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Contaduría y Administración
Accounting & Management

Contaduría y Administración 68 (3), 2023, 160-172

Analysis of the impact of social grants on food security in Gauteng province of South Africa

Análisis del impacto de los subsidios sociales en la seguridad alimentaria en la provincia sudafricana de Gauteng

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Received October 14, 2022; accepted March 28, 2023
Available online April 11, 2023

Abstract

This study analysed the impact of social grants on food security, considering the effect of household dynamics in South Africa. Correlation and two-way ANOVA analyses were employed to analyse the impact of social grants on food security using data from 900 households selected randomly from three low-income areas in Gauteng Province of South Africa. The results show that social grants are associated with low food insecurity, whereas child grant significantly alleviates the severity of food insecurity among the sampled urban households. Also, it was found that increased income, higher level of education, and high employment rate of the household head have a positive impact on household food security. Furthermore, this study shows that any type of social grant is critical in reducing the severity of food insecurity among low-income households. As a result, the policymakers in the South African government should integrate the current special COVID-19 social relief of distress grant into the social grant system.

JEL Code: D10, D12, Q18, R20
Keywords: food security; social grant; social security; household, South Africa

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Peer Review under the responsibility of Universidad Nacional Autónoma de México.

http://dx.doi.org/10.22201/fca.24488410e.2023.4852

Resumen

Este estudio analizó el impacto de las subvenciones sociales en la seguridad alimentaria, considerando el efecto de la dinámica de los hogares en Sudáfrica. Se emplearon análisis de correlación y ANOVA de dos vías para analizar el impacto de las subvenciones sociales en la seguridad alimentaria utilizando datos de 900 hogares seleccionados al azar de tres áreas de bajos ingresos en la provincia de Gauteng en Sudáfrica. Los resultados muestran que los subsidios sociales están asociados con una baja inseguridad alimentaria, mientras que los subsidios por hijos alivian significativamente la gravedad de la inseguridad alimentaria entre los hogares urbanos muestreados. Además, se encontró que el aumento de los ingresos, el mayor nivel de educación y la alta tasa de empleo del jefe de hogar tienen un impacto positivo en la seguridad alimentaria del hogar. Además, este estudio muestra que cualquier tipo de subsidio social es fundamental para reducir la gravedad de la inseguridad alimentaria entre los hogares de bajos ingresos. Como resultado, los formuladores de políticas del gobierno sudafricano deberían integrar la actual subvención especial de alivio social de la COVID-19 en el sistema de subvenciones sociales.

Código JEL: D10, D12, Q18, R20
Palabras clave: seguridad alimentaria; subvención social; seguridad social; hogar, Sudáfrica

Introduction

The role of social protection in ensuring food security in developing countries, especially those in Africa continue to attract the attention of analysts, researchers and economists who access socio-economic data for information and policy. South Africa, much like other developing economies, faces significant levels of household food insecurity in most of the urban townships and rural community across all provinces of the nation (Grobler, 2015). General household survey indicates that four provinces exhibit higher inaccessibility to food with North-West having the highest level of 37.3 percent; Northern Cape at 30.7 percent, Eastern Cape at 29.4 percent and Mpumalanga at 29.4 percent (Shisana et al., 2013). This dynamic reflects a historical paradox of South Africa in terms of development equity and access to basic livelihood needs since its transition to democracy in 1994. While gross domestic product (GDP) growth of the country is generally comparable to other middle-income countries, factors such as inequality, unemployment, and food security for poor households to continue to remain major setbacks to its national all-inclusive development agenda (Grosh et al., 2010).

Successive governments in the post-apartheid era have implemented different strategies and policies aimed at alleviating food insecurity problems in South Africa, through the offering of social security grants to citizens in the low-income earning classification. As a result, two common forms of social security namely, social insurance and social assistance are adopted in South Africa (SASSA, 2019). Through these arrangements, the South African government implement a state-funded system, referred to as social grants to support food security in South Africa (Jolly et al., 2008). With the primary aim of

creating equitable access to food, the social grant system serves as a livelihood support mechanism to enable households to cope with food insecurity (Grobler & Dunga, 2015).

