferred poverty status among them is “chronic poor”. The ordered logit

model for this study is specified as the following:

$$Povstat_i = \beta_1 + \beta_2 \ln assets_i + \beta_3 HHChars_i + \beta_4 Shocks_i + \beta_5 VC_i^{00-07} + \beta_6 VC_i^{07-14} + \varepsilon_i$$

where:

$Povstat_i$ = household poverty status;

$\ln assets_i$ = logarithm form of household assets value;

$HHChars_i$ = household demographic and social-economy characteristic;

$Shocks_i$ = positive and negative shocks;

VC_i^{00-07} = variable of changes for 2000-2007;

VC_i^{07-14} = variable of changes for 2007-2014;

ε_i = error term;

i = household 1, 2, ..., n

The explanatory variables that were utilized in this study consist of variables from the initial year (2000) and their subsequent changes. These initial variables characterize a set of certain conditions assigned to each household and used to explore whether these characteristics determine the poverty status. Additionally, this study used the variables of change identified as the years between 2000 and 2007, and between 2007 and 2014 to represent how a change in a characteristic (for example, change in location from rural to urban or urbanization) affects a household's poverty status in the following periods. The descriptions of each explanatory variable along with their expected values are presented in the Table 3.

Table 3. Description of explanatory variables and their expected signs

No	Variable Name	Description	Expected Sign
A.	$\ln assets_i$	Logarithm form household assets value in rupiah	
1.	\ln_land	Logarithm form of value of a household's land either for farming, non-farm business or non-business in rupiah	+
2.	\ln_house	Logarithm form value of a household's house either for farming or non-business in rupiah	+
3.	\ln_bldg	Logarithm form value of a household's building either for non- farm business or non-business in rupiah	+
4.	$\ln_poultry$	Logarithm form value of a household's poultry either for farming or non-farming in rupiah	+
5.	$\ln_vehicle$	Logarithm form value of a household's four-wheel vehicle either for farming, non-farm business or non-business in rupiah	+
6.	$\ln_jewelry$	Logarithm form value of a household's jewelry in rupiah	+
7.	\ln_saving	Logarithm form value of a household's savings in rupiah	+
B.	$HHChar_i$	Household demographic and social-economy	
8.	$exhhh$	Dummy variable of the household head gender, =1 if household is female headed, =0 if otherwise	-
9.	$marstat$	Dummy Variable of marital status, =1 if married, =0 if others	+
10.	$agehhh$	Age of the household head	-
11.	$eduhhhmax$	Year of schooling of the household head	+
12.	a_edummm	Average year of schooling of the household's members	+
13.	$hhsize$	Household size	-
14.	$rural$	Household location, =1 if household lives in the rural area, =0 if otherwise	-
15.	$fdiverse$	Food diversity variable, representing the variety of nutrition intake as the proxy of health.	+
16.	$worktor$	Work sector, =1 for agricultural sector, =0 for others	-
17.	$emptor$	Employment status, =1 for formal sector, =0 for informal sector	+
18.	$Electricity$	Access to electricity, =1 if connected, =0 if not connected	+
C.	$Shocks_i$	Positive and negative shocks	
19.	$NESR$	Negative Economic Shocks and Risks (NESR)=1 if experience disaster, price fall, crop loss and employment loss, =0 if others	-
20.	$assistance$	Access to government assistance =1 if household receive cheap rice (RASKIN), conditional cash transfer, unconditional cash transfer and market operation, =0 if otherwise"	+
21.	$Sick$	Total of daily activities disrupted by health problem (days in four weeks)	-
22.	$insurance$	Insurance to cope with shocks related to health issue, =1 if having health insurance =0 if others	+
23.	$credit$	Access to credit from any source, =1 if receiving credit, =0 no credit	+

No	Variable Name	Description	Expected Sign
24.	nli	Household Non-Labor Income, =1 If any household members gaining cash from government scholarship, private scholarship, insurance money and winning/lottery, =0 if otherwise	+
D.	$VC_{2000-2007}$	Change in explanatory variables between 2000 and 2007	
25.	dhhsz07	change in number of household between 2000 and 2007	-
26.	dmarstat07	change in marital status between 2000 and 2007, =1 if divorce, =0 if others	-
27.	dworktor07	change in work sectors between 2000 and 2007, =1 from agricultural sector to non-agricultural sector, =0 for others	+
28.	demptor07	change in employment status between 2000 and 2007, =1 from formal sectors to non-formal sectors, =0 for others	-
29.	dcredit07	change in access to credit, =1 if gaining access in 2007 but not in 2000, =0 if others	+
30.	drural07	change in location between 2000 and 2007, =1 if migrate from rural to urban, =0 if others	+
E.	$VC_{2007-2014}$	Change in variables (between 2007 and 2014)	
31.	dhhsz14	change in number of household between 2007 and 2014	-
32.	dmarstat14	change in marital status between 2007 and 2014, =1 if divorce, =0 if others	-
33.	dworktor14	change in work sectors between 2007 and 2014, =1 from agricultural sector to non-agricultural sector, =0 for others	+
34.	demptor14	change in employment status between 2007 and 2014, =1 from formal sectors to non-formal sectors, =0 for others	-
35.	dcredit14	change in access to credit, =1 if gaining access in 2014 but not in 2007, =0 if others	+
36.	drural14	change in location between 2007 and 2014, =1 if migrate from rural to urban, =0 if others	+

Source: Author

Results and Discussion

The estimated coefficient signs in the ordered logit models give the same indications compared to the linear regression results in terms of direction. However, in the logit model the analysis additionally shows the marginal effect (dy/dx) of how changes in explanatory variables affect the probability of a household to be chronic poor, usually poor, occasionally poor and never poor. Table 6 and 7 shows the marginal effects (dy/dx) of changes in the probability of households being poor, usually poor, occasionally poor and never poor in response to a change in the explanatory variables, while setting all the explanatory variables at their mean values.

