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 on well-being amid the COVID-19 pandemic. With household-level data collected before and during the pandemic, we leverage the age-eligibility threshold of the grant to estimate its effects on households in both periods. Prior to the pandemic, we find that grant receipt substantially improves economic well-being and decreases adult hunger at the household level. During the first 18 months of the pandemic, we find larger effects on both economic well-being and hunger than prior to the pandemic. In particular, recipient households were less likely to report running out of money for food and hunger among either adults or children. These results, which are stronger when pandemic-related lockdown policies are in place and for more vulnerable households, provide critical insight into the effectiveness of one of the world's most well-known cash transfer programs during a massive global health crisis.

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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 social protection and cash transfer programs. This is especially true in low- and middle-income countries where a larger share of the population is vulnerable to food insecurity and disrupted income, and where access to COVID-19 vaccinations expanded slowly (Miguel and Mobarak, 2021). Understanding the effectiveness of social protection programs in assisting households in their response to a wide-ranging shock is exceedingly important for informing effective policy responses, both in the present and in future crises.

We study how a large and wide-reaching cash transfer program allowed recipient households to manage the adverse socio-economic consequences of the COVID-19 pandemic. The 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—a sum that is nearly 140 percent of the median per capita income in the country and almost double the income poverty line.[1] We use a local randomization regression discontinuity approach that leverages the age-eligibility threshold of the Older Person's Grant to estimate the effect of grant receipt on households before and during the pandemic.[2]

We use data from three sources. The first is 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. Second, as an additional source of pre-pandemic data, we use the South Africa Demographic and Health Survey (DHS) data collected in 2016. Finally, we use data from the Coronavirus Rapid Mobile (CRAM) sur-

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

[2] This estimation approach, as articulated by Cattaneo, Idrobo and Titiunik (forthcoming), extends the identification assumption for a regression discontinuity design to be "as good as random" near the threshold defining treatment assignment. We discuss this estimation approach in detail in Section 3.

vey, a phone-based survey with five waves administered in 2020 and 2021 to a random subset of individuals from the fifth wave of the NIDS designed to study the consequences of the COVID-19 pandemic.

We first document the effect of the Older Person's Grant on household-level measures of economic well-being. With the NIDS data, we show that household income per capita, household food expenditures per capita, and wealth substantially improve due to the grant prior to the pandemic. With the CRAM data, we find that household income per capita increases due to grant receipt during the first 18 months of the pandemic. Although there are differences in how per capita household income is measured in the NIDS and CRAM data, we estimate that the effect of receiving the Older Person's Grant on per capita household income is 1.5 times larger during the COVID-19 pandemic than in years prior to the pandemic.

Next, we estimate the effect of receiving the Older Person's Grant on measures of hunger and psychological distress. Using the DHS data to study the pre-pandemic period, we find that grant receipt leads to a reduction in adult hunger, with smaller and statistically insignificant reductions in child hunger and extreme hunger. With the CRAM data, we estimate that receiving the grant during the first 18 months of the pandemic led to a reduction in adult hunger, child hunger, and extreme hunger. Specifically, we find that the grant led to (i) a 20 percentage point reduction in the probability of an individual reporting that their household ran out of money for food in the prior month, (ii) a ten and seven percentage point reduction in the likelihood that respondents report the presence of adult and child hunger within their household respectively—effects that translate to a 35 and 50 percent reduction in reported hunger, and (iii) a similar reduction in reported "almost daily" hunger. Similarly, we find suggestive evidence of a reduction in psychological distress among survey respondents with household members receiving the grant both before and during the pandemic. Where we can make direct comparisons, we find that the effects during the pandemic are at least as large as those before.

Finally, we show heterogeneity in the effect of the grant during the pandemic: First, we find that the estimated effect on adult hunger is larger among more vulnerable households (defined as being in the bottom half of the pre-pandemic wealth distribution). Second, we find that the estimated effect is larger during strict lockdowns. Finally, we show that during lockdowns, grant receipt leads to a reduction in both adult and extreme hunger for vulnerable households that is more than twice as large as the effect estimated on the full sample.

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). Adult and child hunger were reported in one out of every three households in our data at the peak of South Africa's COVID-19 pandemic lockdowns (van der Berg, Patel and Bridgman, 2022) and pandemic-related lockdowns were associated with psychological distress (Oyenubi, Nwosu and Kollamparambil, 2022; Hunt et al., 2021). Our results indicate that the socio-economic consequences of the COVID-19 pandemic could have been worse in the absence of the Older Person's Grant, particularly for vulnerable households. Second, and more generally, 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—reaching nearly 2 billion people (Gentilini et al., 2021). Despite the rapid expansion of social protection programs in response to the COVID-19 pandemic, it was not clear these programs would produce similar outcomes for recipients during the pandemic as they did prior to the pandemic. As discussed by Banerjee et al. (2020), hypothesized effects on outcomes like food security and hunger may be muted due to disruptions in agri-food supply chains or, and to the contrary, social protection may provide the most critical support for households experiencing pandemic-related income losses. Our results show that an established cash trans-

fer program helped reduce hunger at least as much as prior to the pandemic, with the largest effects estimated among poor households during the most restrictive lockdowns.

Our work is most closely related to Bottan, Hoffmann and Vera-Cossio (2021) who study the effect of Bolivia's universal pension program during the COVID-19 pandemic. We add to their findings by estimating the effect of a much larger pension program while investigating important heterogeneity based on lockdown statuses and pre-pandemic vulnerability. Our results also differ in important ways. While we both find that the grant reduced measures of hunger and psychological distress during the pandemic, we find qualitatively similar, albeit slightly smaller, effects prior to the pandemic while Bottan, Hoffmann and Vera-Cossio (2021) find null effects prior to the pandemic. Taken together, our studies provide nuanced evidence about the effects of receiving financial support via an established large-scale cash transfer program during a crisis.

