

Government social protection and households' welfare during the Covid-19 pandemic in South Africa

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Abstract

Purpose – This study evaluates the impact of government social protection interventions on households' welfare in South Africa.

Design/methodology/approach – The study uses survey data comprising 393 observations and the multinomial logistic regression technique to analyse the effect of government interventions on households' welfare. For robustness purposes, a negative binomial regression model is also estimated whose results corroborate the main results from the multinomial regression model.

Findings – The study's findings show that government economic interventions through social protection significantly reduce the likelihood of a decrease in household income or consumption. COVID-19 grant/social relief of distress grant, unemployment insurance, tax relief and job protection and creation are all significant in sustaining household income and consumption.

Practical implications – The findings have policy implications for social development. Specifically, the findings support the use of government social protection as a safety net for low-income groups in South Africa.

Originality/value – The study presents preliminary evidence on the effectiveness of several measures used to ameliorate the COVID-19-induced recession within the South African context.

Keywords Social protection, Government intervention, Households' welfare, COVID-19 pandemic, Multinomial logistic regression

Paper type Research paper

1. Introduction

Recent studies show that the pandemic (COVID-19) had an unprecedentedly detrimental impact on both households and firms, inducing a recession also referred to as the Great Lockdown (Kithia *et al.*, 2020; Öztürk *et al.*, 2020; Shafi *et al.*, 2020). This recession had worse consequences than the

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2008/2009 global financial crisis recession (Cantó *et al.*, 2021). Due to the worldwide movement restrictions imposed by governments to curb the spread of the virus, the global value chain was heavily strained, resulting in spikes in inflation around the globe. This disruption had a significant impact on business activity, resulting in low profitability and, in some cases, losses for business enterprises (Fairlie, 2020). This, coupled with the uncertainty surrounding corporate survival, resulted in layoffs, thus increasing unemployment. The majority of employees in the semi-skilled and unskilled categories reported receiving wage cuts as firms dealt with production stoppages. Consequently, household income decreased, poverty increased and the number of people requiring government social support increased (Krumer-Nevo and Refaeli, 2021).

The pandemic brought economic hardships for South African households, and it was evident that vulnerable people living in rural, periurban and informal settlements were at higher risk than others. Even though up to 70% of households in these areas typically purchase commodities from the informal sector, the lockdown barred these firms from providing crucial services, limiting access to necessities (Ramparsad, 2020). Furthermore, the pandemic has been argued to have worsened inequality, due to its disproportional impact on low-income people against high-income earners (Nwosu and Oyenubi, 2021). South Africa still has the highest Gini coefficient (62%), according to the OECD (2022). Thus, low-income individuals have been more vulnerable to the economic stress emanating from the pandemic, emphasizing the need for enhancing social protection measures. In response to these challenges, the South African government increased social protection for vulnerable groups, including households and labor, through a variety of economic interventions, such as a special COVID-19 grant (social relief of distress grant), unemployment insurance fund reimbursements, small business grants and even government-guaranteed bank loans. Others, however, have argued that the government's initiatives were ineffective since they revealed corruption, poor service delivery and socioeconomic inequalities hurting impoverished households rather than cushioning them against the pandemic's detrimental impacts (Akech, 2020).

Furthermore, we find a dearth of studies in the literature focusing on evaluating the impact of various government economic interventions. There is a clear distinction between studies that focus on pharmaceutical interventions and those that focus on nonpharmaceutical interventions (NCIs). However, a significant amount of research has been conducted on NCIs focusing on measures used to curb the spread of the virus (Brauner *et al.*, 2021; Haug *et al.*, 2020). We separate these interventions from specific economic interventions intended to protect consumers or stimulate economic activity, and we focus on the latter. Fewer studies have been undertaken to analyze economic interventions used to cushion households, employees or businesses against the detrimental effects of such NCIs as lockdown restrictions. We fill this gap by examining the South African government's social protection policy interventions. This study examines and reports on the findings of a survey undertaken in the King Cetshwayo District Municipality. Specifically, we collect and analyze data on the perceived accessibility and relevance of government economic interventions, as well as their impact on households' welfare.

This paper contributes to the literature in at least two ways. First and foremost, this study provides a theoretical link between government economic interventions and social outcomes in the South African context. Our second contribution stems from the fact that this is the first paper to empirically analyse the effects of government interventions on societal welfare in South Africa during the COVID-19 pandemic. We hypothesize that government social protection interventions do not affect households' welfare as measured by both household income and consumption. Our findings show that government economic interventions through social protection significantly reduce the likelihood of a decline in household income and consumption. Specifically, the COVID-19 grant/social relief of distress grant, unemployment insurance, tax

relief and job protection and creation all play significant roles in sustaining household income and consumption during the pandemic.

This section provided an introduction and background to the study. The rest of the paper is as follows. [Section 2](#) reviews recent literature on government social protection, and [section 3](#) describes the methodology used in the study. [Section 4](#) analyses the results and discusses the findings. Finally, [Section 5](#) concludes the study and provides policy recommendations.

2. Literature review

Direct government intervention to safeguard consumers is rooted in the traditional theory of welfare economics ([Pigou, 1929](#)). In contrast to Adam Smith's proposition on free markets and minimal government intervention in the economy, [Ng \(1983\)](#) and [Esping-Andersen \(2001\)](#) demonstrate the need for government intervention in the modern economy. They bring up important issues that demonstrate the inadequacy of the free market as a tool for controlling societal welfare in general. Based on the contributions of [Pigou \(1929\)](#) and other studies ([Esping-Andersen, 2001](#); [Hicks, 1939](#); [Lomborg, 2020](#)), welfare economists analyse the social costs and social benefits of decisions made by various economic agents, argue for wealth redistribution and optimal taxation regimes and display the relationship and cooperation between various economic actors and the government. Pigouvian taxes and subsidies are viewed as interventions intended to mitigate externalities arising from economic agents' behavior. Furthermore, unemployment benefits, housing, transfer payments and medical insurance are among other social welfare topics that have been addressed in the literature ([Lomborg, 2020](#); [Edenhofer *et al.*, 2021](#)).

