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# **Role of social protection in mitigating the impact of coronavirus disease on household welfare: panel data evidence from Nigeria**

Abiodun Egbetokun, Adebayo Olofinyehun, Omolayo Oluwatope, Sunday Olotu, and Emmanuel Ejim-Eze

## **Abstract**

COVID-19 has had huge impacts on households across the world. The economic impact is particularly great in Africa. This paper analyses the role of social protection in mitigating the impact of COVID-19 on household welfare measured in terms of ability to afford food. The results of panel logit regressions on data from 1 925 Nigerian households show that social protection in the form of food or direct cash transfers is associated with a higher probability of households being able to afford the food they need. This positive effect is, however, offset by the increasing intensity of the pandemic. Our results are robust even when using alternative measures of pandemic intensity and controlling for household characteristics. This implies the need for more robust social protection programmes (such as health insurance and employment benefits) that are responsive to household needs, especially in times of crisis.

**Keywords:** COVID-19, policy, household, welfare, social protection, Nigeria

**JEL Codes:** I12, O13, Q18, Q12, Q18

## Résumé

Le COVID-19 a eu des incidences considérables sur les ménages du monde entier. L'incidence économique est particulièrement importante en Afrique. Cet article contient une analyse du rôle de la protection sociale dans l'atténuation de l'incidence de COVID-19 sur le bien-être des ménages, mesuré en termes de capacité à se nourrir. Les auteurs ont effectué une analyse de régression sur une énorme quantité de données de panel. Les résultats des régressions logit en panel sur les données de 1 925 ménages nigériens montrent que la protection sociale sous forme de transferts alimentaires ou de transferts directs en espèces présente une probabilité plus élevée pour les ménages de pouvoir se procurer la nourriture dont ils ont besoin. Cet effet positif est toutefois contrebalancé par l'intensité croissante de la pandémie. Les résultats sont probants même en utilisant des mesures de substitution de l'intensité de la pandémie et en contrôlant les caractéristiques des ménages. Cela indique la nécessité de mettre en place des programmes de protection sociale plus robustes (tels que l'assurance maladie et les prestations liées à l'emploi) qui répondent aux besoins des ménages, notamment en temps de crise.

**Mots clés** : COVID-19, politique, ménage, bien-être, protection sociale, Nigéria.

**Codes JEL** : I12, O13, Q18, Q12, Q18

## Introduction

The COVID-19 pandemic has had a tremendous impact on the global economy, with nearly 7 million cases and over 400,000 deaths by the beginning of June 2020. In Africa, over 135,000 cases were reported and more than 3,000 of these had resulted in death as of 8 June 2020 (World Health Organization, 2020). A year later, a total of 3,593,021 cases and 88,831 deaths had occurred on the continent.<sup>1</sup> In Nigeria alone, the total number of confirmed cases stood at 88,429 at the end of 2020; and by 11 June 2021, total confirmed cases had increased to 167,027, with 2,117 deaths.<sup>2</sup> The consequences of the pandemic are not yet fully known, although much more is now known about its health implications than its impact on welfare, especially at the household level.

The World Bank (Calderon and others, 2020) estimated that economic growth in sub-Saharan Africa would decline from 2.4 per cent in 2019 to -5.9 per cent in 2020 (with an associated loss in economic output of up to \$79 billion and welfare loss of up to 10 per cent. Gondwe (2020) modelled an anticipated fall in aggregate GDP of about 1.4 per cent, with smaller economies facing contractions of up to 7.8 per cent. Contrary to the projections, aggregate real GDP in Africa shrank by only 2.1 per cent in 2021 and has been projected to grow at between 2.3 and 3.4 per cent in 2021, mainly driven by an anticipated increase in trade services and commodities as global production and demand gradually improve (Zeufack and others, 2021; African Development Bank, 2021). Nonetheless, the economic instability that accompanied the COVID-19 pandemic holds more dire consequences for African countries, where large sections of populations are in vulnerable households (ILO, 2020). Hence, it is important to study the impact of the pandemic at the household level with a view to informing appropriate policy responses.

The economic response of African governments to the pandemic has consisted mainly of lockdowns to slow the spread of the disease, and cash or food transfer to enhance food security. A body of evidence on the role of government policy responses in supporting household welfare in Africa during the pandemic is rapidly emerging (Avenyo and Ndubuisi, 2020; Abay

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1 <https://COVID19.who.int/table>, accessed 10 June 2021.

2 <https://COVID19.ncdc.gov.ng/report/>.

and others, 2020; Amare and others, 2020; Balde, Boly and Avenyo, 2020; Kansime and others, 2021). The overwhelming evidence is that lockdowns have hampered household welfare (especially food security), but social protection programmes have helped to enhance household food security and coping strategies. However, as the existing literature is largely based on cross-sectional data, it offers no insight into the persistent effects of social protection. This paper therefore addresses the specific question of whether there is a variation in the effectiveness of social protection as the pandemic evolves. This is important for two reasons. First, while the pandemic persists, it is crucial to know if current policy responses remain effective and what to do if they are not. Second, future social protection interventions would benefit from an understanding of the persistent effects of today's programmes in the face of dynamic threats.