Our work is also related to Banerjee et al. (2020), which studies the effects of a universal basic income program in two counties in Kenya and finds that these transfers reduce measures of hunger, sickness, and depression during the COVID-19 pandemic. While Banerjee et al. (2020) study the effects of a universal basic income cash transfer program among a sub-national population enrolled prior to the pandemic, we study the effects of a nation-wide cash-transfer program among recipients who recently became eligible. This allows us to explore heterogeneity among vulnerable households, defined in terms of pre-pandemic household wealth, within our sample.[3]

We make two main contributions in this paper: First, we contribute to the literature on social protection programs amid the COVID-19 pandemic (Abay et al., 2021; Gentilini et al., 2021; Gulesci, Puente-Beccar and Ubfal, 2021) by specifically investigating the effec-

[3]Other related work includes: Londoño-Vélez and Querubin (2022), which uses a randomized controlled trial to study the effects of a new unconditional cash transfer program implemented by the Colombian government and finds modest effects on financial well-being and food access measures, Abay et al. (2021), which studies 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, and Brooks et al. (2022), which finds that cash transfers randomly distributed via mobile money to female microenterprise owners in Dandora, Kenya helped partially recoup lost profits and increased food expenditures.

tiveness of one of the most well-established and well-known social protection programs in the world. Second, we contribute to the literature studying South Africa's Older Person's Grant program (Duflo, 2000, 2003; Bertrand, Mullainathan and Miller, 2003; Edmonds, Mammen and Miller, 2004; Hamoudi and Thomas, 2014; Ambler, 2016; Abel, 2019). We specifically show that during the first 18 months of the COVID-19 pandemic, receipt of the grant led to larger effects on household income than prior to the pandemic. This increased income translates to reductions in hunger and psychological distress that are at least as large—and possibly larger—during the pandemic than in years prior.

In the next section, we discuss South Africa's COVID-19 crisis, provide background on the Older Person's Grant program, and describe the data we use in this paper. Section 3 describes our empirical approach. Section 4 presents our empirical results. Finally, Section 5 concludes.

2 Study Context

In the initial months of the COVID-19 pandemic, rapid analysis using the CRAM data revealed the severity of the crisis in South Africa. 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, 26 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.[4] This rapid ex-post analysis is qualitatively consistent with the ex-ante analysis conducted by Arndt et al. (2020). In addition, according to the Quarterly Labour Force Survey, the Quarterly Employment Survey (Gronbach, Seekings and Megannon, 2022), and analysis using the CRAM data (Spaull et al.,

[4]Although a direct comparison to pre-pandemic levels of hunger is not available, the most comparable estimate of hunger suggests that roughly 10 percent of households in South Africa include either adults or children experiencing hunger within the past month (GHS, 2019).

2021), employment fell by roughly 15 percent in the early months of the COVID-19 pandemic. The economy did recover, at least partially, but over a year after the onset of the pandemic employment figures remained below pre-pandemic levels (Gronbach, Seekings and Megannon, 2022), and it is clear that South Africa's lockdown in early 2020 resulted in increased economic hardship and hunger (Van der Berg, Patel and Bridgman, 2021).

In response to this crisis, the South African government implemented several expansions to existing social protection programs. As documented by Gentilini et al. (2021) and Gronbach, Seekings and Megannon (2022), from May through October 2020 South Africa's Child Support Grant expanded by 300 Rand per month, school-feeding programs shifted to take-home food rations, unemployment benefits expanded, and wage subsidies increased.[5] These expansions, in addition to being sorely needed at the time of their implementation, are directly relevant to the results presented in this study. Additional cash-based social protection programs, such as the Special COVID-19 Social Relief Distress (SRD) grant, provided funds to "unemployed adults aged between 18 and 59 years old who are not supported by any other social security scheme and not cared for in a state institution" (Gronbach, Seekings and Megannon, 2022). Therefore, by design, the expansion of other social protection programs support individuals who are not eligible for the Older Person's Grant. Given this policy environment, our estimates of the effect of the Older Person's Grant amid the COVID-19 pandemic may be attenuated because non-recipients are receiving special COVID-19 pandemic-specific social support.

[5]In particular, and as recorded by Gronbach, Seekings and Megannon (2022), the South African Government rolled out the following cash-based social protection policies in the early months of the COVID-19 pandemic: (i) the Special COVID-19 Social Relief of Distress (SRD) Grant in the amount of R350 to unemployed adults (age 18-59) not supported by any other social security scheme and not cared for in a state institution, (ii) top-up of the Older Person's grant, disability grant, foster care grant, care dependence grant, and the war veteran's grant of R250, (iii) a top-up of the child support grant of R300 and then an additional caregiver allowance of R500 within the child support grant, (iv) relief fund for artists and athletes of R20,000 for individuals in the sports and arts sector who have been affected by canceled events due to the lockdown, (v) relief fund for registered tourist guides R1,500, (vi) a sectoral minimum wage of up to ZAR 17,712 through the COVID-19 temporary employer/employee relief scheme for registered employees who experienced decreased pay or furloughs due to the lockdown.

2.1 Data

We use data from three sources that allow us to study the effect of the Older Person's Grant on well-being before and during the COVID-19 pandemic. To study the effects of the Older Person's Grant prior to the pandemic, we use data from the National Income Dynamics Study (NIDS) of South Africa.[6] 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.[7] The NIDS collects data on many socio-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. We specifically use the detailed information on household income, assets, and food expenditures, as these variables most effectively motivate and relate to our analysis using data collected during the COVID-19 pandemic.

In early 2020, the South Africa Labor and Development Research unit developed the Coronavirus Rapid Mobile (CRAM) survey, which we use to study the effects of the Older Person's Grant during the COVID-19 pandemic. The CRAM Survey is a follow-up phone survey of over 7,000 individuals randomly selected from the 2017 wave of the NIDS, however, the CRAM uses a set of questions that are distinct from the NIDS.[8] The CRAM survey includes five waves, starting in mid-2020 and ending in mid-2021. The first wave was fielded in May-June of 2020, the second in July-August of 2020, the third in November-December of 2020, the fourth in February-March of 2021, and the fifth in April-May of 2021. The CRAM survey did experience some attrition between the first and second waves, and so a "top-up" set of individuals were selected for the third wave.[9]

[6]This is a panel study conducted by the South Africa Labor and Development Research Unit at the University of Cape Town. The NIDS survey data are publicly available online: `http://www.nids.uct.ac.za/`.

[7]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.

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

[9]This "top-up" added 1,084 individuals that agreed to respond to the survey. The CRAM wave 3 thus

The CRAM survey asks a range of questions relating to income, employment, hunger, psychological distress, receipt of grants and social support, and knowledge and behavior relating to the COVID-19 pandemic. We use data from all five waves of the CRAM survey, which provide insight into the experience of South African households amid the COVID-19 pandemic. We specifically use information on economic access to food, hunger, and psychological distress as reports about vulnerable South African households list these variables as key outcomes of concern during the COVID-19 pandemic.

Finally, as a supplementary source of pre-pandemic data, we also use information from the 2016 Demographic and Health Survey (DHS) from South Africa.[10] The DHS data provide rich information on a host of demographic and health-related topics (DHS, 2019). 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 the same. We discuss the differences, where relevant, as we present our results.