The COVID-19 pandemic raised questions on welfare both globally and in South Africa especially ([Cantillon *et al.*, 2021](#); [Mok *et al.*, 2021](#); [Ranchhod and Daniels, 2021](#)). The pandemic impacted different segments of society, as evidenced by studies that have concentrated on different segments of society ([Font and Bartholet, 2021](#); [Kikuchi *et al.*, 2021](#)). School closures had an impact on the educational system and learner performance in many countries ([Font and Bartholet, 2021](#)). The pandemic forced a country-wide lockdown, which severely disrupted several industries and had a detrimental impact on workers, producers and consumers. Many workers lost their jobs, which raised the unemployment rate and the number of people receiving unemployment insurance. Hunger and poverty increased, and governments had to deal with a higher need for welfare services. The pandemic, however, created the need to provide medical resources, in addition to the need for socioeconomic interventions. Governments were, therefore, confronted with a dilemma, as they had to allocate scarce resources between meeting societal health needs and providing socioeconomic resources for those who could not meet their expenses.

The necessity for social assistance in South Africa is corroborated by [Ranchhod and Daniels \(2021\)](#) who find a significant drop in unemployment during the first wave of the pandemic. In light of this, according to [Bhorat *et al.* \(2021\)](#), the South African government responded to the crisis by implementing several interventions, including increasing current social grants (normal grants) and introducing other grants specifically for COVID-19. Their study uses the extensive data from the National Income Dynamics Study (NIDS) to assess the South African government's social response mechanisms and finds that the Social Relief of Distress (SRD) grant is an important part of the intervention to support those who were not initially covered by the normal grant system. The South African government's initial fiscal response included allocating R502 bn for both economic and social security responses, with about 10% of this amount going toward social security payments.

The hospitality industry, which was severely impacted by travel restrictions and business closures, has received much attention in the literature ([Duro *et al.*, 2021](#); [Rogerson and Rogerson, 2020](#)). In their analysis of the pandemic-induced lockdown's effects on the South

African tourism industry, Rogerson and Rogerson (2020) find that this industry was negatively impacted by the pandemic. They also find that small and medium-sized firms in this industry were the most negatively affected. This further harmed the households, as it led to multiple business closures and an increase in unemployment. To lessen the burden of these negative effects, the South African government initiated specific relief targeted at the tourism sector, namely the COVID-19 Tourism Relief Fund. Such responses were not exclusive to South Africa, as Malaysia and Spain have reported similar interventions (Foo *et al.*, 2021; Duro *et al.*, 2021). Furthermore, Lim and To (2022) assert that the pandemic had a detrimental impact on the tourism industry and decreased the revenue and profitability of firms in the tourism sector. Consequently, the sector's contribution to overall economic activity decreased. Lim and To (2022) urge government interventions to combat COVID-19 in the face of growing socioeconomic disparities.

Among other studies, Mulugeta *et al.* (2021) and Obi *et al.* (2020) demonstrate how the level of economic activities was significantly impacted by lockdown days, interstate travel bans, social distancing and restrictions on essential services. Workers' productivity may have been impacted as working from home resulted in boredom, stress and confined feelings. Therefore, the restrictions had a significant negative impact on household income and raised the need for social protection. Other studies find a decline in household income and consumption emanating from decreased activity in the manufacturing and agriculture sectors (Pillai *et al.*, 2020; Gupta *et al.*, 2022). Mofijur *et al.* (2021) examine service delivery activities during the pandemic and report a 72-h delay in removing waste from the lockdown areas. The reductions in service delivery have an impact on the provision of essential services such as water and electricity, which are needed by the majority of households to produce their goods for sale and prepare food at home.

Another strand of literature focuses on the impact of COVID-19 on child welfare (Haffejee and Levine, 2020; Fallon *et al.*, 2020). Haffejee and Levine (2020) show the vulnerability of children as a result of the pandemic, emphasizing the importance of policy interventions targeted at children's welfare. In another cross-country study, Katz *et al.* (2021) analyse the responses to the pandemic targeted at lessening the effect of malnutrition in South Africa and other countries. They show that whilst there was no increase in child malnutrition reports throughout the pandemic, there were gender-based violence reports. However, due to the limited movement of people, data on child malnutrition may not have been available. During the pandemic, they were no specific interventions targeted at combatting child malnutrition. In a similar study, Chineka and Kurevakwesu (2021) analyze the changes in children's welfare brought about by the COVID-19-related deaths and lockdown. They find that children are at the receiving end of the pandemic, requiring the attention of both government and social partners. Interventions offered include home schooling, psychological support, cash transfer programs and home-schooling.

Escalante and Maisonnave (2021) examine the impact of the pandemic on poverty and inequality in Bolivia using a computable general equilibrium (CGE) model. They find that female-headed households endure the greatest drop in welfare due to the pandemic. Nechifor *et al.* (2021) analyze the impact of the COVID-19 pandemic on Kenyan food security and evaluate government social security interventions. Similar to Escalante and Maisonnave (2021), the study employs a CGE model for Kenya. The CGE model includes a Food Security and Nutrition microsimulation module that allows macroshocks to be transmitted to food security measures. Their findings suggest that government interventions aimed at boosting consumer income lessen the detrimental impact of both macroeconomic demand and supply shocks on food security. Ideally, government social protection actions are necessary to sustain markets and stimulate food demand. O'Donoghue *et al.* (2021) compare the social policy responses to the COVID-19 pandemic in Ireland to the global financial crisis (GFC). They find stronger social policy responses during COVID-19 than during the GFC.