As shown in Table 6, the probability of households in Indonesia to be chronic poor, usually poor, occasionally poor and never poor are 0.64%, 5.26%, 24.3% and 69.78%, respectively. In the Java and Bali region, the probability of households to be chronic poor is 0.66%; usually poor is 4.98%; occasionally poor is 22.19%; and never poor is 72.16%. However, in the remaining regions, the probability of households outside Java and Bali collectively to be chronic poor is lower compared to Java and Bali (0.52%). When we set the explanatory variables at their average value, generally, the probability over 14 years of a household in Java and Bali region to be either always poor or never poor is higher than it would be for households outside Java and Bali.

The third model (national model or full sample) shows that all demographic and socio-economic variables are statistically significant in determining the poverty status except marital status and location. In Model 1, the significant demographic and socio-economic variables vary across the regions.

In terms of asset holdings, Model 3 confirms that building, vehicle, jewelry, and savings are statistically significant in determining poverty status in Indonesia as a whole. However, Model 2 shows that for the regions examined separately, house, building, jewelry and saving are statistically significant as poverty status determinants in Java and Bali. In regions outside Java and Bali (collectively), land, poultry, vehicle, jewelry and savings are statistically significant. Moreover, Model 1 confirms that the significant factors for poverty status in Sumatera are only jewelry and savings; in West Nusantara they are land, vehicle and savings; in Kalimantan they are house, building and jewelry, while in Sulawesi the significant factors are only house and savings. These findings illustrate how different assets influence a household's welfare in different way.

Table 4. Estimation Result of Ordered Logit Model (Model 1)