According to StatsSA (2021), social grant beneficiaries increased from R11.31 million in April 2020 to R11.45 million at the end of March 2021., which implies that significant number of poor citizens depend on social grants in South Africa as means of daily livelihood and thus, explains its role in the poverty alleviate strategy of the nation. However, the prior analyses of food security in South Africa do not provide explanations to effect of household dynamics to relationship between social grants and food security (Mudzielwana et al., 2020; Trefrey et al., 2014). As such, study is aimed at testing the impact of household factors on the relationship between social grants and food security in South Africa. Through the application of the two-way ANOVA test, the study presents novel perspectives the impact of government social interventions through social grants on citizens livelihoods and food security in South Africa. In this way, this study contributes to literature on food security by providing essential toolkits for policy makers on household food sustainability in urban poor communities.

The rest of the paper is organised as follows. Section 2 presents the literature review; Section 3 presents data and methodology; Section 4 discusses the estimation results, while section 5 concludes with policy recommendations.

Literature review

Evidence is mixed for the effects of cash transfers on health and nutrition. De Groot et al. (2015) analyse the impact of social grants on food security and cites the health and nutrition conditional cash transfer (CCT) programme initiated by the government of Brazil in 2001, which was targeted at pregnant women, breastfeeding mothers with children below six months, and children from six months to seven years of age. From the analysis, there exist a positive impact of social grants on had on individual and community livelihoods that ensured social welfare and food security. The assessment report indicates that through programme, eligible households were provided with a monthly cash transfer on condition that they complied with compulsory activities and allowed the recipients to experience sustained food supplies at the family level (De Groot et al., 2015). This indicates that intentional state-led food policy interventions are effective for ensuring improved livelihoods and poverty elevation towards equitable and sustainable development.

Employing data on kids, Yamauchi (2008) analyses the impact of grants on nutrition requirements of children. The analysis showed that grant-financed nutrition supplies drive positive educational outcomes in children and the desirable outcomes reflect in reduced rates of school grade repetition whiles allowing for early schooling and timely completion. Practically, the sustenance of grant-

financed nutrition supply programmes does not only enhance the education achievement of the beneficiary children but more importantly, it reduces child hunger significantly by 8 to 14% for each CSG a household receives (Ngema et al., 2018). Against this backdrop most progressive emerging economies continue to such social interventions to achieve long-term human capital development, although such interventions exert significant restraints on government budgetary demands and priority needs of national development (Frayne et al., 2015).

Generally, there exist a consensus in the literature on dynamics between social grants, food security and social welfare that social grant payments impact positively on food security at household level while engendering improved standards of living, especially in urban poor communities (Dedehouanou & McPeak, 2020). The general position of the literature notwithstanding, evidence by Grobler (2015) suggest that the current grant payment amounts is economically inadequate vis-à-vis cost of living in an emerging economy such as South Africa, to engender a significant alleviation of food insecurity. This is because in South Africa, social grant is the main source of household income in 45.7 % of households and hence it is unable cater for other essential necessities of life such as decent accommodation and clothing beyond feeding (StatsSA, 2016).

Scholars explain that important demographic variables correlate with food expenditure and thus explain household food security. In this context, age of household, gender of household head constitutes a set important demographic variables that may affect the level of food security in households. However, the extant literature on food security in South Africa is limited in providing explanations to the effect of these household demographic dynamics on the relationship between social grants and food, and hence requires further investigation. As such, this study analyses the impact of social grants on food security, considering the effect of household dynamics in South Africa.

Methodology

Sampling and research instrument

The study sample comprise a survey data of low-income townships in the Gauteng Province of South Africa namely, Atteridgeville, Soshanguve and Tembisa. Atteridgeville is a township with 16, 456 households, Soshanguve with 106, 057 households and Tembisa with 166, 340 households (StatsSA, 2016). A sample of 900 households were selected based on a random approach. Eventually data from 827 households were retained for analysis.

To measure food security the Household Food Insecurity Access Scale (HFIAS) developed by USAID is employed for the analysis. This scale poses questions to a respondent on daily food

consumption. In the analysis, the consumption of a minium three quality square meals daily indicate the security of food in a particular household. Food security is measured on a scale (HFIAS) of 0 to 27, where 0 denotes complete food security and 27 complete/severe food insecurity. Questionnaires are administerd to collect socio-economic and demographic data such as age, gender, source of income, level of education, location of head of household from respondents.