2.2 South Africa's Older Person's Grant

The Older Person's Grant is South Africa's largest social protection program. The program was greatly expanded after the end of Apartheid to target the county's most disad-

included slightly over 6,000 individuals, wave 4 included over 5,600, and wave 5 included over 5,800. More information about the sample characteristics of the CRAM data is reported by Ingle, Brophy and Daniels (2021). Since our analysis is at the household level, while the CRAM sampling from the 2017 NIDS took place at the individual level, larger households are more likely to be represented in the data and can appear multiple times. As suggested by Wittenberg and Branson (2021), in our analysis using CRAM data, we use sampling weights that are the inverse of the NIDS Wave 5 household size. Our results do not change significantly if we (i) do not weight, (ii) weight with the inverse of the number of adults in the households in wave 5, or (iii) restrict our analysis to a single observation per household.

[10]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.

vantaged groups and achieve parity in both eligibility and benefits for all South Africans (Van der Berg, 1997; Case and Deaton, 1998; Duflo, 2003). At its core, the Older Person's Grant is an unconditional cash-transfer program that every South African citizen or permanent resident can become eligible for when they turn 60 years old. 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.[11] The relatively high threshold for eligibility implies that a large share (roughly 80 percent) of the South African population is eligible for the Older Person's Grant upon turning 60 years old. Additionally, take-up rates are high, especially among women. These details help assuage concerns of manipulation of income or asset holdings that would invalidate our empirical results. The transfer amount is now approximately ZAR 1,800 a month or nearly 140 percent of the median household income per capita. Moreover, nearly one in four 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 seminal work by Case and Deaton (1998) describes the early 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 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.

Extending the work of Schiel, Leibbrandt and Lam (2016), we update these stylized facts using the pre-pandemic NIDS data. In Panel A of Figure 1 we show that more than

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

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.[12] Panel B of Figure 1 shows that, among all households, 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 both continues to reach poor households and continues to represent an important source of income for poor households.[13] Additionally, due to South Africa's high rate of both poverty and economic inequality, the Older Person's Grant reaches a large share of the South African population.

The behavioral effects of the Older Person's Grant have been studied extensively. Building on the work of Case and Deaton (1998), subsequent research by Duflo (2000, 2003) shows improved child health due to the expansion of the grant program to Africans after Apartheid. Additional studies document changes in household composition and labor supply. These effects are important to consider when interpreting our results. The composition of recipient households tends to change to include fewer prime working-age women, more children, and more childbearing age women (Edmonds, Mammen and Miller, 2004). In addition, recipient households tend to include more individuals with lower levels of human capital (Hamoudi and Thomas, 2014) and women with a larger personal income share leading to increased measures of bargaining power (Ambler, 2016). Other studies find somewhat conflicting results on the relationship between the Older Person's Grant and labor supply in the household. Although some find that receiving the grant can lead to an increase in employment of working-age adults (Ranchhod, 2006), oth-

[12]Note that panel A of Figure 1 uses household-level data to display information about a social-protection program that distributes funds at the individual-level. This detail partially explains why the share of households receiving the grant exceeds 20 percent even at the highest deciles in the household income distribution.

[13]Figure A.2 in the Supplemental Appendix shows that across all deciles of household wealth, households with children are more likely than households without children to receive the Older Person's Grant. This is especially true among poorer households, where more than one in every three households with children receive the grant.

ers observe a decline in hours worked among working-age adults (Abel, 2019; Bertrand, Mullainathan and Miller, 2003) or a null effect on labor supply (Jensen, 2004). We are not able to disentangle these downstream changes in household composition and labor supply. Rather we interpret our results as reduced-form estimates of the net effect of receiving the Older Person's Grant conditional on the documented behavioral effects within the household on household-level economic and psychological well-being.

3 Estimation Approach and Identification Strategy

Due to endogeneity in grant receipt, 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; Ambler, 2016). We follow this approach and also limit our analysis to a very narrow range around age 60 when individuals become eligible for the grant. We employ a local randomization regression discontinuity approach and use age-eligibility to instrument for the receipt of the Older Person's Grant.[14] This estimation approach 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 2 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.[15] The second condition assumes that being eligible for the grant or having

[14]This estimation approach extends the identification assumption for a regression discontinuity design to be "as good as random" near the threshold defining treatment assignment. That is, estimating the local average treatment effect (LATE), within a given window around the treatment threshold, the same way one would with randomly assigned treatment status. This local randomization regression discontinuity approach is especially useful when there are a small number of mass points around the threshold, such as with test scores (Litschwartz, 2022) or age measured in years, as in our application.

[15]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.

another eligible member in one's household should only affect our dependent variables of interest through the receipt of the grant. For the overall sample, this second condition is not plausible. Having a household member who is 60 years old or older likely changes households in many ways that can also affect economic and psychological well-being. We instead rely on the more narrow assumption that having a 59 year-old household member is similar to having a 61 year-old household member—the difference being that the member over 60 is eligible for and likely receiving the Older Person's Grant. For example, for variables of interest such as food expenditure or hunger, we assume that household preferences for food do not change at age 60.[16]

Restricting our sample to households with members who are around the age of 60 increases the likelihood that we satisfy our second assumption: that being 60 or older or having another household member who is age 60 or older 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 use a distance of five where we restrict the sample to individuals in households with a member between the age of 55 and 64 (inclusive).[17] The smallest range of ages is one, where we only keep individuals who are in households with a member who is either 59 or 60 years old. With a small number of mass points around the threshold, continuity-based regression discontinuity analysis is useful only as an exploratory device because extrapolation between the mass points becomes unavoidable without strong parametric assumptions. In practical terms, the sample size in continuity-based approaches collapses to the number of mass points, which in our case is very small. Cattaneo, Idrobo and Titiunik (forthcoming) suggest that, in such cases, the local randomization approach is more appropriate than the standard regression discontinuity design method. This approach

[16]Figure A.3 in the Supplemental Online Material shows that the share of income spent on food does not change abruptly when the household head turns 60.

