Determinants of the Food Security Status of Households Receiving Government Grants in Kwakwatsi, South Africa

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Abstract

This study attempts to estimate the food security status and identify the determinants of food security among households receiving government grants in a township of Kwakwatsi, South Africa. The results are based on a household survey using questionnaires. A Logistic regression model was estimated based on this data with the household food security status (that is food secure and insecure) as the dependent variable and a set of demographic variables as explanatory variables. It was found that about 38 per cent of the sampled households are food secure. The results of the regression analysis showed total householdincome, household size, employment and marital status of the household head, employment status of the spouse as important determinants of food security in the area. Household size and the marital status of the head of household were negatively associated with household food security. The age, gender and educational attainment of the household head were not significant predictors of household food security status. This study makes a contribution to the understanding of the dynamics of households dependent on government grants by modelling the factors which determine food security and may act as reference source for policy planning purposes.

1. Introduction

Food security is a broad concept that includes issues related to the nature, quality, food access and security of the food supply. Food security can be defined as access by all people at all times to the food needed for a healthy life. The concept addresses people's risks of not having access to the required food (Von Braun et al., 1992: 2). Food security is a concept that has evolved considerably over time and there is much literature on potential household food security indicators. There are multiple definitions and indicators of food security. Maxwell and Frankenberger (1992) list 25 broadly defined indicators. Riley and Moock (1995) list 73 such indicators used in understanding food security. Despite the wide ranging views on the topic, a general agreement is that food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. Household food security is the application of this concept to the family level, with individuals within households as the focus of concern (Faridi&Wadood, 2010: 101).

The continuing evolution of food security as an operational concept in publicpolicy has reflected the wider recognition of the complexities of the technical andpolicy issues involved.Food security is part of the section 27 Constitutional Rights in South Africa. The Constitution states that every citizen has the right to have access to sufficient food and water (RSA, 1996). The Reconstruction and Development Programme (RDP) drafted in 1994 identified food security as a priority policy objective. As a result, the Government reprioritized public spending to focus on improving the food security conditions of historically disadvantaged people. The policy resulted in increased spending on social programs in all spheres of government, such as school feeding schemes, child support grants, free health services for children between 0-6 years, for pregnant and lactating women, pension funds for the elderly, working for water, and community public works programs (ANC, 1994). The efforts to address food security culminated in the compilation of the Integrated Food Security Strategy in 2002. The vision of the Integrated Food Security Strategy is to attain universal physical, social and economic access to sufficient, safe and nutritious food by all South Africans at all times to meet their dietary and food preferences for an active and healthy life (Department of Agriculture, 2002).

Altman et al (2010: 349) notes that a large proportion of South African households are food insecure, and that it is currently not possible to monitor progress towards greater food security. Despite numerous indicators of food security status evident in various national datasets, sampling and methodological constraints render cross-dataset comparisons

unworkable.A study by Jacobs (2009) concluded that approximately 80% of households could not afford to buy a basic nutritional basket of food costing an average of R 262 per person per month (at 2005 prices).Hendriks(2005) cites that South Africa is nationally food secure but suggests that between 58.5 and 73 percent of South African households experience food insecurity. Devereux & Maxwell (2001) notes that food insecurity is no longer seen as a failure of food production at the nationallevel but as livelihood failure.This shift in perspective away from emphasis onnational food production and the increasing awareness that sustainable livelihoods arecrucial elements in future food self-sufficiency that lead to a number of progressivedevelopments towards more household-focused food security measurement methodologies (Hendricks, 2005: 104).

South Africa's social security system is the government's chief initiative in tackling some of these problems. It has two main objectives. The first is to immediately reduce poverty among groups who are not expected to participate fully in the labour market, and therefore vulnerable to low income; the elderly, those with disabilities, and children. The second objective is to increase investment in health, education and nutrition, so as to increase economic growth and development (Samson et al., 2005). While Government's spending on the social grants has increased significantly in recent years, research indicates that this has not reversed the drift into poverty by the majority of the recipients. Social grants are generally not regarded as pension as they bear no relationship to the income the recipient earned when they worked. They are seen as an attempt by the government to ameliorate the plight of the poor and marginalised (Van Driel, 2009:139). The state's old-age pension grant is the largest grant when it comes to the monetary cost to the national government. Expenditure on social protection has increased from R72.3 billion in 2005/06 (4.6 per cent of the GDP) to a projected R118.1 billion in 2009/10 (National Treasury, 2009).Gordan (2012) indicates that social assistance spending is projected to rise from R111.2-billion in 2012/12 to R129-billion in 2015.With the current problem of unemployment and poverty in South Africa, it can be expected that the demand for social grants will continue to increase. This calls for an investigation into the intricacies of households receiving grants in order to inform policy directions.

