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SPENDING PATTERNS OF FOOD SECURE AND FOOD INSECURE HOUSEHOLDS IN URBAN AREAS: THE CASE OF LOW INCOME NEIGHBORHOODS

Abstract:

Food security is one of the most critical problems facing Sub Sahara Africa as more than 45 percent of households have moderate to severe household hunger. The number of poor people living in urban areas is increasing as well as the number of food insecure households, mainly because of the demographic and economic challenges associated with urbanization. The World Bank identified three cornerstones underpinning food security namely, food availability, food accessibility and food utilization. In this context food availability means ensuring sufficient food is available while food accessibility means ensuring enough income to purchase food, and food utilization refer to ensuring quality food. The vulnerability of the poor is sometimes due to unemployment and a lack of sufficient income. This paper focus on food accessibility and how spending patterns of food insecure households may influence food availability in those households. The paper examines the difference in spending patterns of food secure and food insecure households. A quantitative research method was deployed and a stratified random sample of 600 households was used to determine the spending patterns of food secure and food insecure households. Statistical test of significance between the food secure households and food insecure households will be used to see if there is a statistically significant difference in the two groups in their spending patterns. Results show a significant difference between the two groups with regard to spending patterns. Among the policy implications emerging from the study include recommendations for government to develop a more comprehensive strategy, focusing on urban areas in South Africa which includes advocacy with regard to ensuring food security on the household level.

Keywords:

Food Insecurity, Poverty, Urban Studies, Socio Economics, Spending Patterns

JEL Classification: D10, D14, I32

Introduction

Food security is a critical problem facing sub-Sahara Africa. In a study by the United States Agency for International Development (USAID) in 2010, it was reported that in sub-Sahara Africa more than 45 percent of households have moderate to severe household hunger (Deitchler *et al*., 2010). In recent times, an increasing number of people, especially in Southern Africa, are experience food insecurity, resulting in a growing number of households becoming vulnerable to food insecurity (Wiggins, 2003; Maunder & Wiggins, 2007; Drimie & Casale, 2009). This suggests that food insecurity will create new challenges for urban planners.

Research in the 1990s predicted that the focus on poverty, specifically food security, would probably shift to urban areas (UNICEF, 1994; De Haan, 1997; Moser, 1996). According to one study, poor households in urban areas would experience higher levels of food insecurity in years to come as a result of the demographic and economic challenges associated with urbanisation (Ravallion, 2002). Other studies highlighted that access to food and expenditure on food would depend on whether households in urban areas would have enough income to purchase food (Behrman & Deolher, 1988; Hoyos & Meveden, 2009). In this regard, researchers indicated that food availability may not be the only condition for food security, especially if households lack the financial or productivity resources necessary to acquire food (Migotto, Gero & Kathleen, 2006; Adato & Basset, 2012; Miller, Tsoka & Reichert, 2011; Manyamba *et al*., 2012). This implies that food insecurity in urban areas may require a different approach to eradicate urban food insecurity.

In this regard, South Africa is no exception, given that a significant number of households in low-income urban areas in the country are food insecure (Oldewage-Theron, Dicks & Napier, 2006). While at the national level South Africa may be viewed as food secure, recent studies indicate that at the household level there is significant food insecurity (Manyamba, Hendriks, Chilonda & Musaba, 2012; Kirkland, Kemp, Hunter & Twine, 2011).

In an attempt to eradicate the consequences of poverty, such as food insecurity, the South African government has adopted a pro-poor policy framework and an Integrated Food Security Strategy, which includes the distribution of social grants. It is well documented that these measures have been successful in contributing significantly to social development and food security in the country (Samson *et al*., 2004; Van Der Berg, *et al*., 2005, Case & Deaton, 1996, Barientos & lloyd-Sherlock, 2002; Booysen, 2004; Manyamba *et al*., 2012). However, despite the success of these measures, a significant number of households in South African low-income neighbourhoods remain food insecure.

Whilst numerous studies have been conducted on the factors that determine household consumption and expenditure patterns, the study reported on in this paper focused specifically on the expenditure patterns of food secure versus food insecure households. The purpose of the study was to determine the extent to which household

spending patterns influence household food security, the extent to which spending patterns differ between food secure and food insecure households, and the extent to which food insecure households prioritise spending on food. Studies such as this provide important insights into policy initiatives in terms of food security in urban areas. Even though food insecurity remains an issue in South Africa, there is a dearth of research on food expenditure patterns in the country and the factors that contribute to food insecurity, specifically in urban areas.