Data were used from the first and third rounds of the COVID-19 National Longitudinal Phone Survey that is taking place in Nigeria to set up a panel of 1,925 households spread across all the states of the country and the Federal Capital Territory (FCT). The survey draws a representative sample of households from the latest wave of the standardized official nationwide household survey and will follow these same households over time through twelve monthly phone surveys, starting from April/May, 2020. The resulting data allows a temporal analysis of the welfare of these households at different points during the pandemic.

This paper contributes to knowledge in three ways. First, our evidence is based on longitudinal data on a representative sample of households in Africa's largest economy, Nigeria, which has since 2017 implemented one of the most ambitious social protection programmes in sub-Saharan Africa. The results in this paper are therefore far from anecdotal; rather, they illustrate the situation in an archetypal developing country and therefore hold policy lessons for other similar countries. Second, we assess the dynamic effectiveness of social protection in mitigating the impact of the COVID-19 pandemic. Specifically, we shed light on the persistence or otherwise of social protection in cushioning the effects of COVID-19 as the intensity of the crisis increases. Finally, unlike previous studies, our analysis focuses on the ability of a household to afford food. This provides a more direct measure of food security and is the exact target of social protection programmes that take the form of cash transfers or food supply.

Our evidence shows that receiving direct cash transfers or food has a significant positive effect on the ability of a household to afford its basic feeding needs in the face of the pandemic. However, this effect disappears as the pandemic becomes more intense. In other words, while social protection provides instantaneous relief from the economic shock, this relief is not persistent. Two areas of intervention are highlighted by the results. First, there is a need for more protection from sudden economic shocks such as the one occasioned by the COVID-19 pandemic. Second, handouts in the form of food and cash transfers are useful but only for immediate respite; interventions focused on medium- to long-term social protection (such as universal insurance and unemployment benefits) would have more impact in enhancing welfare and alleviating shock-induced poverty.

The rest of the paper is structured as follows. The next section summarizes the existing literature on COVID-19 impacts. To provide context, section 3 contains background information on Nigeria, the spread of COVID-19 in the country and the response of the Government and other stakeholders, especially in the form of social protection. In section 4, the data and variables are described, as are the first results on the relationship of interest. The multivariate specification and its result are discussed in section 5, before the paper concludes in section 6.

## **Background literature**

Empirical analyses of the impact of COVID-19 on household welfare in Africa are rapidly emerging, enabled by the recent rise in data collection efforts by national statistics agencies and the World Bank. The rich micro-data emerging from recent nationally representative household surveys now allow researchers to go beyond small-scale analyses based on simple cross-sectional surveys (such as Balde, Boly and Avenyo, 2020, on the labour market impacts of the pandemic). For example, Amare and others (2020) recently performed an impact evaluation of the pandemic on Nigerian households, focusing on food security. They found that households exposed to higher COVID-19 cases or mobility lockdowns experienced a significant increase in measures of food insecurity. Indeed, as noted by Béné (2020), the cause of food insecurity was not infection, sickness or death from the virus itself, but the loss of income occasioned by the enforcement of lockdowns and closure of enterprises. Social protection, particularly in the form of direct cash

transfers or food palliatives are shown to have a positive impact on household survival during the pandemic. Avenyo and Ndubuisi (2020) examined the role of social assistance and income losses in explaining the coping strategies of households with family businesses during the pandemic. They found that coping strategies were broader in households that received social assistance or experienced income losses due to the pandemic. More specifically, Abay and others (2020) showed that households that received social protection experience less deterioration in food security than non-recipient households.

The COVID-19 pandemic affected household food consumption both globally (Martin and others, 2020) and locally. Many households in Nigeria experienced food insecurity before the COVID-19 pandemic, but the rate of food insecurity increased significantly in the post-pandemic periods. This was more evident among poorer households with non-farm businesses, school-age children and those living in rural and post-conflict regions (Amare and others, 2020). While the pandemic and restrictions imposed to contain the spread of the disease put vulnerable households at further risk as their sources of income were obstructed. Many poor households continue to face difficulty meeting their basic food and other needs. The COVID-19 pandemic has affected all sectors of the economy, including food and agricultural activities, which were excluded from direct restrictions where lockdowns were imposed.

Taken together, these studies provide useful insight into how to develop targeted policies and interventions to support household recovery from the negative impacts of the pandemic. The impact of the pandemic on an important aspect of household welfare, that is, temporal ability to afford basic necessities, remains poorly understood, however. The literature has established that the pandemic is a major economic shock, that may be temporary, but will have lasting effects on individual and household welfare (Kharas, 2020). The economic shock is transmitted through business interruptions and shutdowns emanating from governmental responses to COVID-19. These effects are particularly dire in Africa, where most of the populace hold insecure or non-decent jobs with low productivity and unstable income (Ozili, 2020; World Bank, 2015). For example, in a survey carried out in Kenya and Uganda, more than two thirds of respondent households reported income losses as a result of the COVID-19 pandemic (Kansiime and others, 2021).