3. Methodology

The study uses primary data collected through a survey in the King Cetshwayo District Municipality in KwaZulu-Natal, South Africa. KwaZulu-Natal is one of the poorest provinces in the country, with an estimated poverty rate of 60%. Data were collected from all five local municipalities including Nkandla, Mthonjaneni, uMfolozi, uMhlathuze and uMlalazi. The study's population includes 232,797 households in the district (DoCGTA, 2020). A total of 393 households are included in the sample as determined by Krejcie and Morgan (1970)'s formula, and a questionnaire is administered to collect the data. Random sampling is used to select the respondents. The variables used in the study include two welfare measures that examine income and consumption declines, which are represented by five categories. The main variables of interest are government intervention variables, represented by normal social grants, COVID-19 grants, unemployment insurance, tax relief and job creation and protection. Control variables included are the employment status of the household head, gender of household head, land ownership, marital status of household head, education, access to credit and remittances.

The study employs multinomial logistic regression to analyze the impact of the various forms of government intervention on households' welfare. Whilst there are several household welfare measures, the study uses consumption and income as welfare measures. Different categories of consumption such as food, nonfood (durable) goods and household expenditure (utilities) are measured separately and used as the dependent variable, whereas income is recorded in different groups.

The multinomial logistic regression technique is an extension of the binomial logistic regression which is used when a nominal dependent variable has more than two categories. An advantage of this approach is that it does not assume normality, linearity or homoscedasticity. In a multinomial regression with a dependent variable with J categories where $(J = 1 \dots J - 1)$, the j th logistic regression can be expressed as follows:

$$\log \left[\frac{P(Y = j)}{P(Y = J)} \right] = \beta_{j0} + \sum_{k=1}^K \beta_{jk} X_{jk} \quad (1)$$

where Y is the dependent variable, which takes J categories; K is the total number of independent variables and X is a vector of independent variables. Category J is the reference category, which allows for $J - 1$ logistic models to be estimated against the reference category. One advantage of the multinomial approach is that it allows for comparability between the reference category and other categories of the dependent variable. The model is estimated using the maximum likelihood procedure and includes an array of diagnostic tests to validate the estimated results. These involve the goodness of fit tests such as the Hosmer-Lemeshow test, Pearson chi-squared test, deviance chi-squared test and McFadden R-squared. This approach is used to determine the impact of social grants distributed in response to the COVID-19 pandemic on societal welfare as well as the performance and survival of small and medium-sized enterprises.

4. Results analysis and discussion

In this section, we present empirical results regarding the impact of government social protection on households' welfare during the pandemic. Similar to other survey literature, we set the stage by presenting a frequency analysis and reliability test for the instrument. The frequency table shows sample proportions by location, frequency and cumulative frequency of the data. Regression results are then subsequently presented and discussed.

4.1 Summary statistics

As a starting point, Table 1 presents the frequency analysis, displaying the sample proportions by geographical location. Out of the total sample (393 households after data cleaning), Melmoth, Esikhawini, and Nkandla account for 21.9, 19.8 and 16.0%, respectively. Empangeni and Richards Bay contribute the least to the sample, representing 7.6 and 4.6%, respectively, largely reflecting nonresponses to important questions.

Cronbach alpha is used to examine the reliability of responses on 20 COVID-19-related questions. Cronbach's alpha (Cronbach, 1951) is essentially a reliability measure that focuses on the internal consistency of survey responses. The higher the alpha coefficient (typically above 0.75), the higher the consistency and reliability of the survey responses. In this paper, the alpha coefficient is 0.80, which diminishes concerns about respondents' unreliable and inconsistent responses. For the computed reliability coefficient, the average inter-item covariance is 0.2034, whereas the number of items on the scale is 20. Thus, we conclude that the responses are internally consistent, and we proceed with the data analysis.

4.2 Estimated results

Two key proxies are used to measure household welfare namely household consumption and household income. The choice of these two proxies is consistent with Arndt *et al.* (2020) and is based on the notion that income and consumption promote welfare in developing countries. These two primary proxies are represented categorically in the questionnaire using a five-point Likert Scale to capture whether respondents agreed, strongly agreed, disagreed or strongly disagreed with a significant reduction in each of these two proxies during the pandemic. For each question, respondents who disagreed, strongly disagreed or who were neutrals served as the baseline category while respondents who agreed and strongly agreed are used to represent a reduction (an affirmative position) and a strong reduction (an even more affirmative position) in each of the two proxies, respectively.

Following this ad hoc measurement of welfare, we apply a multinomial logistic model which was chosen over the multinomial probit model based on the Schwarz information criterion (SIC) [1]. Using the maximum likelihood method, two regression variants are estimated for each welfare proxy. In other words, Table 2 presents two regression variants from a regression specification where the consumption categorical variable is the dependent variable in model (1) and the income categorical variable is the dependent variable in model (2). Both models include five types of government social protection as the main explanatory variables, such as beneficiaries of the COVID-19 grant/social relief grant, unemployment insurance, tax relief, job protection and creation and the bank credit guarantee scheme. In each model, the baseline group includes those who received the normal social grant. By using normal social grant recipients as the control group, we may gauge the impact of COVID-19-specific interventions on household welfare relative to pre-existing normal social grants.