This article makes a contribution to the understanding of households receiving government grants and their socio-economic conditions. A survey was undertaken to collect household information from households in Kwakwatsi who rely government grants as their source of income. The study reported here investigated the food security status of these households and continues to analyse the socio-economic and demographic factors determining the food security status. For this study, food security is defined as the ability of a household to secure enough food to ensure adequate dietary for all its members. The South African National Department of Agriculture's proxy food poverty line was used as a measure of the food security status of a household. The next section provides a brief discussion of government grants in South Africa. The research methodology followed in the study is explained in section 3. Following that will be the presentation of the empirical findings. The final section will conclude the study and provide recommendations stemming from the findings of the study.

2. Government Grants in Perspective

South Africa's social security system is at the heart of the government's poverty alleviation strategy. The current system was implemented and reformed in stages, adapted from the legacy of programmes inherited by the post-apartheid government. There are currently five main types of social grants. The first is the State Old-Age Pension (SOAP), which provides support to men from the age of 62 and upwards and to women aged 60 and upwards. The second is the Disability Grant (DG), which provides support to adults with disabilities. The third is the Child Support Grant (CSG), which provides support to families with children under the age of 14. The fourth is the Foster Child Grant, which provides support to families with children, below the age of 18, in foster care. The fifth is the Care Dependency Grant, which provides additional support to families with children, below the age of 18, with disabilities (Stats SA, 2009).The social-pension programme was introduced in 1928 to provide basic income to white and coloured older persons who lacked an occupational pension (Devereux 2001; Van der Berg, 1998). With the enactment of the Pension Laws Amendment Bill in 1944, its benefits were extended to blacks, but for the following 65 years, differential payments were made to beneficiaries in the different racial groups: whites received four times the amount that blacks received, while coloured and Asian beneficiaries received approximately twice the benefit paid to blacks. From the late-1980s, political pressure and the fight to topple apartheid brought about a gradual reduction in these disparities, and in 1993 parity in the payments was achieved (Van der Berg, 1998).

It is widely acknowledged that the social security programme significantly redistributes income, which many contend makes a substantial contribution to the country's development. More specifically, it is argued that social-pension beneficiaries provide important economic support to their communities and local economies through pension sharing and their own expenditure (Duflo, 2000; SASSA, 2010). However, there is limited understanding of the dynamics of government grant recipients and their food security status. As Hendriks (2005: 2) notes, there are few studies in

SouthAfrica that empirically estimate the extent of food insecurity and household vulnerability. Food and nutrient availability onSouth African households is critically scant (Mjonono et al. 2009: 2). Von Braun et al, (2009) notes that household food security monitoring requires disaggregated consumption information at the household level, based on surveys. They further argue that socio-economic, demographic and nutritional variables can complement programs that monitor changes in household food security.A commitment to household food securitycarries with it an important implication for development practitioners, namely the need tomeasure food security outcomes at the household and individual level. Measurement isnecessary at the outset of any development project to identify the food insecure, to assess theseverity of their food shortfall and to characterize the nature of their insecurity.

3. Research Methodology

3.1 Survey area

The geographical area covered by the study entails the area called Kwakwatsi.The area is a former black residential township located approximately 180 km south of Johannesburg and 280 km north of Bloemfontein in the Free State province of South Africa. The area is part of the Ngwathe Local Municipality, with its head office in Parys (Ngwathe Municipality, 2009). Kwakwatsi is a former black residential township for the town of Koppies. The area could be classified as a semi-rural township, with little economic activity. The nearest industrial town of Sasolburg is 70 km away. The estimated population size of Kwakwatsi is 15 095. A total of 180 questionnaires were administered to households who depended on government grants for sustenance. The survey questionnaire was tested before it was distributed and necessary adjustments were made. The questionnaire included information on demographics, respondents' income and expenditure patterns and their general view about their socio-economic status. Several statistical methods were used to analyze the data using SPSS. Data were analyzed using food security status estimation and logistic regression analysis.

3.2 Data analysis

The data were analyzed in two stages: stage one calculates the household food security status; and stage two is an analysis of the determinants of food security. The Department of Agriculture's recommended food security poverty line was used to aggregate households into food secure and insecure. The South African food security policy recommends an adult individual daily energy consumption of 2650 kilocalories. The policy sets an adult equivalent food poverty line of R260 per individual expenditure for food every month to serve as a proxy indicator for food security. This amount is said to cover 70% of the basic nutritious basket (Department of Agriculture, Forestry & Fisheries, 2012: 9). A food poverty line is calculated for each household by looking at the age and gender distribution of that specific household. Because individuals vary greatly in their nutritional needs, the food poverty line was equalized using the recommended energy allowances based on the gender and age distribution of the household members. Each household's food expenditure was compared to an individually calculated poverty line based on the age and gender distribution of the members. Table 1 shows the equivalence scale for the different gender and age groups as recommended by the National Department of Health in South Africa. Although adjustment factors are available to account for pregnancy and lactation, as well as for HIV status, these have not been included in the calculation.