On the micro-level, individual and household welfare have been enormously affected by the COVID-19 pandemic. Balana and others (2020) reported that over 80 per cent of Nigerian households lost about half of their income as a result of government policies introduced to curb the pandemic. Consequently, many households are unable to afford the basic consumables for daily living, especially food. According to Andam and others (2020), millions of Nigerians lacked the food and income that their families need to survive, particularly during lockdown. Similarly, Kansime and others, (2021) showed that the level of household food insecurity increased in Kenya by 38 per cent and in Uganda by 44 per cent as a result of the pandemic. In Ethiopia, the share of households that were unable to satisfy their food needs increased by 11.7 percentage points following the onset of the pandemic (Abay and others, 2020).

Many African governments responded through social protection programmes offering direct cash transfers or food supplies. Ryder and Banefo (2020) report that, during the lockdown occasioned by the COVID-19 pandemic, 16 and 20 African countries adopted as support tools food and/or water distribution and cash transfers to vulnerable groups, respectively. The effectiveness of these interventions is almost without question (Abay, 2020; Barrett, 2020; Berhane and others, 2014). However, it remains to be seen whether the mitigating impact of social protection and safety nets persists. This knowledge is crucial for at least two reasons. First, the pandemic is still unfolding and government responses that have worked in the past may lose effectiveness as the impact of the pandemic becomes more intense. For example, it has been reported in Nigeria that the government response was insufficient as very few households could be reached with palliatives (foodstuffs and other consumables) to cushion the effect of the pandemic (Eranga, 2020). Second, most existing evidence on the effectiveness of social protection against the negative economic impact of COVID-19 is based on cross-sectional data or on secondary outcome measures such as whether households skipped meals or had balanced diets. Such evidence ignores the fact that the effectiveness of social protection might wane when the pandemic-induced food insecurity becomes more intense.

Against this background, this paper adds to the growing literature on the economic impact of the COVID-19 pandemic at the household level. Building upon recent similar studies (Abay and others, 2020; Amare and



others, 2020), we use more recent data to address the specific question of how social protection helps to mitigate the impact of the COVID-19 pandemic in Nigeria. This is an important issue because the existing literature suggests that COVID-19 has negatively impacted several aspects of livelihoods, including, for instance, deepening inequalities (Beaunoyer, Dupéré and Guitton, 2020).

## Context

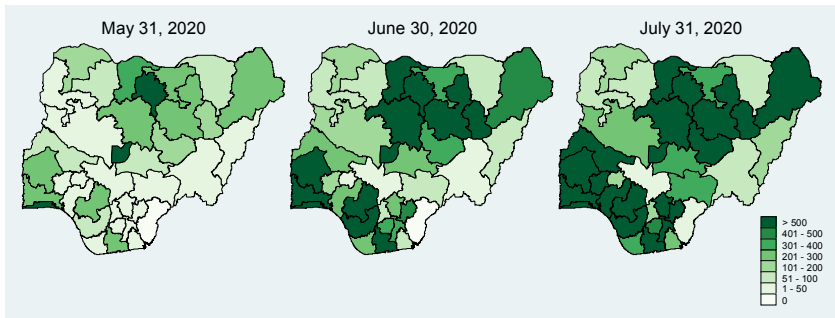
Nigeria is currently the largest country in Africa, both in demographic and economic terms. The country is divided into 36 states and a Federal Capital Territory. Unemployment and poverty rates are high and a large share of the workforce (about 70 per cent) is engaged in the informal sector (World Bank, 2015). This is indicative of the general structure of the labour market in sub-Saharan Africa, where the informal sector dominates in most regions: when agriculture is excluded, the share of informal employment in total employment is 78.8 per cent in Central Africa, 76.6 per cent in East Africa and 87 per cent in West Africa. Southern Africa has the lowest rate of informal sector employment at 36.1 per cent of total employment (ILO, 2018).

In combination, these macro-level attributes make the typical Nigerian household especially susceptible to economic shocks. Coupled with these, the country was one of the first in Africa to record a COVID-19 case. It is therefore easy to see why the pandemic has had significant economic implications for the country. For example, Amare and others (2020) reported that the share of households where a meal was skipped, food ran out or at least one member went without eating for a whole day increased by 47, 32, and 20 percentage points, respectively, immediately after the onset of the pandemic.

The first COVID-19 case in Nigeria was recorded on 27 February 2020. On 11 March 2020, the coronavirus outbreak was characterized as a pandemic because it had been reported on all continents (Ajisegiri and others, 2020). As figure I shows, the spread of the virus in the country was very rapid. As of 31 May, there were just over 10,000 confirmed cases in the country; this rose by over 100 per cent to nearly 25,600 in June and, by the end of July, the number of cases surpassed 43,000, with nearly 900 deaths (Nigeria Centre for Disease Control, 2020a, 2020b and 2020c). Moreover, the number of states with more than 500 cases increased from only three at the end of May to 20 at the end of July (figure I). Thus, the spread of COVID-19 in Nigeria

showed a spatial and temporal variation. Both dimensions of the crisis require a response but government interventions to date have been blind to this.