Geography	Frequency	Percent	Cumulative
Esikhawini	78	19.85	19.85
Nkandla	63	16.03	35.88
Melmoth	86	21.88	57.76
Eshowe	38	9.67	67.43
Mtubatuba	39	9.92	77.35
Empangeni	30	7.63	84.99
Richards Bay	18	4.58	89.57
Dlangezwa	41	10.43	100.00
Total	393	100.00	

Table 1.
Geographical
distribution of sample
proportions

	Income (Group 1) Reduction	Model (1) (Group 2) Strong reduction	Consumption (Group 1) Reduction	Model (2) (Group 2) Strong reduction
COVID-19 grant/social relief of distress grant	-0.223* (0.1365)	-0.163 (0.396)	-1.085** (0.480)	-0.752* (0.427)
Unemployment insurance	-1.809* (0.995)	-1.869*** (0.583)	-0.0354*** (0.017)	-0.185*** (0.029)
Tax relief	-1.521*** (0.094)	-1.002*** (0.024)	-0.0299*** (0.00944)	-0.0266*** (0.00968)
Job protection and creation	-0.0394*** (0.008)	-1.066 (1.072)	-0.0654*** (0.0166)	-0.0517** (0.0202)
Bank credit guarantee scheme	0.00363 (0.957)	0.369 (0.819)	-0.184 (0.125)	-0.191 (0.130)
Gender	0.489 (0.409)	0.527* (0.317)	0.591 (0.409)	0.644** (0.311)
ln (1+hectares)	-0.0951*** (0.0024)	-0.0438** (0.0213)	-0.183*** (0.0261)	-0.0833*** (0.0033)
Remittances	-0.184*** (0.025)	-0.191 (0.130)	-0.366*** (0.127)	-0.395*** (0.125)
Very low-income class	-1.082 (0.695)	-0.328 (0.498)	0.990*** (0.084)	-0.262 (0.494)
Low-income class	-0.909 (0.789)	-0.217 (0.579)	-0.692 (0.780)	-0.00128 (0.560)
Lower middle-income class	-1.272** (0.622)	-1.255*** (0.477)	-1.031 (0.644)	-0.997** (0.498)
Upper middle-income class	-0.155*** (0.010)	-0.889*** (0.094)	-0.0940*** (0.028)	-0.735*** (0.037)
High-income class	-0.485*** (0.042)	-0.599*** (0.036)	0.394*** (0.066)	-0.475*** (0.076)
Number of people employed	-0.348 (0.203)	-0.296 (0.197)	-0.219 (0.215)	-0.181 (0.213)
Some primary	-2.203 (1.481)	-1.020 (1.005)	-2.179 (1.436)	-0.980 (1.009)
Completed primary	-1.058 (1.208)	-0.632 (1.023)	-1.150 (1.175)	-0.647 (0.994)
Completed high school	-0.963 (0.908)	-0.744 (0.797)	-1.177 (0.869)	-0.969 (0.736)
Cert/diploma/degree	-1.352 (1.001)	-0.549 (0.862)	-1.775* (0.941)	-0.980 (0.782)
Postgraduate	-1.203*** (0.261)	-0.506*** (0.075)	-1.232*** (0.185)	-0.396*** (0.004)
Constant	1.093 (0.930)	2.393*** (0.820)	1.200 (0.881)	2.591*** (0.758)
Observations	393	393	393	393
LR χ^2 (Prob > χ^2)	142.90***		166.82***	
McFadden R^2	0.6526		0.5042	

Table 2. Social protection and household welfare – multinomial logit results

Note(s): Robust standard errors in parentheses
*** $p < 0.01$, ** $p < 0.05$ and * $p < 0.1$

All regressions control for factors such as gender, remittances, the household head's highest level of education level, land ownership, social/income class and the number of people employed in each household. According to Table 2, model (1), group (1), the COVID-19 grant/social relief grant, unemployment insurance, tax relief and job protection and creation are negative and significant, indicating that the beneficiaries of these social protection

interventions are less likely to experience a significant reduction in household income during the pandemic than nonbeneficiaries of these specific interventions. Of these four types of social protection, tax relief and job protection appear to have a highly significant effect on lowering the probability of an income reduction in contrast to the COVID-19 grant/social relief grant and unemployment insurance which, despite bearing the expected sign, have marginal significance.

The overall encouraging result from model (1), group (1), despite the marginal significance of the latter forms of social protection, suggests that receiving the COVID-19 grant/social relief grant, unemployment insurance, tax relief, and job protection and creation lessens the likelihood of households experiencing an income reduction. This is in line with [Arndt *et al.* \(2020\)](#), as well as the broader idea that social safety nets are, to some extent, necessary to cushion and soften the adverse economic effects of a pandemic on vulnerable households (see [Hidrobo *et al.*, 2018](#)). According to [Arndt *et al.* \(2020\)](#), government social payments play a significant role in insulating low-income households from adverse economic developments. Their findings support, among other things, that low-income households' earnings are, at least to some degree, safeguarded by the government's safety nets, as shown in [Table 2](#), model (1), group (1).

We notice at least two noteworthy results in model (1), group (2). First, the evidence suggests that although the COVID-19 grants reduce the probability of an income reduction in general, they do not particularly and statistically protect households from significant income reductions. One probable argument is that the COVID-19 grants were outweighed by the adverse economic developments (arising from the pandemic), which ultimately boils down to whether the amount granted to each household was sufficient to entirely protect the households from the pandemic's wrath. Second, unemployment insurance and tax relief have a negative and significant impact. This suggests that, when compared to COVID-19 grants and job protection, these two types of social protection are more likely to lead to severe income reductions. The bank credit guarantee scheme dummy, on the other hand, is surprisingly insignificant across both regression variants. This result should be interpreted with caution as it might simply reflect the fact that beneficiaries of these schemes made up a relatively small proportion of the sample.