Data analysis

The analysis Correlation analysis between social grants, socio-economic and demographic variables is conducted using Correlation and Analysis of Variance (ANOVA). In a correlation analyses with values ranging from -1.0 to +1.0, the relationship between two variables are descibed. In a negative value such as -1.0 the an inverse relationship exist, meaning that if the one variable increase the other variable will decrease. In a positive correlation, the association will be positive meaning that if the one variable increase the other variable will also increase (Seltman, 2015). ANOVA can be used as a method to analyse categorical factors, explaining variability between factors. This method can be used to determine which factors may have a signinficant effect, and to determine the variability of such factors (Seltman, 2015).

This study tests whether the variance in food security and receipt of social grants is affected by residential location in each of the three locations, age grouping, and gender and income and employment status. For example, receipt of social grants would be assumed to be identical across the four age groupings, income class, gender and the three residential locations. The F-tests are then used to test how different the means are relative to the variability within each sample of these groupings.

Results and discussions

Descriptive and correlation analyses

Table 1 presents descriptive results of food security by sources of income, while Table 2 presents correlation analyses of different variables and social grant categories. Table 1 shows the mean HFIAS score of the groups who received social grants, help, or other forms of grants as income compared to those who are not beneficiaries. The results show a mild level of food security among grant recipients. Additionally, there appears to be no difference in the severity of food security between households receiving social grants and those receiving other types of income such as wages or informal business

activities. These results imply that social grants are crucial in ensuring food security among low-income households in urban areas.

Table 1
Food Security by source of income

	Sample Size	Mean HFIAS score	Standard Deviation	Standard Error	Food Security Status
Households receiving wages from employment					
Beneficiaries of Wages/Salaries	505	4.958	6.617	0.294	Food secure
Non-Beneficiaries	322	9.186	7.265	0.405	Mildly food secure insecure
Households receiving Old Age Pension					
Beneficiaries of Old Age Pension	193	7.145	7.208	0.519	Food secure
Non-Beneficiaries	634	6.440	7.163	0.284	Food secure
Households receiving Child Grant					
Beneficiaries of Child Grant	390	8.190	7.172	0.363	Mildly food secure insecure
Non-Beneficiaries	437	5.190	6.884	0.329	Food secure
Households receiving Other Grants					
Beneficiaries of Other Grant	40	6.725	6.917	1.094	Food secure
Non-Beneficiaries	787	6.598	7.192	0.256	Food secure
Households Receiving Help from families, friends, and neighbours					
Beneficiaries of HELP	249	8.378	7.599	0.482	Mildly food secure insecure
Non-Beneficiaries	578	5.841	6.851	0.285	Food secure
Households deriving income from informal activities					
Beneficiaries of income from Informal Activity	80	6.950	6.270	0.701	Food secure
Non-Beneficiaries	747	6.568	7.268	0.266	Food secure
Households benefiting from other types of income					
Beneficiaries of Other types of income	44	6.727	7.801	1.176	Food secure
Non-Beneficiaries	783	6.598	7.144	0.255	Food secure
Households benefiting from all grants from the state and help from family, friends, and neighbours					
Beneficiaries of All Grants & Help	619	7.604	7.219	0.290	Mildly food secure insecure
Non-Beneficiaries	208	3.630	6.161	0.427	Food secure

Source: Authors' estimations (2022).

Table 2
Correlation analyses and Social Grants

		Pension	Child_grants	Other grants	Help
Food_Security	Pearson Correlation	-.020	-.164***	-.035	-.131***
	Sig. (2-tailed)	.574	.000	.319	.000
Age_of_HHH	Pearson Correlation	-.015	-.018	-.018	-.057*
	Sig. (2-tailed)	.659	.614	.600	.099
Gender	Pearson Correlation	-.019	-.011	.020	.041
	Sig. (2-tailed)	.578	.746	.557	.236
Marital_Status	Pearson Correlation	-.009	.058*	-.023	-.012
	Sig. (2-tailed)	.786	.098	.504	.722
No_of_people_employed_HH	Pearson Correlation	-.071**	-.028	.038	.022
	Sig. (2-tailed)	.042	.423	.279	.535
Household_size	Pearson Correlation	-.021	.036	-.033	.026
	Sig. (2-tailed)	.542	.303	.341	.459
No_of_years_for_formal_education	Pearson Correlation	-.060*	.005	.010	.041
	Sig. (2-tailed)	.086	.890	.782	.235
No_of_children	Pearson Correlation	-.036	-.079**	.023	.023
	Sig. (2-tailed)	.296	.022	.514	.516
Income	Pearson Correlation	-.064*	-.073**	.079	-.025
	Sig. (2-tailed)	.065	.035	.024	.479
Wages	Pearson Correlation	-0.249***	-0.161***	-.028	-0.180***
	Sig. (2-tailed)	0.000	0.000	.414	0.000

Source: Authors estimations (2022). Note: 10%, 5% and 1% levels of significance are denoted by *, **, *** respectively.

