Impact of Decentralized System on Rural Poverty Alleviation in Indonesia

A case of three villages in Purbalingga district, Central Java province

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1. Introduction

- Accompanying the democratization process after the fall of Suharto regime, **in 2001**, decentralized system was applied in Indonesia**.**
- Most tasks on rural development were transferred to local governments.
- Nevertheless, decentralization is not the end itself in the democratization process, but only a way to improve the public welfare.
- Decentralization can be said successful only if it can significantly improve the quality of life of the people

2. Study Objectives

- **General objectives:**

  To analyze the impact of decentralized system on rural poverty alleviation.

- **Specific objectives:**
  - To identify the programs of poverty alleviation implemented in research location
  - To assess the change in wealth indicators during decentralized system

2. Literature Review

2.1. Multi-Dimensional Aspects of Poverty

- Poverty is broadly defined as deprivation of wellbeing. It is increasingly recognized as a multi-dimensional phenomenon covering not only lack of income, but also education, health and other inputs to maintain an adequate standard of living (Haughton & Khankerd, 2009; Ravallion, 1992; Sen, 1987)
- Although many attempts were done to measure the multi-dimensions nature of poverty, mostly they faced both methodological and conceptual challenges (Ravallion 1992).
- In Indonesian context, study by Central Statistical Agency (CSA, 2000; 2011) had developed 14 Proxy Mean Tests (PMT) of poor households.

Table 1. 14 PMT's of Poor Household in Indonesia, 2011

No	Dimension	PMTs (Total 14)
1	Food	1). Only able to take meal twice a day
		2). Only able to consume meat/milk once a week
2	Dwelling	1). The floor area is less than 8m^2 per capita
		2). The floor is dirt/bamboo/poor wood
		3). The wall is bamboo/poor wood/un-cemented brick
		4). Having no private toilet
		5). Cooking fuel is wood/kerosene
3	Access to public service	1). Not able to pay medical cost when sick
		2). Having no clean water facilities
		3). Having no electricity
4	Clothes	1). Only able to buy new clothes a set once a year
5	Human capital	1). The education of household heads is primary or less
6	Asset	1). Having no asset worth than 500,000 rupiah (IDR)
7	Income	1). Having income less than IDR 600,000 per month*

Source: Central Statistical Agency (2011)

Categorization: Very poor = meet 14 PMTs, Poor = meet 11-13 of the PMTs, Vulnerable poor = meet 9-10 of the PMTs

** This amount is equivalent with 2011 food poverty line of four people, which is the average household size in Indonesia*