In model (2) in which the categorical dependent variables are represented by consumption reduction and consumption strong reduction, all social protection interventions, except bank credit guarantee schemes, are negatively related to a reduction in household consumption. This finding is encouraging and supports the hypothesis that safety nets generally assist in mitigating the reduction in consumption for vulnerable households. Interestingly, a similar result is obtained for group (2) in terms of the sign and statistical significance, except for the COVID-19 grant intervention which displays a marginal significance. Tax relief and unemployment insurance are the two factors that have the highest statistical relevance (i.e. statistically significant at a 1% level) among the four intervention variables.

During the pandemic, thousands of workers lost their employment. According to [Ranchhod and Daniels \(2021\)](#), one out of every three employed South African either lost their job or chose not to work and received no wages during the early stages of the pandemic. This consequently had extremely significant implications for poverty and household welfare. The results in [Table 2](#) are encouraging in that they suggest that affected workers who received unemployment insurance are less likely to experience significant reductions in both income and consumption.

The majority of our control variables have the expected signs. For example, the remittances dummy coefficient is negative and statistically significant, suggesting that households that received remittances during the pandemic are less likely to incur income and consumption reductions. The coefficient of the size of the household head's land is negative and statistically significant across all the estimated variants, corroborating the importance of

farm produce in mitigating food insecurity and providing an alternative source of income and livelihood. In group (2) of both models, the gender dummy representing households headed by males is positive and significant. This finding is alarming as it suggests that female-headed households are more likely to face significant income and consumption reductions. This result provides further empirical support to the general findings of recent studies that the pandemic had disproportionate effects on men and women.

As expected, results show that upper-middle-income and high-income class households are less likely to experience consumption and income reduction during the pandemic. On the other hand, households classified as being in the extremely low-income class are more likely to experience a loss in income and consumption compared to the baseline group, albeit the evidence is relatively limited as the coefficient is only statistically significant in one group. Regarding education, household heads with at least a certificate, diploma or degree are less likely to encounter declines in income and consumption which is not surprising given the overwhelming support for this result in the empirical literature (see for example [Ladd, 2012](#) and [Gounder, 2013](#)).

To decide between the multinomial probit model and the multinomial logistic regression, both Akaike information criterion (AIC) and Bayesian information criterion (BIC) are employed. These two statistics support the multinomial logistic regression. For instance, the multinomial logistic regression models (1) and (2) have AIC statistics of 804.85 and 865.05, respectively. The multinomial probit model's corresponding values are higher, being 806.17 and 886.35. Both the AIC and the BIC values (852.54; 780.52 vs 866.93; 782.16, respectively) are higher under the multinomial probit model relative to the multinomial logit model, supporting that the latter model is preferred over the former. According to [Table 2](#), the likelihood ratio (LR) test and its corresponding probability value are statistically significant at a 1% level, suggesting that the two estimated models are jointly statistically significant.

The McFadden R-squared is one of the goodness of fit measures in binary regressions. It is determined by first calculating the mean of the predicted probability of each event for each of the dependent variable's provided categories and then by computing the difference between those means. As shown in [Table 2](#), both measures are fairly high (above 0.5), indicating a reasonable fit and suggesting that there is a high likelihood as compared to the restricted model. However, this statistic should be interpreted cautiously.

For robustness purposes, we use the number of meals per day during the pandemic as an alternative measure of household welfare. Since this dependent variable is count data, a count data modelling framework is preferred. Given the overdispersion that the variable exhibits, a negative binomial regression model is chosen, and the results are presented in [Table 3](#). Unlike [Table 2](#), a total of six regression variants are estimated, in which control variables are incrementally added to each specification in a stepwise fashion. In other words, variant (1) is the most parsimonious specification as it only includes the most important dummy variables of interest. The stepwise approach is a common practice in empirical literature as it allows us to assess the sensitivity of our results to the inclusion of each control variable.

According to the findings, unemployment insurance, tax relief and job protection and creation are positive and significant, whereas COVID-19 grants are positive but only significant in two out of the six variants. This is limited but encouraging evidence that COVID-19 grants can provide some degree of protection against food insecurity. Despite the limited statistical evidence of COVID-19 grants, [Table 3](#) shows that receiving unemployment insurance, tax relief, job protection and creation and COVID-19 grants results in a 0.0206–0.112 unit increase in the log difference of meals per day. Exponentiating these negative binomial regression coefficients produces incidence risk ratios of 1.021 and 1.112, respectively (i.e. $e^{0.0206}$ and $e^{0.112}$). This means that receiving grants (when statistically significant) increases the odds of having more meals per day by a factor of 1.021–1.112 after

