

Sosio-Economic Determinants Of Multidimensional Poverty In The Rural And Urban Areas Of East Java

Abdus Salam, Devanto Shasta Pratomo, Putu Mahardika Adi Saputra

Abstract— Multidimensional poverty measurement arises from dissatisfaction with measuring poverty using only a monetary perspective, where the measurement of monetary poverty is not enough to adequately reflect the situation that actually occurs in poor households. Using Susenas March 2018 and Podes 2018, this study aims to look at the effect of household socioeconomic characteristics on multidimensional poverty status in urban and rural areas. From the analysis using logistic regression, households with female household heads are more likely to experience multidimensional poverty in rural areas and vice versa in urban households with female household heads more likely to not experience poverty. Road infrastructure in villages is still a powerful factor in multidimensional poverty in rural areas, but this does not apply in urban areas. Working as a formal worker in urban areas will reduce the chance of experiencing multidimensional poverty, but in rural areas this does not apply. Other variables that have a strong influence on multidimensional poverty in urban and rural areas are household head job status, household head age, dependency ratio, families with disabilities, household head education and access credit. From this result, the government can focus on poverty alleviation programs according to significant variables in each region, such as asphalt development in rural areas, improvement of women's skills in rural areas, expansion of formal employment in urban areas, special assistance for families with disabilities and education in all areas both urban and rural.

Keyword: Multidimensional Poverty, Susenas, Podes, Alkire-Foster Methods, Logit Regression.

1. INTRODUCTION

In January 2015, a proposal for Sustainable Development Goals (TPB) was finally formed which had 17 main objectives including poverty eradication, fighting hunger, healthy and prosperous community life, quality education, gender equality, proper water and sanitation, environmentally friendly energy, economic growth and decent work, industry, innovation, infrastructure, decreasing inequality, urban planning and housing with a sustainable concept, consumption and production, climate change, marine ecosystems, terrestrial ecosystems, peace, justice and strong institutions, and partnerships to achieve goals. The first goal of the SDGs / TPB is to end poverty anywhere and in any form in the year 2030. In this context there are two objectives, namely eradicating poverty in terms of quantity and eradicating poverty in terms of the dimension (form) of poverty. To achieve the goal of alleviating poverty in all its forms it is not enough to just look at poverty by looking at someone's inability to get a decent income every day. Sen said that we would lose another basic social problem when we looked at poverty in terms of income only [1]. Sen explicitly wanted to say that poverty is not unidimensional, but poverty is multidimensional or complex. Sen revealed the importance of completing monetary poverty analysis by using multidimensional poverty measurement, one of which is the way the income conversion received by someone in spending their consumption goods is not all the same so that high income does not guarantee that someone is able to fulfill his basic needs [2]. The ability to convert a certain amount of income into a function varies according to demographic characteristics, socioeconomic characteristics, geographical conditions and other individual conditions such

as disability or in other words the conversion factor of people varies. Furthermore, basic access services that can be accessed by households or individuals can vary such as water, health, and education which are often not provided through the market. Poverty is a multidimensional problem not just a matter of income but also expressed by Bourguignon that not everyone can spend their income appropriately to improve their quality of life, this is why there are still people who are deprived in terms of education, nutrition and daily life where in fact they are not poor people who are measured in monetary terms [3]. This research was conducted in East Java, Indonesia. The highest absolute number of poor people in Indonesia is still held by East Java Province in the amount of 4,332,590 people (10.98 percent). Poverty disparity in East Java is also still very high between urban and rural areas. This is indicated by the release of the Official Statistics of BPS in March 2018 that 7.06 percent or 1,457,610 people in urban areas are poor [4]. While the percentage of poor people in rural areas is much greater by 15.30 percent or as many as 2,874,970 poor people. Urban and rural disparities are still quite high at around twice. This study aims to examine the influence of household socioeconomic characteristics on multidimensional poverty status in each urban and rural area. This research wants to see the diversity of poverty problems that may not be the same between urban and rural areas. There is a lot of research on poverty, but each one rarely uses the concept of multidimensional poverty to understand poverty in an area. Megbowon in 2018 conducts research on multidimensional poverty in South Africa [5]. The result is that there are different variables that affect multidimensional poverty in urban and rural areas. Adeoti in 2014 also examines multidimensional poverty in rural Nigeria [6]. Livelihoods in agriculture, women household, big size family increase the chances of experiencing poverty. Likewise with Adepoju in 2018, the higher the education, the opportunity to experience multidimensional poverty decreases [7].