The paper proceeds as follows. In Section 2, the literature related to food expenditure and food security is reviewed. The research methodology, including a background to the study is outlined in Section 3 and the findings of the study are presented in Section 4. The paper ends with a discussion of the conclusions drawn from the study in Section 5.

Literature Review

The concept of food security is defined as a state in which "all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life"(USAID,1992; World Food Summit, 1996).There are three distinct variables essential for a household to be food secure, namely food availability (sufficient quantities of appropriate food), food access (adequate income or other resources to purchase, barter for or obtain appropriate food), and food utilisation (an adequate quality of food)(USAID,1992; Coates, Swindale & Bilinsky, 2007). Moser (1998) and Tawodzera (2011) identified a fourth dimension of food security, namely 'vulnerability' to food security, where factors such as unemployment and increased household size may increase the 'vulnerability' of households to food insecurity (Moser, 1998).

The concept of food security, together with an understanding of poverty, has evolved since the World Food Conference in 1974, and the debate surrounding food insecurity has shifted to the household level (Maxwell, 1996). The measurement of food insecurity presents many challenges and the assessment methodologies applied differ between qualitative and quantitative studies (Migotto *et al*, 2006). Several studies have provided important insights into the experiences of households concerning food insecurity. These experiences include feelings of anxiety over food shortages, perceptions that food is of an insufficient quantity, perceptions that food is of an insufficient quality, reported reductions of food intake, reported consequences of reduced food intake, and negative feelings surrounding socially-unacceptable means of obtaining food (Radimer, Olson & Campbell, 1990; Radimer, Olson, Greene, Cambell & Habicht, 1992).

Migotto *et al.* (2006) identifies five general types of methodologies used to measure food security, namely measures of undernourishment, measures of food intake, measures of nutritional status, measures of access to food in terms of income, and measures of vulnerability. Vulnerability, in this regard, is often measured using qualitative survey questionnaires, including self-assessment survey questionnaires.

According to Knueppel *et al.* (2009), studies measuring household food insecurity typically utilise an adapted version of the Cornell/Radimer measuring instrument, or develop a measuring instrument based on research on how households experience food insecurity, with both methods having produced valid and reliable results. In 2010 the USAID funded the Food and Nutritional Technical Assistance (FANTA) project, which developed the Household Food Insecurity Access Scale (HFIAS) - a measuring instrument that can be used cross-culturally, which has since been validated cross-culturally (Deitchler, Baalard, Swindale & Coates, 2010) In this study, the self-assessment version of the HFIAS was used to gather the required data from food secure and food insecure households in low-income urban areas in South Africa.

Studies on food insecurity in South Africa include the 1995 Income and Expenditure survey, which found an urban food poverty rate of 27 percent and a rural food poverty rate of 54 percent (Statistics South Africa, 1995), the national Food Consumption Survey of 1999, which found food insecurity of 42 percent in urban areas, compared to 62 percent in rural areas (Rose & Charlton, 2002; Labadarios *et al*., 2011), and the South African Social Attitudes Survey of 2008, which found 20.5 percent urban food insecurity and 33.1 percent rural food insecurity (HSRC, 2008). In low-income developing countries, 12 out of 18 samples found that food insecurity in urban areas was the same or higher than in rural areas (Ahmed *et al*., 2007).

While studies related to expenditure patterns of low-income households traditionally include the Engel relationship of income and expenditure (Agarwals & Drinkwater, 1972; Allen & Bowley, 1955), more recent studies include other socio-economic determinants of expenditure pattern, including whether or not an individual is a social grant recipient and who is the head of the household. Sampson et al. (2004) found that contrary to Engel's Law of spending less on food as income increases, grant recipients spend proportionally more on food than non-grant recipients. Case and Deaton (1998) found that expenditure share of income on food by social grant recipients is not significantly different from that of non-grant recipient's income. Maitra and Ray (2003) indicate that the elderly allocate income differently to households headed by younger people. Booysen and Van Der Berg (2005) found that grant income leads to higher expenditure on food, and that individuals with higher education spend more on food. Duflo (2003) and Lund (2006) state that female-headed households spend more on food, which significantly improves the nutritional state of household members. Davis, Moussie, Dinning and Ghristakis (1983) found household size and income to be significant contributors in determining food expenditure. Other studies indicate that age, gender, marital status, education and family structure significantly correlate with food expenditure (Meng, Florkowski & Kolvalii, 2012; Jolly, Awauah,Fialor, Agyemang, Kagochi & Binns, 2008).