	(1) NB	(2) NB	(3) NB	(4) NB	(5) NB	(6) NB
COVID-19 grant/ social relief of distress grant	0.0200** (0.0146)	0.0206** (0.0168)	0.00249 (0.0265)	0.00585 (0.0268)	0.00913 (0.0267)	0.00934 (0.0267)
Unemployment insurance	0.0643* (0.0373)	0.0534 (0.0434)	0.0442*** (0.0132)	0.0257 (0.0237)	0.0645*** (0.0133)	0.08216** (0.0437)
Tax relief	0.0629*** (0.0230)	0.0615** (0.0240)	0.0556** (0.0239)	0.0646*** (0.0247)	0.0484* (0.0251)	0.0457* (0.0251)
Job protection and creation	0.0944*** (0.0191)	0.112*** (0.0214)	0.106*** (0.0230)	0.118*** (0.0240)	0.0853*** (0.0277)	0.0383*** (0.0129)
B. Credit guarantee scheme	0.200 (0.164)	0.0553 (0.198)	0.0637 (0.199)	0.0717 (0.198)	0.0127 (0.182)	0.0147 (0.180)
Ln hectares		0.0238*** (0.00519)	0.0230*** (0.00501)	0.0241*** (0.00520)	0.0243*** (0.00508)	0.0247*** (0.00499)
No. of people employed			0.0236** (0.00991)	0.0227** (0.00957)	0.0197** (0.00848)	0.0185** (0.00788)
Remittances				0.0786** (0.0330)	0.0770** (0.0335)	0.0678** (0.0321)
Some primary					-0.00786 (0.0558)	-0.00849 (0.0560)
Completed primary					0.00452 (0.0540)	-0.00140 (0.0542)
Completed high school					0.0298 (0.0358)	0.0224 (0.0359)
Certificate/ diploma/degree					0.0652* (0.0365)	0.0560 (0.0365)
Postgraduate					0.112** (0.0469)	0.108** (0.0471)
Gender						0.105* (0.0554)
Very low-income class						0.990*** (0.084)
Low-income class						-0.692 (0.780)
Lower middle- income class						-1.031 (0.644)
Upper middle- income class						0.0940*** (0.028)
High-income class						0.394*** (0.066)
Constant	1.004*** (0.0191)	0.987*** (0.0214)	0.957*** (0.0250)	0.947*** (0.0258)	0.919*** (0.0396)	0.923*** (0.0393)
Observations	393	393	393	393	393	393
GOF	0.0271	0.0183	0.0482	0.0337	0.0114	0.0382
Hatsq	0.2481	0.8835	0.3182	0.6718	0.5283	0.2960
LR χ^2 (Prob > χ^2)	982.82***	125.63***	83.30***	95.17***	102.33***	98.27***
McFadden R^2	0.1162	0.205	0.572	0.579	0.604	0.658

Note(s): Robust standard errors in parentheses
*** $p < 0.01$, ** $p < 0.05$ and * $p < 0.1$

Table 3. Social protection and household welfare – negative binomial results

controlling for gender, remittances, land size, the highest education level of the household head, the number of employed people in each household and income class.

In our diagnostic tests, we check the skewness of the data to compare linear regression and count data models. Our findings show a skewness of 8.34, indicating a significant skewness,

favoring the estimation of count data models. [Table 3](#) provides the findings of the diagnostic tests at the bottom of the regression results. Furthermore, the variance of the dependent variable (the number of meals per day) is twice (2.6) the mean (1.33), indicating an overdispersion. The choice of the negative binomial regression over the Poisson model is justified by these basic and descriptive statistics. [Table 3](#) shows that the probability value of the goodness of fit test resulting from the Poisson regression model is significant across all the estimated six regression variants. This provides further evidence against the Poisson distribution (at a 5% level), hence validating the use of the negative binomial model. The hat-squared statistic is insignificant (i.e. has no explanatory power) post the estimation of the negative binomial model, confirming that the six estimated variants are correctly specified. The LR test is also significant across all the variants, indicating that the estimated models are jointly significant. Finally, as expected, the high values of McFadden R-squared (above 0.6), especially in the least parsimonious specification, support our regression models.

5. Conclusion and policy recommendations

The study concludes that social protection interventions are the cornerstone of inclusive, equitable and sustainable development, which will help marginalized groups realize their economic and social rights. This paper investigates the impact of South African social policy interventions used to combat the COVID-19 pandemic and the resulting recession on household income and consumption. The pandemic had a detrimental effect on households and labor and exposed vulnerable groups to hunger, poverty and other social problems. In response, the South African government implemented programs to strengthen its social support to cushion vulnerable households from the effects of the pandemic, which benefited both township and rural populations. This includes a special COVID-19 grant, enhancements in existing grant amounts, an unemployment insurance fund and bank loan guarantees. The analysis indicates that the government's comprehensive social protection has cushioned the lives of vulnerable groups during the pandemic by maintaining their income and sustaining their consumption.

These findings highlight the importance of providing social protection for vulnerable groups during economic slumps and confirm the effectiveness of the mechanisms deployed by the South African government to combat the COVID-19 pandemic and the accompanying recession. Thus, the study recommends that the government considers strengthening social welfare programs to ensure that vulnerable households' socioeconomic rights are fully protected. The pandemic revealed the government's weaknesses during difficult times, underscoring the need for a contingency strategy where resources are set aside for use in times of emergency and economic turmoil. A robust and all-inclusive disaster management plan should also be developed to boost the capability for effective responses to future pandemics and assure the protection of vulnerable groups.

Using mainly quantitative data, this study evaluates the impact of government social protection on households' welfare during the COVID-19 pandemic in South Africa. This might have restricted the analysis because, in contrast to qualitative data, quantitative data does not provide the researcher with an in-depth insight into the thoughts and beliefs of respondents. Our study is also limited to a single region and focuses mostly on a rural population, which may limit the generalizability of our findings. As a result, we recommend further research into the economic responses to consider how government social protection affects small businesses and the education sector. Qualitative studies can also expand our understanding of households' and individuals' experiences during this period. Furthermore, since our study focuses only on a single province, other studies may consider conducting comparative studies using data from several provinces. Similar studies may be carried out in other municipalities, and in various South African provinces, as various municipalities may have responded differently.

Note

1. Results from the multinomial logit model produced a more negative SIC statistic relative to those from the multinomial probit model.