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2 LITERATURE REVIEW

Multidimensional Poverty

Measurement of poverty with a multidimensional perspective is different from measurements that have existed so far, namely using expenditure or consumption. MPI views poverty more holistically and more deeply covers health issues, education is also about the quality of life, or not just from the perspective of income or expenditure. Looking at poverty from various things have been conveyed by Sen that poverty has a multidimensional nature which includes health, education, quality of life, democracy, freedom of economic access [1].

Study development concerning poverty has been through quite significant shifting in Human Development Report (HDR) analysis proposed by United National Development Program (UNDP) and Oxford Poverty and Human Development Initiative (OPHI). Since 2010, UNDP and OPHI agrees a new poverty measurement through Multidimensional Poverty Index (MPI) contained in HDR 2010. Multidimensional poverty measurement is first developed by OPHI and UNDP in 2010. The aim is to describe holistic poverty condition. Multidimensional poverty measurement employs 3 types of dimensions, those are health, education, and life standard. There are 10 indicators in this methods.

3 RESEARCH METHODOLOGY

Data used in this research is raw data of Survei Sosial Ekonomi Nasional (Susenas) March 2018 East Java and Pendataan Potensi Desa (Podes) 2018 East Java. Susenas Data was obtained from BPS-Statistics Indonesia (BPS) which is an official statistics office in Indonesia where the survey was performed twice a year in March and September. There were 29.780 household samples used in this research. As explained in the table below, this research used Alkire-Foster Methods in determining multidimensional poverty using several modified indicators [8]. The component in multidimensional poverty measurement consists of three dimensions which have the same weight of 1/3.

Table 1. Dimension, Indicator, Cut off Deprivation and Weighting in Multidimensional Poverty Calculation

| Dimension | Indicator | Deprived, if | Weight |
|------------------------|----------------------|---|--------|
| Nutrition (1/3) | Calories | Household calories consumption less than 70 percent of AKG (2013) | 1/6 |
| | Protein | Household protein consumption less than 80 percent of AKG (2013) | 1/6 |
| Education (1/3) | Years of Schooling | There is no family member who have completed 9 years of education (Secondary School in Minimum) | 1/6 |
| | School Participation | There are school-aged children (7-15) who have do not study at school | 1/6 |
| Standard of life (1/3) | Improve Water | Does not have access to feasible/improve water | 1/18 |
| | Improve Sanitation | Does not have access to improve sanitation | 1/18 |
| | Electricity | Does not use electricity | 1/18 |
| | Floor Condition | Live in dirt or sand floor | 1/18 |
| | Cooking fuel | Uses wood or charcoal as fuel | 1/18 |

| | | |
|--------|--|------|
| Assets | Does not have car or motorboat and does not have more than one of the following asset, such as motorcycle, cycle, boat, cable television, AC, water heater, 12 kg gas cylinders or more, refrigerator and telephone. | 1/18 |
|--------|--|------|

Source: Alkire et al (2011), Modified.

Based on this AF Methods, a household which experiences poverty deprivation is more than 0.33 or 33.33%. the measurement stages are as follow:

- Choosing analysis unit. The analysis unit is household.
- Choosing poverty dimension
- Choosing the indicator from each dimension
- Determining cut off deprivation of each indicator
- Determining the weight (w_i) of each dimension/indicator
- Calculating deprivation score ($\sum C_i$) experienced by a household

$$\sum C_i = w_i I_1 + w_i I_2 + w_i I_3 + \dots + w_d I_d$$

where $I_i = 1$ if a household is deprived at indicator of i and $I_i = 0$ if a household is not deprived at indicator of i .

- Determining the poor and not-poor household using total deprivation score. A household is multidimensional poor if the total deprivation score ($\sum C_i$) is more than or equal to 0.33. However, if the score is less than 0.33, then it is defines as not poor and its deprivation score is change by zero (deprivation censor). If a household is deprived in all indicators, then $\sum C_i = 1$, if a household is not deprived in all indicators, then $\sum C_i = 0$.

