Social Protection Amid a Crisis: New Evidence from South Africa's Older Person's Grant*

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Abstract

We study the effects of South Africa's Older Person's Grant program on economic and psychological well-being amid the COVID-19 pandemic. We link pre-pandemic household-level panel data with household-level panel data collected during the pandemic and leverage the age-eligibility threshold of the grant program to implement a local randomization estimation approach. Prior to the pandemic, we find that the grant program improves economic well-being at the household level. During the pandemic, we find that the grant allowed recipient households to better manage the widespread adverse consequences of the pandemic. Specifically, recipient households were less likely to report (i) running out of money for food, (ii) hunger among either adults or children, and (iii) psychological distress. These results provide critical insight into the effectiveness of one of the world's most well-known social protection programs during a massive global health crisis.

Keywords: Cash transfer, Pension, Hunger, Social protection, COVID-19, South Africa, Food expenditures, and Psychological distress

JEL Codes: O21, O38, I15, and I38.

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1 Introduction

The SARS-CoV2 coronavirus (COVID-19) pandemic generates new motivation for understanding the design, reach, and effects of large scale cash transfer programs. This is especially true in low- and middle-income countries where access to COVID-19 vaccinations remains limited. As of August 2021, for example, only 1.2 percent of people in Sub-Saharan Africa have been fully vaccinated against COVID-19 (Miguel and Mobarak, 2021). With low vaccination rates and the threat of new variants to the virus, the adverse social, economic, and psychological consequences of the pandemic may extend for years. Therefore understanding the effectiveness of social protection programs in assisting households to mitigate the adverse consequences of the pandemic is exceedingly and increasingly important for informing effective policy responses.

In this paper we study how a large and wide-reaching cash transfer program allowed recipient households to manage the adverse consequences of a health crisis—the COVID-19 pandemic. We specifically examine if grant recipients were able to shield themselves from hunger and psychological distress during the pandemic. South Africa's Older Person's Grant program (also known as the Old Age Pension) is one of the most well-established and well-known social protection programs in the world. It is a means-tested unconditional cash transfer program for the elderly where recipients who are at least 60 years old receive up to 1,800 South African Rand per month—nearly 140 percent of the median per capita income in the country and almost double the income poverty line.[1]

Using panel data collected during the pandemic linked to a large continuing panel study collected prior to the pandemic, we leverage the age-eligibility threshold of the Older Person's Grant to generate a plausibly exogenous instrument for household grant receipt and restrict our sample to a narrow age range around this threshold. This identification strategy allows us to implement a local randomization approach—akin to a fuzzy regression discontinuity approach with a small number of mass points (Cattaneo, Idrobo and Titiunik, forthcoming). Our data come from the National Income Dynamics Study (NIDS) of South Africa—a panel study following households from an initial sample in 2008 approximately every two years through 2017. We also use data from the Coronavirus Rapid Mobile (CRAM) survey, a phone-based survey administered to a random sub-set of

[1] This is equivalent to approximately 120 US dollars per month and about 15 percent of average household income per month in South Africa.

individuals included in the fifth wave of the NIDS panel. The CRAM survey was designed to study the consequences of the COVID-19 pandemic and includes five waves administered in 2020 and 2021. These combined datasets and the econometric methods allow us to isolate exogenous variation of grant receipt at the household level and to study the effectiveness of South Africa's Older Person's Grant program both before and during the COVID-19 pandemic.

We first document the effects of the Older Person's Grant program in pre-pandemic waves of our data. In doing so, we update various stylized facts about the program found in Case and Deaton (1998) and show that the program remains well-targeted and has wide reach. In addition, a substantial portion of the grant is spent on food, especially among poorer households. We then leverage the clear discontinuity in grant receipt at age 60 and find that indicators of economic well-being measured at the household level (e.g., household income per capita, household food expenditures per capita, wealth, and hunger) improve due to the grant. These results both provide a baseline set of pre-pandemic results and demonstrate the relevance of our instrument.

Our core results examine the effectiveness of the Older Person's Grant program amid the COVID-19 pandemic. We document three main findings. First, the Older Person's grant led to a nearly 13 percentage point reduction of an individual reporting that their household ran out of money for food in the prior month during the COVID-19 pandemic. Second, households with a grant recipient are ten percentage points less likely to report the presence of either adult or child hunger within their household—a nearly 30 percent reduction in reported hunger. Finally, survey respondents with household members who are receiving the grant are five percentage points less likely to report experiencing psychological distress.

These findings are important for at least two reasons: First, specifically within South Africa, in the initial months of the COVID-19 pandemic the government closed schools and school lunch programs, shutdown informal food vendors, and stretched the food budgets of vulnerable households (Wills et al., 2020; Arndt et al., 2020). In particular, adult and child hunger were each reported in one out of every three households in our data at the peak of South Africa's pandemic lockdowns. Second, it is also an important finding more generally as, in response to the pandemic, the number of social protection programs around the world more than doubled between 2020 and 2021, with cash transfers and

social pension programs representing over 40 percent of these programs (Gentilini et al., 2021).

Our work is similar in spirit to two recent studies, by Abay et al. (2021) and Gulesci, Puente-Beccar and Ubfal (2021), who study the effect of social protection programs amid the COVID-19 pandemic. First, Abay et al. (2021) study the extent to which Ethiopia's Productive Safety Net program mitigated the adverse consequences of the COVID-19 pandemic on the food security of households. Our work differs in that South Africa's Older Person's Grant program provides passive income to needy households, while Ethiopia's Productive Safety Net program provides participants with labor-intensive employment opportunities. Second, Gulesci, Puente-Beccar and Ubfal (2021) study a youth empowerment program in Bolivia and find that girls enrolled in this program report increased earnings and less exposure to domestic violence relative to girls not enrolled in the program. Similar to both Abay et al. (2021) and Gulesci, Puente-Beccar and Ubfal (2021), we aim to credibly account for unobservable selection into program participation. Specifically, we leverage the age-eligibility threshold embedded in the program design of South Africa's Older Person's Grant program.

In this paper, we make three main contributions. First, we contribute to the literature on social protection programs amid the COVID-19 pandemic by specifically investigating the effectiveness of one of the most well-established and well-known social protection programs in the developing world (Abay et al., 2021; Gentilini et al., 2021; Gulesci, Puente-Beccar and Ubfal, 2021). Second, we document important socio-economic effects of South Africa's Older Person's Grant program that persist despite documented behavior changes associated with grant receipt (Abel, 2019; Duflo, 2000; Ardington, Case and Hosegood, 2009; Bertrand, Mullainathan and Miller, 2003; Duflo, 2003; Edmonds, Mammen and Miller, 2004; Edmonds, 2006; Hamoudi and Thomas, 2014; Lovo, 2011). We show that despite these documented behavioral changes, several measures of household-level economic well-being improve significantly due to the grant. Finally, we update descriptive findings about the reach of South Africa's Older Person's Grant program, originally documented by Case and Deaton (1998). We find that the grant continues to predominately reach poor households and, despite targeting elderly recipients, households where poor children live.

In the next section we briefly introduce the study context by discussing South Africa's

COVID-19 crisis and the Older Person's Grant program. Section 3, describes the data we use in this paper and our empirical approach. Section 4 investigates the effect of the grant on food expenditure and the role it plays in lowering hunger and mitigating any adverse economic and psychological consequences associated with the COVID-19 pandemic. Finally, section 5 concludes.