VARIABLES	Model 1									
	Sumatera		Java and Bali		West Nusa Tenggara		Kalimantan		Sulawesi	
	Coeff.	std. error	Coeff.	std. error	Coeff.	std. error	Coeff.	std. error	Coeff.	std. error
Demo & Soc-Eco var in 2000										
sexhhh	-0.879**	(0.356)	-0.405***	(0.152)	0.187	(0.369)	-0.280	(0.652)	0.280	(1.015)
marstat	-0.502	(0.397)	0.0232	(0.175)	0.198	(0.467)	-0.297	(0.657)	-0.107	(1.038)
agehhh	0.00849	(0.00718)	-0.00649***	(0.00229)	-0.000162	(0.0101)	-0.0171	(0.0150)	-0.00307	(0.00238)
eduhhhmax	0.0195	(0.0246)	0.0655***	(0.0137)	0.121***	(0.0376)	0.0521	(0.0569)	0.0928*	(0.0538)
a_edummm	0.180***	(0.0395)	0.152***	(0.0206)	0.146***	(0.0568)	0.0832	(0.0921)	0.305***	(0.0985)
hhszise	-0.491***	(0.0628)	-0.499***	(0.0326)	-0.649***	(0.0959)	-0.568***	(0.156)	-0.920***	(0.176)
fdiverse	0.496***	(0.0691)	0.285***	(0.0335)	0.261**	(0.106)	0.459***	(0.121)	0.744***	(0.183)
worktor	-0.228	(0.239)	-0.0642	(0.148)	-0.0559	(0.356)	-0.933**	(0.457)	0.0374	(0.703)
emptor	0.324	(0.329)	0.202	(0.168)	1.171*	(0.708)	-0.788	(0.733)	1.654	(1.191)
electricity	0.238	(0.191)	0.114	(0.177)	0.0846	(0.286)	-0.248	(0.412)	0.697	(0.534)
rural	-0.232	(0.191)	0.132	(0.178)	0.0713	(0.290)	-0.203	(0.409)	0.674	(0.534)
Assets holding in 2000										
ln_land	0.0100	(0.00771)	-0.00311	(0.00406)	0.0394***	(0.0112)	0.00334	(0.0183)	0.0257	(0.0196)
ln_house	-0.00349	(0.00839)	0.00959*	(0.00500)	0.000687	(0.0159)	0.0494**	(0.0207)	0.0635**	(0.0320)
ln_bldg	0.0132	(0.0112)	0.0277***	(0.00570)	0.00345	(0.0124)	0.0446**	(0.0210)	0.0297	(0.0274)
ln_poultry	0.0133	(0.00853)	-0.00690	(0.00489)	0.0109	(0.0146)	0.0392	(0.0254)	-0.0186	(0.0215)
ln_vehicle	0.00215	(0.00763)	0.00642	(0.00402)	0.0315**	(0.0133)	-0.00400	(0.0162)	0.0318	(0.0198)
ln_jewelry	0.0305***	(0.00786)	0.0108***	(0.00411)	0.0166	(0.0113)	0.0352**	(0.0159)	0.0119	(0.0233)
ln_saving	0.0244**	(0.0112)	0.0190***	(0.00532)	0.0440**	(0.0195)	0.00263	(0.0218)	0.0510*	(0.0269)
Shocks/Risk & Policy Var in 2000										
NESR	-0.219	(0.177)	-0.0502	(0.105)	-0.723**	(0.317)	-0.137	(0.378)	0.436	(0.582)
assistance	-0.238	(0.174)	-0.749***	(0.0936)	-0.331	(0.247)	-0.454	(0.387)	1.242**	(0.589)
sick	0.0403***	(0.0154)	-0.00393	(0.00604)	-0.0403	(0.0252)	-0.00846	(0.0317)	0.0752*	(0.0436)
insurance	0.123	(0.202)	-0.116	(0.0921)	-0.228	(0.268)	0.157	(0.362)	0.842*	(0.503)
credit	0.0474	(0.234)	0.203*	(0.107)	0.316	(0.380)	0.710	(0.460)	-0.964*	(0.577)
NLI	-0.0475	(0.250)	0.0413	(0.111)	0.0413	(0.297)	0.00126	(0.363)	1.374	(1.121)
Changes Variables during 2000-2007										
dhszise07	-0.235***	(0.0604)	-0.201***	(0.0321)	-0.517***	(0.0993)	-0.0130	(0.145)	-0.332**	(0.158)
dmarstat07	-0.142	(0.318)	-0.000793	(0.172)	0.159	(0.417)	-0.356	(0.628)	1.004	(0.820)
dworktor07	-0.293	(0.308)	-0.0963	(0.176)	-0.540	(0.467)	0.424	(0.623)	-0.199	(0.696)
demptor07	-0.345	(0.371)	-0.466***	(0.179)	-0.801	(0.732)	1.688**	(0.828)	-1.409	(1.256)
dcredit07	0.249	(0.247)	0.171	(0.131)	2.673***	(0.746)	-0.0453	(0.864)	-0.0931	(0.807)
drural07	0.590	(0.368)	-0.250	(0.173)	-0.240	(0.367)	0.924	(1.090)	1.005	(0.956)
Changes Variables during 2007-2014										
dhszise14	-0.0645	(0.0509)	-0.0318	(0.0279)	-0.0386	(0.0706)	0.0560	(0.122)	-0.290**	(0.139)
dmarstat14	-0.284	(0.297)	-0.292*	(0.151)	0.269	(0.396)	0.422	(0.502)	0.317	(0.877)
dworktor14	-0.533**	(0.236)	-0.357***	(0.135)	-0.479	(0.348)	-0.140	(0.497)	0.130	(0.581)
demptor14	0.181	(0.289)	-0.0388	(0.158)	-0.746	(0.569)	-0.0177	(0.595)	-1.395	(0.979)
dcredit14	0.290	(0.216)	-0.0346	(0.112)	0.529*	(0.286)	0.687	(0.562)	0.122	(0.537)
drural14	0.255	(0.308)	-0.0208	(0.148)	0.321	(0.471)	0.0538	(1.188)	-0.387	(1.476)
Constant cut1	-3.790***	(0.778)	-4.835***	(0.381)	-5.140***	(1.091)	-4.925***	(1.361)	-2.392	(1.797)
Constant cut2	-1.645**	(0.733)	-2.639***	(0.352)	-2.196**	(1.050)	-1.104	(1.321)	0.638	(1.723)
Constant cut3	0.521	(0.728)	-0.775**	(0.348)	0.0187	(1.045)			3.481**	(1.756)
Observations		957		2,995		406		269		179
Log Likelihood		-659.6		-2205		-334.8		-164.5		-119.1
Wald Chi-Squared		321.9		921.5		217.4		98.36		111.5
Pseudo R-Squared		0.196		0.173		0.240		0.230		0.319

Referring to Table 7, setting savings at its mean value, a 100% change in savings is associated with a 0.45% increased probability of a household in Indonesia identifying as never poor. However, a 100% change in savings is associated to increase the probability of a household in Indonesia identifying as chronic poor, usually poor, and occasionally poor by 0.014%, 0.11%, and 0.33% respectively. A 100% change in value of jewellery, leads to an increased probability of the household in Indonesia to become never poor by 0.32%. However, 100% increase in value of jewellery decreases the probability of a household in Indonesia becoming chronic poor, usually poor, and occasionally poor by 0.0098%, 0.07%, and 0.24% respectively.

Table 5. Estimation result of ordered logit model (Model 2 and 3)