Table 1: *Adult equivalence of the food poverty line*

Age category	Male	Female
< 1	0.19	1.19
1 - 3	0.50	0.50
4 - 6	0.75	0.75
7 - 9	0.88	0.88
10 - 12	1.01	0.89
13 - 15	1.14	1.05
16 - 17	1.38	1.06
18 - 29	1.37	1
30 - 60	1.34	1
60	1.11	0.9

Source: *(Tshitaudzi, 2007)*

3.2.1 Regression model

A binary logistic regression model was used to determine the effects of some socio-economic and demographic characteristics of the households on their food security status. The binary logistic specification is suited to models where the endogenous variable is dichotomous, which in this case are the households who are food secure and those who are food insecure. Food security status was measured using a bid value of one or zero, where one represents food secure and zero represents food insecure. The logistic regression then provides a model of observing the probability of a household becoming food secure or food insecure. The selection of variables likely to influence household food security relies on previous studies by Stewart et al. (2004), McCracken and Brandt (1987), and Redman (1980). The regression model was estimated as follows:

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 ....\varepsilon_t$$

Where Y= Food security status (1, if household is food secure; 0, if household is food insecure). β_0 is the vector of unknown parameters (intercept); and €_t is the error term. The following socio-demographic characteristics are therefore hypothesized to influence household food security status: $\beta_1$gender of the household head, β_2 household size, $\beta_3$total household income (in Rands), β_4 age of the head of household, β_5 education attainment of the household head, β_6 marital status of the household head, β_7 employment status of the household head, andβ_8 employment status of the spouse.

4. Findings

4.1 The Demographic Characteristics of the Respondents

The sample data was based on responses from the head of the household. The youngest head of household was 16 years, with the oldest at 86 years old. The number of persons per household varied from 1 to 12 members. The average household had 4 members. Average household income was recorded at R1850 with the lowest household income recorded at R120 per month. Household income is the total income received by the various household members. The results also showed that 42.3% of households were headed by female (G_Head). The average number of years of schooling of the respondents (Educ_Head) was 6.45 years, which equate to primary schooling education. An analysis of the marital status of the respondents shows that 45.5% were married. Regarding the employment status of the respondents; 68.5% were not employed. When it comes to the employment status of spouses, the results showed that 35.8% were employed. The state's old-age pension grant makes up 67.4% of household income for the whole sample population. The second highest contributor is the child support grant at 12.3%. Market income in the form of salaries and wagescontributes 10.8% to household income. The other income was from family members/ relatives and help in kind, contributing 9.5% to household income. If added together, government grants on average make up 79.7% of household income.

4.2 The Food Security Status of Households in Kwakwatsi

For the analysis of household food security, a per capita based food poverty line was used to determine the food security status of households receiving government grants in Kwakwatsi. A food poverty line is calculated for each household by looking at the age and gender distribution of that specific household. The results showed that 38% of the sampled households were food secure. These are households whose food expenditure is above the food poverty line calculated for that particular household. Based on this data, it is clear that food security is a challenge in the area as 62% of the sampled households were food secure. The severity of the food security problem can be analyzed by looking at the food poverty gap index. The food poverty gap index for the Kwakwatsi is calculated 0.47 using the survey data. This means that on average, food insecure households have a food shortage of 47%. The average monthly monetary shortfall per poor household was calculated at R226 per capita.

4.3 Factors Affecting Household Food Security in Kwakwatsi

The results of the regression model on the factors that affect household food security are shown in table 2. The results of the survey show that household income (HH_Income), household size (HH_Size), household head marital (MS_Head) and employment status (ES_Head), and the employment status of the spouse (ES_Spouse) significantly affect the food security status of households in Kwakwatsi. The results suggest that household income, household head employment status and spouse employment status positively affect food security, whereas household size and marital status of the

head negatively affect the probability of being food secure. Larger household sizes were associated with a negative probability of being food secure. The sign of the coefficient (B= -.316) was negative and significant at 1%. It was expected that household size would affect household security. Larger households mean competition for a limited food basket.

Table 2: *Factors affecting food security*

	b	SE b	β	t
Constant	2.557	.308		8.303
HH_Income	.000	.000	.329*	6.087
HH_Size	-.204	.035	-.316*	-5.867
MS_Head	-.848	.132	-.383*	-6.426
ES_Head	.258	.131	.109*	1.976
ES_Spouse	.371	.127	.161*	2.915
Educ_Head	-.003	.011	-.012	-.233
Age_Head	-.007	.006	-.068	-1.265
G_Head	.085	.155	.031	.584

R^2= .480.*significant at the 1% level.