2 Study Context

South Africa is a middle-income country with the highest level of income and wealth inequality in the world (World Bank, 2018). In 2017, the average monthly income per capita was approximately ZAR 3,301 (9,666).[2] There is significant inequality as the median income per capita was nearly half of of the mean at ZAR 1,450. Moreover, in 2017 nearly 50 percent of households reported income or expenditure levels below the poverty line and about 20 percent reported income below the extreme poverty line (Leibbrandt, Finn and Woolard, 2012).[3]

2.1 South Africa's COVID-19 Crisis

In the immediate aftermath of the onset of the COVID-19 pandemic, rapid analysis using the NIDS CRAM survey data revealed the severity of the crisis. As reported by Wills et al. (2020), two out of every five adults responding to the CRAM survey reported that their household had lost its main source of income since the onset of the pandemic; 47 percent of respondents reported running out of money to buy food; 21 percent reported that someone in their household went hungry in the past week; and 15 percent reported that a child in their household went hungry in the past week. This rapid ex-post analysis is qualitatively consistent with the ex-ante analysis reported by Arndt et al. (2020). Furthermore, reporting by *The New York Times* in September 2020 (Goodman, Dahir and Singh, 2020) noted the following about the situation in South Africa:

> "When the pandemic emerged in March, the government ordered the shutdown of informal food vendors and township shops, unleashing the military

[2]This corresponds to 247 US Dollars or $514 PPP adjusted.

[3]We use a household income per capita of ZAR 1,138 (official 2017 upper-bound poverty line) to indicate poverty status and ZAR 531 (official food poverty line) to indicate extreme poverty (Lehohla, 2017).

> to detain merchants who violated orders. That forced residents to rely on supermarkets — suddenly farther away than ever, given the lockdown of already woeful bus service.
>
> At the same time, South Africa closed its schools, eliminating school lunches — the only reliable meal for millions of students — just as breadwinners lost their means of getting to jobs. By the end of April, nearly half of all South African households had exhausted their funds to buy food, according to an academic study.[4] Social unrest eventually prompted a loosening of the country's restrictions."

In response to this crisis, the South African government implemented several social expansions to existing protection programs. As documented by Gentilini et al. (2021), from May through October 2020 South Africa's Child Support Grant expanded by 300 Rand per month, shifted school-feeding programs to take-home food rations, expanded unemployment benefits, and increased wage subsidies. These expansions, in addition to being sorely needed at the time of their implementation, are directly relevant to the results presented here. As noted in more detail below, one of the eligibility requirements for receiving the Older Person's Grant is that the recipient does not receive any other form of social grant. Therefore, these social support expansions will bias any estimated effect of receiving the Older Person's grant toward zero. To the extent that these programs also influence household-level indicators of economic well-being and hunger, our results represent estimates of the lower bound of the true effect of the Older Person's Grant program amid the COVID-19 pandemic.

2.2 South Africa's Older Person's Grant

The South Africa Older Person's Grant is South Africa's largest social welfare program and was greatly expanded after the end of Apartheid to target the county's most disadvantaged groups and achieve parity in both eligibility and benefits between whites and Africans (Van der Berg, 1997; Case and Deaton, 1998; Duflo, 2003). It is an unconditional cash-transfer program that every South African citizen or permanent resident becomes eligible for when they turn 60 years old.[5] While age is the main criteria for eligibility, the program is also means tested based on individual (if single) or combined (if married) income and liquid assets—in practice, income is the main screening criteria.[6] The transfer amount is

[4]This study is Wills et al. (2020) who use the NIDS CRAM survey access to food and poverty in South Africa amid the early months of the COVID-19 pandemic.

[5]Prior to 2010, females were eligible at age 60 while men became eligible at a later age of 65.

[6]To qualify an individual must (i) be a South African citizen, permanent resident, or refugee, (ii) live in South Africa, (iii) not receive any other social grant, (iv) not be cared for in a state institution, (v) not earn

approximately ZAR 1,800 a month or nearly 140 percent of the mean household income per capita. Most South Africans (nearly 80 percent) fall below the high means test threshold and take-up rates are high especially among women. Nearly 25 percent of individuals under 60 years of age live with someone who receives this grant, making it an important and far-reaching social safety net in South Africa.

The behavioral effects of the Older Person's Grant have been studied extensively. Seminal work by Case and Deaton (1998) documents several stylized facts about the breadth and depth of the grant program in the early 1990s. We update these stylized facts in Section 4.1 of this paper. Subsequent research by Duflo (2000) shows improved child health due to the expansion of the Older Person's Grant program to Africans after Apartheid. In a follow-up paper, Duflo (2003) shows that the gender of the recipient matters in determining outcomes for female grandchildren. In two separate studies Bertrand, Mullainathan and Miller (2003) and Abel (2019) show that the labor supply of non-recipient household members within recipient households decreases especially when the recipient is a woman. Somewhat to the contrary, Ardington, Case and Hosegood (2009) show that prime-aged adults increase their labor supply through migration when an elderly household member starts receiving the Older Person's Grant. Additional evidence that the Older Person's Grant helps relieve liquidity constraints are documented by Edmonds (2006), who shows that child labor decreases and school attendance increases among children living with a grant recipient. Moreover, Lovo (2011) shows improvement in technical efficiency among agricultural households receiving the grant. Finally, other studies show household composition changes in response to grant receipt (Hamoudi and Thomas, 2014; Edmonds, Mammen and Miller, 2004).

3 Data and Empirical Framework

We use panel data from the National Income Dynamics Study (NIDS) of South Africa.[7] The first survey wave of this study was conducted in 2008 and households (and individuals) were interviewed again in 2010, 2012, 2014, and 2017. The 2008 sample of nearly 27,000 individuals is nationally representative.[8] The NIDS collects data on many socio-

more than 86,280 South African Rand if single or 171,560 South African Rand if married, and (vi) not have assets worth more than 1,227,600 South African Rand if single or 2,455,200 South African Rand if married. Eligibility is not dependent on labor force status.

[7] This is a panel study conducted by the South Africa Labor and Development Research Unit at the University of Cape Town.

[8] 15,630 completing the adult individual questionnaire in 6,598 households. Each wave's sample is refreshed in order to deal with attrition and keep each wave nationally representative.

economic variables including demographic information, income, consumer expenditure, labor market participation, information on self-employment and farming activity, fertility, health, migration, education, and anthropometric measures.[9] We specifically use the detailed information on household income, assets, and food expenditures. We mainly choose to use household food expenditure per capita throughout the analysis, but we also use total household income and a wealth index as other measures of economic well-being.[10]

In early 2020, the South Africa Labor and Social Development unit (the group behind NIDS) developed the Coronavirus Rapid Mobile (CRAM) survey. The CRAM Survey is a follow-up phone survey of over 7,000 individuals selected from the 2017 wave of the NIDS. The CRAM survey asks a range of questions relating to income, employment, household welfare (i.e., hunger), receipt of grants and social support, and knowledge and behavior relating to the COVID-19 pandemic. We use data from five waves of the CRAM survey, which provide insight into the experience of South African households amid the COVID-19 pandemic.[11]

Finally, as a supplementary source of pre-pandemic data, we also use information from the 2016 Demographic and Health Survey (DHS) from South Africa.[12] The DHS data provide rich information on a host of demographic and health related topics. We specifically use information on experienced hunger at the household level to supplement the NIDS data and to compare results from the CRAM survey to pre-pandemic, baseline levels of hunger—however, it is important to note that the samples, while nationally representative, are different and the questions on hunger in the DHS and CRAM survey data are not exactly the same.