2.2. Poverty Alleviation Programs in Indonesia

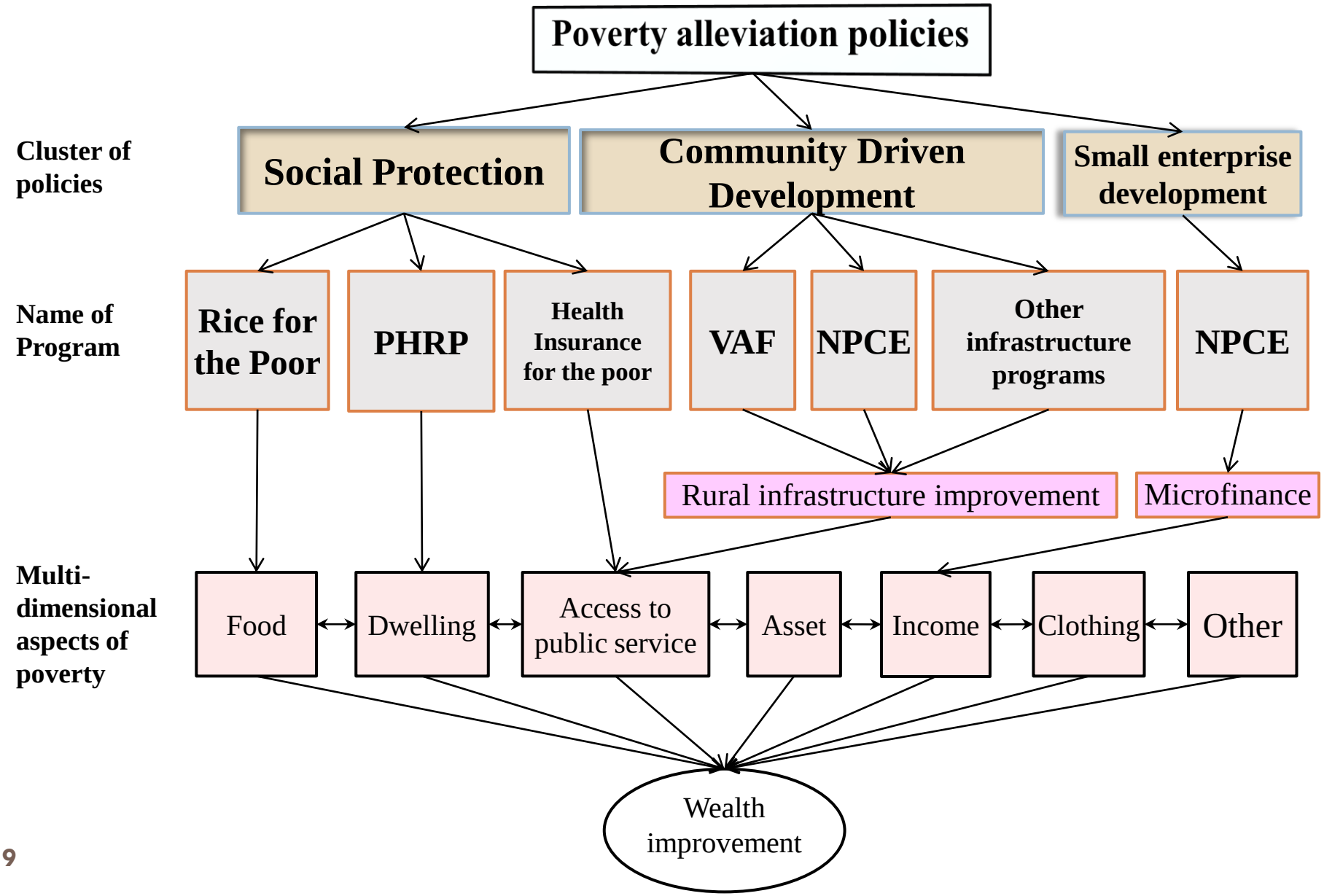
- Four levels of Indonesian administration: centre, province, district (in rural) or municipality (in urban), and village.
- Village government, which is the focus of this study, is given tasks to implement the programs funded by the upper government level.
- The current poverty alleviation programs consist of three clusters: **1) Social protection; 2) Community Driven Development; 3) Small enterprise development** (Poverty Reduction Committee of Indonesia, 2003)

Table 2. Poverty Alleviation Programs in Indonesia

No	Cluster	Objectives	Target	Example of the programs	Description of the program
1	Social protection	Provide the basic necessities	Poor house-hold	Rice for the Poor (*Raskin*)	Distributing ± 15 kg of rice per household per month
				Health Insurance for the Poor (*Askeskin*)	Distributing a card of free basic outpatient medication in government clinic and 3rd class hospital
				Poor House Renova-tion Program (PHRP)	Channeling stimulant fund to repair the poor's house.
2	Community Driven Develop-ment	Improve rural infrastructure through participatory approach	Village govern ment	**Infrastructure development** through National Program for Community Empowerment (NPCE)	Providing block grants to village government for improving infrastructure
				Village Allocation Fund (VAF)	Providing grant to village government for improving infrastructure
3	Small enterprise development	Improve the income	Villagers	**Establishment of women saving group** National Program for Community Empowerment (NPCE)	Providing revolving fund to women saving group