The marital status of the head of household was negatively associated with household food security. The negative parameter (β=-.383) indicates that with other variables constant, household security for married respondents is relatively less than their unmarried counterparts. The employment status of the household head and that of the spouse were also found to be significant predictors of food security. The positive sign of the coefficients (ES_Head: β=.109; ES_Spouse: β= .161) shows that with other things constant, households with employed households heads have a higher probability of being food secure. The educational attainment (Edu_Head), age (Age_Head) and gender of the head of household (G_Head) were not important predictors of the food security status of households in Kwakwatsi. The statistical non-significance of these variables suggests that they are not important with regard to explaining the food security status of sampled households.

     The model containing all explanatory variables was significant, indicating that the model was able to distinguish between the various explanatory variables used in the model. The regression model as a whole explained 48% (R^2 = .480) of the variations in all cases. The Durbin-Watson test is another measure of model adequacy. This statistic informs us about whether the assumption of independent errors in tenable. The closer to 2 the value is, the better and for these data the value is 1.831. The F-ratio for the model was calculated at 23.791, which is also highly significant (p <.001).

5. Discussion and Conclusion

This study analyzed the food security status of households in a South African township of Kwakwatsi. A logistic regression model was used to determine the factors influencing household food security. Data from a sample of 180 households in Kwakwatsi was analyzed, with the food security status (1 = food secure and 0 =food insecure) as the dependent variable and a number of socio-economic and demographic characteristics as explanatory variables. The National Department of Agriculture's proxy food poverty line was used to determine the food security status of sampled households. Thirty eight percent of the sampled households were found to be food secure.

     The socio-economic characteristics of household head may influence the food security status of households. Household heads in the area are mostly male (57.70%) and married to a wife (45.5%). The average household size is 4. In this study, 10.57% of household heads do not have any form of formal education. Regarding the employment status of the respondents; 68.5% were not employed. When it comes to the employment status of spouses, the results showed that 35.8% were employed.

     The results of the regression analysis on the factors influencing household food security status show that household income, household size, household head marital and employment status, and the employment status of the spouse are significant predictors of food security. Household income is positively associated with the food security status of a household. Household income is important as it determines how much can be spent on various needs of the household. The quantity and quality of a household's expenditure patterns are highly correlated with the purchasing power of the household. A household's monthly income is the total monthly income of the household from all sources. These findings are consistent with similar studies on food security. Bashir et al. (2010) also found a positive impact of income on food security. Another study by Onianwa and Wheelock (2006) in the USA found a positive relationship between a household's food security status and household income.

     Larger household sizes are associated with a negative food security status. Larger household sizes require increase food expenditure and competition for limited resources. The negative parameter could be as a result of an

increase in the dependency ratio in larger households. A study by Babatunde et al. (2007) concluded that larger household sizes are more likely to be food insecure than smaller size households. Of interest is that the marital status of the household head is negatively associated with spending on food. The coefficient for the variable (MS_Head: -.848) was significant at 1%. This might be due to an increased household size due to a spouse in households were the head is married. Elijah (2010) concluded that households with unmarried heads were more food secure than the married, possibly as a result of limited number of people that such have to feed. A study by Kaloiet al (2005) concluded that married couples were likely to be more food secure than single headed households.

The age of the household head was not significant, although it had a negative sign. The older the household head less food secure the household was likely to be. Older people might not have the ability to work, thus ensuring increasing strain of the food acquisition of a household. The average age of the respondents was 45. Older people is South Africa (>60 years) and in need, are eligible for the state's old-age pension grant. This grant is seen a source of sustenance for many poor urban residents. The aim of the grant is to reduce poverty among groups who are not expected to participate fully in the labour market, and therefore vulnerable to low income due to old age (Meth, 2002). This finding is consistent with similar studies on the topic. In a related study, Bashir et al. (2012) found that an increase of one year in the age of household head decreases the chances of a household to become food secure. A study by Omonoma&Agoi (2007) in Nigeria found an inverse relationship between the age of household head and food security. Arene and Anyaeji (2010) concluded that the age of household head has a positive effect on food security status.

The educational attainment of the head of the household was not important in explaining the variations in household food security. This might be due to the high unemployment rate (68.5%) among the respondents, resulting in lower returns for education in the market. As a result, education does not help much to improve the food security status of households. The problems to urban residents in achieving food security include unemployment, poor health and nutrition, scarcity of land, and high population density. Unemployment rate is considerably high in many urban areas. This calls for employment opportunities among urban residents in order to ensure food security. Specific programmes should be developed and targeted at reducing urban food insecurity. In view of the negative impact of large family size on the food security situation of rural households in the study areas, households should be educated on the need to adopt family planning techniques. This study may serve as a reference source when planning interventions related to government grants recipients.The study propagates an investigation into additional measures to ameliorate the impact of food insecurity amongst these households.

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