Only a weak link has been found between national food availability and food insecurity (Smith & Haddad, 2000). Generally, access to food and expenditure on food depends on whether households have enough income to purchase at prevailing prices (Behrman & Deolikar, 1988; FAO, 2012, Kramer-LeBlanc & McMurray, 1998; Hoyos &

Medvedev, 2009). Similarly, households in South Africa, both urban and rural, depend, to a large extent, on paid employment to ensure their access to food (Hendriks & Maunder, 2006; Du Toit, 2005, Maxwell & Slatter, 2003; Chambers & Conway, 1992). Devereux (2009) indicates that food insecurity interventions need to be based on an understanding of the causes of insecurity.

Concerning social security and its impact on food security, cash transfers, for example, have been found to improve food security by improving food access and by providing households with income to purchase food (Reilly *et al.,* 1999). Much of the literature on the impact of cash transfers on food security indicates increased spending on food by grant recipients (Fiszbein *et al*., 2008; Gertler, 2005; Maluccio & Flores, 2005). In South Africa, Booysen and Van Der Berg (2005) found that income grant recipients used their social grants primarily to pay for food. Several other studies (Lagarde, Haines & Palmer, 2008; Dufflo, 2000; Miller, Tsoka & Reichert, 2007) found that social grants influence food security positively. Despite these findings, questions still arise concerning whether or not social grants should be paid out to beneficiaries without any conditions attached to how they spend those grants.

Background of Study Area and Social Security

Background of the study

The study was conducted in Bophelong and Sharpeville, low-income neighbourhoods in southern Gauteng, South Africa. The population in Bophelong is estimated at 37,779, and the number of households is estimated at 12,352. A study by Slabbert and Sekhampu (2009) revealed that 66.3 percent of the residents of Bophelong are poor. The population in Sharpeville was estimated at 41,031 with an average household size of 4.9 (8374 households) of these 8374 households 3609 households live in poverty (Stats SA, 2011).

Background of social security in South Africa

The origins of social security in South Africa can be traced back to attempts by the pre-democratic apartheid government to create a welfare state for whites in South Africa. Since the first democratic election in South Africa in 1994, the total number of social security system beneficiaries increased from 2.4 million in 1998 to 12.4 million in 2008 (Van Der Berg, Siebrits & Lekezwa, 2011). Projections by the National Treasury (2008) indicated that 66.6 percent of grants paid would have been child support grants, 17.9 percent old age pensions, and 11.4 percent disability grants. The remainder of grants are war veteran grants, grants in aid, foster care and care dependency.

Methodology

In dealing with the issue of food security, different approaches are used, especially in measuring food security. It is also important to distinguish between food availability,

food access and food security. Most studies employ household data collected at national level (Bickel & Cook, 2000) but there are surveys that can be done in specific areas at the household level, using food access scales. This study uses data collected at the household level from two low income areas in South Africa, namely Bophelong and Sharpeville.

Data collection

A survey was conducted in February 2015 in Bophelong and Sharpeville. A household questionnaire was used to collect data on a number of variables at the household level, including food access and coping strategies. The households were also interviewed with regard to head of household characteristics in order to link the head of household characteristics to household food security status. Data was collected from 600 household and 580 were used after cleaning and omitting households with errors. Table 1 shows the gender of the head of households in the sample.

Table 1 Gender distribution in the sample

Gender	Frequency	Percent
Male	316	54.5
Female	264	45.5
Total	580	100.00

Source: Survey data 2015

The results show that as many as 264 households had a female head of household, representing 45.5 percent of the sample. This could imply single-headed households since the *de-facto* definition of head of household is taken by male where both males and females exist in the household. This argument is supported by looking at the marital status of the head of households. Table 2 presents the marital status of the head of households in the sample. Approximately 40.5 percent of the households were in the unmarried or living without a partner category

Table 2: Marital status

Marital Status	Frequency	Percent
Married	345	59.5
Unmarried	235	40.5
Total	580	100.00

Source: Survey data 2015

The expenditure patterns of households with married heads of households are likely to be more inclined to prioritise on essentials than those with single head of households, since there is lack of control whether it is a male of a female single head of household (Lundberg et al., 1997).

Measurement of food security

The HFIAS, a nine-item food insecurity scale, was used to measure food insecurity. The instrument includes items measuring anxiety about food supply, quality of food, quantity of food consumed and sleep hungry or going all day and night without eating (Deitchler, Ballard, Swindale & Coates, 2010). The HFIAS score calculated is a continuous measure of the degree of food insecurity (access) in the household in the past four weeks (30 days), adding up to a maximum score of 27 for a household with severe food insecurity, to a minimum score of 0 for a household with complete food security. Households are classified into categories starting with food secure (Category 1), mildly food insecure (Category 2), moderately food insecure (Category 3) and severely food insecure (Category 4). In this study, Categories 1 and 2 are deemed food secure and Categories 3 and 4 food insecure. This was done to identify the food insecure households.