VARIABLES	Model 2				Model 3	
	Java and Bali Island		Outside Java and Bali Island		National	
	Coeff.	std. error	Coeff.	std. error	Coeff.	std. error
Demographic and Socio-Economic Variable in 2000						
Sexhhh	-0.405***	(0.152)	-0.349	(0.217)	-0.406***	(0.123)
Marstat	0.0232	(0.175)	-0.248	(0.248)	-0.0895	(0.141)
Agehhh	-0.00649***	(0.00219)	-0.000688	(0.00148)	-0.00225*	(0.00121)
Eduhhhhmax	0.0655***	(0.0137)	0.0520***	(0.0163)	0.0595***	(0.0103)
A_edummm	0.152***	(0.0206)	0.190***	(0.0258)	0.163***	(0.0158)
Hhsize	-0.499***	(0.0326)	-0.492***	(0.0427)	-0.483***	(0.0252)
Fdiverse	0.285***	(0.0335)	0.469***	(0.0457)	0.346***	(0.0264)
Worktor	-0.0642	(0.148)	-0.250	(0.162)	-0.141	(0.107)
Emptor	0.202	(0.168)	0.300	(0.246)	0.275**	(0.137)
Electricity	0.132	(0.178)	0.135	(0.131)	0.182*	(0.0989)
Rural	0.134	(0.117)	-0.104	(0.153)	0.0295	(0.0910)
Assets holding in 2000						
ln_land	-0.00311	(0.00406)	0.0140***	(0.00531)	0.00251	(0.00317)
ln_house	0.00959*	(0.00500)	-0.00500	(0.00623)	0.00365	(0.00382)
ln_bldg	0.0277***	(0.00570)	0.00709	(0.00682)	0.0193***	(0.00431)
ln_poultry	-0.00690	(0.00489)	0.0119**	(0.00601)	0.00132	(0.00369)
ln_vehicle	0.00642	(0.00402)	0.0156***	(0.00511)	0.00916***	(0.00309)
ln_jewelry	0.0108***	(0.00411)	0.0199***	(0.00514)	0.0153***	(0.00316)
ln_saving	0.0190***	(0.00532)	0.0275***	(0.00769)	0.0214***	(0.00432)
Shocks/Risk and Policy Variables in 2000						
NESR	-0.0502	(0.105)	-0.0641	(0.126)	-0.0389	(0.0790)
Assistance	-0.749***	(0.0936)	-0.371***	(0.114)	-0.623***	(0.0690)
Sick	-0.00393	(0.00604)	0.0272***	(0.0106)	0.00274	(0.00522)
Insurance	-0.116	(0.0921)	0.118	(0.130)	-0.0347	(0.0741)
Credit	0.203*	(0.107)	0.142	(0.163)	0.144*	(0.0876)
NLI	0.0427	(0.111)	0.0374	(0.151)	0.0185	(0.0883)
Changes Variables during 2000-2007						
dhhsize07	-0.201***	(0.0321)	-0.231***	(0.0426)	-0.208***	(0.0253)
dmarstat07	-0.00793	(0.172)	0.0833	(0.207)	0.0386	(0.131)
dworktor07	-0.0963	(0.176)	-0.251	(0.207)	-0.162	(0.132)
demptor07	-0.466***	(0.179)	-0.157	(0.271)	-0.387***	(0.147)
dcredit07	0.171	(0.131)	0.435**	(0.203)	0.256**	(0.108)
drural07	-0.250	(0.173)	0.0599	(0.214)	-0.119	(0.132)
Changes Variables during 2007-2014						
dhhsize14	-0.0318	(0.0279)	-0.0668*	(0.0350)	-0.0482**	(0.0216)
dmarstat14	-0.292**	(0.151)	-0.0818	(0.190)	-0.217*	(0.117)
dworktor14	-0.357***	(0.135)	-0.356**	(0.161)	-0.377***	(0.101)
demptor14	-0.0388	(0.158)	0.183	(0.213)	0.0310	(0.125)
dcredit14	-0.0346	(0.112)	0.273*	(0.145)	0.0953	(0.0877)
drural14	-0.0208	(0.148)	0.156	(0.235)	0.103	(0.121)
Constant cut1	-4.835***	(0.381)	-3.717***	(0.475)	-4.239***	(0.284)
Constant cut2	-2.639***	(0.352)	-1.266***	(0.435)	-1.971***	(0.260)
Constant cut3	-0.775**	(0.348)	0.846**	(0.433)	-0.0402	(0.257)
Observations	2,995		1,811		4,806	
Pseudo R-squared	0.173		0.188		0.169	
Log Likelihood	-2205		-1381		-3634	
Wald Chi-Squared	921.5		640.1		1480	

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

This finding confirms the study by Jalan & Ravallion (2000) that finds chronic and transient poverty to be reduced greatly by physical capital. Savings and jewellery are rarely employed as a proxy of assets, with many studies using land ownership/value instead (Jalan & Ravallion, 1998; McCulloch & Baulch, 2000; Haddad & Ahmed, 2003; Woolard & Klasen, 2005; Dartanto & Nurcholis, 2014). Savings and jewellery are found to significantly impact poverty status since they are more liquid or can more easily be turned into cash to provide additional funds in the face of some negative shock whereas selling assets like land or house takes more time. Therefore, encouraging the poor to accumulate assets such as gold and bank account savings could be used as a preventive strategy for facing shocks and to lift them out of poverty as well.