**Figure I: Spread of the pandemic by region between May and July 2020**



In particular, government responses to contain the spread of the pandemic included social distancing and mobility restrictions. These restrictions were dissimilar across the country, in response to the spatial variation in the intensity of the pandemic. While some states such as Lagos and Ogun enforced total lockdown, closing all schools, businesses and means of transport, others like Kwara and Kogi limited only inter-state travel but permitted movement within state boundaries. On the economic front, like other African countries, the Nigerian Government announced a social protection intervention totalling about 150 billion naira (₦) (about \$394 million) to support households and small and medium enterprises affected by COVID-19. Other socioeconomic welfare policies (“palliatives”) in the form of cash transfers<sup>3</sup> and food assistance<sup>4</sup> were implemented by the Government (Centre for Policy Impact on Global Health, 2020; FMBNP, 2020).

Moreover, in March 2020, an alliance called Coalition Against COVID-19 (CACOVID) was set up by the organized private sector for the management of confirmed cases and provision of palliatives to vulnerable individuals. By July 2020, CACOVID had gathered donations of over ₦39 billion (about \$102 million) from individuals and organizations in Nigeria. Besides medical

3 About ₦20,000 – approximately \$53 – per household, targeting each of 3.6 million poor and vulnerable households listed in the National Social Register under the National Social Safety Net Programme.

4 Under the Federal Ministry of Humanitarian Affairs Disaster Management and Social Development.

facilities and equipment, CACOVID bought and delivered essential food items worth more than ₦28 billion (about \$73 million) and distributed to 1.7 million households, which is equivalent to assisting 8 million Nigerians (Central Bank of Nigeria, 2020). This was in addition to the support provided by religious organizations, non-governmental organizations and other sources. The distribution of the governmental intervention and palliatives was in phases, taking place in one state at a time and reaching most households only once, although it was possible for a household to receive support from multiple sources. Most of these welfare packages and programmes were either inadequate or flawed, however, involving politicization, lack of accountability and improper exclusion of some informal sectors (Centre for Policy Impact on Global Health, 2020). It was reported that, although the palliatives were meant for the most vulnerable in society, no parameters were laid down for determining who was most vulnerable (Eranga, 2020). Consequently, vulnerable individuals and households had very limited access.

Amare and others (2020) have demonstrated that the lockdowns indeed precipitated food insecurity in Nigeria. Specifically, they showed that, compared to households living where lockdowns were not already in force in March 2020, the share of households where a meal was skipped, food ran out or at least one member went without eating for a whole day was higher in states with full lockdown. Regarding the role of social protection, which is the focus of this paper, the results of Abay and others (2020) from Ethiopia show that social protection counterbalances the negative impact of the pandemic on household food security. Specifically, compared to non-beneficiaries, a significantly smaller share of households that benefitted from the Productive Safety Net Programme (PSNP)<sup>5</sup> reported that they had difficulties satisfying their food needs. However, these results were obtained in the periods immediately following the onset of the pandemic. Thus, it remains to be seen whether the positive impact of social protection remained even when the shocks from the pandemic became more intense. This paper therefore provides evidence on whether or not social protection remains effective in tackling the temporal variation in the intensity of the pandemic.

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5 The Productive Safety Net Programme (PSNP) is a rural food security programme in Ethiopia. It was initiated in 2005 to support household welfare. Benefits are of two main types: labour-intensive public works employment for six months per year or unconditional payments in cash or food.

## Data

The focus of this paper goes beyond measuring the direct impact of social protection to evaluate the persistence or otherwise of the effect of social protection in alleviating the negative impact of COVID-19 on household welfare measured in terms of food security. To do this, data were combined from two rounds of the Nigeria COVID-19 National Longitudinal Phone Survey. These phone surveys are conducted by the National Bureau of Statistics as part of the World Bank Living Standards Measurement Study (LSMS) High-Frequency Phone Surveys.<sup>6</sup> By design, both the surveys are nationally representative, and they provide detailed information on several household characteristics, including demographics and food security indicators. The first two rounds were selected for the analysis because the main variable of interest – affordability of food staples – is available in only those rounds.

The National Longitudinal Phone Survey sample includes 1,950 households systematically selected from the 4,976 interviewed in the latest round of the national Living Standards Measurement Study, which took place in January/February 2019. The 1,950 households are to be tracked monthly over a 12-month period starting from April/May 2020 to measure the micro-level impact of the COVID-19 pandemic. To facilitate nationally representative estimations and account for potential sample attrition, weights for the final sample were calculated in several stages and are updated for each survey round (see footnote 2). The present study applies these weights in its analyses, thereby making the results nationally representative. The analyses rely on a balanced panel obtained from merging the first and third rounds of the National Longitudinal Phone Survey, which were conducted in April/May and July, respectively. The indicators of interest were similarly measured across these two surveys. The second round was excluded because it did not contain information on the main outcomes of interest. The panel data was then combined with the confirmed COVID-19 cases and deaths in every state of Nigeria at the end of May and June. The spatial and temporal variation in cases between May and July have already been highlighted (figure 1). The number of deaths shows a similar pattern.

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6 See <http://documents1.worldbank.org/curated/en/717901591889288314/pdf/Basic-InformationDocument.pdf> for details on survey sampling and methods.