Further analysis is to analyze the determinants of household socioeconomic characteristics on multidimensional poverty status in each region, namely urban and rural areas. This analysis use a logit regression. The equation of the logistic regression function is as follows:

$$Y = \text{Ln} \left(\frac{P_i}{1-P_i} \right)$$

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11}$$

Where,

Y = household poverty status (multidimensional poor=1, non-multidimensionally poor=0)

X_1 = household head sex / HHH_sex (women=1, others=0)

X_2 = household headfield job (agriculture=1, others=0)

X_3 = dependency ratio (numerik)

X_4 = family with disability (yes=1, no=0)

X_5 = main village road (asphalt=1, other=0)

X_6 = HHH_elementary school (yes=1, others=0)

X_7 = HHH_secondary and senior high school (yes1, others=0)

X_8 = HHH_collage (yes=1, others=0)

X_9 = receive formal credit access (yes=1, others=0)

X_{10} = receive nonformal credit access (yes=1, others=0)

X_{11} = household head job status (formal worker=1, others=0)

4 RESULT

4.1. Descriptive Research Data

Table 2 below is an overview of the sample of respondents in this study. The number of samples in this study were 29,780 households consisting of 14,139 rural households and 15,641 urban households. From the sample data it is shown that in

rural areas more heads of households have less education. This shows that the majority of people in rural areas do not really consider education as a component in improving the quality of human capital. In urban areas, most household heads work as formal workers and vice versa in rural areas more work in the informal sector. Table 2 also shows that the condition of road infrastructure in urban areas is better than in rural areas.

Table 2. Descriptive sample data

| Variabel | Urban | | Rural | |
|-------------------------------|------------|----------|------------|----------|
| | Poor | Not poor | Poor | Not Poor |
| HHH sex | | | | |
| Women | 449 | 2462 | 915 | 1634 |
| Man | 1783 | 10947 | 2599 | 8991 |
| HHH Field job | | | | |
| Agriculture | 516 | 2069 | 2210 | 5454 |
| Others | 1716 | 11340 | 1304 | 5171 |
| Dependency ratio | mean=36,40 | | mean=39,68 | |
| Family with disability | | | | |
| Yes | 320 | 1100 | 508 | 916 |
| No | 1912 | 12309 | 3006 | 9709 |
| Main village road | | | | |
| Asphalt | 2200 | 13203 | 3118 | 9783 |
| No | 32 | 206 | 396 | 842 |
| HHH Education | | | | |
| Never schooling | 797 | 2565 | 2071 | 3272 |
| Elementary school | 669 | 3185 | 1209 | 3909 |
| 2nd & Senior High School | 664 | 6053 | 217 | 3095 |
| Collage | 102 | 1606 | 17 | 349 |
| Credit access | | | | |
| Not have access | 1622 | 8570 | 2827 | 7161 |
| Formal credit | 486 | 4138 | 481 | 2898 |
| Nonformal credit | 124 | 701 | 206 | 566 |
| HHH Job status | | | | |
| Formal worker | 722 | 5858 | 601 | 2779 |
| Others | 1510 | 7551 | 2913 | 7846 |
| Total | 2232 | 13409 | 3514 | 10625 |
| | 15641 | | 14139 | |

Source: Processed from Susenas March 2018 and Podes 2018.

4.2. Determinants of Multidimensional Poverty

This section presents the results of logistic regression estimates from the determinant model of household socioeconomic characteristics of multidimensional poverty status, both in urban and rural areas. Two logistic regression models with estimated coefficients are presented in table 3 below. The sex of the household head has a significant effect on all multidimensional poverty models, both in urban and rural areas. But interestingly, the direction of the relationship between the sex of the household head and the poverty status differs in each region. In rural areas, female household heads are more likely to experience multidimensional poverty. There is still discrimination against women in employment opportunities, income, education, and productive capital assets that are more dominated by men in rural areas [6] [9] [10]. This has caused female headed households in rural areas to be more likely to experience poverty. Unlike in rural areas, women in urban areas are more empowered or households headed by a woman have a lower chance of experiencing multidimensional poverty than men. This is certainly contrary to the phenomenon of "feminization of poverty". Most female household heads in urban areas have better education compared to female household heads in rural

areas, so this can be a human capital for participation in the world of work. Female household head has the freedom to decide whether to enter the workforce or not. Some of the women who become heads of these households because their husband migrating for work, so that the contribution of remittances to spending their daily needs is quite large.