3.1 Identification Strategy

Due to endogeneity in the receipt of the Older Person's Grant, several studies of the Older Person's Grant limit their sample to a relatively narrow age range around the grant's age eligibility threshold Edmonds (2006); Ardington, Case and Hosegood (2009). We follow this approach and also employ an instrumental variable estimation design based on the age-eligibility threshold of the Older Person's Grant program. This estimation approach

[9]The NIDS survey data are publicly available online: `http://www.nids.uct.ac.za/`.

[10]The wealth index is constructed through factor analysis of household-level dwelling characteristics and durable goods (assets).

[11]The CRAM survey data are available online: `https://cramsurvey.org/about/`.

[12]The 2016 DHS sample uses the 2011 South African Census as a sampling frame with enumeration areas from the Census serving as primary sampling units for the DHS sample. The DHS sample uses a two-stage sampling framework that first selects 750 primary sampling units and next randomly selects dwelling units (i.e., households) within primary sampling units.

requires two conditions: a verifiable data requirement (i.e., the instrument must be relevant) and an assumption (i.e., the instrument must be excludable). The first condition requires that the probability of grant receipt must increase due to eligibility. Figure 1 shows that, at the individual level, there is a large jump in receipt of the grant at age 60, clearly highlighting the relevance of the instrument.[13] The second condition assumes that being eligible for the grant or having another eligible member in one's household should only affect our dependent variables of interest through the receipt of the grant (i.e., the instrument must be excludable). For the overall NIDS sample, this second condition is not plausible. Having a household member who is 60 years old or older likely changes household preferences and dynamics in many ways that can also affect consumption decisions. We instead rely on a more narrow assumption that having a 59 year-old household member is similar to having a 61 year-old household member—the sole difference being that the member over 60 is eligible for and likely receiving the Older Person's Grant. Our main variables of interest are food expenditure per capita and hunger and we assume that preferences for food do not change at age 60.[14]

Our identification is based on restricting our sample to households with members who are around the age of 60. This makes it more likely that we satisfy our second assumption: that being 60 or older or having another household member who is age 60 or above only affects outcome variables of interest through the channel of grant receipt. We show results for samples that are restricted to five different age ranges, all centered on the age of 60. At its widest, we will use a distance of six where we restrict the sample to individuals in households with a member between the age of 54 and 65 (inclusive).[15] The smallest range of ages is four, where we only keep individuals who are in households with a member who is between the age of 58 and 61. This identification strategy is a local randomization approach and akin to a fuzzy regression discontinuity design Cattaneo, Idrobo and Titiunik (forthcoming).[16]

[13] In order to identify the sample that would be eligible based on the means test, we use income information to exclude those with reported incomes that would make them ineligible. Through this, we exclude approximately 10% of our sample—among this excluded group, only 5% of individuals above 60 receive the grant whereas among those we keep in our sample more than 94% of individuals above 60 receive the grant.

[14] Figure A.1 in the Appendix shows that the share of income spent on food does not change abruptly when the household head turns 60.

[15] This gives us a bandwidth or window—as is it referred to in local randomization approaches in the regression discontinuity literature—of 6 around the age-eligibility cutoff: ages 54, 55, 56, 57, 58, and 59 are in but not eligible for the grant, while 60, 61, 62, 63, 64, and 65 are. Similarly for smaller windows, we successively remove 1 year from each end.

[16] See discussion in Cattaneo, Idrobo and Titiunik (forthcoming): with a small number of mass points around the cutoff, continuity-based regression discontinuity analysis is useful only as an exploratory device without strong parametric assumptions because extrapolation between the mass points becomes unavoidable. In prac-

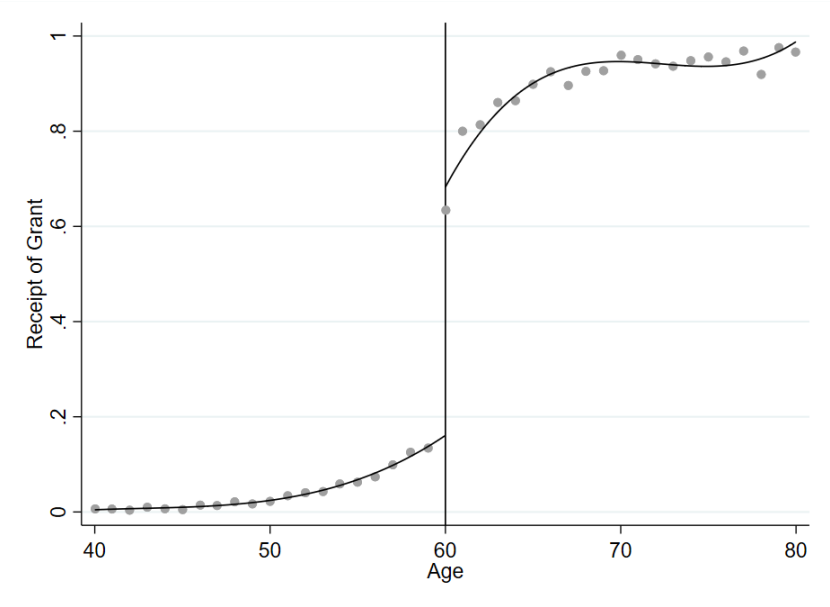


FIGURE 1: Individual-level receipt of the Older Person's Grant by age. There is a clear discontinuity of grant receipt around the age of eligibility of 60.

Table A.1 in the Supplemental Appendix shows a balance table for the restricted sample that supports the assumption that these households and the individuals in them are similar except for eligibility of a member (or members) for receiving the grant. The table shows strong balance at the household-level across these two groups: we cannot statistically differentiate the two groups with respect to household size, number of children in the household, if the household is in an urban area, or if they have experienced a death in the last year. Even average non-grant income per capita does not differ between the two groups. We can however, see differences in household-level variables that we expect to change due to the grant, namely, the average grant income per capita, share who have savings, and share who are poor. At the individual level, in our restricted sample, the members above and below the threshold are clearly of different average ages. However, we cannot statistically differentiate between the two groups on the share who are male, married, have secondary-level education, or report a health issue in the last 30 days. When it comes to other members of the household (not including the recipient or potential recipient), their characteristics are similar across the two groups in terms of the age, sex, marital status, and even labor force participation.

tical terms, the sample size in continuity-based approaches is essentially the number of mass points, which in our case is very small. Cattaneo, Idrobo and Titiunik (forthcoming) suggest local randomization approaches as more appropriate for this type of data.

After restricting our sample to households with members around the age-eligibility threshold of 60, we use two estimation approaches. We first estimate a simple regression specification using ordinary least squares. This regression does not instrument for receipt of the Older Person's Grant. Instead it acts as a simple and straightforward estimation approach that motivates our instrumental variable estimation approach. We specifically estimate the following linear regression:

$$Y_{hdt} = \beta_0 + \beta_1 G_{hdt} + \boldsymbol{X'_{hdt}}\boldsymbol{\gamma} + \theta_t + \tau_d + \epsilon_{hdt} \tag{1}$$

In equation (1) Y_{hdt} represents a household-level outcome variable in district d at time t. This variable takes several forms throughout our analysis: (i) household income per capita, household food expenditures per capita, a wealth index, whether the household has run out of money for food, and indicators for adults/child hunger or psychological distress within the household. The variable G_{hdt} is an indicator of whether an individual within the household receives the Older Person's Grant and β_1 is our coefficient of interest, giving the relationship between grant receipt and our outcome variables. The vector $\boldsymbol{X_{hdt}}$ represents household-level control variables that include: household size, number of children, number of elderly, demographics of the household head, and neighborhood characteristics. Finally, θ_t and τ_d are time, and district fixed effects respectively, and ϵ_{hdt} is the error term.