Source: Poverty Reduction Committee of Indonesia, 2003

2.3. Study Framework



3. Research Design

3.1. Research Location

Serang, Kedarpan and Sumilir villages in Purbalingga district, Central Java province

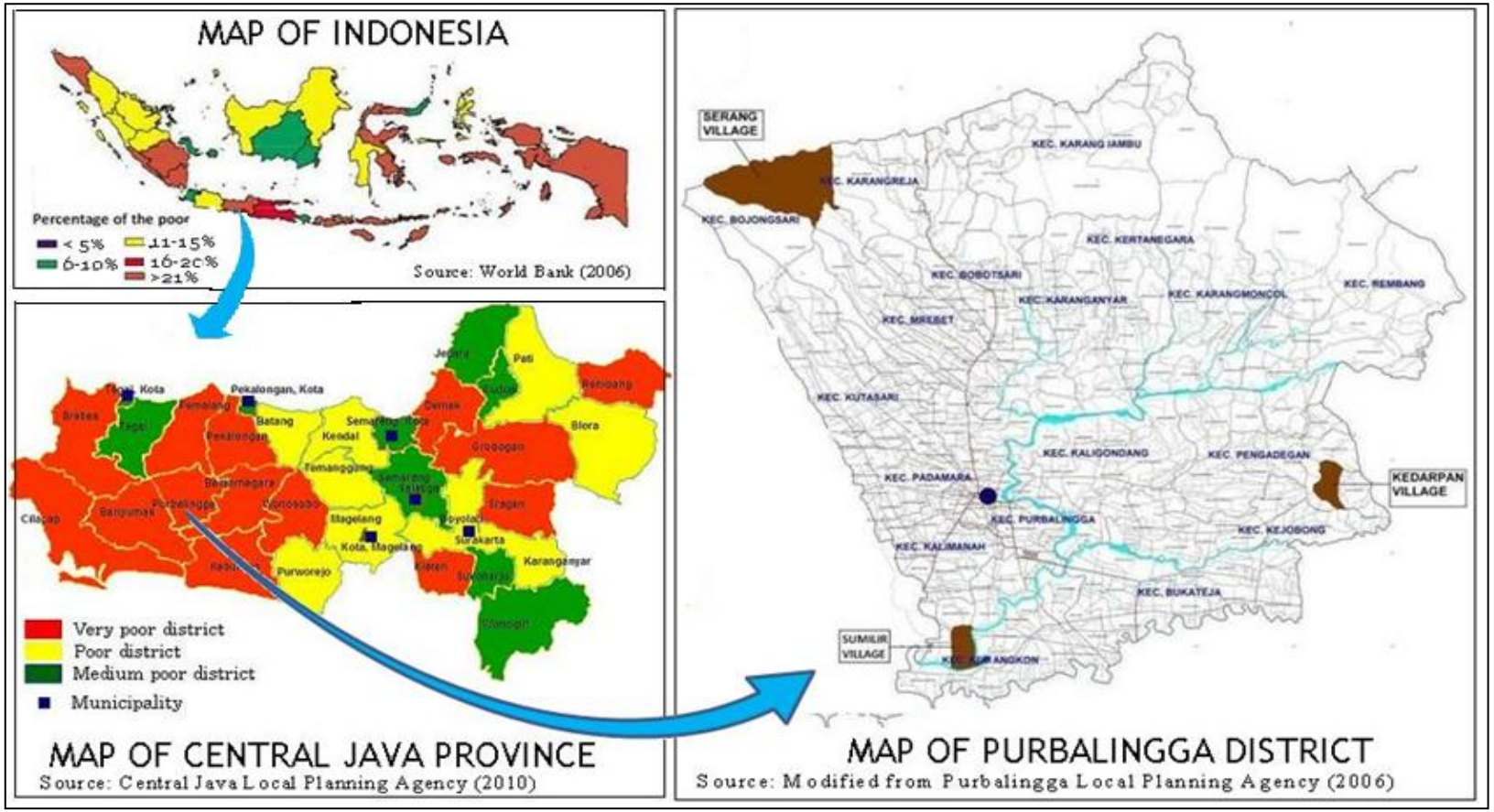


Figure 2. Map of Research Location (not for scaling)

