

THE SOCIOECONOMIC DETERMINANTS OF HOUSEHOLD POVERTY STATUS IN A LOW-INCOME SETTLEMENT IN SOUTH AFRICA

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—Abstract —

Poverty means different things to different people. There are many different approaches to defining poverty but the basic needs approach is commonly applied, particularly in developing countries where a bigger majority of the people struggle to attain a predetermined minimum level of income to satisfy their basic needs. In this study a survey questionnaire was used to collect data from a sample of 300 households in Bophelong township in Gauteng province during the second half of 2013. The aim of this article is to evaluate the impact that certain household and individual characteristics (size of the household, gender of the head of the household, etc.) can have in determining the poverty status of a household. A binary logistic regression was used to analyse the data. The results show that the education level of the head of the household, his/her employment status and age were inversely related to poverty status. Improvements in the education level and increases in the age of the head of the household were found to decrease the probability of a household being categorised as poor. Households in which the head of the household is employed have a lower probability of being categorised as poor.

Key Words: *Economic growth; employment; poverty reduction strategies; poverty studies*

JEL Classification: Q12, Q54

1. INTRODUCTION

Various methods can be used to measure poverty. One of the most commonly used is the income approach, whereby poverty is described as an inability to attain a specific minimum level of income deemed necessary for continued survival in a given society (Todaro & Smith, 2003). Poverty reduction strategies tend to concentrate on the alleviation of income poverty. A lack of education and occupational skills vastly reduces the earning potential of the poor. Investment in training and education is therefore considered one of the main poverty-alleviation strategies, as it tends to lead to higher productivity which ultimately leads to higher earnings (Barker, 1995). While poverty in developing countries is largely a result of income deficiencies, the poor in these countries could also suffer from multi-dimensional poverty, which impacts nutrition, health and education. Several studies have shown that the alleviation of income poverty does not always result in an improvement in other poverty dimensions (World Bank, 2005). A study by You et al. (2014) in rural China found that the incidence of multidimensional poverty increased as income poverty declined. The income measure of poverty is, however, unidimensional and may not include other forms of poverty that could simultaneously afflict households. As a result, recent studies have gravitated towards the application of multidimensional poverty indices to measure levels of poverty in society. Given that determinants of poverty are multidimensional, a unidimensional measure such as the income approach does not fully capture the extent of the problem. The poor are often found to be more vulnerable to a variety of social, economic and environmental hazards such as low-quality housing, inadequate water supply, poor sanitation and indoor air pollution (Mohanty, 2003). One of the best-known measures of multidimensional poverty is the Human Poverty Index (HPI), developed and used by the United Nations Development Programme (UNDP) from 1997–2009 to counteract shortcomings in the income measures of poverty. As a measure of poverty, the HPI focuses on three dimensions of human life: longevity, knowledge and a decent standard of living. In 2010, the HPI was replaced by the Multidimensional Poverty Index (MPI), which focuses on the same elements of human life as the HPI, but introduces a system of indicators and cut-offs for each dimension to determine the poverty status of households (Todaro & Smith, 2011:215). While poverty indicators for the entire South African population compare favourably with those of developed countries, the indicators for the black African population can only be compared with those of other developing countries (Aliber, 2003). Whilst this

article takes into account the existence of multidimensional poverty measures, it regards the multidimensional poverty status of households as being strongly influenced by the inability of those households to attain a minimum acceptable material standard of living due to a lack of income. A greater proportion of poor households in South Africa can be found in the townships and rural areas of the country – it can therefore be concluded that the greatest need for poverty alleviation is in these regions.

2. LITERATURE REVIEW

Poverty and unemployment are major problems in the urban areas of developing countries, particularly in low-income settlements, where residents tend to be more vulnerable to poverty (Mohanty, 2003). Levels of unemployment, which are very high in South Africa, are on the rise, further exacerbating the situation. The continued shedding of jobs in this country – particularly during the global economic crisis of 2008/9 – tended to have a bigger impact on low-income settlements where levels of education and occupational skills are low. A lack of education and occupational skills vastly reduces the poor's earning potential. The average unemployment rate in South Africa stood at 25.5 percent at the end of 2013, whilst the unemployment rate amongst black Africans was estimated at 29 percent for the same period. Local unemployment and poverty tend to have a very strong racial and gender dimension. Poverty amongst the black population in particular tends to be more intergenerational as a result of apartheid policies which limited opportunities for personal development and, as a result, the ability to accumulate assets (Aliber, 2003). According to the *KwaZulu-Natal Income Dynamics Study* (KIDS) survey, poverty was found to be more severe in rural and township areas. Chronically poor households were typically found to be those where the head of the household was unemployed, and due to gender bias female-headed households were more likely to be categorised as poor (Aliber, 2003). In a variety of surveys conducted periodically by Statistics South Africa (Stats SA), poor households are often found to have high dependency ratios, with the majority of household members being under 15 years of age. A study by Akanbi (2015:132), which sought to establish the structural and institutional determinants of poverty in sub-Saharan Africa, found that gross domestic product (GDP) and human capital – which are often used as proxies for employment and education in the literature – were statistically significant determinants of poverty.