[17]This gives us a bandwidth or *window*—as is it referred to in local randomization literature—of 5 around the age-eligibility cutoff: ages 55, 56, 57, 58, and 59 are in but not eligible for the grant, while 60, 61, 62, 63, and 64 are. Similarly for smaller windows, we successively remove one year from each end.

allows us to make comparisons between households who are eligible to receive the grant and report receiving the grant to households who have household members who are just below the age-eligibility threshold of the Older Person's Grant.[18]

Table 1 shows summary statistics and tests balance for the restricted sample that support the assumption that households with members above and below the age-eligibility threshold, and the individuals in them, are similar except for the eligibility of a member (or members) for receiving the grant. Using data from the NIDS sample, Panel A in Table 1 shows balance at the household-level: 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. 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 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. Considering other members of the household (e.g., not including the recipient or potential recipient), their characteristics are similar across the two groups in terms of age, sex, marital status, and even labor force participation. Similar findings hold for the restricted sample of the CRAM and DHS data. Panel B in Table 1 shows balance at the household level in response rates, household size, number of children, if the household is in an urban area, and receiving other non-grant government benefits. The only difference that is statistically significant at conventional levels is if the household received the Older Person's Grant. At the individual level, we again find balance for the CRAM survey respondents. In Panel C, we show balance for

[18]The approach here is similar to that used in Alloush and Wu (2023) with the NIDS. There are two main distinctions: In Alloush and Wu (2023), the sub-samples around the threshold are restricted to households with economically inactive members around the threshold. The goal of that study was to isolate an increase in household income and control for other changes. In this study, we are focused on the grant receipt regardless of other changes. We do not impose restrictions on the sub-sample of households with members around the threshold.

household-level characteristics across eligible and ineligible households using the DHS data.

After restricting our sample to households with members around the age-eligibility threshold of 60, we discuss two estimation approaches. If receipt of the grant was universal beginning at age 60, we could estimate the simple regression in equation (1) using ordinary least squares:

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

where 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, (ii) household food expenditures per capita, (iii) a wealth index, (iv) whether the household has run out of money for food, and (v) indicators for adults and child hunger, or (vi) 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, the age of the household member within the window around the age-eligibility threshold (i.e., the running variable), and other household-level characteristics. Finally, θ_t and τ_d are time, and district fixed effects respectively, and ϵ_{hdt} is the error term.[19]

The coefficient β_1 in equation (1) is potentially biased due to selection into grant receipt. In addition to the age-eligibility requirement, the Older Person's Grant is means tested such that individuals with earnings or asset holdings above a given threshold are not eligible for the program. Therefore, simply comparing households that receive the grant to those who do not receive the grant, as done in equation (1), would lead to biased

[19]Our main specifications employ a linear control of the running variable (i.e., the age of the household member within the window around the age-eligibility threshold), and we find qualitatively similar results for no transformation or higher order polynomial transformations.

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

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

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

where I_{hdt} is a variable that indicates that a household has members who are at least 60 years. 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 also include time and district fixed effects. Finally, ζ_{hdt} and μ_{hdt} are error terms.

As discussed above, we apply this specification on several different age ranges to estimate our effects. These windows range from five to one on each side of the age-eligibility threshold. We show results with a window of one with some caution because it can take several months after turning 60 to apply for and to start receiving the grant and thus (as can be seen in Figure 2) a meaningful portion of 60 year-old individuals are not yet receiving the grant.

Several details about our estimation approach require a brief comment. First, most of our dependent variables of interest are at the household level; however, for one of our results, we estimate the effect of household-level grant receipt on the mental health 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. Therefore, similar to our results on child hunger, the estimates using psychological distress as an outcome demonstrate within-household spillover effects of grant receipt. Second, to account for

the fact that our analysis using the CRAM data is at the household-level and the sampling in the CRAM is at the individual level (Wittenberg and Branson, 2021), we construct an inverse probability weight defined as the inverse of the household size in wave five of the NIDS.[20] Finally, although our data are a panel and track individuals over time, our estimation approach and identification strategy do not use these data as a panel.

4 Results

We present three sets of results. First, we study the effect of the Older Person's Grant on measures of economic well-being both before and during the COVID-19 pandemic. Next, in our core set of results, we report the effect of the grant on key indicators of hunger and psychological distress, once again drawing on the different available data sources to compare the effects of the grant before and during the COVID-19 pandemic. Finally, we explore heterogeneity in the effect of grant receipt during the COVID-19 pandemic by household vulnerability (defined in terms of pre-pandemic household wealth) and by pandemic-related lockdown levels at the time of the interview.

4.1 Economic Well-Being

We first leverage the discontinuity in grant receipt to show how important measures of household economic well-being change as a member of the household starts receiving the grant in the pre-pandemic period. We find that receiving the grant leads to improved economic well-being at the household level. As discussed earlier, we estimate net effects in that they allow for previously documented behavioral changes related to receipt of the Older Person's Grant that may both positively or negatively influence economic well-being.

Figure 3 illustrates the relationship between age of the household head and key indi-

[20] Our results are robust to different weighting solutions as discussed in Section 2.

cators of household well-being. Panels A and B of Figure 3 use pre-pandemic data from the NIDS and shows that household income income food expenditures per capita, depicted in log form, fall gradually as the head of the household ages. Once the household head turns 60 years old, however, we see a sharp increase in both measures of economic well-being. The log of household food expenditures (Panel B) 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, 15 years earlier.[21]

Using the NIDS data, we apply our local randomization regression discontinuity approach to estimate the effect of grant receipt on the log of household income per capita, the log of food expenditure per capita, and a wealth index. In each column in Table 2, we show results with different window sizes, from five years to one year on each side of the age-eligibility threshold.[22] First stage results are shown in the bottom-most panel, showing that our instrument is strong and predicts grant receipt at the household level.

Panels A through C of Table 2 demonstrate a robust relationship between the receipt of the grant and household economic well-being prior to the COVID-19 pandemic. Panel A shows that household income per capita meaningfully increases when a member of the household starts to receive the Older Person's Grant. A weighted average of all five coefficients, with the number of observations as weights, indicates that grant receipt increases household income by nearly 30 percent on average. Panel B shows that food expenditure increases by about nine percent at the household level. Finally, in Panel C we find that household wealth also increases with grant receipt, however, this is not statistically significant for the narrow ranges around age 60, perhaps reflecting that wealth takes time to accumulate.[23] These findings are consistent with existing evidence documented by Berg

[21]Figure A.4 in the Supplemental Appendix shows a similar discontinuity at age 60 in both per capita household income and per capita household food expenditures based on the age of the oldest member of the household, rather than the household head, between 50 and 69.

[22]We show results with one year on each side of the age-eligibility threshold because doing so is preferred in local randomization regression discontinuity literature (Cattaneo, Idrobo and Titiunik, forthcoming). However, we note that recipients do not necessarily begin receiving the grant immediately after turning 60 years old, thus we also show estimates for several window sizes around the threshold.

[23]The wealth index is constructed through factor analysis of household-level dwelling characteristics and

(2013), who shows that households in South Africa do not smooth consumption across the age-eligibility threshold of the Older Persons Grant primarily due to credit constraints.