Table 1 sets out the weighted summary statistics on basic household characteristics. Information on the headship, size and gender composition of households was taken from the first survey round, which was the only time they were measured for the sample.<sup>7</sup> The average age of household heads was 50 years and 18 per cent of the households were female-headed. An average of five persons lived in each household and they were about 61 per cent female. Table I also provides a comparison of some household characteristics connected to welfare. Across both survey rounds, 69 per cent of households lived in rural areas. However, 2 per cent of households reported a job loss in the third survey round, compared to 3 per cent in the first round. It is worth noting that there was a 6 percentage point fall in the share of households that had a child in school between the first and third survey rounds. This reflects the negative impact of the pandemic on access to education, especially through lockdowns and school closure.

**Table 1: Summary statistics of main household characteristics**

<i>Variable</i>	<i>Overall</i>			<i>Round 1</i>			<i>Round 3</i>		
	<i>Obs</i>	<i>Mean</i>	<i>SD</i>	<i>Obs</i>	<i>Mean</i>	<i>SD</i>	<i>Obs</i>	<i>Mean</i>	<i>SD</i>
Female-headed household	1 925	0.18	0.39						
Age of household head	1 925	50.22	14.52						
Household size	1 925	5.39	3.34						
Share of females in households	1 925	0.61	0.44						
Rural households	3 850	0.61	0.49	1 925	0.69	0.46	1 790	0.69	0.46
Household has at least one child in school	3 850	0.75	0.43	1 925	0.80	0.40	1 790	0.74	0.44
Household has experienced job loss	3 850	0.03	0.16	1 925	0.03	0.18	1 790	0.02	0.13

*Source:* Author’s calculations based on NLPS data

**Variables and descriptive results**

*Outcome variable*

As a proxy for household welfare during the pandemic, we adopted a primary measure of food security, that is, whether a household could afford basic food items. We considered this important because the effects of the pandemic on

7 This is logical because these attributes are not expected to change over a short interval.

food security in many Nigerian households were not direct but primarily transmitted through income loss that precipitated an inability to afford food (Andam and others, 2020; Balana and others, 2020; Eranga, 2020). In the National Longitudinal Phone Survey households, three questions asked if any member had needed to buy a food item in the seven days preceding the survey, whether they were able to buy it and, if not, why not. Of the reasons listed in the survey for not being able to buy food, our interest was in lack of money. The food items included were rice, beans, cassava, yams and corn/sorghum. Across Nigeria, one or more of these five items are staples in the diet of most households, irrespective of social class, ethnicity or geographical location. We combined information from the three questions to construct five indicators of ability to afford food. A sixth indicator was constructed as an aggregate of the five.

**Table 2: Descriptive results on main outcome variables**

	<i>Round 1</i>			<i>Round 3</i>			<i>Difference</i>
	<i>Obs</i>	<i>Mean</i>	<i>SD</i>	<i>Obs</i>	<i>Mean</i>	<i>SD</i>	
Household unable to afford when needed							
Rice	1 925	0.20	0.01	1 925	0.20	0.01	0.00
Beans	1 925	0.18	0.01	1 925	0.15	0.01	-0.03*
Cassava	1 925	0.13	0.01	1 925	0.08	0.01	-0.05*
Yams	1 925	0.24	0.01	1 925	0.25	0.01	0.01
Corn/Sorghum	1 925	0.10	0.01	1 925	0.08	0.01	-0.02*
Any of the above	1 925	0.33	0.01	1 925	0.37	0.01	0.04*

\*significant at 5 per cent;

*Source:* Author's calculations based on NLPS data

Table 2 provides information on the six indicators of food security across the two survey rounds. Despite the short interval, there are two reasons why we expected a temporal change in these indicators. First, in the context of COVID-19, sudden income losses could have had an immediate impact on household welfare in a country like Nigeria, where most of the population is in non-decent employment and unable to save. Second, even where a household was unable to afford food, social protection could instantaneously have offset the negative impact. Indeed, we observe changes in several of the indicators in table 2. In combination, 4 per cent more households were unable to afford any of the five food items in July than in May. In contrast, the share

of households that could not afford beans, cassava and corn/sorghum fell by 3, 5 and 2 percentage points, respectively.

*Main explanatory variables*

Table 3 provides a summary of the primary explanatory variable, that is, an indicator of whether a household received food or a cash transfer. The variable was constructed based on the survey question that asked households to indicate if, since mid-March, they had received any assistance in the form of food or direct cash transfer. We expected this variable to change over time for the same reasons as for the outcome variable discussed above. Indeed, while the share of households that received direct cash transfer did not change from May to July, the share that received food had fallen by half. Only about 13 per cent of households received any food or cash transfer in May but by July this share had fallen to 7 per cent. In a sense, this drop suggests a decrease in either the volume or the coverage of the social protection programme.