Table 6. Estimation of Marginal Effect (dy/dx) of Model 1

VAR IABLES	Sumatera				Java and Bali				West Nusa Tenggara				Kalimantan				Sulawesi			
	Chronic Poor	Usually Poor	Occasionally Poor	Never Poor	Chronic Poor	Usually Poor	Occasionally Poor	Never Poor	Chronic Poor	Usually Poor	Occasionally Poor	Never Poor	Chronic Poor	Usually Poor	Occasionally Poor	Never Poor	Chronic Poor	Usually Poor	Occasionally Poor	Never Poor
Demographic and Socio-economic var in 2000																				
sexhh	0.00599	0.0400*	0.147**	-0.193**	0.00309**	0.0215**	0.0617***	-0.0863**	-0.00111	-0.0161	-0.0296	0.0468	0.00643	0.0509	-0.0573	-0.000339	-0.00630	-0.0473	0.0540	
marstat	0.00199	0.0140	0.0722	-0.0882	-0.000153	-0.00109	-0.00343	0.00467	0.00134	-0.0189	-0.0289	0.0491	0.00559	0.0496	-0.0552	0.000156	0.00289	0.0210	-0.0240	
agehh	-4.04e05	-0.000281	-0.00133	0.00165	4.26e05***	0.000303***	0.000958***	-0.00130***	-1.02e06	-1.46e05	-2.49e05	4.04e05	0.000356	0.00300	-0.00335	4.63e06	8.58e05	0.000607	-0.000698	
eduhhmax	-9.27e05	-0.000645	-0.00305	0.00379	-0.000430***	-0.00305***	-0.00967***	0.0132***	-0.000759**	-0.0109**	-0.0186***	0.0302***	-0.00108	-0.00911	0.0102	-0.000140	-0.00260	-0.0184*	0.0211*	
a_edummm	0.000856***	-0.00595***	0.0281***	0.0349***	-0.000998***	0.00709***	-0.0224***	0.0305***	-0.000913**	-0.0131**	-0.0223**	0.0363**	-0.00173	-0.0146	0.0163	-0.000461	-0.00853**	-0.0604***	0.0694***	
hhsze	0.00234***	0.0162***	0.0768***	-0.0954***	0.00327***	0.0233***	0.0736***	-0.100***	0.00407***	0.0583***	0.0995***	-0.162***	0.0118***	0.0993***	-0.111***	0.00139	0.0257***	0.182***	-0.209***	
fdverse	-0.00236***	-0.0164***	0.0775***	0.0963***	-0.00187***	-0.0133***	-0.0420***	0.0572***	-0.00164*	-0.0234**	-0.0400**	0.0651**	0.00951***	-0.0802***	0.0897***	-0.00112	-0.0208***	-0.147***	0.169***	
worktr	0.00108	0.00750	0.0355	-0.0441	0.000425	0.00302	0.00950	-0.0129	0.000352	0.00503	0.00855	-0.0139	0.0185*	0.156**	-0.175**	-5.65e05	-0.00105	-0.00740	0.00850	
emptr	-0.00147	-0.0103	-0.0496	0.0613	-0.00131	-0.00935	-0.0297	0.0404	-0.00672	-0.0962*	-0.182*	0.284*	0.0192	0.144	-0.163	-0.00219	-0.0408	-0.293*	0.335*	
electricity	-0.00117	0.00808	0.0369	0.0461	-0.000917	-0.00647	-0.0197	0.0271	-0.000457	-0.00651	-0.0108	0.0178	0.00398	0.0346	-0.0386	-0.00130	-0.0236	0.136	0.161	
rural	0.00109	0.00758	0.0366	-0.0453	-0.000886	-0.00629	-0.0198	0.0270	-0.000305	-0.00435	-0.00730	0.0120	-0.00241	-0.0201	0.0225	0.000945	0.0175	0.122	-0.140	
Assets holding in 2000																				
in_land	-4.78e05	-0.000332	-0.00157	0.00195	2.04e05	0.000145	0.000459	-0.000625	-0.000247**	-0.00354***	-0.00604***	0.00983***	-6.94e05	-0.000585	0.000654	-3.89e05	-0.000720	-0.00510	0.00585	
in_house	1.66e05	0.000115	0.000545	-0.000677	-6.30e05*	-0.000448*	0.00142*	0.00193*	4.31e07	-6.17e06	-1.05e05	1.71e05	-0.00102**	-0.00864**	0.00967**	-9.59e05	-0.00178*	-0.0126*	0.0144**	
in_bldg	-6.29e05	-0.000437	-0.00207	0.00257	-0.000182***	0.00129***	-0.00408***	0.00555***	-0.000310	-0.000530	0.000862	-0.000924*	0.000779**	0.000871**	-0.000924*	-4.49e05	-0.000832	-0.00589	0.00677	
in_poultry	-6.33e05	-0.000441	-0.00208	0.00259	4.53e05	0.000322	0.00102	-0.00139	6.86e05	-0.000982	-0.00168	0.00273	-0.000813	-0.00685	0.00766	2.81e05	0.000520	0.00368	-0.00423	
in_vehicle	-1.02e05	-7.11e05	-0.000336	0.000417	-4.21e05	-0.000299	-0.000948	0.00129	-0.000197*	-0.00282**	-0.00482**	0.00784**	8.29e05	0.000699	-0.000781	-4.80e05	-0.000889	-0.00629	0.00723	
in_jewelry	-0.000145***	-0.00101***	-0.00477***	0.00593***	-7.12e05**	-0.000506***	-0.00160***	0.00218***	-0.00104	-0.00149	-0.00254	0.00413	-0.000731*	-0.00616**	0.00689**	-1.79e05	-0.000332	-0.00235	0.00270	