We now turn to grant receipt during the COVID-19 pandemic. The CRAM data do not contain food expenditures per capita or the information to generate a wealth index, but do contain information on household income. This allows us to repeat the analysis from Panel A of Table 2 using the same specification. First-stage results are once again shown in the bottom-most panel, and our instrument continues to be strong and predict grant receipt at the household level.[24]

Table 3 reports estimates of the effect of receiving the Older Person's Grant on household income during the COVID-19 pandemic. These estimates indicate that the grant continued to have a strong positive effect on income during the pandemic. Panel A shows that household income per capita increases by nearly 50 percent on average when a member of the household starts to receive the Older Person's Grant during the COVID-19 pandemic. Compared to the pre-pandemic period, the estimated effect during the first 18 months of the pandemic is about 10-15 percentage points larger in magnitude, although a precise comparison is difficult given both the drastic shocks to income experienced by households during the pandemic and differences in the measurement of household income between the NIDS and CRAM data. In the NIDS data, household income is calculated using a series of questions in the household questionnaire regarding all the different sources of income. By contrast, In the CRAM data, household income is measured using a single question to one member of the household. With these caveats in mind, the results suggest that the grant provided a stable and economically meaningful boost to household income per capita both prior to and during the COVID-19 pandemic and our results indicate that the effect of the grant on household income is larger during the pandemic than

durable goods (assets).

[24]The CRAM was designed as a rapid phone survey and sampled from adults who were 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 determine the eligibility of someone in the household for the Older Person's Grant (See Figure A.1) in the Supplemental Appendix showing that projected ages predict household-level grant receipt.

prior to the pandemic.

4.2 Hunger and Psychological Distress

Although income and food expenditure per capita are useful measures of economic well-being, they are only instrumentally valuable. We, therefore, further investigate how the grant influences more intrinsically valuable measures of household well-being by looking at several measures of hunger and psychological distress.

The NIDS data does not directly measure hunger in all waves, so for our pre-pandemic analysis we turn to the 2016 wave of the South African DHS data. In the DHS, the household respondent is asked about adults or children experiencing hunger in the last year. We define hunger as the respondent indicating that an adult or child experienced hunger at least some of the time. In Panel B of Figure 3, we see that food expenditures decline as the household head ages. In Panel C of Figure 3 we see that hunger increases gradually as the household head ages. As a household head approaches 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 or even induce a slight decline—reflecting perhaps that more household members are becoming eligible for the grant.[25]

More formally, and for comparison with the pandemic period, we estimate our local randomization regression discontinuity specification using the DHS data on hunger. Table 4 reports these results. In all age ranges, we estimate statistically significant and meaningfully large decreases in reported adult hunger in the past year. Using a weighted

[25]Figure A.4 in the Supplemental appendix shows similar discontinuities in household income, food expenditure, and adult hunger using the age of the oldest member of the household within an age range of 50 and 69 years old.

average across age ranges, we estimate that the grant reduced hunger by 12 percentage points prior to the pandemic. We find estimates with a consistent sign, but that are smaller and statistically insignificant for reported child hunger and extreme hunger in the last year.[26]

The CRAM data capture much more acute experiences with hunger during the pandemic. Whereas the DHS data ask about hunger in the last year, the CRAM data report on hunger in the past seven days. Using the same empirical specification, we find evidence that receiving the Older Person's Grant reduced hunger during the pandemic, particularly with respect to child hunger and extreme hunger. In Panel A of Table 5, based on a weighted average of the estimates in each of the columns, we find that grant receipt led to roughly a 20 percentage point reduction in the likelihood of running out of money to buy food. In Panel B, we find that receiving the Older Person's Grant led to a ten percentage point reduction in adult hunger in the seven days prior to the interview. In Panel C, we find that grant receipt led to a seven percentage point reduction in household-level child hunger in the seven days prior to the interview. With overall rates of adult hunger at 26 percent and of child hunger at 15 percent (Wills et al., 2020), our estimates imply that the Older Person's Grant led to a nearly 40 percent reduction in adult hunger and a nearly 45 percent reduction in child hunger during the COVID-19 pandemic. Finally, Panel D reports that grant receipt reduced "extreme hunger," defined as respondents reporting that someone in their household had to eat less than they would like almost daily.

There are a number of reasons for caution in comparing our estimates of the effect of the grant on hunger from the pre-pandemic and pandemic periods. As noted above, the DHS and CRAM surveys use substantially different reference periods when it comes to measuring hunger. Additionally, the job losses, store closures, and lockdowns associated with the pandemic fundamentally changed the type of household vulnerable to hunger. As with the income results, the grant seemed to provide reliable support before the pan-

[26] We define extreme hunger as an indicator for the respondent saying that hunger was experienced most of the time or all the time.

demic and continue to do so during the pandemic. Even as the nature of hunger changed and pandemic pressure mounted, the grant appears to have made the difference between going hungry and having sufficient food for many households. To explore this last piece further, Section 4.3 will dig deeper into the CRAM data to explore heterogeneity related to household vulnerability and lockdown status.

Finally, we provide evidence of the relationship between grant receipt and measures of psychological distress. The NIDS data include both the full CES-D score (a common tool used in clinical settings to screen for depression risk) and a specific question on feeling depressed, which is used in calculating the CES-D score. Table 6 reports on both measures, as the latter more closely resembles the indicator of psychological distress present in the CRAM data.

Beginning with the pre-pandemic period, in Panel A of Table 6 we find that grant receipt led to a reduction in depression risk (i.e., the probability an individual reports a CES-D score greater than 12). In Panel B, we find qualitatively similar results indicating that grant receipt led to a lower likelihood of feeling depressed in pre-pandemic years. In both panels, however, these effects are only statistically significant when using the widest windows around the age-eligibility threshold.

The measure of psychological distress in the CRAM data is an indicator reporting whether the survey respondent had been feeling down, depressed, or hopeless in the last two weeks. As such, our results for the pandemic period in Panel C are most directly comparable to the pre-pandemic binary indicator reported in Panel B. We find that having a household member receiving the Older Person's Grant led to a reduction in reported psychological distress during the COVID-19 pandemic. Although estimates of these effects are not statistically significant for the most narrow age windows, the point estimates are large. Specifically, a weighted average of the coefficients suggests that grant receipt leads to an 8.5 percentage point decline in the likelihood the survey respondent experienced psychological distress in the past month—a nearly 25 percent reduction. Given that the

CRAM survey respondent is most often not the actual recipient, these results suggest that the grant has psychological benefits on other members of the household beyond the previously discussed economic benefits. Moreover, this result is important given the high levels of psychological distress documented during the pandemic.