**Table 3: Summary statistics of main explanatory variables**

Social protection	Overall			Round 1			Round 3		
	Obs	Mean	SD	Obs	Mean	SD	Obs	Mean	SD
Food	3 716	0.10	0.30	1 925	0.12	0.33	1 790	0.06	0.23
Direct cash transfer	3 716	0.02	0.14	1 925	0.02	0.15	1 790	0.02	0.13
Either food or cash	3 716	0.12	0.32	1 925	0.13	0.34	1 790	0.07	0.25

*Source:* Author’s calculations based on NLPS data

This paper also assesses the impact of social protection conditional upon increasing intensity of the COVID-19 pandemic. For this, the count of confirmed cases and deaths in each state of Nigeria in the months of May and June 2020 are relied upon (Nigeria Centre for Disease Control, 2020a and 2020b). The increasing intensity of the pandemic is obvious from the summary provided in table 4. The average number of cases and deaths per state in June was about two and a half times the May average. A large variance is also observed, with some states having as few as two to four cases in May and June, respectively, while in others the number of cases was in the thousands.

**Table 4: Summary statistics of COVID-19 data in Nigeria (May–June 2020)**

<i>COVID-19 data</i>	<i>Month</i>	<i>Average</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Confirmed cases	May	282	823	2	4943
	June	714	1 737	4	10 510
Deaths	May	8	12	0	54
	June	18	24	0	128

*Source:* Author's calculations based on NCDC data

### *Descriptive results on the role of social protection in mitigating COVID-19 impact*

Table 5 reports the relationship between the receipt of food or cash and the ability of households to afford their basic food needs. Two findings immediately emerge. First, the share of households that could not afford their basic needs increased between the first and second surveys, but the rate of increase differed conditional upon receipt of social protection in the form of food or cash transfer. Specifically, the share of households that could not afford their needs among those that received social protection rose from 34 per cent in the first survey to 39 per cent in the second survey. Among those that did not receive social protection, a larger increase took place – from 27 per cent in the first survey to 39 per cent in the second survey. This suggests a positive relationship between receiving social protection and escaping deprivation, at least in the short term.

**Table 5: Relationship between social safety nets and ability to afford basic necessities**

Variable	<i>Household could not afford basic needs</i>			
	<i>Round 1</i>		<i>Round 3</i>	
	N	%	N	%
Household received either food or cash	1 621	33.7	1 666	39.2
Household did not receive either food or cash	304	27.3	125	39.2
Diff		6.300		0
Z		2.136		0

*Source:* Author's calculations based on NLPS data



Second, in the first round of the surveys, there is a difference of 6.3 percentage points in the ability to afford food between households that received social protection and those that did not. This difference is statistically significant ( $z = 2.136$ ). By the time of the third round of the surveys, a higher but equal proportion of benefitted and non-benefitted households (39.2 per cent) could not afford their basic needs. These figures suggest that the instantaneous positive impact of social protection in the form of food or cash transfer had disappeared as the pandemic worsened.

What can explain this pattern? One possibility is the magnitude of the social protection relative to the intensity of the pandemic. The size of the food or cash intervention did not vary with the progression of the pandemic. Moreover, most households received the food or cash support only once (usually at the onset of the pandemic or at the start of the mobility lockdown).<sup>8</sup> Thus, increasing intensity of the pandemic would have meant that the instantaneous relief from the cash or food support waned over time, on aggregate, though it clearly provided an initial cushioning effect. Another, less likely, explanation lies in the behavioural response of the households to the support.<sup>9</sup> For the few households that received food or cash support repeatedly, the observed pattern could mean that they developed a dependency on the support received, thereby limiting their creativity and innovative coping strategies. Our subsequent estimation picks up on these conjectures.

### *Estimation and results*

#### *Model specification*

The temporal variations in the prevalence of COVID-19 across states in Nigeria and in the outcomes of interest allow the above relationship to be explored more systematically. The following panel specification was formulated to evaluate the temporal impact of social protection on mitigating the impact of the pandemic on food security:

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8 In our data, only 52 (2.7 per cent) households reported that they received food or cash in both rounds of the survey; 1,441 (74.9 per cent) did not receive at all, while 67 (3.5 per cent) did not respond to the question. The remaining 365 (19 per cent) households had received in one round or the other.

9 This explanation is less likely because the time period covered by the results seems too short to permit large behavioural changes in households.

$$Y_{it} = \alpha + \beta_0 \text{Food\_Cash}_{it} + \beta_1 \text{Food\_Cash}_{it} * \text{COVID}_{st} + \sum_{j=2}^n \beta_j X_i + \varepsilon_{it}$$

where is any of the six indicators of the ability of a household  $i$  to afford food at time  $t$ . is whether a household  $i$  received food, cash or both at time  $t$ . The interaction between this variable and the number of COVID-19 cases () captures the variation in the response of the outcome variable to temporal changes in the explanatory variable across households, conditional upon temporal changes in the intensity of COVID-19 over time in each state. The intensity of COVID-19 is operationalized in two ways: the number of confirmed cases and the number of deaths in each state.<sup>10</sup> is a vector of observable household characteristics, most of which are time-invariant (see table 1).