in_saving	-0.000116*	-0.000807**	-0.00382**	0.00474**	-0.000125***	-0.000888***	-0.00281***	0.00382***	-0.00276*	-0.00395**	-0.00675**	0.0110**	-5.45e05	-0.000459	0.000514	-7.70e05	-0.00143*	-0.0101*	0.0116*	
Shocks/Risks and Policy Variables in 2000																				
NESR	0.00109	0.00757	0.0347	-0.0434	0.000335	0.00237	0.00745	-0.0102	0.00588	0.0782*	0.0899***	-0.174**	0.00288	0.0241	-0.0270	-0.000565	-0.0105	-0.0826	0.0937	
assistance	0.00120	0.00830	0.0379	-0.0474	0.00489***	0.0346***	0.108***	0.148***	0.00206	0.0295	0.0510	-0.0825	0.0105	0.0826	-0.0931	-0.00131	-0.0247**	-0.211**	0.237**	
sick	-0.000192**	-0.00133**	-0.00630***	0.00782***	2.58e05	0.000181	0.000581	-0.000790	0.000252	0.00361	0.00617	-0.0100	0.000175	0.00148	-0.00165	-0.000114	-0.00210	-0.0149*	0.0171*	
insurance	0.000569	-0.00396	0.0190	0.0235	0.000769	0.00546	0.0171	-0.0234	0.00150	0.0212	0.0339	-0.0566	-0.00319	-0.0272	0.0304	-0.00116	-0.0216	-0.160*	0.183*	
credit	0.000222	-0.00154	-0.00736	0.00913	-0.00128*	-0.00914**	-0.0296*	0.0400*	-0.00176	-0.0258	-0.0512	0.0788	-0.0121*	-0.112*	0.124*	0.00209	0.0375	0.192*	-0.232*	
NLI	0.000230	0.00160	0.00747	-0.00930	-0.000277	-0.00197	-0.00628	0.00852	-0.000256	-0.00367	-0.00638	0.0103	-2.61e05	-0.000220	0.000246	-0.00123	-0.0232*	-0.216*	0.240*	
Variable of changes during 2000-2007																				
dhhsize07	0.00112***	0.00776***	0.0367***	-0.0455***	0.00132***	0.00939***	0.0297***	0.0404***	0.00324**	0.0464***	0.0792***	-0.129***	0.000270	0.00228	-0.00255	0.000502	0.00929*	0.0657**	0.0755**	
dmarrstat07	0.000716	0.00496	0.0226	0.0283	5.21e05	3.70e05	0.000117	-0.000159	-0.000938	-0.0136	-0.0253	0.0398	0.00855	0.0656	-0.0742	-0.00105	-0.0197	0.172	0.193	
dworktr07	0.00156	0.0107	0.0474	-0.0597	0.000654	0.00463	0.0144	-0.0196	0.00415	0.0563	0.0708	0.131	-0.00769	-0.0694	0.0771	0.000318	0.00586	0.0397	-0.0459	
demptor07	0.00183	0.0126	0.0557	-0.0701	0.00348**	0.0243**	0.0705**	-0.0983**	0.00618	0.0833	0.104	0.194	-0.0233**	-0.225**	0.248**	0.00354	0.0620	0.270	-0.336	
dcredit07	-0.00108	-0.00758	0.0375	0.0461	-0.00106	-0.00756	-0.0248	0.0334	-0.00669**	-0.105**	-0.366**	0.477**	0.000958	0.00798	-0.00894	0.000146	0.00270	0.0186	-0.0214	
dtrial07	-0.00222*	-0.0157**	-0.0826*	0.100*	0.00183	0.0128	0.0379	-0.0526	0.00163	0.0229	0.0348	-0.0593	-0.0131	-0.130	0.144	-0.00100	-0.0189	0.169	0.189	
Variable of changes during 2007-2014																				
dhhsize14	0.000307	0.00213	0.0101	-0.0125	0.000209	0.00148	0.00470	-0.00639	0.000242	0.00346	0.00592	-0.00962	-0.00116	-0.00979	0.0109	0.000438	0.00810*	0.0574**	0.0659**	
dmarrstat14	0.000152	0.0105	0.0461	-0.0581	0.00217*	0.0152*	0.0443*	-0.0616*	-0.00152	-0.0222	-0.0434	0.0672	-0.00760	-0.0688	0.0764	-0.000422	-0.00787	0.0607	0.0690	
dworktr14	0.000271*	0.0187**	0.0845**	-0.106**	0.00258**	0.0181**	0.0533***	-0.0745**	0.00321	0.0451	0.0702	0.119	0.00291	0.0245	-0.0274	-0.000190	-0.00352	0.0255	0.0292	
demptor14	-0.000809	-0.00565	-0.0276	0.0340	0.000258	0.00183	0.00575	-0.00784	0.00628	0.0826	0.0892*	0.178	0.00369	0.0310	-0.00347	0.00365	0.0636	0.266*	-0.334	
dcredit14	-0.00126	-0.00881	-0.0436	0.0537	0.000230	0.00163	0.00512	-0.00698	-0.00291*	-0.0426**	-0.0858*	0.131*	-0.0113	-0.106	0.117	-0.000178	-0.00331	0.0240	0.0275	
dtrial14	-0.00109	-0.00765	0.0381	0.0469	0.000138	0.000977	0.00308	-0.00419	-0.00177	-0.0260	-0.0523	0.0801	-0.00109	-0.00931	0.0104	0.000707	0.0129	0.0785	0.0921	
Probability(y=f(x))	0.00477609	0.3458811	0.22408372	0.73655208	0.00660862	0.04978782	0.22195296	0.72165061	0.00631081	0.10132811	0.4171604	0.47520067	0.02118707	0.24551235	0.7330059	0.00151351	0.02889608	0.31961876	0.64997165	