References

- Akech, J.G. (2020), "Exacerbated inequalities: implications of COVID-19 for the socio-economic rights of women and children in South Sudan", *African Human Rights Law Journal*, Vol. 20, pp. 584-606.
- Arndt, C., Davies, R., Gabriel, S., Harris, L., Makrelov, K., Robinson, S., Levy, S., Simbanegavi, W., Van Seventer, D. and Anderson, L. (2020), "Covid-19 lockdowns, income distribution, and food security: an analysis for South Africa", *Global Food Security*, Vol. 26, doi: [10.1016/j.gfs.2020.100410](https://doi.org/10.1016/j.gfs.2020.100410).
- Bhorat, H., Oosthuizen, M. and Stanwix, B. (2021), "Social assistance amidst the COVID-19 epidemic in South Africa: a policy assessment", *South African Journal of Economics*, Vol. 89, pp. 63-81.
- Brauner, J.M., Mindermann, S., Sharma, M., Johnston, D., Salvatier, J., Gavenčiak, T., Stephenson, A.B., Leech, G., Altman, G. and Mikulik, V. (2021), "Inferring the effectiveness of government interventions against COVID-19", *Science*, Vol. 371, eabd9338.
- Cantillon, B., Seeleib-Kaiser, M. and Van Der Veen, R. (2021), "The COVID-19 crisis and policy responses by continental European welfare states", *Social Policy and Administration*, Vol. 55, pp. 326-338.
- Cantó, O., Figari, F., Fiorio, C.V., Kuypers, S., Marchal, S., Romaguera-De-La-Cruz, M., Tasseva, I.V. and Verbist, G. (2021), "Welfare resilience at the onset of the COVID-19 pandemic in a selection of European countries: impact on public finance and household incomes", *Review of Income and Wealth*, Vol. 68 No. 2, pp. 293-322, doi: [10.1111/roiw.12530](https://doi.org/10.1111/roiw.12530).
- Chineka, T.S. and Kurevakwesu, W. (2021), "Challenges for child welfare and development during the COVID-19 pandemic in Zimbabwe", *African Journal of Social Work*, Vol. 11, pp. 209-215.
- Cronbach, L.J. (1951), "Coefficient alpha and the internal structure of tests", *Psychometrika*, Vol. 16, pp. 297-334.
- Docgta (2020), "King Cetshwayo district: profile and analysis of district development model", in AFFAIRS, D.O.C.G.A.T. (Ed.), Pretoria.
- Duro, J.A., Perez-Laborda, A., Turrión-Prats, J. and Fernández-Fernández, M. (2021), "Covid-19 and tourism vulnerability", *Tourism Management Perspectives*, Vol. 38, 100819.
- Edenhofer, O., Franks, M. and Kalkuhl, M. (2021), "Pigou in the 21st century: a tribute on the occasion of the 100th anniversary of the publication of the economics of welfare", *International Tax and Public Finance*, Vol. 28, pp. 1090-1121.
- Escalante, L. and Maisonnave, H. (2021), "The impact of the COVID-19 pandemic on women's welfare and domestic burdens in Bolivia", *Working Papers hal-03118060*, HAL.
- Esping-Andersen, G. (2001), "A welfare state for the 21st century", *The Global Third Way Debate*, Vol. 134, p. 156.
- Fairlie, R. (2020), "The impact of COVID-19 on small business owners: evidence from the first three months after widespread social-distancing restrictions", *Journal of Economics and Management Strategy*, Vol. 29 No. 4, pp. 727-740, doi: [10.1111/jems.12400](https://doi.org/10.1111/jems.12400).
- Fallon, B., Lefebvre, R., Collin-Vézina, D., Houston, E., Joh-Carnella, N., Malti, T., Filippelli, J., Schumaker, K., Manel, W., Kartusch, M. and Cash, S. (2020), "Screening for economic hardship for child welfare-involved families during the COVID-19 pandemic: a rapid partnership response", *Child Abuse and Neglect*, Vol. 110, 104706.
- Font, S. and Bartholet, E. (2021), *What Lessons Can the Child Welfare System Take from the COVID-19 Pandemic?*, American Enterprise Institute, New York.