Given that the outcome variable is a binary indicator, equation 1 corresponds to a panel logit specification. To account for non-independence of households between surveys, the standard errors are clustered at household level. This is particularly important in this setting because of the potential problems of heteroscedasticity and autocorrelation of residuals at household level. The main coefficient of interest is  $\beta_1$ , which evaluates the hypothesis that the impact of social protection on the ability of a household to afford food is conditional upon the intensity of the pandemic. However, following existing literature (Abay and others, 2020; Barrett, 2020; Berhane and others, 2014), we expect a positive value of  $\beta_0$ , that is the direct effect of social protection on household welfare. The existing literature does not provide direct insight regarding the direction of  $\beta_1$ , and herein lies an important contribution of this paper. Following the descriptive results discussed above, we posit that households that are confronted with stronger intensity of the pandemic are less likely to afford food, even if they have received social protection. Thus, we expect  $\beta_1$  to be negative, such that the magnitude of the total effect of social protection, that is,  $\beta_0 + \beta_1$ , will be smaller than the magnitude of the direct effect  $\beta_0$ .

## Estimation results and discussion

This section discusses the results obtained from the estimation of equation (1) and what it reveals about the impact of government support in terms of cash

10 In alternative specifications we used the number of cases and number of deaths per capita in each state. The results are qualitatively similar to what we report in the paper.

and food on the ability of households to afford basic necessities. As already explained, the aim is to show whether the intensity of the pandemic affected the impacts of the food or cash support on the ability of households to afford food between May and July 2020. The results obtained from estimating equation 1 are contained in tables 6 and 7. A strong positive impact is observed of social protection in the form of food, cash or both on household welfare: households that benefitted from social protection show a considerably higher probability of ability to afford basic food needs, even when other household characteristics are considered (column 1 in tables 6 and 7). This is true for all individual staple food items, except corn (columns 2-6 in tables 6 and 7), which is comparatively cheaper and in season between April and June when the data were collected. To illustrate the magnitude of the impact, the result in column 1 of tables 6 and 7 suggests that households that benefitted from social protection are between three and five times as likely to afford food as households that did not, irrespective of the type of food.

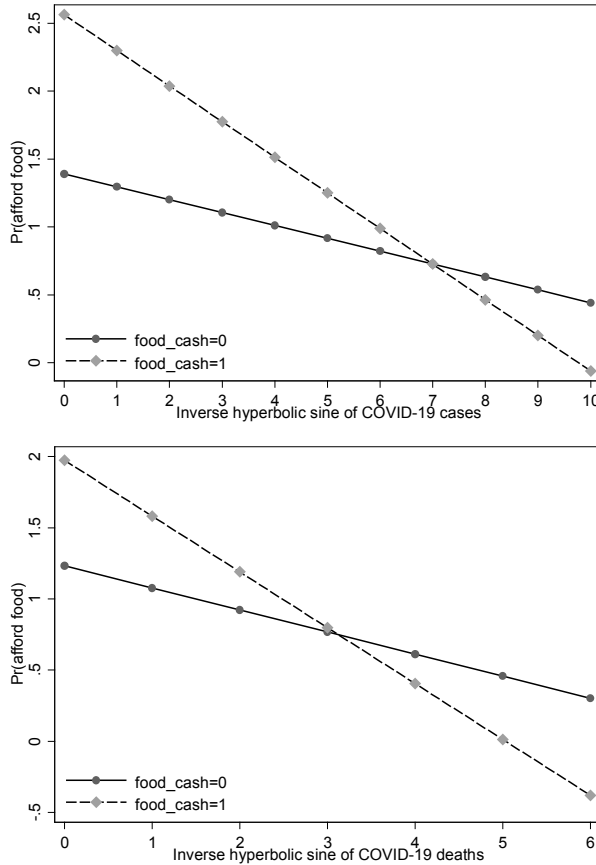
**Table 6: Impact of COVID-19 cases on household welfare**

	<i>Household was able to afford...</i>					
	<i>Food</i>	<i>Rice</i>	<i>Beans</i>	<i>Cassava</i>	<i>Yams</i>	<i>Corn</i>
Food_Cash	1.709***	1.140+	1.400*	1.114+	0.886+	0.782
	(0.464)	(0.585)	(0.637)	(0.674)	(0.468)	(0.722)
Food_Cash * COVID cases	-0.254***	-0.132	-0.155	-0.167	-0.152*	-0.074
	(0.074)	(0.095)	(0.101)	(0.105)	(0.075)	(0.112)
Intercept	1.142***	2.801***	2.733***	3.230***	1.571***	3.218***
	(0.227)	(0.285)	(0.284)	(0.334)	(0.241)	(0.366)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Intraclass correlation	0.376***	0.4***	0.342***	0.313***	0.347***	0.354***
Log panel-level variance	0.684***	0.787***	0.536**	0.403	0.557***	0.591*
	(0.148)	(0.169)	(0.199)	(0.260)	(0.169)	(0.252)
Number of observations	3,664	3,664	3,664	3,664	3,664	3,664
Log likelihood	-2275.3	-1755.0	-1577.3	-1210.2	-1981.6	-1062.7
Wald Chi squared	76.24***	94.99***	78.55***	60.79***	42.31***	29.05***

*Standard* errors in parentheses; + p < 0.10, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

*Source:* Authors' calculations based on NLPS data.