(*) dy/dx is for discrete change of dummy variable from 0 to 1. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: Author's calculation

Table 7. Estimation of marginal effect (DY/DX) of model 2 and model 3

VARIABLES	Model 2								Model 3			
	Java and Bali Island				Outside Java and Bali Island				National			
	Chronic Poor	Usually Poor	Occasionally Poor	Never poor	Chronic Poor	Usually Poor	Occasionally Poor	Never-poor	Chronic Poor	Usually Poor	Occasionally Poor	Never-poor
Demographic and Socio-economic variables in 2000												
sexhh	0.00309**	0.0215**	0.0617***	-0.0863**	0.00207	0.0192	0.0594	-0.0807	0.00303***	0.0227***	0.0643***	-0.0901***
marstat	-0.000153	-0.00109	-0.00343	0.00467	0.00118	0.0112	0.0411	-0.0535	0.000556	0.00428	0.0138	-0.0186
agehh	4.26e-05***	0.000303***	0.000958***	-0.00130***	3.59e06	3.38e-05	0.000116	-0.000153	1.44e05*	0.000111*	0.000349*	-0.000474*
eduhhmax	-0.000430***	-0.00305***	-0.00967***	0.0132***	-0.000271***	-0.00255***	-0.00877***	0.0116***	-0.000382***	-0.00293***	-0.00925***	0.0126***
a_edummm	-0.000998***	-0.00709***	-0.0224***	0.0305***	-0.000989***	-0.00931***	-0.0320***	0.0423***	-0.00105***	-0.00804***	-0.0254***	0.0345***
hhsize	0.00327***	0.0233***	0.0736***	-0.100***	0.00257***	0.0242***	0.0830***	-0.110***	0.00310***	0.0238***	0.0750***	-0.102***
fdiverse	-0.00187***	-0.0133***	-0.0420***	0.0572***	-0.00244***	-0.0230***	-0.0791***	0.105***	-0.00222***	-0.0170***	-0.0537***	0.0729***
worktor	0.000425	0.00302	0.00950	-0.0129	0.00130	0.0122	0.0420	-0.0556	0.000914	0.00700	0.0219	-0.0298
emptor	-0.00131	-0.00935	-0.0297	0.0404	-0.00150	-0.0142	-0.0502	0.0659	-0.00173**	-0.0132**	-0.0423**	0.0573**
electricity	-0.000917	-0.00647	-0.0197	0.0271	-0.000729	-0.00683	-0.0228	0.0304	-0.00125*	-0.00952*	-0.0286*	0.0394*
rural	-0.000886	-0.00629	-0.0198	0.0270	0.000532	0.00502	0.0175	-0.0230	-0.000190	-0.00146	-0.00459	0.00624
Assets holding in 2000												
ln_land	2.04e05	0.000145	0.000459	-0.000625	-7.28e05**	-0.000686***	-0.00236***	0.00311***	-1.61e-05	-0.000124	-0.000390	0.000530
ln_house	-6.30e05*	-0.000448*	-0.00142*	0.00193*	2.61e05	0.000245	0.000844	-0.00112	-2.34e-05	-0.000179	-0.000566	0.000769
ln_bldg	-0.000182***	-0.00129***	-0.00408***	0.00555***	-3.70e-05	-0.000348	-0.00120	0.00158	-0.000124***	-0.000948***	-0.00299***	0.00406***
ln_poultry	4.53e05	0.000322	0.00102	-0.00139	-6.23e05*	-0.000586**	-0.00201**	0.00266**	-8.46e-06	-6.48e-05	-0.000205	0.000278
ln_vehicle	-4.21e05	-0.000299	-0.000948	0.00129	-8.15e05***	-0.000767***	-0.00264***	0.00348***	-5.88e-05***	-0.000450***	-0.00142***	0.00193***
ln_jewelry	-7.12e05**	-0.000506**	-0.00160***	0.00218***	-0.000104***	-0.000979***	-0.00336***	0.00445***	-9.81e-05***	-0.000752***	-0.00237***	0.00322***
ln_saving	-0.000125***	-0.000888***	-0.00281***	0.00382***	-0.000144***	-0.00135***	-0.00465***	0.00614***	-0.000137***	-0.00105**	-0.00332***	0.00451***
Shocks/Risks and Policy Variables in												
NESR	0.000335	0.00237	0.00745	-0.0102	0.000339	0.00319	0.0108	-0.0144	0.000252	0.00193	0.00605	-0.00824
assistance	0.00489***	0.0346***	0.108***	-0.148***	0.00208***	0.0194***	0.0629***	-0.0844***	0.00418***	0.0318***	0.0964***	-0.132***
sick	2.58e05	0.000184	0.000581	-0.000790	-0.000142**	-0.00133**	-0.00459**	0.00606**	-1.76e-05	-0.000135	-0.000426	0.000579
insurance	0.000769	0.00546	0.0171	-0.0234	-0.000603	-0.00569	-0.0199	0.0262	0.000224	0.00172	0.00540	-0.00734
credit	-0.00128*	-0.00914**	-0.0296*	0.0400*	-0.000707	-0.00669	-0.0238	0.0312	-0.000893*	-0.00688*	-0.0222*	0.0300*
NLI	-0.000277	-0.00197	-0.00628	0.00852	-0.000193	-0.00182	-0.00630	0.00831	-0.000118	-0.000907	-0.00287	0.00390
Variable of changes during 2000-2007												
dhhsze07	0.00132***	0.00939***	0.0297***	-0.0404***	0.00121***	0.0114***	0.0390***	-0.0516***	0.00133***	0.0102***	0.0323***	-0.0438***
dmarstat07	5.21e06	3.70e05	0.000117	-0.000159	-0.000420	-0.00396	-0.0140	0.0183	-0.000244	-0.00187	-0.00597	0.00808
dworktor07	0.000654	0.00463	0.0144	-0.0196	0.00143	0.0133	0.0427	-0.0575	0.00110	0.00840	0.0255	-0.0350
demptor07	0.00348**	0.0243**	0.0705**	-0.0983**	0.000855	0.00800	0.0266	-0.0354	0.00277**	0.0209**	0.0610***	-0.0847**
dcredit07	-0.00106	-0.00756	-0.0248	0.0334	-0.00192**	-0.0183**	-0.0704**	0.0906**	-0.00150**	-0.0116**	-0.0387**	0.0518**
drural07	0.00183	0.0128	0.0379	-0.0526	-0.000305	-0.00288	-0.0101	0.0132	0.000805	0.00613	0.0187	-0.0256
Variable of changes during 2007-2014												
dhhsze14	0.000209	0.00148	0.00470	-0.00639	0.000348*	0.00328*	0.0113*	-0.0149*	0.000309**	0.00237**	0.00748**	-0.0102**
dmarstat14	0.00217*	0.0152*	0.0443*	-0.0616*	0.000441	0.00414	0.0139	-0.0184	0.000153*	0.0116*	0.0343*	-0.0473*
dworktor14	0.00258**	0.0181**	0.0538***	-0.0745**	0.00194*	0.0181**	0.0601**	-0.0802**	0.00263***	0.0199***	0.0592***	-0.0817***
demptor14	0.000258	0.00183	0.00575	-0.00784	-0.000898	-0.00851	-0.0305	0.0400	-0.000197	-0.00151	-0.00480	0.00651
dcredit14	0.000230	0.00163	0.00512	-0.00698	-0.00131*	-0.0124**	-0.0452*	0.0589*	-0.000594	-0.00457	-0.0147	0.0199
drural14	0.000138	0.000977	0.00308	-0.00419	-0.000761	-0.00721	-0.0260	0.0339	-0.000637	-0.00490	-0.0159	0.0214
Probability(y=f(x))	0.0060862	0.049787872	0.22195296	0.72165061	0.00524197	0.05237305	0.27800261	0.66438237	0.00646245	0.05265147	0.24310043	0.69778565