Next we leverage the age-eligibility threshold of the Older Person's Grant within an instrumental variable estimation approach. Specifically, we use the number of household members who are at least 60 years old as an instrument for grant receipt and estimate the following set of equations:

$$G_{hdt} = \gamma_0 + \gamma_1 I_{hdt} + \boldsymbol{X}'_{hdt}\Lambda + \delta_t + \phi_d + \zeta_{hdt} \tag{2}$$

$$Y_{hdt} = \alpha_0 + \alpha_1 \hat{G}_{hdt} + \boldsymbol{X}'_{hdt}\Gamma + \kappa_t + \gamma_d + \mu_{hdt} \tag{3}$$

In equation (2) I_{hdt} is a variable that indicates the number of household members who are at least 60 years old. The outcome in equation (2), G_{hdt} is an indicator of whether an individual within the household received the Older Person's Grant. In equation (3) $\hat{G}_{hdt}$ is the predicted value from equation (2). Similar to equation (1), $\boldsymbol{X}_{hdt}$ is a vector of household level control variables, the equations (2) and (3) each include time and district fixed effects. Finally, ζ_{hdt} and μ_{hdt} are error terms.

We apply this specification on several different age ranges to estimate our pre-pandemic

pandemic results using the NIDS data. Most of our dependent variables of interest are at the household level; however, for one of our COVID-19 results, we look at the effect of household-level grant receipt on the mental health responses of the individual who responds to the CRAM phone survey. In 90 percent of the sample, this respondent is not the member who is around the age of 60.

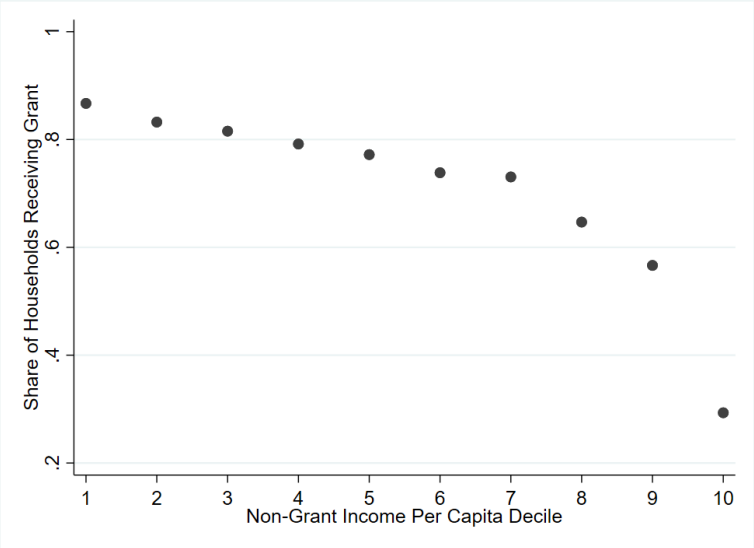
4 Results

We present three sets of results. First, with over 20 years of new and improved data, we update several stylized facts about the scale and reach of the Older Person's Grant. These results allow us to demonstrate both which types of households typically receive the grant and the importance of grant income, relative to other forms of income, for recipient households. Second, we document the effect of the grant on indicators of household well-being using pre-pandemic data. Finally, in our core set of results, we report the effect of the grant on key indicators of household well-being during the COVID-19 pandemic.

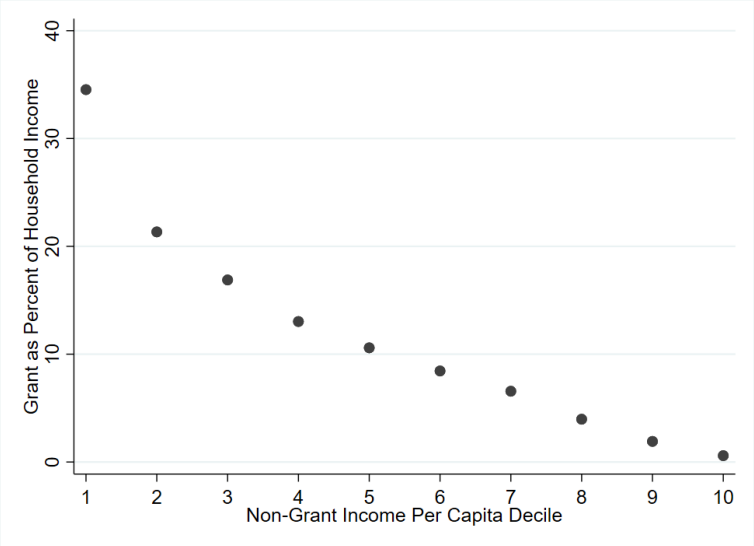
4.1 Updated Stylized Facts

Seminal work by Case and Deaton (1998) describes the scale and scope of South Africa's Older Person's Grant program by presenting a number of stylized facts. One of the key descriptive findings reported by Case and Deaton (1998) is that the grant is an effective tool of redistribution as it effectively reaches predominantly poor households. In addition, because many of the elderly in South Africa live with children, the grant is also effective in reaching households where children live, and more specifically where poor children live.

We update these stylized facts using our pre-pandemic NIDS data. In Panel A of Figure 2 we show that over 80 percent of households with a member over the age of 60 in the lowest decile of income per capita receive the Older Person's Grant and this share declines as non-grant income per capita rises. Panel B of Figure 2 shows that, among all households, the Older Person's Grant income as a share of total household income declines as non-grant income per capita increases. In particular, the grant represents over 30 percent of total household income for households in the lowest decile of non-grant income per capita. Taken together, these findings demonstrate that South Africa's Older Person's Grant continues to reach predominantly poor households and grant income continues to represent an important source of income for poor households. In addition, figure A.3 in the Supplemental Appendix shows that across all deciles of household wealth, households



(A) Among households with a member over 60, the percent of household receiving the Older Person's Grant decreases with non-grant income suggesting effective targeting.



(B) Among all households, the share of total household income that comes from the grant is decreasing with non-grant income suggesting that among poor households, the Older Person's Grant makes up a large portion of their well-being.

FIGURE 2: Targeting and Intensity of Treatment

with children are more likely than households without children to receive the Older Person's Grant; this is especially true among poorer households. This finding demonstrates that South Africa's Older Person's Grant, despite explicitly targeting older recipients, continues to reach households in which children live.