Table 3. Estimation Logit Regression Determinants of Household Multidimensional Poverty In Urban and Rural Areas.

| Variabel | Coeff. | |
|-------------------------------|------------|------------|
| | Urban | Rural |
| HHH sex | | |
| Women | -0,1998*** | 0,1924*** |
| HHH Field job | | |
| Agriculture | 0,2118*** | 0,2231*** |
| Dependency ratio | 0,0023*** | 0,0096*** |
| Family with disability | | |
| Yes | 0,3987*** | 0,2884*** |
| Main village road | | |
| Asphalt | 0,2890 | -0,3719*** |
| HHH Education | | |
| Elementary school | -0,3451*** | -0,5174*** |
| 2nd & Senior High School | -0,9000*** | -1,8585*** |
| Collage | -1,3914*** | -2,1758*** |
| Credit access | | |
| Formal credit | -0,3367*** | -0,4679*** |
| Nonformal credit | -0,0817 | 0,1392 |
| HHH Job status | | |
| Formal worker | -0,1411*** | -0,0059 |

Source: Processed from Processed from Susenas March 2018 and Podes 2018 with STATA.

Household heads who work in agriculture tend to experience multidimensional poverty compared to those who work in other sectors. This variable has a significant effect on all models. One of the causes of agricultural business in East Java has not been able to raise the welfare of farmers because most are still done traditionally and almost 80 percent are small farmers. Large family size will also add financial burden, especially in this case households that have a large number of dependents on children/toddlers and elderly people. This dependency ratio is significantly influential in all models in the same positive direction with multidimensional poverty. The more non-productive family members in the household will be associated with meeting the needs of proper health nutrition such as the fulfillment of protein and calories [11] [12]. Families who are not ready with the consequences of having non-productive household members tend to be unable to meet the proper protein and calorie needs. The opportunity to experience multidimensional poverty is greater for families that have family members with disabilities. This variable is significant in all models, both in urban and rural areas. Someone who has functional impairment in vision, hearing, walking, moving, emotions, remembering, speaking, taking care of themselves has bad prospects in terms of education and work [13] [14]. Households with disabilities will experience obstacles in maximizing their life capabilities. The condition of the main road in a residence only affects the multidimensional poverty model in rural areas. Good roads access (asphalt) has succeeded in reducing the chances of households experiencing multidimensional good poverty [15]. Good roads will facilitate access to transportation, entry of investments, opening up jobs and building other basic service infrastructure.

However, this variable is not significant in the urban model. The condition of road infrastructure in urban areas, which are mostly asphalted, causes this variable to be less relevant in urban areas. People in urban areas have no problems with roads. The higher the education, the less chance to experience poverty. Education is an important human capital to expand employment opportunities and to live a better life so as to avoid poverty in any form [16] [17] [7]. This variable is significant in all models.

Households that receive formal credit services, this will be beneficial to reduce the chances of experiencing poverty compared to those who do not get. Formal access to credit is generally related to household productive consumption. This productive household expenditure can be in the form of business credit so that it is closely related to increasing income. Credit funds received can also be used to improve the quality of life such as improving housing facilities, adding assets such as vehicles and so on. The household who gets access to credit services will reduce the opportunity to experience poverty, especially households that get credit from formal institutions [11] [18]. But the results are different on non-formal loans. There is no difference between households that receive non-formal credit and those who do not. Non-formal credit has no effect because most of the funds obtained from personal are only used for consumption expenditures that are not productive. The employment status of household heads has a significant effect only in urban areas, whereas in rural areas this variable is not significant. The formal worker household head are less likely to fall into poverty [19]. But interestingly this variable is only significant in urban areas but not significant in rural areas. Most formal workers are found in urban areas. Whereas in rural areas the percentage of people working in the formal sector is only half the value of urban areas. So that the influence of this employment status is more influential in urban areas.

5 CONCLUSION AND SUGGESTION

From the analysis in the previous section, we have conclusions and suggestions as follows:

1. Female household heads in rural areas are more likely to experience poverty, whereas in urban areas female household heads are more empowered. The government can provide job training to improve skills to enter the workforce. The government needs to intensify the family planning program (Keluarga Berencana Program) in rural areas, in addition to reducing the household dependency ratio but also so that women do not spend time on domestic affairs but can enter the workforce.
2. The results showed that the presence of family members with disabilities would burden the family. The government can provide social assistance incentives in the form of expanding social assistance (Program Keluarga Harapan Plus) in Indonesia specifically for disabilities.
3. The condition of road infrastructure is very influential in rural areas but not in urban areas. The government is expected to be able to construct road infrastructure with the quality of asphalt roads in rural areas.
4. Education is a key factor if you want to be free from poverty anywhere, both in urban and rural areas. The government can provide cheap education up to high school level so that education can be enjoyed by the lower classes.
5. Higher education makes it easier for someone to enter

formal sector employment. Formal workers are influential in urban areas. The government is expected to provide more formal sector employment in urban areas so that opportunities to experience poverty can be reduced.

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