4.3 Heterogeneity by Vulnerability and Lockdown Status

Our pandemic period results, so far, represent the reduced-form effect of receiving the Older Person's Grant on key measures of economic and psychological well-being, on average, across households and time during the first 18 months of the COVID-19 pandemic. The broad reach of the Older Person's Grant allows us to investigate heterogeneity along policy-relevant dimensions that are likely correlated with household vulnerability and pandemic-related lockdown policies. This type of heterogeneity analysis is one way our work in this paper complements existing studies, such as Banerjee et al. (2020) and Londoño-Vélez and Querubin (2022), which study the effects of cash transfer programs among relatively narrow sub-national populations, and Bottan, Hoffmann and Vera-Cossio (2021), which studies the effect of a pension program using data from one month collected during the COVID-19 pandemic.

While vulnerability can be defined on many important and nuanced dimensions, we categorize vulnerable households as households with below-average wealth, using a pre-pandemic measure of wealth. Prior to the pandemic, less wealth is strongly correlated with more hunger.[27] Specifically, using information on wealth from Wave 5 of NIDS (conducted in 2017), we categorize households in the CRAM sample as vulnerable if their 2017 wealth index was in the bottom half of the wealth distribution.[28]

[27] Panel A in Figure A.5 in the Supplemental Appendix shows a strong correlation between our wealth index and reported hunger in data from the 2008 NIDS, which is the only NIDS wave that includes a measure of hunger. This figure shows that rates of hunger are roughly 50 percent for households in the lowest wealth decile and close to zero percent for households in the highest wealth decile. Using more recent data from the 2016 DHS, Panel B in Figure A.5 shows a similar pattern.

[28] Leibbrandt, Finn and Woolard (2012) show using NIDS data that approximately 50 percent of households in South Africa are poor.

To define lockdown periods, we make use of the government of South Africa's country-wide five-level COVID-19 alert system, where alert level one indicates low COVID-19 spread with a high health system readiness and alert level five indicates high COVID-19 spread with a low health system readiness.[29] Alert levels three and above placed tight restrictions on many activities, including limits on social events and workplaces. Several studies document that these lockdowns led to strong effects on the South African labor market (Jain et al., 2020; Espi, Leibbrandt and Ranchhod, 2020; Ranchhod and Daniels, 2021). As such, we generate a lockdown indicator variable if the alert level was three or higher at the time the interview occurred. In the CRAM data, nearly 60 percent of the interviews occurred while alert levels were three or above. Panel B in Figure 4 shows alert levels during our study period and indicates CRAM data collection periods with shaded regions. It is plausible that a safety net such as the Older Person's Grant had stronger effects on socio-economic outcomes during these strict lockdowns, providing secure income at a time when both present and future income opportunities were uncertain.

Panel A in Figure 4 plots coefficients, representing the weighted average of estimates across all five age window ranges, for each of our five outcome variables across the full sample and three sub-samples: (i) vulnerable households, (ii) households interviewed during a lockdown, and (iii) vulnerable households interviewed during a lockdown. Overall we find that the grant has a stronger effect on vulnerable households, particularly during lockdowns. While the differences in the coefficients are not statistically significant, there is a clear pattern: relative to the full sample, the average estimated effect is at least as large during lockdowns and among vulnerable households (i.e., those who are in the bottom half of the wealth distribution). Specifically, among vulnerable households surveyed during lockdowns, receiving the grant leads to a reduction in adult and extreme hunger that is more than twice as large as the effect among the full sample. We also tested for differential effects between urban and rural households, smaller and larger households,

[29]More information on this alert system and associated lockdown severities can be found here: https://www.gov.za/covid-19/about/about-alert-system

and households with and without children but did not observe any clear pattern in these differences. These results provide suggestive evidence that the Older Person's Grant program provided critical support to the poorest households that may have been least able to shield themselves from adverse shocks related to the COVID-19 pandemic.

As a final step, we investigate the effect of the Older Person's Grant during each CRAM survey wave separately in order to consider the possibility that the relationship between receipt of the Older Person's Grant and well-being evolved during the first eighteen months of the COVID-19 pandemic in South Africa. Implementing the local randomization approach within each wave leads to small sample sizes and noisy estimates. As an alternative approach, in Figure A.6 in the Supplemental Appendix, we show the share of households reporting adult hunger for three different groups across the five CRAM waves: (i) households with a member just above age 60, (ii) households with a member just under age 60, and (iii) the overall rate among the entire sample.[30] This figure shows both how adult hunger evolved and how eligibility for the Older Person's Grant helped reduce hunger throughout the COVID-19 pandemic in the years 2020 and 2021. We observe two key findings. First, rates of reported adult hunger vary substantially across CRAM survey waves. Reported hunger was the highest in the first CRAM wave (i.e., collected in May-June 2020), with between 24 and 30 percent of households reporting adult hunger. In subsequent waves reported hunger fell, with between 17 and 23 percent of households reporting adult hunger. Second, households with a member above the age-eligibility threshold consistently have lower levels of reported hunger throughout all five CRAM waves. The gap in reported hunger between households with a member above and below the age-eligibility threshold is the smallest in the second (i.e., collected in July-August 2020) and third (i.e., collected in November-December 2020) CRAM waves. This may reflect the effect of other social protection and financial support programs adminis-

[30]These averages will necessarily underestimate the effect of grant receipt due to imperfect compliance among households with members over the age of 60, this analysis does provide useful insight into possible intertemporal heterogeneity.

tered by the South African government at the time of these survey waves (Gentilini et al., 2021; Gronbach, Seekings and Megannon, 2022).

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 (Wills et al., 2020; Arndt et al., 2020; van der Berg, Patel and Bridgman, 2022; Oyenubi, Nwosu and Kollamparambil, 2022; Hunt et al., 2021). Our paper shows that a well-targeted unconditional cash transfer program—the Older Person's Grant—played an important role in allowing recipient households to 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, the Older Person's Grant continued to positively affect household well-being. This reliable source of income is linked with between 40 and 45 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. Importantly, these results are generally stronger among households in the bottom half of the pre-pandemic wealth distribution and especially when these households were surveyed during a pandemic-related lockdown.

These results provide important insight into the effectiveness of large cash transfer programs in helping households manage large and unexpected global shocks. Many low- and middle-income countries have instituted, expanded, or are currently discussing expending (Dreze and Duflo, 2022) these types of programs in response to the COVID-19

pandemic. Further, interest in large cash transfer programs is not limited to low- and middle-income countries nor to acute disaster response. A key feature of South Africa's Older Person's Grant is that it has been providing a reliable source of income for decades, allowing individuals to confidently incorporate this source of income into their response to shocks. Wealthier countries are increasingly looking to build similarly targeted and reliable instruments into their social safety programs—for example, in the form of tax credits for low-income households with children in the United States. The South African example suggests that these programs can have important effects on the resilience and well-being of both the target population and those close to them.