3. METHODOLOGY

3.1 Survey design

The data used in this article were obtained from a study, conducted by the author, which aimed at quantifying the social cost of air pollution in Bophelong township, a predominantly black, low-income settlement located in the south-west of Emfuleni Local Municipality in Gauteng province. Approximately 300 households were visited and personally interviewed by trained fieldworkers. Of these households, only 285 were analysed: 15 questionnaires were destroyed due to incompleteness, largely attributable to the reluctance of respondents to answer questions pertaining to income. Information was mainly obtained from the head of the household, his/her spouse/partner and children over the age of 18. The survey made use of probability sampling, which is statistically more acceptable than convenience sampling for this type of study. Furthermore, previous surveys conducted in the same township have shown that a sample size similar to the one used in this study tends to supply statistically reliable data.

3.2 Poverty measurement

To achieve the objective of determining the relationship between poverty status and socioeconomic characteristics, as discussed earlier, a measure of poverty was needed. In most definitions of poverty, income tends to play an important role in determining whether a household is poor. Studies on poverty usually begin with the adoption of a specific poverty line described in terms of income (Hagenaar & De Vos, 1988).

In this article, the author made use of a poverty line – which indicates the level of income required to attain a minimum subsistence level – as the indicator for income. Following the guidelines of the World Bank (2001), a poor household is deemed one where the combined income of all its members is less than the household subsistence level (HSL), as determined for the specific household. The headcount index measures the proportion of the population below the poverty line and can be expressed as follows (World Bank Institute, 2005:70):

$$P_o = \frac{1}{N} \sum_{i=1}^N I(y_i < z) \dots\dots\dots (1)$$

Where P_o = the fraction of the population below the poverty line

$I(.)$ = the indicator function that takes the value of 1 if the bracketed expression is true and 0 otherwise

y_1 = household income

z = poverty line

N = total number of poor

The headcount index has, however, been criticised for not taking into account the extent of poverty. The degree of poverty among the poor can be measured by means of the Forster-Greer-Thorbecke index, the use of which goes beyond the scope of this article. Household income poverty status was calculated using information on household size and total household income. The poverty line for South Africa for the year 2009 was set at R416 (Stats SA, 2008/9). In this article, the poverty line was adjusted for inflation for the year 2013, to arrive at an estimated per capita poverty line of R520.

3.3 Model specification

In this article, the poverty status of a household is estimated using regression analysis. The aim of such an analysis is to determine which factors cause the dependent variable, namely poverty status. Binary models such as logistic and probit models are commonly used in poverty studies to predict dichotomous outcomes. Here, a poverty line was used to determine a household's poverty status: households that fell below a certain predetermined level of income were considered poor, whilst households that earned above these predetermined levels of income were considered non-poor. Poverty status is regarded as a qualitative regressand, i.e. a person is either poor or non-poor. The variable can take only two values: 1 if the person is poor and 0 if not. As already indicated, the dependent variable is binary in nature, as a result a logistic model was used since it is deemed the most appropriate for this type of analysis. The model is specified as follows:

$$PS = \text{Log}\left(\frac{P_i}{1-P_i}\right) = \beta_1 + \beta_2 HHS + \beta_3 \text{Gender} + \beta_4 \text{EmpStat} + \beta_5 \text{Education} + \beta_6 \text{Inc} + \beta_7 \text{Age} + \varepsilon_i \dots\dots\dots (2)$$

The variables in the model are described in table 1.

Table 1: Description of variables

Dependent variables

$PS = \text{Log}\left(\frac{p_i}{1-p_i}\right)$	The logistic formula stated in terms of the probability that Poverty Status (PS) = 1 if the household is poor (p_i) and = 0 otherwise ($1-p_i$)
Independent categorised variables	
<i>Gender</i>	Gender of the head of the household (Male = 1, Female = 0)
<i>EmpStat</i>	Employment status of the head of the household (employed = 1, unemployed = 0)
Independent continuous variables	
<i>Education</i>	Educational level of the head of the household
<i>HHS</i>	Household size – number of people in the household
<i>Inc</i>	Household income (monthly)
<i>Age</i>	Age of the head of the household
Error term	
ε_i	The error term that follows a logistic regression

4. ANALYSIS

Initially, a descriptive statistical analysis for variables included in the model was conducted, of which the results are presented in table 2.