Table 2 shows that the HFIAS score is inversely correlated with income from all categories of social grants, meaning that the HFIAS score tends to decrease as the social grant income increases. Considering that a high HFIAS score indicates a severe status of food security, the observed negative correlation coefficients indicate that social grants are associated with low food insecurity. The significant negative correlation coefficient between the HFIAS score and child grants implies that the child grant substantially alleviates the severity of food insecurity among the sampled urban households. Table 2 further shows that age of participants is significantly positively correlated with access to old age grant, child grants and other grants. It is negatively associated with receiving income from wage employment and informal business activities, and receiving income from other sources, especially in Soshanguve. This is minimal in Thembisa and Atteridgeville especially in relation to receipt of income from informal

activities and other sources. The correlation results suggest that social grant income tends to decrease among the households with employed heads, which is an encouraging observation for the government.

Analyses of variance of household food security

Table 3 presents the ANOVA of household food security by the income class of household head. The table shows that differences in the population means of food (in) security are more pronounced in the higher level of income households. The population means of households' experiences of food insecurity in this study also show variability with the main source of head of household income. The results suggest that it is prudent to reject the null hypothesis of equality of population means across income sources. These differences in the population means of food security are more pronounced when income is derived from formal sources.

Table 3
ANOVA results: food security and household head's income categories

	Income Class of participants		
	R1-500; R501-1000	R1001-1500;	R2001-2500;
	F-Statistics (Probability level in parenthesis)		
Food Secure	43.66*** (0.0001)	62.20*** (0.0001)	596.7*** (0.0001)
Mildly Food Insecure	44.26*** (0.0001)	62.51*** (0.0001)	596.8*** (0.0001)
Moderately Food Insecure	44.25*** (0.0001)	62.51*** (0.0001)	596.8*** (0.0001)
Severely Food Insecure	44.08*** (0.0001)	62.36*** (0.0001)	596.4*** (0.0001)

Source: Authors' estimations (2022). Notes: *** denotes 1% level of significance.

Table 4
ANOVA results: food security verse household head's sources of income

Source of Household Income	Food Insecurity
F-Statistics (Probability level in parenthesis)	
Wages	468.9*** (0.0001)
Employment in the informal sector	49.50*** (0.0001)
Receiving old age Pension	275.0*** (0.0001)
Receiving Help from Others	232.1*** (0.0001)
Other Sources of Income	31.62*** (0.0001)

Source: Authors' estimations (2022). Note: ***denotes significance at the 1% level

The ANOVA analyses in table 4 shows the household food security compared to the household head source of income. These differences in the population means of food security are more pronounced

in paid employment and old age pension, and when the household head receives help from others. From the table, it is evident that income of household head plays a significant role in household food insecurity.

Table 5 shows the results of the ANOVA analysis of social grants versus different levels of food security. The results show that variances exist in the population means of food security households. Variances in the population means exist, with values ranging from 3.414 for households receiving the other grants to value of 8.864 of households who receive child support grants, with significance at the 1% level. As such, the null hypothesis of equality of population means of household food security by social grants is rejected. Variances in the population means in table 5 range from 1.875 for households receiving the old age grants to 2.884 of households who receive a child support grant, significant at the 1 percent and 5 percent level. There exists a difference in the means of household experience of mild food insecurity, controlling for receipt of social grants by household head. The results are not significant in households who receive other forms of social grants.

Table 5
ANOVA: Social grants versus different level of food security

	Grants versus food security			Gants vs. Mild food insecurity			Grant vs. Moderate food insecurity			Grants vs. Severe food insecurity		
	Df	Mean Square	F-stat (p-values)	Df	Mean Square	F-stat (p-values)	Df	Mean Square	F-stat (p-values)	Df	Mean Square	F-stat (p-values)
Old Age Grant	33	1.131	5.586*** (0.000)	12	.398	1.875** (0. 040)	11	.516	2.480*** (0.006)	25	.766	3.904*** (0.000)
	1477	.202		191	.212		210	.208		506	.196	
	1510			203			221			531		
Child Grant	33	1.686	8.864*** (0.000)	12	.580	2.884*** (0.001)	11	.780	4.022*** (0.000)	25	1.194	6.821*** (0.000)
	1477	.190		191	.201		210	.194		506	.175	
	1510			203			221			531		
Other Grant	33	.719	3.414*** (0.000)	12	.272	1.236 (2.61)	11	.380	1.769* (0.061)	25	.460	2.191*** (0.001)
	1477	.210		191	.220		210	.215		506	.210	
	1510			203			221			531		

Source: Authors' estimations (2022). Note: 10%, 5% and 1% levels of significance are denoted by *, **, *** respectively.