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Tables

TABLE 1: Descriptive Statistics: Age Range 58-61

	Grant-Eligible Group		Non-Eligible Group		p-value
	Mean	SE	Mean	SE	of Δ
Panel A: NIDS Data					
Household Level					
Number of Observations	**1,792**		**1,862**		
Household Size	5.31	0.08	5.22	0.07	0.40
Average Age	35.77	0.32	34.66	0.30	0.02
Number of Children	1.75	0.05	1.70	0.04	0.39
Number of Elderly (66+)	0.21	0.01	0.21	0.01	0.88
Urban	0.45	0.01	0.47	0.01	0.44
Death in the past 2 years	0.11	0.01	0.11	0.01	0.66
Total non-grant income per capita (ZAR)†	1,157	289	1,313	292	0.00
Old-Age Grant income per capita (ZAR)†	743.1	17.2	240.0	12.00	0.00
Savings†	0.43	0.01	0.45	0.01	0.19
Share poor†	0.31	0.01	0.36	0.01	0.01
Adult Household Members (Excluding members around threshold)					
Number of Observations	**3,417**		**3,617**		
Age	32.72	0.26	32.76	0.25	0.92
Male	0.46	0.01	0.44	0.01	0.17
Married	0.11	0.01	0.13	0.01	0.06
In the Labor force	0.59	0.01	0.60	0.01	0.27
Secondary-Level Education	0.58	0.01	0.58	0.01	0.99
Health Issue in the last 30 days	0.43	0.01	0.42	0.01	0.91
Panel B: CRAM Data					
Household Level					
Number of Observations	**537**		**548**		
Household Size	5.42	0.15	5.01	0.15	0.13
Number of Children	1.87	0.10	2.00	0.10	0.32
Urban	0.70	0.02	0.71	0.02	0.50
Receiving Older Person's Grant†	0.60	0.02	0.26	0.02	0.00
Receiving Other Government Benefit	0.67	0.02	0.63	0.02	0.18
Respondents (Excluding those around threshold)					
Number of Observations	**1,335**		**1,180**		
Age	35.22	0.42	34.40	0.38	0.15
Male	0.41	0.02	0.42	0.01	0.77
African	0.88	0.01	0.87	0.01	0.43
Employed Pre-Pandemic	0.37	0.01	0.39	0.01	0.38
Secondary-Level Education	0.48	0.02	0.49	0.01	0.83
Panel C: DHS Data					
Household Level					
Number of Observations	**504**		**496**		
Household Size	4.42	0.14	4.23	0.11	0.29
Number of Children	1.52	0.09	1.41	0.07	0.45
Urban	0.55	0.02	0.58	0.02	0.46
Head Married	0.57	0.02	0.53	0.02	0.17
Head No Formal Education	0.32	0.02	0.31	0.02	0.61

Notes: This table shows balance for a Age Range 58-61—Balance is similar for other age ranges considered. The superscript † indicates variables that could be directly influenced by Older Person's Grant receipt. 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 in the NIDS and the CRAM samples. This table is similar to a balance table shown in (Alloush and Wu, 2023), however, the NIDS sample is less restricted here and we show important balance in the CRAM and DHS data.

TABLE 2: Pre-Pandemic Grant Receipt and Economic Well-being (NIDS)

	Member Age Range centered at 60				
	55-64	**56-63**	**57-62**	**58-61**	**59-60**
	Panel A: Log Household Income Per Capita				
Older Person's Grant Receipt	0.303***	0.312***	0.303***	0.284***	0.230**
	(0.034)	(0.037)	(0.044)	(0.053)	(0.092)
	Panel B: Log Food Expenditure Per Capita				
Older Person's Grant Receipt	0.087***	0.082***	0.084***	0.098***	0.090
	(0.021)	(0.024)	(0.027)	(0.034)	(0.065)
	Panel C: Wealth Index				
Older Person's Grant Receipt	0.114***	0.129***	0.082*	0.094	-0.027
	(0.037)	(0.041)	(0.045)	(0.059)	(0.115)
First Stage	***Panel D: Older Person's Grant Receipt***				
Member over 60	0.558***	0.524***	0.487***	0.437***	0.371***
	(0.011)	(0.011)	(0.012)	(0.014)	(0.020)
First-Stage F-Stat	2,779	2,129	1,558	911	338
N	8,311	6,853	5,326	3,654	1,902

Notes: We instrument for grant receipt using a dummy variable of having a member above the age 60 with the sample restricted to households with a member in the age range reported in the column. We control for wave and district fixed effects. Results are robust to the inclusion of household and household head controls. Standard errors clustered at the original (i.e., NIDS wave 1) sampling cluster area are presented in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. N and Effective First-Stage F-Stats corresponds to Panel A.

TABLE 3: Grant Receipt and Economic Well-Being During the Pandemic (CRAM)

	Member Age Range centered at 60				
	55-64	**56-63**	**57-62**	**58-61**	**59-60**
	Panel A: Log Household Income Per Capita				
Older Person's Grant Receipt	0.453***	0.469***	0.455***	0.281*	0.081
	(0.084)	(0.096)	(0.109)	(0.146)	(0.284)
First Stage	***Panel B: Older Person's Grant Receipt***				
Member over 60	0.386***	0.363***	0.354***	0.308***	0.227***
	(0.014)	(0.015)	(0.018)	(0.021)	(0.030)
First-Stage F-Stat	748.9	551.8	398.1	203.3	59.1
N	6,140	5,100	3,933	2,734	1,360

Notes: We instrument for grant receipt using a dummy variable of having a member above the age 60 (projected from Wave 5 of NIDS) with the sample restricted to households with a member in the age range reported in the column. We control for wave and district fixed effects. Results are robust to the inclusion of household and household head controls. Standard errors clustered at the original (i.e., NIDS wave 1) sampling cluster area are presented in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. N and Effective First-Stage F-Stats corresponds to Panel A.

TABLE 4: Pre-Pandemic Grant Receipt and Hunger (DHS)

	Member Age Range centered at 60				
	55-64	**56-63**	**57-62**	**58-61**	**59-60**
	Panel A: Report Adult Hunger in the past year				
Older Person's Grant Receipt	-0.107**	-0.100**	-0.108**	-0.116*	-0.264**
	(0.041)	(0.039)	(0.043)	(0.065)	(0.103)
	Panel B: Report Child Hunger in the past year				
Older Person's Grant Receipt	-0.045	-0.057	-0.049	-0.040	-0.161
	(0.051)	(0.049)	(0.060)	(0.071)	(0.126)
	Panel C: Extreme Hunger (Frequent or always)				
Older Person's Grant Receipt	-0.030**	-0.029**	-0.041*	-0.033	0.015
	(0.013)	(0.014)	(0.020)	(0.024)	(0.046)
First Stage	***Panel D: Older Person's Grant Receipt***				
Member over 60	0.542***	0.596***	0.542***	0.490***	0.370***
	(0.021)	(0.022)	(0.025)	(0.033)	(0.042)
First-Stage F-Stat	620.3	705.0	454.6	213.1	75.6
N	2,435	1,866	1,434	973	463

Notes: We control for province fixed effects in addition to a host of household-level controls. Results are robust to removing controls. We instrument for grant receipt using a dummy variable of having a member above the age 60 in the age range reported in the column. Standard errors clustered at the sampling cluster area are presented in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. N and Effective First-Stage F-Stats corresponds to Panel A.