Source: Central Java Local Planning Agency (2010); Purbalingga Local Planning Agency (2006); World Bank (2006)

3.2. Research Method

- Total respondents are 232 people (113 in Serang, 61 in Kedarpan and 58 in Sumilir), selected by using cluster random sampling.
- Survey questionnaire, observation and documentary study were conducted during February to March 2011 and January to February 2012.
- The respondents were asked to answer the questions of various wealth indicators in 2012 and in 2000.
- Most questions are qualitative, therefore difficulty to remember the situation in the past can be minimized.
- An approach of before-after and with-without comparison is used.

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- To incorporate multi-dimension nature of poverty, various wealth indicators are extracted through Principal Component Analysis (PCA) technique to create wealth index (Henry, Sharma, Lapenu, and Zeller, 2001)

  - ✓ Step 1, normalizing the data:

$$\text{Normalized value} = \frac{\text{observed value} - \text{mean}}{\text{standard deviation}}$$

  - ✓ Step 2, wealth index is created by the formula:

$$P_j = w_1 X_1 + w_2 X_2 + w_3 X_3 \ldots\ldots + w_n X_n$$

Where P is the wealth index, w is the loadings from first component from PCA taken as weight of each indicator, and X is the normalized value of each indicator.

- Wilcoxon Match Pair test to see the significance of change in wealth indicator (before after comparison for non parametric data)
- Kruskall Wallis test to see the factor associated to change in wealth index (alternative of ANNOVA technique for non parametric data)

4. Profile of Research Locations and Respondents

Table 3. Profile of the Selected Villages

No	Condition	Serang	Kedarpan	Sumilir
1	Ecological and geographical			
	a. Size of territory (km^2)	13.09	2.25	2.26
	b. Ecological character	High dry land	Middle dry land	Low wet land
	c. Altitude (meters above sea level)	1,000 - 1,600	500 - 600	100 - 200
	d. Main farming commodity	Vegetable	Cassava	Paddy
2	Socio-economy			
	a. Number of households	1,426	585	447
	b. Occupation of household heads			
	- Farmer	65%	44%	50%
	- Non farmer	35%	56%	50%
3	Administration			
	a. Distance to sub-district (km)	5	2	4
	b. Number of hamlets (sub-village unit)	5	3	3

Source: (Purbalingga CSA, 2011a, 2011b, 2011c)

Table 4. Profile of Respondents

No	Character	Serang (n=113)	Kedarpan (n=61)	Sumilir (n=58)	Total (n=232)	P value
1	Average Hh size	3.8	3.8	4	3.9	
2	Gender of household head (HHH)					0.058*
	- Male	104(92)	49 (80)	48 (83)	201 (87)	
	- Female	9 (8)	12 (20)	10 (17)	31 (13)	
3	Education of HHH					0.005***
	- Uncompleted primary	13 (11)	4 (7)	2 (3)	19 (8)	
	- Primary	93 (82)	39 (64)	42 (72)	174 (75)	
	- Secondary	6 (6)	17 (28)	14 (25)	37(16)	
	- University	1 (1)	1 (2)	0	2 (1)	
4	Occupation of HHH					0.044**
	- Agriculture	78 (69)	24 (39)	36 (62)	138 (59)	
	- Labor	15 (12)	17 (28)	10 (17)	43 (23)	
	- Salaried Job	3 (3)	6 (10)	3 (5)	12 (5)	
	- Business	11 (10)	12 (20)	6 (11)	29 (12)	
	- Jobless	6 (5)	2 (3)	3(5)	11 (5)	
5	Age (years) of HHH					0.005***
	- ≤ 40	7 (6)	14 (23)	4 (7)	25 (11)	
	- 41-50	50 (44)	20 (33)	23 (40)	93 (40)	
	- 51-60	49 (43)	18 (30)	23 (40)	90 (39)	
	- ≥ 61	7 (6)	9 (15)	8 (14)	24 (10)	