From Table 5, there exists a difference in mean household experience of moderate food insecurity, controlling for receipt of these social grants by household head. The results of social grants

and different levels of food security reaffirm the role of social grant income in reducing the severity of food insecurity among low-income urban households. These findings further suggest that the Special COVID-19 Social Relief of Distress Grant (R350 equals approximately $24 USD1), introduced in 2021 to reduce the effect of the COVID-19 pandemic among the unemployed persons with no other sources of income (Atkins, 2021), has a vital role in reducing the severity of food insecurity. These results provide evidence that any types of grants are crucial in reducing the severity of food insecurity among low-income households, suggesting that the South African government may consider integrating the current Special COVID-19 Social Relief of Distress Grant into the social grant system.

Discussion of key findings and policy recommendations

Overall, the study's findings suggest that grants are crucial in ensuring household access to food security. The results show that household food insecurity at the severe level does not exist in two of the neighborhoods, namely, Soshanguve and Tembisa. The situation is enabled by increases in income only. According to the literature, household dependency on charity, neighbors, and extended family support contributes significantly to food insecurity, while an increase in income and a small family size promote households' access to food (Zhou et al., 2019). Household size negatively impacts food security as child dependency increases the level of food required within the household. Apart from the process of new childbirth, the influx of rural-urban migrants to townships for temporal residence with close relatives is recognized as a major cause of household size increase, eventually compromising household food security.

Young unemployed people in the townships and the prevalence of divorce impact negatively on the regular food supply (Bonuedi et al., 2020). This makes social grant receiving households more food secure than their counterparts who are non-beneficiaries of social grants. In the above context, a policy that targets women for more social grants allocations represents an effective strategy of minimizing food insecurity in townships while the availing of more paid employment opportunities to women drive a similar effect relative to food security.

The analysis show that households' income is an important factor in food security at the household level. It is important to realize that income enables flexibility of food choices and stability of supply. Income also led to a positive impact on location and the level of education. Scholars explain that decrease in household income drive shortfalls in household food supplies where households with lactating mothers remain more vulnerable to food insecurity than household without lactating mothers (Ngema et al., 2018). Income significantly impacts on household food security. The findings of this study thus, do

not support the position of Engel's Law that households spend less on food as income increases (Raihan, 2022).

From the analysis, food security improves with increases in household income. Households that receive social grants are in general more food secure than others. Households who receive child grants showed mild food security. In general, the study's findings indicate that households can maintain food security regardless of the sources of the incomes they receive. Scholars explain that food security in predominantly agrarian townships exert long-term income improvement influences on households when incomes accumulated through agricultural activities are diversified into small-scale retail enterprises (Maia et al., 2019).

From the results, households differ in terms of their access to social grants and the resulting food security experiences. Increases in food security is directly attributable to increases in income whereas changes in the average population of households experiencing food insecurity are driven by the type of social grants households receive. This reflects in differences in food security levels across different households, where the moderate food insecurity level is identified as the average level of food insecurity when household heads recipient of social grants is accounted for in the analysis. It is known in the literature that access to social grants enhances the standard of living in urban poor communities while engendering increased school enrolment and improved nutrition for children (Siegner et al., 2018).

As a policy recommendation, national food security policy plan should target younger female household heads as food insecurity impact on these categories of South Africans exert a comparable adverse effect on a wider spectrum of people who survive on the support of these household heads.

Moreover, policies that ensures macroeconomic stability and sustainable employments should be implemented by policy makers as regular income earning engender food security and promotes livelihood protection. Our findings provide evidence that any types of grants are crucial in reducing the severity of low-income households, suggesting that the South African government may consider integrating the current Special COVID-19 Social Relief of Distress Grant into the social grant system. Future studies can extend the scope of the study explore the whether the level of food security among low-income households is linked with necessary nutritional values.

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