**Figure II: Impact of social safety net on household ability to afford food at varying intensities of COVID-19**



As hypothesized, the positive effect of social protection was completely offset by the worsening COVID-19 pandemic, even when controlling for household characteristics. This provides strong support for the earlier conjecture that increasing intensity of the pandemic wipes out the initial relief from time-invariant cash or food support. Again, the results in column 1 of tables 6 and 7 show that, as the pandemic worsened, the impact of social protection reduced by between 20 per cent and 30 per cent.<sup>11</sup> These losses are huge considering the heavy burden of poverty in a country like Nigeria. Figure 2 illustrates this finding using the results in column 1 of tables 6 and 7.

<sup>11</sup> This effect is more robust in table VII, where the intensity of the pandemic is operationalized with case fatalities.

Clearly, as the number of COVID-19 cases (left panel) and deaths (right panel) increased, the probability of a household being able to afford food decreased consistently. This decrease was much quicker when a household had received social support. At the starting-point, beneficiary households were far more likely to be able to afford food than the non-beneficiaries. However, as the pandemic progressed, beneficiary households became progressively less likely to be able to afford food, until the point where they were overtaken by non-beneficiary households.

**Table 7: Impact of COVID-19 deaths on household welfare**

<i>Household was able to afford...</i>						
	<i>Food</i>	<i>Rice</i>	<i>Beans</i>	<i>Cassava</i>	<i>Yams</i>	<i>Corn</i>
Food_Cash	1.129*** (0.273)	0.915** (0.314)	1.240*** (0.363)	0.886* (0.418)	0.526+ (0.275)	0.629 (0.431)
Food_Cash * COVID deaths	-0.375*** (0.092)	-0.228* (0.108)	-0.306* (0.120)	-0.302* (0.136)	-0.219* (0.093)	-0.115 (0.142)
Intercept	1.159*** (0.228)	2.815*** (0.285)	2.754*** (0.285)	3.244*** (0.335)	1.579*** (0.241)	3.222*** (0.366)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Intraclass correlation	0.376***	0.402***	0.345***	0.311***	0.346***	0.354***
Log panel-level variance	0.686*** (0.148)	0.792*** (0.169)	0.550** (0.199)	0.397 (0.260)	0.553** (0.169)	0.590* (0.252)
Number of observations	3,664	3,664	3,664	3,664	3,664	3,664
Log likelihood	-2272.9	-1754.2	-1575.6	-1208.9	-1980.9	-1062.6
Wald Chi squared	79.6***	95.97***	80.14***	62.56***	43.49***	29.19***

*Standard* errors in parentheses; +  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

*Source:* Authors' calculations based on NLPS data.

While the results generally agree with the previous literature on the substantial benefits of social protection for household welfare in times of crisis (Abay and others, 2020; Barrett, 2020; Berhane and others, 2014), they reveal an interesting caveat. It turns out that the welfare-enhancing effects of social protection are instantaneous but non-persistent, at least in the short term. This raises an important policy challenge: how to design social protection programmes for optimal impact, especially in times of crisis. Addressing this policy challenge is important, even if the crisis is not dynamic, as the

COVID-19 pandemic has been. For example, the selection criterion for receiving social intervention in response to this pandemic was supposed to be vulnerability, but the support provided was in fact static and largely insufficient to alleviate poverty significantly. Under these conditions, the results of this study indicate the insufficiency of the support at any given level of intensity of the pandemic.

There are no straightforward solutions to this challenge but the data and results of this study provide preliminary insight. First, it seems desirable to design social protection programmes in a responsive manner during crises. The nature and magnitude of household needs would tend to vary as crisis-induced shocks evolve. Thus, relief measures need to be tailored towards meeting these evolving needs. Two obvious ways to tailor relief programmes is by modifying the size of what is provided and by increasing or decreasing the frequency according to changes in the intensity of the crisis. Second, the design of social protection programmes should go beyond handouts, which, as the results show, were not necessarily effective in light of increasing intensity of the pandemic. Interventions focused on medium- to long-term social protection (such as universal insurance and unemployment benefits) would have more impact in enhancing welfare and alleviating shock-induced poverty.

## **Conclusion**

This paper, set out to quantify the impact of social protection on household welfare measured in terms of ability to afford food. Using data from the first and third rounds of the National Longitudinal Phone Surveys<sup>12</sup> in Nigeria, it shows that social protection in the form of food or direct cash transfer is associated with a higher probability of household ability to afford the food they need. This positive effect is, however, offset by increasing intensity of the pandemic. It is inferred from this finding that the welfare-enhancing effects of social protection are instantaneous but non-persistent, at least in the short term. This casts doubt on the medium- to long-term effectiveness of the handout-type interventions now popular in developing countries. The implication for policy is that social protection programmes need to be

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12 Admittedly, the analyses have considered a short time window (between May and July 2020); it remains to be seen whether the pattern will be different over the medium to long term. It will be possible to shed light on this as data from further rounds of the longitudinal phone survey become available.

designed in a responsive manner, especially in times of crisis. Two areas of intervention are particularly crucial. First, the magnitude of social protection from sudden economic shocks should be tailored to the magnitude of the shock. Second, handouts in the form of food and cash transfers are only useful in the immediate term. For medium- to long-term social protection, more robust interventions such as universal insurance and unemployment benefits would help households to be more resilient.

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