Note:***significant at 1%,**significant at 5%,*significant at 10%

Source: Field Survey, 2012

5. Programs and Outcomes

5.1. Social Protection Programs

- In the 2011 official list, the recipients of the Program of Rice for the Poor and Program of Health Insurance for the Poor are 220 Hh in Serang, 155 Hh in Kedarpan, and 104 Hh in Sumilir. They are the villagers falling under category vulnerable poor, poor and very poor.
- Yet, it is found that the rice was distributed not only to the official recipients, but also to many villagers outside the official list.
- Further, the program of Poor House Renovation (PHRP) provided stimulant fund for renovation to about five house annually, with the fund amounting to IDR 2.5 million per house in 2011 (Kedarpan Village Government, 2010; Serang Village Government, 2010; Sumilir Village Government, 2010).
- Social protection programs significantly increase the indicators of food, health service access and dwelling of the recipients of programs.

Table 5. Social Protection Programs and its Outcomes

Programs	With/ Without	Indicators	Unite	Mean		P value
				2000	2012	
Rice for the Poor Program	With (217)	Frequency of meat/milk consumption	1 = < once a week; 2 = ± once a week; 3 = > once a week	1.45	1.74	0.00 ***
		Frequency of meal	1 = <3 times a day; 2 = ≥3 times a day	1.87	1.88	0.05**
	Without (15)	Frequency of meat/milk consumption	1 = < once a week; 2 = ± once a week; 3 = > once a week	2.00	2.20	0.18
		Frequency of meal	1 = <3 times a day; 2 = ≥3 times a day	1.93	2.00	0.32
Health Insurance for the Poor Program	With (93)	Access to medical treatment	1 = financially unable 2 = financially able	1.46	1.55	0.03**
	Without (139)	Access to medical treatment	1 = financially unable 2 = financially able	1.73	1.78	0.18
Poor House Renovation Program	With (36)	Floor area	1 = <30 m^2; 2 = 30-50 m^2; 3 = >50 m^2	2.08	2.33	0.01 ***
		Floor type	1 = dirt; 2 = rudimentary; 3 = tile	1.17	1.72	0.00***
		Wall type	1 = bamboo/poor wood; 2 = uncemented brick; 3 = cemented brick	1.08	1.50	0.00***
		Latrine type	1 = having no; 2 = pit toilet 3 = flush toilet	1.72	2.06	0.00***
		Type of cooking fuel	1 = firewood; 2 = kerosene; 3 = gas/LPG	1.03	1.31	0.02**
	Without (196)	Floor area	1 = <30 m^2; 2 = 30-50 m^2; 3 = >50 m^2	2.30	2.42	0.00 ***
		Floor type	1 = dirt; 2 = rudimentary; 3 = tile	1.65	2.23	0.00***
		Wall type	1 = bamboo/poor wood; 2 = uncemented brick; 3 = cemented brick	1.89	2.43	0.00***
		Latrine type	1 = having no; 2 = pit toilet 3 = flush toilet	2.16	2.46	0.00***
		Type of cooking fuel	1 = firewood; 2 = kerosene; 3 = gas/LPG	1.09	1.46	0.00***

Note: Willcoxon match pair test is used to see the significance of differences between 2000 and 2012. ***significant at 1%,**significant at 5%,*significant at 10%