(*) dy/dx is for discrete change of dummy variable from 0 to 1 Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

In general, this study supports the results of the previous studies related to the determinants of poverty. Assets, such as building, vehicle, jewellery and savings are important in determining poverty status of households in Indonesia. In addition, demographic and socio-economic variables such as household head's gender, age and education, member's education, household size, nutrition, work sector, employment sector and access to electricity are confirmed to be statistically significant to poverty status in Indonesia. Additionally, government assistance and access to credit also affect the poverty status of households in Indonesia. Changes in household size, employment sector (from formal to informal) and gaining credit is significant in determining poverty status during 2000-2007 and finally, during 2007-2014, a change in household size, marital status (divorce) and work sector led to an increase in the probability of households to be poor.

Conclusion

Using the three last waves of the Indonesia Family Life Survey (IFLS) consisting of household level data from the years 2000, 2007 and 2014, this study identified the poverty status dynamics of households in Indonesia and their determinants. This study used ordered logit model to examine the determinants for poverty status of households in Indonesia (chronic poor, usually poor, occasionally poor and never poor) by grouping the households into five regions (Sumatera, Java and Bali, Kalimantan, Sulawesi and West Nusa Tenggara) as well as into two subnational grouping (Java and Bali and outside Java Bali) and, finally, by a full sample analysis.

The results show that the determinants of poverty status vary from region to region. One of the most interesting findings is that unlike previous studies which found land to be the common indicator of household assets, it is only significant in the West Nusa Tenggara region. Another interesting finding is that the probability of households either to be chronic poor or never poor is higher in Java and Bali, while the probability of transient poverty is found to be higher outside Java and Bali. Finally, this study finds that there is no indication of chronic poverty in the Kalimantan region.

In general, the study finds that assets play an important role in determining poverty status of households in Indonesia. However, the only assets variables that are statistically significant in determining poverty status are building, vehicle, jewelry and savings. Besides assets, demographic and socio-economic variables such as household head's gender, age and education, member's education, household size, nutrition, work sector, employment sector and access to electricity are confirmed to be statistically significant to poverty status in Indonesia. Additionally, the positive shocks variables, such as government assistance and access to credit also affect the poverty status of households in Indonesia.

This study suggests that land ownership/value is significant in determining poverty status only in West Nusa Tenggara. Building is statistically significant only in Java and Bali. Therefore, policy related to land reform and stimulating property development could be used as tools of welfare distribution in these two regions. Stocking jewelry is a more culturally accepted means of accumulating assets for preventive reason for most people in Indonesia. Unsurprisingly, this asset is significant in all regions except West Nusa Tenggara and Sulawesi. Savings as well are also found to be statistically significant in all regions except Kalimantan. Therefore, encouraging the poor to "save more" through buying gold and putting cash in bank account could lift them out of poverty. However, for the areas where gold and banks are not so accessible, the government can encourage the "culture of saving" by promoting gold buying through instalment plan through Pegadaian (Indonesia state owned pawnshop) and savings through the post office (as in Japan). These two institutions offer wide coverage and are surely accessible even for people in villages. The findings suggest that for a more effective implementation, different poverty related policies are needed to address the different poverty characteristics among regions.

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