Table 2: Descriptive statistics

Variable	Description	Mean	Std. dev.	Min	Max
EDUCATION	Educational level of the head of the household	6.610526	3.370214	1	14
HHSIZE	Number of people in the household	4.091228	1.845844	1	13
AGE	Age of the head of the household	48.29825	13.48886	20	84

Source: Calculated from survey data

The average educational attainment for a head of household in Bophelong township is approximately six years of schooling. A survey conducted in the township in 2009 found that only 32 percent of the post-school population had attained a Grade 12 qualification or higher, whilst only 11 percent had a degree or diploma (Slabbert & Sekhampu, 2009). This situation further entrenches poverty in the community, as access to higher education affords an individual an opportunity to earn a higher income. Access to higher-paying jobs is determined

largely by a person's level of education (Todaro & Smith, 2011:377). The average household size in Bophelong was found to be approximately four members, while the average age for the head of household was approximately 48 years.

Table 3 presents a summary of the results of the logistic regression.

Table 3: Summary of the results of the logistic regression

Poverty status	Coef.	Std. err.	Z	P> z
Education	-1155638	.02754	-4.20	0.000
Employment status	-1.265885	.2826498	-4.48	0.000
Gender	.3550134	.2758585	1.29	0.198
Size of household	.0781938	.0662357	1.18	0.238
Income	-0.020964	0.006705	-3.12	0.0018
Age of head of the household	-.0298288	.010787	-2.77	0.006
_cons	2.659332	.7818054	3.40	0.001

Source: Calculated from survey data

Next, it is timeous to present the discussions and an interpretation of the coefficients. The relationship between the level of education of the head of the household and poverty status is negative. An improvement in the education level of the head of the household is likely to lower the probability of the household being categorised as poor. The relationship between level of education and poverty status was statistically significant at a five percent level of significance. Households in which the adult members are less educated, with lower levels of literacy, often tend to be highly affected by poverty, whereas this is not the case in households where the adult members have a high level of education (Aliber, 2003). The high poverty rate in townships can be attributed to a lack of education and occupational skills amongst residents. A survey conducted by Slabbert and Sekhampu (2009) in Bophelong township found that 89 percent of the sampled population had no senior certificate. Using the indicator for education as the number of years of schooling, households which are headed by persons with fewer than 12 years of schooling are more likely to be categorised as poor. A minimum of 12 years of schooling is generally regarded as a sufficient level of educational attainment to enable an individual to have access to better employment opportunities. The mean education level for the head of the household in Bophelong township is only six years of schooling.

There is a negative relationship between employment status and poverty status. This means that households in which the head of the household is employed have a lower probability of being categorised as poor. This relationship was statistically

significant at the five per cent level, with a p-value of 0.000. Employed people generally have incomes that are above the poverty line – as a result, they are less likely to be categorised as poor. A study conducted by Hageenaar and De Vos (1988) in the Netherlands found that unemployed households almost always had poverty percentages above the mean. That study also found that unemployment was a common characteristic in all types of households with high poverty percentages.

There is a statistically insignificant relationship between the size of the household and poverty status. The relationship was, however, positive, which implies that larger households were more likely to be categorised as poor than smaller households. Findings from the KIDS survey showed that chronically poor households tend to comprise more members and are more likely to be female-headed (Aliber, 2003). The Stats SA-administered *Income and Expenditure Survey* (IES) (2005/6) found that 45 percent of all female-headed households in South Africa live below the poverty line compared to only 25 percent of male-headed households. The cut-off point for household size was set as households consisting of a minimum of four or more members, and any such household was considered to be deprived in terms of this dimension. The mean for household size in Bophelong is four members per household.

The age of the head of the household is inversely related to poverty status and statistically significant at the ten per cent level of significance. This implies that as the age of the head of the household increases, the probability of the household being categorised as poor diminishes. The KIDS study, by contrast, found that households with older members are more vulnerable to poverty (Aliber, 2003). The IES (Stats SA, 2005/6) also found that the incidence of poverty generally increases with the age of the head of the household. The disparity between the findings of this article and those of the other studies mentioned here can be attributed to the age category being analysed. For instance, the IES (Stats SA, 2005/6) found that households in which the age of the head of the household ranged from 25–44 were relatively better off than those headed by persons aged 55 and over. An analysis of the survey data used in this study shows that more than 70 percent of the sampled population are below the age of 40, which is considered the age at which people are, generally speaking, most productive.

5. CONCLUSION

The aim of this article paper has been to analyse the relationship between various socioeconomic factors and the poverty status of households. The analysis revealed that whilst various sources of income (income from employment and government grants) are important variables in determining the poverty status of households, socioeconomic factors such as household size and education level – particularly that of the head of the household – have an impact on the ability of a household to earn an income. The larger the size of the household, the higher is the probability of it being categorised as poor. An analysis of the results of the survey revealed that the higher the education level of the head of the household, the lower the probability of the household being categorised as poor. The author of this article thus seeks to encourage policy makers to pay attention to issues such as improved access to educational opportunities, particularly for the poor, and to make efforts to encourage smaller family sizes. These two factors will have a positive impact on the ability of households to earn a higher income, which will lead to a reduction in the number of households that are classified as poor. The results show that most of the discussed socioeconomic characteristics are statistically significant and do indeed influence whether or not a household is categorised as poor.

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