Source: Field Survey, 2012

5.2. Community Driven Development Programs

- Some rural infrastructures were built through National Program for Community Empowerment (NPCE), Village Allocation Fund (VAF) and some projects directly managed by district government.
- The infrastructures built were mostly small in scale like clinic, kindergarten, asphalted road and clean water facilities.
- Community Driven Development Programs have significantly improved access of respondents to Clean water facility and electricity

Table 7. Change in Access to Public Services per Village

Location	Indicators	Unite	Mean		P value
			2000	2012	
Serang (113)	Drinking water source	1 = river/rain water; 2 = well water; 3 = piped water	1.75	1.87	0.00***
	Electricity access	1 = no; 2 = yes	1.52	1.68	0.00***
Kedarpan (61)	Drinking water source	1= river/rain water; 2= well water; 3 = piped water	1.64	2.18	0.00***
	Electricity access	1 = no; 2 = yes	1.70	1.77	0.10*
Sumilir (58)	Drinking water source	1 = river/rain water; 2 = well water; 3 = piped water	1.83	2.07	0.00***
	Electricity access	1 = no; 2 = yes	1.41	1.60	0.00***

Note: Willcoxon match pair test is used to see the significance of differences between 2000 and 2012. ***significant at 1%,**significant at 5%,*significant at 10%
Source: Field Survey, 2012

5.3. Small Enterprise Development

- There are currently 5 women saving groups in Serang, 3 groups in Kedarpan and 3 groups in Sumilir managing the fund from NPCE program.
- The program provides capital assistance for women saving groups, about IDR 10 million per group.
- But, these amounts are less than enough, making them difficult to provide substantial capital assistance to start business
- As the outcomes, income of the client of saving group are significantly improved.
- Further, electronic and vehicle assets were increased. Goat and cow ownership are changed only slightly, and the frequency of buying new clothes are decreased.

Table 8. Saving Group and Change in Income, Asset, Clothing

With/ Without	Indicators	Unite	Mean		P value
			2000	2012	
With (214)	Income group	1 = < IDR 600,000; 2 = 600,000 to 2,000,000; 3 = > 2,000,000	1.42	1.47	0.08*
	Asset				
	➢ Color Television owning	Number	0.41	0.71	0.00***
	➢ Hand phone owning	Number	0.04	0.97	0.00***
	➢ Motorcycle owning	Number	0.17	0.60	0.00***
	➢ Car owning	Number	0.02	0.07	0.00***
	➢ Goat owning	Number	1.30	1.23	0.66
	➢ Cow/buffalo owning	Number	0.07	0.12	0.12
	Frequency to buy clothes	1 = once per year or less; 2 = two per year or more	1.72	1.67	0.03**
Without (18)	Income group	1 = < IDR 600,000; 2 = 600,000 to 2,000,000; 3 = > 2,000,000	1.39	1.33	0.56
	Asset				
	➢ Color Television owning	Number	0.28	0.67	0.01***
	➢ Hand phone owning	Number	0.00	1.00	0.00***
	➢ Motorcycle owning	Number	0.17	0.44	0.03**
	➢ Car owning	Number	0.11	0.06	0.65
	➢ Goat owning	Number	1.61	1.11	0.17
	➢ Cow/buffalo owning	Number	0.00	0.06	0.32
	Frequency to buy clothes	1 = once per year or less; 2 = two per year or more	1.06	1.06	1

Note: Willcoxon match pair test is used to see the significance of differences between 2000 and 2012. ***significant at 1%,**significant at 5%,*significant at 10%

Source: Field Survey, 2012

6. Wealth Index and its Dynamic

- Wealth Index is an index showing relative position of respondent wealth within community. The lesser the index, the poorer is the respondent within the community. On the other hand, the higher the index, the wealthier is the respondent.
- The index itself is a combination of various indicators of food, dwelling, access to public service, clothes, asset and income weighted by using PCA
- Any change in wealth index from 2000 to 2012 does not reflect the change in absolute wealth condition, rather, it shows the change in relative position of respondent wealth within community.