Another finding of Case and Deaton (1998) is that pension income and non-pension income are spent similarly by households. Specifically, the effect of additional pension income and non-pension income on food expenditures are both statistically different from zero, but are not statistically different from one another. We update this finding by replicating the analysis of Case and Deaton (1998) with the pre-pandemic waves of the NIDS data. Table A.2 in the Supplemental Appendix replicates the Case and Deaton (1998) results using their methodological approach and additional results using panel data methods. Case and Deaton (1998) describe the limitations of their analysis and suggest how future work could improve these results. In column (1), we pool together all sources of income together and find that just over a third of each additional rand is spent on food. Column (2) disaggregates income sources by grant income and non-grant income. This regression controls for the number age-eligible adults in the household and shows that households spend a larger share of non-grant income relative to grant income on food. This is a qualitatively similar finding to that found by Case and Deaton (1998). In columns (3) and (4), following Case and Deaton (1998), we instrument for income using the number of age-eligible household members in order to address potential measurement error in the reporting of income. In these columns we again find estimates that are qualitatively similar to the original estimates reported by Case and Deaton (1998). In particular, although the effect of both grant income and non-grant income on food expenditures are statistically different from zero, they are not statistically different from each other.

In Table A.3 in the Supplemental Appendix, we use the local randomization approach to re-estimate the effect of grant income on food expenditures. We find that, on average, the amount spent on food from the grant is larger in Table A.3 than in Table A.2. This is perhaps due to the fact that grant recipients are more likely to be poor. Figure A.4 shows that poorer households spend more of their grant on food. In short, the stylized facts presented by Deaton and Case 20 years ago continue to reflect the reach and impact of the Older Person's Grant. Using their methodology, a rand still appears to be a rand when it comes to food expenditure. Using our updated methdology, a rand from the Older Person's Grant may be even more than a rand in terms of supporting the well-being of poor households.

4.2 Pre-Pandemic Results

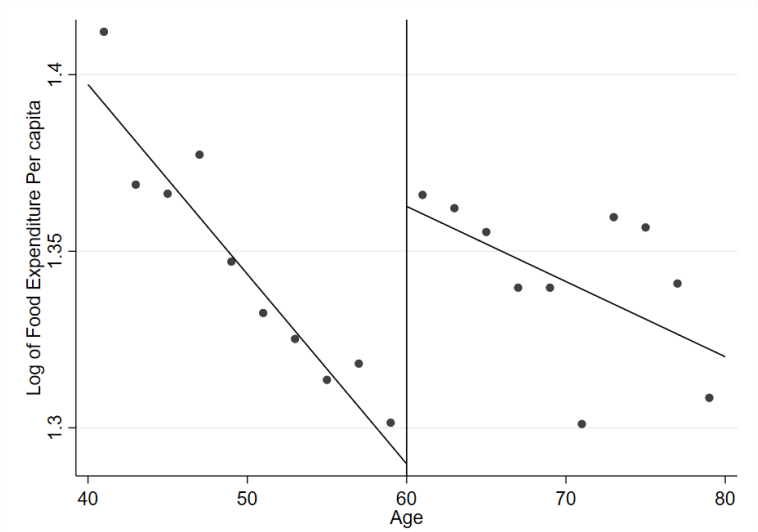
We start by leveraging the discontinuity in grant receipt to show how two important measures of household economic well-being change as a member of the household starts re-

TABLE 1: Improvement in Household-Level Economic Well-being Due to Pension

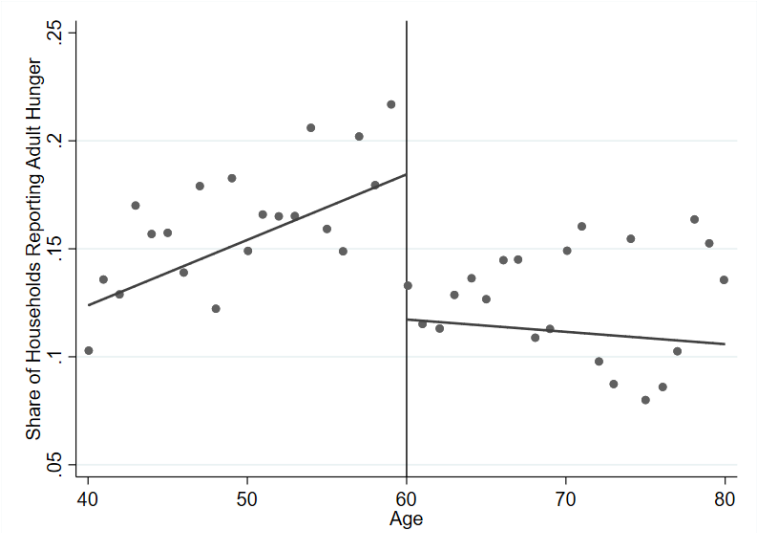
	Member Age Range centered at 60				
	54-65	**55-64**	**56-63**	**57-62**	**58-61**
	Panel A: Log Household Income Per Capita				
Older Person's Grant Receipt	0.213***	0.235***	0.255***	0.252***	0.241***
	(0.033)	(0.036)	(0.039)	(0.046)	(0.056)
	Panel B: Log Food Expenditure Per Capita				
Older Person's Grant Receipt	0.061***	0.068***	0.067***	0.066**	0.078**
	(0.020)	(0.022)	(0.024)	(0.028)	(0.035)
	Panel C: Wealth Index				
Older Person's Grant Receipt	0.087**	0.095**	0.107**	0.061	0.089
	(0.037)	(0.039)	(0.043)	(0.049)	(0.061)
N	9,675	8,264	6,816	5,297	3,632

Notes: Standard errors clustered at the original (i.e., wave 1) sampling cluster area are presented in parentheses. *** p<0.01, ** p<0.05, * p<0.1. These results are estimated using OLS and restricted samples based on having a member around the age of 60. We control for wave and district fixed effects. A more restrictive approach focusing on only households with members around age 60 who are economically inactive shows similar results Alloush and Wu (forthcoming).

ceiving the grant. While there are many documented behavioral changes related to the Older Person's Grant (Duflo, 2000, 2003; Bertrand, Mullainathan and Miller, 2003; Ardington, Case and Hosegood, 2009; Lovo, 2011; Edmonds, Mammen and Miller, 2004; Edmonds, 2006; Hamoudi and Thomas, 2014; Abel, 2019), we find that receiving the grant leads to improved economic well-being at the household level. Panel A of Table 1 shows that overall household income per capita increases by over 20 percent on average when a member of the household starts to receive the Older Person's Grant. Panel B of Table 1 shows that food expenditure increases by between 6 and 8 percent at the household-level upon the receipt of the grant by a member of the household. This reinforces work by Case and Deaton (1998) showing that a significant portion of the grant is spent on food. We show in Figure A.4 in the Supplemental Appendix that a larger portion of the grant is spent on food by poorer households, who are the primary intended beneficiaries of the program. Finally, In Panel C we also show that household wealth increases with grant receipt, however, this is not statistically significant for the narrow ranges around age 60 suggesting that wealth takes more time to accumulate.



(A) Household Food Expenditure Per Capita and Age of the Household Head.



(B) Reported Adult Hunger and the Age of the Household Head.

FIGURE 3: Discontinuity in household income and food expenditure per capita by the age of the household head. Pooled sample of all households who met the means test eligibility rule for the Older Person's Grant Program.

Figure 3 illustrates the relationship between age of the household head and key indicators of household well-being. Panel A of Figure 3 uses data from the NIDS and shows that household food expenditures per capita fall gradually as the head of the household ages. Once the household head turns 60 years old, however, we see a sharp increase in household food expenditures. The log of household food expenditures just after the household head turns 60 years old is similar to the log of household food expenditures when the household head is roughly 45 years old.