Statistical analysis results and discussion

Studies show that households with high levels of income spend a small percentage of their income on food, while poor households spend a larger percentage of their income on food (Kirkpatrick & Tarasuk, 2003).

An independent samples t-test was computed to determine whether there were statistically significant differences between the mean expenditures proportion to household income of the food secure and the food insecure households.

Based on the HFIAS score, the households were categories into two groups, the food secure households and the food insecure households (Knueppel, Demment, & Kaiser, 2009).

Table 3 presents the share of households in the sample who fall into these two categories.

Table 3: Food security status

Food Security Status	Frequency	Percent
Food Secure	227	39.14
Food Insecure	353	60.86
Total	580	100.00

Source: survey data 2015

The results in Table 3 indicate that 60.86 percent of the sample fell into the food insecure category. The results indicate the seriousness of the situation in the two townships under consideration. The fact that half of the households are food insecure highlights the importance of investigating whether it is purely based on the low income or their spending patterns further. It is an obvious assumption to conclude that food

secure households have higher incomes in comparison to the food insecure households.

Table 4 below shows the average income of Food secure Households compared to Food insecure households.

Table: 4 Average Household Incomes

Food Security Status	N	Average Income	Standard Deviation	Standard Error Mean
Food Secure	227	10930.87	6092.83	357.17
Food Insecure	353	3552.76	2363.76	139.04
Total	580			

Source: survey data 2015

The results show that there is a significant difference between the average income of the food secure and the food insecure households. Table 4 shows that there is a R7378 income difference between the two categories. However, the average income of the food insecure is R3552, which by South African standards should be enough to make the household food secure. A report by Statistics South Africa (2014) indicates that the number of people living below the food poverty line (FPL) in the country increased between 2006 and 2011 and then started to drop off again. The food poverty line used by Statistics South Africa is R321 per capita per month (Statistics South Africa, 2014). With an average income of R3522, a household size of 10 or less individuals should be food secure based on the R321 per capita per month.

Table 5: Household size and food security category

Food Security Status	N	Mean Household Size	Std. Deviation
Food Secure	227	3.93	1.51
Food Insecure	353	4.32	1.73
Total	580		

Source: survey data 2015

Table 5 shows that on average the food secure household have smaller households but with a very small difference to the food insecure. The average household size for the food insecure is 4.3, which means the average per capita income for the food insecure households is the ratio of the average income and the average household size, which is R819. This means that on average the households are supposed to be food secure since R819 is above the R321 food poverty line, even if it were to be adjusted for inflation. It can also be argued that the food insecure households are above the upper bound poverty line of R620 per capita per month (Statistics South Africa, 2014).

In order to understand why households with an average income above the poverty line are food insecure, the study considered the expenditure pattern differences between the food secure and the food insecure households. Table 6 presents the descriptive statistics of certain important expenditure in monetary terms. The t-test however will be done using the proportion of individual item expenditure to household income, to see if there is a statistically significant difference between the expenditures of the food secure and the food insecure of essential and non-essential item.

Table 6: Expenditures patterns in monetary terms by food security categories

Expenditure Item	Food security category	N	Mean	Std. Deviation	Std. Error Mean
Food	Food secure	227	1648.04	1105.94130	64.83143
	Food insecure	353	1006.51	1589.04275	93.47310
Housing	Food secure	227	129.69	264.90590	15.55581
	food insecure	353	86.97	205.39137	12.10280
Tobacco	food secure	227	67.85	151.84971	8.94783
	food insecure	353	25.88	62.71703	3.69564
Alcohol	food secure	227	246.55	284.91997	16.76000
	food insecure	353	126.46	721.28294	42.57599
Transport	food secure	227	1096.64	841.69316	49.51136
	food insecure	353	257.52	386.40871	22.80898
Cleaning	food secure	227	153.81	253.30599	14.84906
	food insecure	353	88.62	125.04546	7.35562
Gambling	food secure	227	38.61	302.99596	17.79254
	food insecure	353	25.19	99.11169	5.85038

Source: survey data 2015

The expenditure items in Table 6 were further analysed between the food secure and the food insecure households to see if there is a significant difference in the proportion expenditure to income between the two categories. Table 7 presents the results of the t-test for the expenditure categories as a proportion to household income. Food expenditure is higher in the food secure category in monetary terms but as a proportion to household income, food insecure households spend 34.88 percent of household income on food, compared to 17.77 percent of household income for food secure households. This indicates that the food secure households spend more on food compared to the food insecure households. Food secure households spend 2.26 percent of household income on Alcohol, compared to 3.08 percent of food insecure households. Food insecure households spend also more on Gambling and cleaning material, as a proportion of household income compared to food secure households.