Table 9. Indicators Extracted and Result of Weighting by PCA

Dimension	Indicators	Weight	
		2000	2012
Food	Frequency of meat/milk consumption	0.675	0.657
	Frequency of meal	0.461	0.478
Dwelling	Floor area	0.388	0.474
	Floor type	0.560	0.635
	Wall type	0.626	0.617
	Latrine type	0.543	0.689
	Type of cooking fuel	0.447	0.614
Access to public service	Drinking water source	0.552	0.526
	Electricity access	0.442	0.464
	Access to medical treatment	0.685	0.661
Clothes	Frequency to buy clothes	0.665	0.678
Asset ownership	Color Television	0.725	0.661
	Hand phone	0.309	0.605
	Motorcycle	0.610	0.636
	Car	0.097	0.323
	Goat	0.064	0.063
Income	Income group	0.749	0.776

Table 10. Dynamic of Wealth Index

No	Factor	Mean of 2000 index	Mean of 2012 index	Mean of change	P value
1	2	3	4	5	6
1	Gender of HHH - Female - Male	 -0.078 0.012	 -0.109 0.017	 -0.032 0.005	0.56
2	Education of HHH - Not completed primary - Primary - Secondary - University	 -0.148 -0.112 0.543 1.096	 -0.266 -0.096 0.514 1.367	 -0.117 0.016 -0.029 0.271	0.56
3	Occupation of HHH - Agriculture - Business - Labour - Salaried job - Jobless	 -0.083 0.342 -0.235 0.709 0.237	 -0.070 0.269 -0.186 0.960 -0.230	 0.014 -0.073 0.049 0.251 -0.467	0.02**
4	Age of HHH(years) - <40 - 41-50 - 51-60 - >61	 -0.093 0.064 -0.001 -0.148	 -0.034 0.126 -0.055 -0.244	 0.059 0.062 -0.055 -0.096	0.15

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No	Factor	Mean of 2000 index	Mean of 2012 index	Mean of change	P value
1	2	3	4	5	6
5	Rice for the Poor Program - Without - With	 1.209 -0.084	 1.325 -0.092	 0.116 -0.008	0.81
6	Health Insurance for the Poor - Without - With	 0.409 -0.611	 0.362 -0.541	 -0.047 0.071	0.05**
7	Poor House Renovation Program (PHRP) - Without - With	 -0.844 0.155	 -0.725 0.133	 0.119 -0.022	0.12
8	Saving group (NPCE) - Non client - Client	 -0.539 0.045	 -0.637 0.054	 -0.098 0.008	0.52
9	Village - Kedarpan - Serang - Sumilir	 0.006 -0.006 0.005	 0.016 -0.016 0.014	 0.011 -0.011 0.009	0.68

Note:Kruskall Wallis test is used to see the correlation between Column 2 to Column 5. ***significant at 1%,**significant at 5%,*significant at 10%

Source: Field Survey, 2012

- With regard to socio-economic factor of household heads, occupation type is the factor significantly associated to the wealth change. The salaried job experienced highest wealth increase during decentralized system
- With regard to the programs on poverty alleviation, when we see poverty and wealth as a multi-dimension phenomenon, programs of Health Insurance for the Poor and Small Enterprise Development through saving group are the two programs that have higher impact in increasing relative wealth status of recipients/clients.

7. Conclusion and Recommendation

- Social Protection Programs to provide/improve basic necessities (food, dwelling, health access), Community Driven Development Programs to improve rural infrastructure, and Small Enterprise Development to improve villagers income are poverty alleviation programs implemented during decentralized system.
- All of the programs have significantly improved the dimension of poverty they targeted.
- Program of Health Insurance for the Poor and Small Enterprise Development through women saving group are the programs having higher impact on wealth increase.
- Therefore, this study recommends the government to give attention more on these two programs. This can be done by increasing the coverage of health insurance and increasing the amount of fund given to saving group.

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