- Foo, L.-P., Chin, M.-Y., Tan, K.-L. and Phuah, K.-T. (2021), "The impact of COVID-19 on tourism industry in Malaysia", *Current Issues in Tourism*, Vol. 24, pp. 2735-2739.
- Gounder, N. (2013), "Correlates of poverty in Fiji: an analysis of individual, household and community factors related to poverty", *International Journal of Social Economics*, Vol. 40 No. 10, pp. 923-938.
- Gupta, V., Santosh, K., Arora, R., Ciano, T., Kalid, K.S. and Mohan, S. (2022), "Socioeconomic impact due to COVID-19: an empirical assessment", *Information Processing and Management*, Vol. 59, 102810.
- Haffejee, S. and Levine, D.T. (2020), "'When will I be free': lessons from COVID-19 for child protection in South Africa", *Child Abuse and Neglect*, Vol. 110, 104715.
- Haug, N., Geyrhofer, L., Londei, A., Dervic, E., Desvars-Larrive, A., Loreto, V., Piniór, B., Thurner, S. and Klimek, P. (2020), "Ranking the effectiveness of worldwide COVID-19 government interventions", *Nature Human Behaviour*, Vol. 4, pp. 1303-1312.
- Hicks, J.R. (1939), "The foundations of welfare economics", *The Economic Journal*, Vol. 49, pp. 696-712.
- Hidrobo, M., Hoddinott, J., Kumar, N. and Olivier, M. (2018), "Social protection, food security, and asset formation", *World Development*, Vol. 101, pp. 88-103.
- Katz, I., Katz, C., Andresen, S., Bérubé, A., Collin-Vezina, D., Fallon, B., Fouché, A., Haffejee, S., Masrawa, N. and Muñoz, P. (2021), "Child maltreatment reports and child protection service responses during covid-19: knowledge exchange among Australia, Brazil, Canada, Colombia, Germany, Israel, and South Africa", *Child Abuse and Neglect*, Vol. 116, 105078.
- Kikuchi, S., Kitao, S. and Mikoshiba, M. (2021), "Who suffers from the COVID-19 shocks? Labor market heterogeneity and welfare consequences in Japan", *Journal of the Japanese and International Economies*, Vol. 59, 101117.
- Kithiia, J., Wanyonyi, I., Maina, J., Jefwa, T. and Gamoyo, M. (2020), "The socio-economic impacts of Covid-19 restrictions: data from the coastal city of Mombasa, Kenya", *Data in Brief*, Vol. 33, 106317.
- Krejcie, R.V. and Morgan, D.W. (1970), "Determining sample size for research activities", *Educational and Psychological Measurement*, Vol. 30 No. 3, pp. 607-610.
- Krumer-Nevo, M. and Refaeli, T. (2021), "COVID-19: a poverty-aware perspective", *American Journal of Orthopsychiatry*, Vol. 91 No. 3, pp. 423-431, doi: [10.1037/ort0000566](https://doi.org/10.1037/ort0000566).
- Ladd, Helen F. (2012), "Education and poverty: confronting the evidence", *Journal of Policy Analysis and Management*, Vol. 31 No. 2, pp. 203-227.
- Lim, W.M. and To, W.-M. (2022), "The economic impact of a global pandemic on the tourism economy: the case of COVID-19 and Macao's destination-and gambling-dependent economy", *Current Issues in Tourism*, Vol. 25, pp. 1258-1269.
- Lomborg, B. (2020), "Welfare in the 21st century: increasing development, reducing inequality, the impact of climate change, and the cost of climate policies", *Technological Forecasting and Social Change*, Vol. 156, 119981.
- Mofijur, M., Fattah, I.R., Alam, M.A., Islam, A.S., Ong, H.C., Rahman, S.A., Najafi, G., Ahmed, S.F., Uddin, M.A. and Mahlia, T.M.I. (2021), "Impact of COVID-19 on the social, economic, environmental and energy domains: lessons learnt from a global pandemic", *Sustainable Production and Consumption*, Vol. 26, pp. 343-359.
- Mok, K.H., Ku, Y.W. and Yuda, T.K. (2021), "Managing the COVID-19 pandemic crisis and changing welfare regimes", *Journal of Asian Public Policy*, Vol. 14 No. 1, pp. 1-12.
- Mulugeta, T., Tadesse, E., Shegute, T. and Desta, T.T. (2021), "COVID-19: socio-economic impacts and challenges in the working group", *Heliyon*, Vol. 7, e07307.
- Nechifor, V., Ramos, M.P., Ferrari, E., Laichena, J., Kihui, E., Omanyó, D., Musamali, R. and Kiriga, B. (2021), "Food security and welfare changes under COVID-19 in Sub-Saharan Africa: impacts and responses in Kenya", *Global Food Security*, Vol. 28, 100514.
- Ng, Y.-K. (1983), *Welfare Economics*, Macmillan, London.

-
- Nwosu, C.O. and Oyenubi, A. (2021), "Income-related health inequalities associated with the coronavirus pandemic in South Africa: a decomposition analysis", *International Journal for Equity in Health*, Vol. 20, pp. 1-12.
- O'donoghue, C., Sologon, D.M. and Kyzyma, I. (2021), *Novel Welfare State Responses in Times of Crises: COVID-19 Crisis vs. The Great Recession*, ECINEQ, Society for the Study of Economic Inequality, Working Paper. ECINEQ 2021 573.
- Obi, S.E., Yunusa, T., Ezeoguere-Oyewole, A.N., Sekpe, S.S., Egwemi, E. and Isiaka, A.S. (2020), "The socio-economic impact of covid-19 on the economic activities of selected states in Nigeria", *Indonesian Journal of Social and Environmental Issues (IJSEI)*, Vol. 1, pp. 39-47.
- OECD (2022), "Income inequality (indicator)", doi: [10.1787/459aa7f1-en](https://doi.org/10.1787/459aa7f1-en) (accessed 6 July 2022).
- Öztürk, Ö., Şişman, M.Y., Uslu, H. and Çitak, F. (2020), "Effects of COVID-19 outbreak on Turkish stock market: a sectoral-level analysis", *Hitit Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, Vol. 13 No. 1, pp. 56-68.
- Pigou, A. (1929), *Economics of Welfare*, 3rd ed., Macmillan, London.
- Pillai, D.D.M., Nagappan, N., Dharani, S.V., Subramanian, K., Champakesan, B. and D'cruz, T.M. (2020), "Socio-economic impact of coronavirus disease 2019 (COVID-19)—an Indian outlook", *Journal of Family Medicine and Primary Care*, Vol. 9, p. 5103.
- Ramparsad, N. (2020), "Why is Covid-19 different to other pandemics? Assessing the gendered impact of Covid-19 19 on poor black women in South Africa", *Africa Journal of Public Sector Development and Governance*, Vol. 3 No. 1, pp. 132-143.
- Ranchhod, V. and Daniels, R.C. (2021), "Labour market dynamics in South Africa at the onset of the COVID-19 pandemic", *South African Journal of Economics*, Vol. 89, pp. 44-62.
- Rogerson, C.M. and Rogerson, J.M. (2020), "COVID-19 tourism impacts in South Africa: government and industry responses", *Geo Journal of Tourism and Geosites*, Vol. 31, pp. 1083-1091.
- Shafi, M., Liu, J. and Ren, W. (2020), "Impact of COVID-19 pandemic on micro, small, and medium-sized Enterprises operating in Pakistan", *Research in Globalization*, Vol. 2, doi: [10.1016/j.resglo.2020.100018](https://doi.org/10.1016/j.resglo.2020.100018).

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