Although both income and food expenditures are useful measures of economic well-

being, they are only instrumentally valuable. We, therefore, further investigate how the age-eligibility threshold influences household well-being by assessing the relationship between reported hunger and the age of the household head. The NIDS does not directly measure hunger, so for this analysis we turn to the 2016 wave of the South African DHS data. In Panel B of Figure 3 we see that hunger increases gradually as the household head ages—this corresponds with the declining food expenditure shown in Panel A and the declining income shown in Figure A.5 in the Supplemental Appendix. By the time the household head is almost 60 years old, almost 20 percent of households report adult hunger. Once the household head turns 60 years old and is eligible to receive the grant, however, the share of households reporting adult hunger falls to just above 10 percent. In addition, as the household head continues to age, the share of households reporting hunger does not increase. Instead, the Older Person's Grant seems to keep the rate of hunger relatively consistent though declining slightly—suggesting perhaps that more adults becoming themselves eligible for the grant. This finding illustrates the important poverty-alleviation role of the Older Person's Grant. It also supports the validity of our main results in this paper in that using different data we continue to see patterns indicating a strong discontinuity in economic well-being within a narrow age-range around the age-eligibility threshold.

4.3 Results During the COVID-19 Pandemic

Table 2 shows our main local randomization specification applied to the CRAM data. Our main specifications follow a local randomization framework where we use having an age eligible member as an instrument for grant receipt. We show first-stage results in Table A.4 in the Supplemental Appendix. These results highlight that our instrument is very strong and predicts grant receipt at the household level. This is despite using household-level information from the prior NIDS survey.[17]

Our OLS estimates show that, for the sample of households who likely have members in the narrow window around the age of 60, households with members receiving the grant, on average, are less likely to report running out of money for food in the prior month. Our preferred instrumental variable specification suggests that the effect of receiving the grant is roughly a 13 percentage point reduction in the likelihood of running out of money to buy food. Panels B and C show that adult and child hunger in the seven days prior

[17]The CRAM was designed as a rapid phone survey and sampled from adults who part of the fifth wave of NIDS–however, detailed household information was not collected in the CRAM survey. We used household-level information from the fifth wave of the NIDS and projected the household members' ages forward to predict who would be eligible for the Old Person's Grant.

TABLE 2: COVID-19 and Older-Person's Grant

	Member Age Range centered at 60				
	54-65	**55-64**	**56-63**	**57-62**	**58-61**
	Panel A: Report Running out of Money for Food				
Older Person's Grant Receipt	-0.086***	-0.086***	-0.098***	-0.086***	-0.096***
OLS	(0.016)	(0.017)	(0.018)	(0.021)	(0.025)
Older Person's Grant Receipt	-0.134***	-0.132***	-0.137***	-0.095*	-0.090
(IV: Age eligible member)	(0.037)	(0.041)	(0.042)	(0.050)	(0.073)
	Panel B: Report Adult Hunger				
Older Person's Grant Receipt	-0.052***	-0.050***	-0.056***	-0.039**	-0.063***
OLS	(0.013)	(0.014)	(0.015)	(0.017)	(0.020)
Older Person's Grant Receipt	-0.077**	-0.091***	-0.094***	-0.072*	-0.106*
(IV: Age eligible member)	(0.030)	(0.033)	(0.034)	(0.041)	(0.058)
	Panel C: Report Child Hunger				
Older Person's Grant Receipt	-0.050***	-0.045***	-0.043***	-0.037**	-0.052***
OLS	(0.011)	(0.012)	(0.012)	(0.015)	(0.017)
Older Person's Grant Receipt	-0.092***	-0.097***	-0.071**	-0.050	-0.099**
(IV: Age eligible member)	(0.025)	(0.029)	(0.029)	(0.035)	(0.050)
	Panel D: Psychological Distress				
Older Person's Grant Receipt	-0.038**	-0.052***	-0.055**	-0.049*	-0.067**
OLS	(0.019)	(0.020)	(0.022)	(0.025)	(0.030)
Older Person's Grant Receipt	-0.045	-0.064	-0.041	-0.023	-0.115
(IV: Age eligible member)	(0.044)	(0.050)	(0.050)	(0.060)	(0.089)
N	4,432	3,762	3,205	2,432	1,660
Effective First-Stage F-Stat	960.2	744.1	746.0	503.9	216.0

Notes: Standard errors clustered at the original (i.e., wave 1) sampling cluster area are presented in parentheses. *** p<0.01, ** p<0.05, * p<0.1. We control for wave and district fixed effects in addition to a host of household controls. The instrument in the IV regressions is the number of household members above the age 60 in the age range reported in the column. A more restrictive approach focusing on only households with members around age 60 who are economically inactive shows similar results Alloush and Wu (forthcoming). Panel D is the reported psychological distress of the member who is responding to the CRAM phone-interview who in 90% is under the age of 54 and is not the recipient or potential recipient of the Older Person's Grant.

to the interview are approximately five percentage points lower among households who receive the grant. With a baseline hunger in CRAM of nearly 21 percent, this estimate implies that the grant led to a 23 percent decline in the rate of hunger during the COVID-19 pandemic. Given that Figure 3 suggests that adult hunger is increasing with age, this estimate is likely a lower bound on the effect of the Older Person's Grant program on hunger. Figure A.6 in the Supplemental Appendix shows reported adult hunger in our narrow sample (member between age 55 and 64) for households with members just above and just below the threshold. In addition, we show the average reported hunger for other households. Those with a member above the threshold consistently have lower levels of reported hunger throughout all five CRAM waves.

Finally, in Panel D, we use a measure of psychological distress as recorded by the CRAM survey. This measure reports whether the respondent to the CRAM survey had experienced psychological distress in the past month. We find that having a household member who is eligible for and is receiving the Older Person's Grant led to a reduction in reported psychological distress during the COVID-19 pandemic. Although, when we estimate these effects with our instrumental variable, they are not statistically significant, the average effects remain relatively large and are a similar magnitude to the effects estimated with OLS. This results shows that the grant has psychological benefits beyond the previously discussed economic benefits, and is important given the high levels of psychological distress documented during the pandemic.

5 Conclusion

The COVID-19 pandemic hit South Africa early and hard. With nearly half of the population vulnerable and living in poverty, the economic disruptions caused by the pandemic resulted in high levels of hunger and psychological distress. Our paper shows that a well-targeted unconditional cash transfer program—the Older Person's Grant—played an important role in allowing recipient household to better manage the adverse consequences of a global health crisis and the associated lockdowns.

The Older Person's Grant has a wide reach in South Africa and constitutes a large portion of the overall net income of poor households. Prior to the pandemic, the program significantly improved the economic well-being of recipient households and reduced reported hunger. During the COVID-19 pandemic, this reliable source of income is linked with 30 percent lower rates of adult and child hunger in the household. In addition, individuals living in households with a grant recipient were less likely to report psychological

distress.

These results provide important insight into the effectiveness of large cash transfer programs around the world at helping households manage large and unexpected global shocks. Many developing countries have instituted or expanded these types of programs in response to the COVID-19 pandemic and the South African example suggests that these programs can have important and beneficial effects.