Table 7: Expenditure as a proportion of Household income

Expenditure Category	Food Security Status	N	Mean	Std. Deviation	Std Error Mean
Housing	Food Secure	227	1.4134	3.14281	.18423
	Food Insecure	353	2.9326	6.88638	.40508
Food	Food Secure	227	17.7796	15.95348	.93521
	Food Insecure	353	34.8835	54.35225	3.19719
Cig. And Tobacco	Food Secure	227	.6908	2.35585	.13810
	Food Insecure	353	.7498	1.91491	.11264
Alcohol	Food Secure	227	2.2612	2.43516	.14275
	Food Insecure	353	3.0861	14.65713	.86218
Transport	Food Secure	227	10.5131	19.25812	1.12893
	Food Insecure	353	7.3445	9.97369	.58669
Cleaning Materials	Food Secure	227	1.6021	2.04599	.11994
	Food Insecure	353	3.1300	5.77660	.33980
Gambling	Food Secure	227	.4290	2.33313	.13677
	Food Insecure	353	.6948	2.29273	.13487

Source: survey data 2015

Table 8 shows the results of the t-tests between the proportion expenditure on individual items to household income. Statistical significant differences exist between food secure households and food insecure households, with regard to expenditure on Housing, Food, Transport and cleaning materials. The results show no significant statistical differences in expenditure on Cigarettes and Tobacco, and Alcohol, between food secure and food insecure households.

Table 8: T-test for expenditure as a proportion of household income between food secure and food insecure households

Expenditure Category	Sig.	t	Mean Difference	Std. Error Difference
Housing	.000*	-3.422	-1.51923	.44400
Food	.001*	-5.149	-17.10383	3.32150
Cig. and Tobacco	.741	-.331	-.05907	.17834
Alcohol	.344	-.947	-.82487	.87107
Transport	.013**	2.486	3.16866	1.27482
Cleaning Materials	.000*	-4.252	-1.52793	.35938
Gambling	.167	-1.384	-.26583	.19209

* Significant at 1 % level
** Significant at 5 % level
*** Significant at 10 % level

Source: survey data 2015

There is also a statistically significant difference with a p-value of 0.000 between the food secure and the food insecure households on the expenditure of housing. This means that the food secure households spend more on this essential item as well. On cigarettes and tobacco the food secure are also spending more than the food insecure households. Although the food secure are spending more on this nonessential, the amount that the food insecure is spending is high enough to help them change their food security status. The expenditure on alcohol also has no statistically significant

difference with a p-value of 0.344 and with the food secure households spending on average more than the food insecure households. But just like spending on alcohol, the food insecure household are spending quite a substantial percentage of their limited income on alcohol. The food insecure households are spending an average of R126.46 on alcohol which is a substantial amount considering that it is almost half of the child grant support grant. The food secure spend significantly more on transport compared to the food insecure and also on cleaning. Another interesting result is on gambling, where results show that there is no mean difference between the two categories showing that the food insecure are almost spending the same amount of money of gambling as the food secure. It shows that the amount of money going to this non-essential item is equal for those that do not have enough money and those that are struggling to put food on the table. The fact that food insecure households spend money on non-essential items implies that income is not prioritizing towards essentials like food in a household. The grants program was introduced mainly to help people afford basic necessities like food. The results here show that people meant for food and other essentials like medicine are diverted to alcohol and tobacco and hence need to find ways of redesigning these programs so as to control the expenditures especially of these food insecure households,

Conclusion

The results indicate that the households categorized as food insecure is actually having enough income to be food secure. This means that their income is diverted from essential expenditures like food to non-essentials like alcohol and cigarettes. It is clear from the results that since people are given money instead of food, they are diverting the money to other non-essential and in this case even hazardous expenditures like alcohol and tobacco. The recommendation is therefore that the government should consider introducing food coupons instead of cash grants especially to the households that are on child grants and old age grants. These coupons will then ensure that money meant for food is used for food and hence may also improve the food security situation in the townships.

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