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Appendix

Tables

TABLE A.1: Balance Table: Age Range 57-62

	Grant-Eligible Group		Non-Eligible Group		p-value
	Mean	SE	Mean	SE	of Δ
Household Level					
Household Size	5.43	0.07	5.37	0.07	0.56
Average Age	35.60	0.28	33.21	0.28	0.00
Number of Children	1.86	0.04	1.82	0.04	0.46
Number of Elderly (66+)	0.25	0.01	0.21	0.01	0.00
Urban	0.43	0.01	0.42	0.01	0.59
Death in the past 2 years	0.11	0.01	0.11	0.01	0.96
Total non-grant income per capita (ZAR)	1,087	309	1,098	264	0.79
Variables expected to change					
Old-Age Grant income per capita (ZAR)	376.4	11.94	108.1	7.93	0.00
Savings	0.36	0.01	0.33	0.01	0.05
Share poor	0.32	0.01	0.38	0.01	0.00
Individual Level (Members around threshold)					
Age	61.02	0.04	58.55	0.03	0.00
Male	0.24	0.02	0.25	0.01	0.62
Married	0.44	0.02	0.43	0.02	0.70
In the Labor force	0.00	0.00	0.00	0.00	
Secondary-Level Education	0.10	0.01	0.10	0.01	0.67
Health Issue in the last 30 days	0.70	0.02	0.73	0.01	0.20
Other Adult Household Members (Excluding members around threshold)					
Age	33.65	0.22	33.07	0.25	0.08
Male	0.48	0.01	0.48	0.01	0.56
Married	0.15	0.01	0.15	0.01	0.86
In the Labor force	0.49	0.01	0.47	0.01	0.17
Secondary-Level Education	0.51	0.01	0.52	0.01	0.70
Health Issue in the last 30 days	0.42	0.01	0.40	0.01	0.17

Notes: This table shows balance for a Age Range 57-62—Balance is similar for all four other age ranges considered below. This table suggests that households and household members with members just above and just below the Older Person's Grant threshold of age 60 are very similar.

TABLE A.2: Comparing Sources of Income and Food Expenditure

	Case & Deaton (1998) Approach					
	Pooled OLS		IV		Arellano Bond	
	(1)	(2)	(3)	(4)	(5)	(6)
Total Income	0.035**				0.078***	
	(0.014)				(0.006)	
Income Excluding Grant		0.035**	0.070***	0.073***		0.077***
		(0.014)	(0.004)	(0.004)		(0.007)
Grant Income		-0.060	0.090***	0.169***		0.031
		(0.045)	(0.016)	(0.020)		(0.032)
Number age-eligible females		1.615***				1.129***
		(0.432)				(0.330)
Number age-eligible males		1.411***				0.823**
		(0.428)				(0.325)
Controls	✓	✓	✓	✓	✓	✓
N	41,196	41,196	41,196	41,196	41,196	41,196

Notes: Standard errors clustered at the original (i.e., wave 1) sampling cluster area are presented in parentheses. *** p<0.01, ** p<0.05, * p<0.1. In Column (3), we instrument for non-grant income using employment and individual sex and race characteristics replicating the specification of Case and Deaton (1998). In Column (4), we additionally instrument for Grant income using the number of eligible elderly (above age 60) in the household also replicating the specifications used by Case and Deaton (1998). In Columns (5) and (6), we take advantage of the panel nature of the data and re-estimate the main regressions in Case and Deaton (1998) using a GMM approach that attempts to take into account household fixed effects and other endogeneity issues Arellano and Bond (1991); Banks, Blundell and Lewbel (1997).

TABLE A.3: Food Expenditure and the Older Person's Grant

		OLS		IV	
		(1)	(2)	(3)	(4)
Age Range 54-65 N=9,438	*Grant Income*	0.096*** (0.014)	0.060*** (0.013)	0.168*** (0.025)	0.118*** (0.028)
Age Range 55-64 N=8,062	*Grant Income*	0.097*** (0.014)	0.067*** (0.013)	0.167*** (0.027)	0.123*** (0.030)
Age Range 56-63 N=6,651	*Grant Income*	0.094*** (0.016)	0.062*** (0.014)	0.165*** (0.033)	0.122*** (0.034)
Age Range 57-62 N=5,171	*Grant Income*	0.089*** (0.020)	0.058*** (0.016)	0.147*** (0.040)	0.098** (0.042)
Age Range 58-61 N=3,542	*Grant Income*	0.105*** (0.025)	0.075*** (0.017)	0.162*** (0.060)	0.120** (0.061)
	Controls		✓		✓

Notes: Standard errors clustered at the original (i.e., wave 1) sampling cluster area are presented in parentheses. *** p<0.01, ** p<0.05, * p<0.1.. The results in this table re-estimate the main results in Case and Deaton (1998) with a local randomization approach and specific samples to take into account several sources of endogoneity pointed out in their work.

TABLE A.4: First Stage regression results

Dependet Variable: A member of the household receives the Older Person's Grant		IV First Stage	Effective F-Stat
Age Range 54-65 N=4,432	*Number of HH members 60-65*	0.350*** (0.011)	**960.2**
Age Range 55-64 N=3,762	*Number of HH members 60-64*	0.351*** (0.013)	**744.1**
Age Range 56-63 N=3,205	*Number of HH members 60-63*	0.391*** (0.014)	**746.0**
Age Range 57-62 N=2,342	*Number of HH members 60-62*	0.382*** (0.017)	**503.9**
Age Range 58-61 N=1,660	*Number of HH members 60-61*	0.316*** (0.021)	**216.0**

Notes: Standard errors clustered at the original (i.e., wave 1) sampling cluster area are presented in parentheses. *** p<0.01, ** p<0.05, * p<0.1. First stages of the IV regressions show very strong predictive value of the instrumental variable for the log of household income. These first stage results correspond to the IV regression results in Table 2 column (5). Effective F-statistics according to Olea and Pflueger (2013) are shown. First stage results for the Fixed Effects IV have larger coefficients and F-statistics for the excluded instrument than those presented here.

Figures

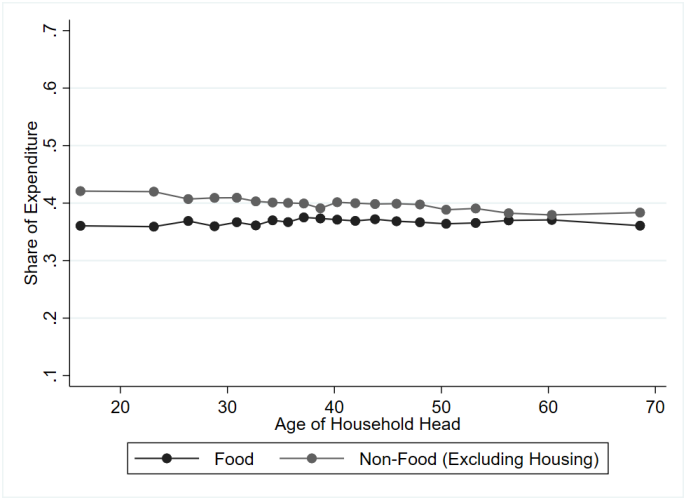

FIGURE A.1: Share of income spent on food by age of the household head. This figure suggests that preferences regarding food expenditure do not change abruptly at age 60.

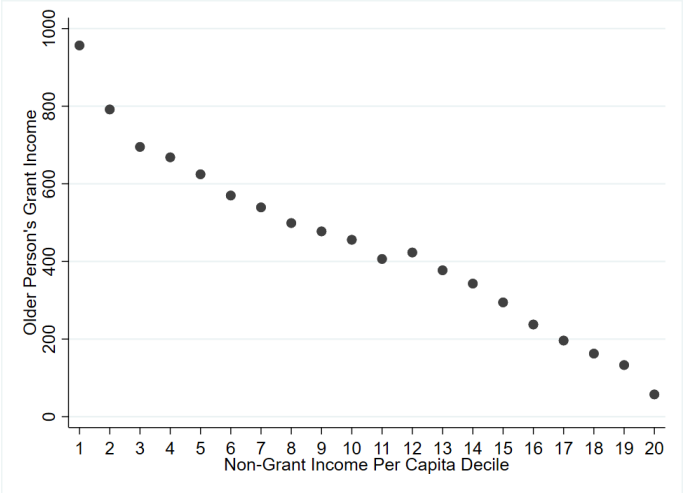

FIGURE A.2: Average amount of grant received by households by non-grant income per capita. This figure shows results for the full Sample.

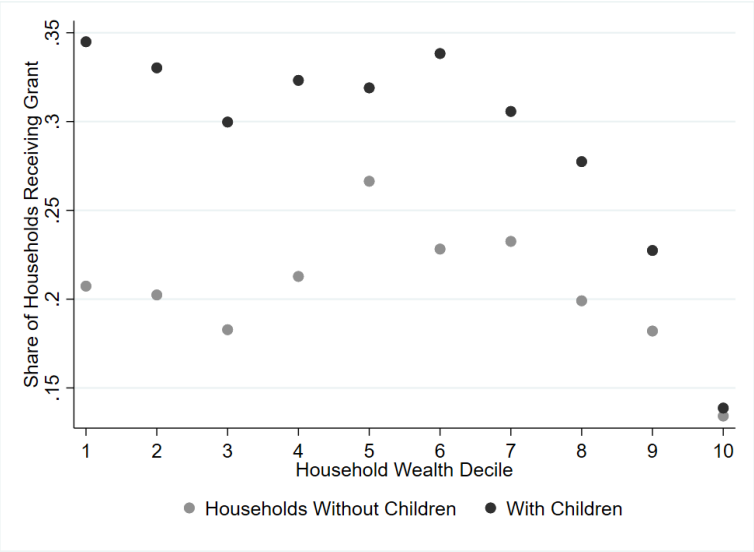

FIGURE A.3: Food Expenditures and Household Income, Pooled Sample

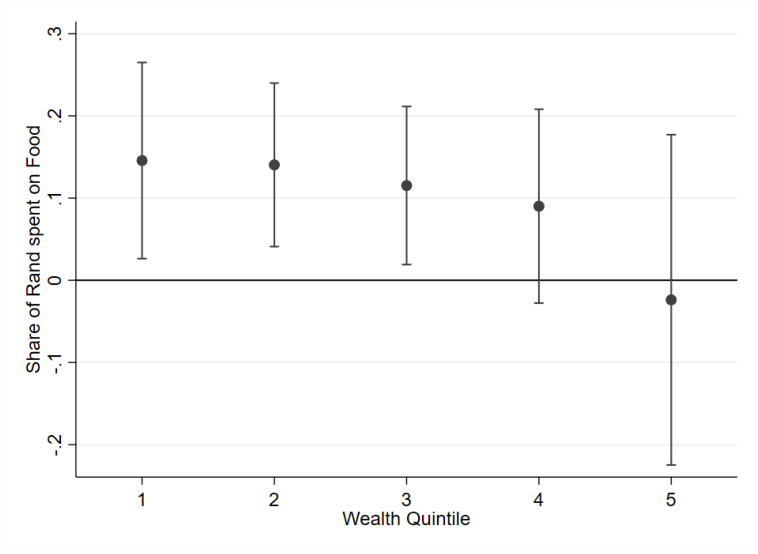

FIGURE A.4: Portion of Grant spent on food by wealth.

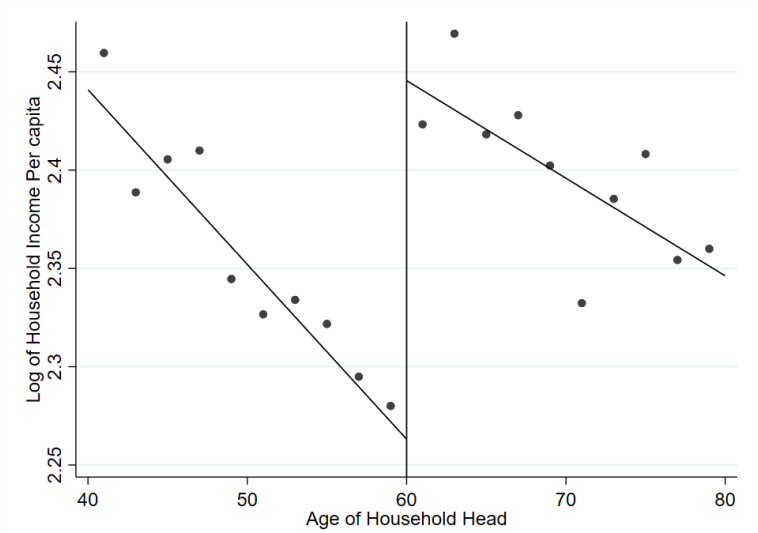

FIGURE A.5: Discontinuity in household income per capita by the age of the household head. Pooled sample of all households who met the means test eligibility rule for the Older Person's Grant Program.

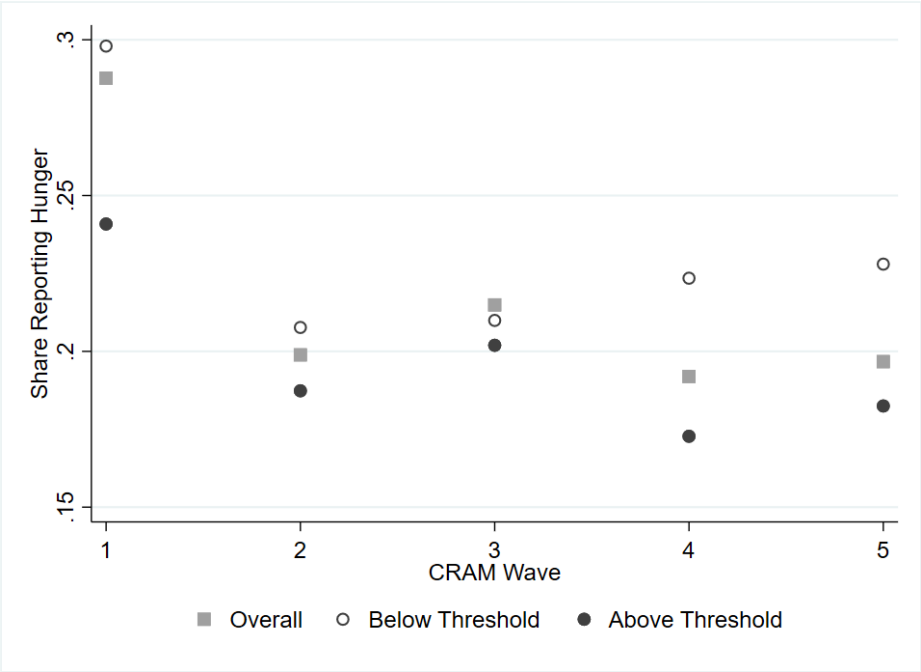

FIGURE A.6: Reported Adult Hunger in a small window around Old Age Grant Receipt during Covid-19 Pandemic