TABLE 5: Grant Receipt and Hunger During the Pandemic (CRAM)

	Member Age Range centered at 60				
	55-64	**56-63**	**57-62**	**58-61**	**59-60**
	Panel A: Report Running out of Money for Food				
Older Person's Grant Receipt	-0.180***	-0.200***	-0.219***	-0.213***	-0.122
	(0.038)	(0.043)	(0.050)	(0.067)	(0.127)
	Panel B: Report Adult Hunger				
Older Person's Grant Receipt	-0.086***	-0.078**	-0.097**	-0.125**	-0.022
	(0.030)	(0.035)	(0.041)	(0.055)	(0.108)
	Panel C: Report Child Hunger				
Older Person's Grant Receipt	-0.079***	-0.076***	-0.064**	-0.135***	0.011
	(0.023)	(0.027)	(0.033)	(0.045)	(0.083)
	Panel D: Extreme Hunger (Almost Daily)				
Older Person's Grant Receipt	-0.073***	-0.070**	-0.076**	-0.123**	-0.105
	(0.025)	(0.029)	(0.036)	(0.048)	(0.091)
N	6,140	5,100	3,933	2,734	1,360

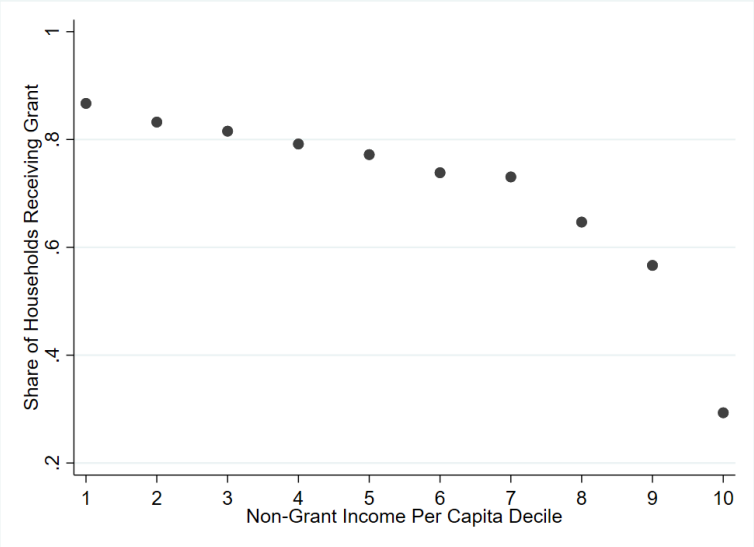
Notes: We control for wave and lockdown-level fixed effects in addition to a host of household-level controls. Results are robust to removing controls. We instrument for grant receipt using a dummy variable of having a member above the age 60 in the age range reported in the column. First-stage results are the same as those in Table 3. Panel E is the reported psychological distress of the member who is responding to the CRAM phone-interview who in over 90% of the observations is under the age of 55 and is not the recipient or potential recipient of the Older Person's Grant. The sample size in Panel E is smaller as the mental distress questions were only asked in waves 2, 3, and 5. Standard errors clustered at the original (i.e., NIDS wave 1) sampling cluster area are presented in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

TABLE 6: Grant Receipt and Psychological Well-being (NIDS & CRAM)

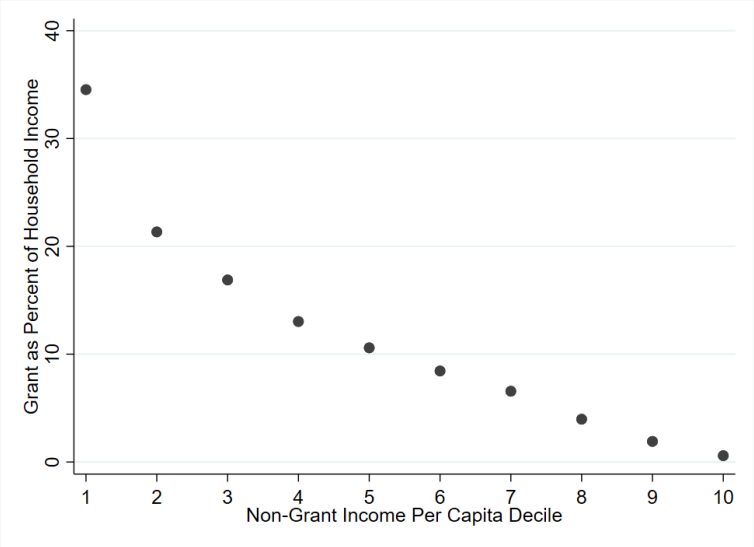
	Member Age Range centered at 60				
	55-64	**56-63**	**57-62**	**58-61**	**59-60**
			NIDS		
			Panel A: CES-D≥12—Depression Risk		
Older Person's Grant Receipt	-0.040***	-0.044***	-0.038**	-0.030	-0.033
	(0.011)	(0.013)	(0.016)	(0.022)	(0.037)
			Panel B: Psychological Distress		
Older Person's Grant Receipt	-0.048***	-0.032*	-0.031	-0.012	-0.036
	(0.016)	(0.019)	(0.022)	(0.029)	(0.051)
N	25,035	20,782	16,307	11,236	5,964
			CRAM		
			Panel C: Psychological Distress		
Older Person's Grant Receipt	-0.081*	-0.079	-0.056	-0.100	0.079
	(0.048)	(0.054)	(0.064)	(0.084)	(0.172)
N	3,619	3,016	2,320	1,616	793

Notes: We instrument for grant receipt using a dummy variable of having a member above the age 60 with the sample restricted to households with a member in the age range reported in the column. We control for wave and district fixed effects and a host of household- and individual-level controls. Standard errors clustered at the original (i.e., NIDS wave 1) sampling cluster area are presented in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. The two sets of results come from different sources and the variables on psychological well-being are constructed differently for NIDS and CRAM.

Figures



(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 financial resources.

FIGURE 1: Targeting and Intensity of Treatment

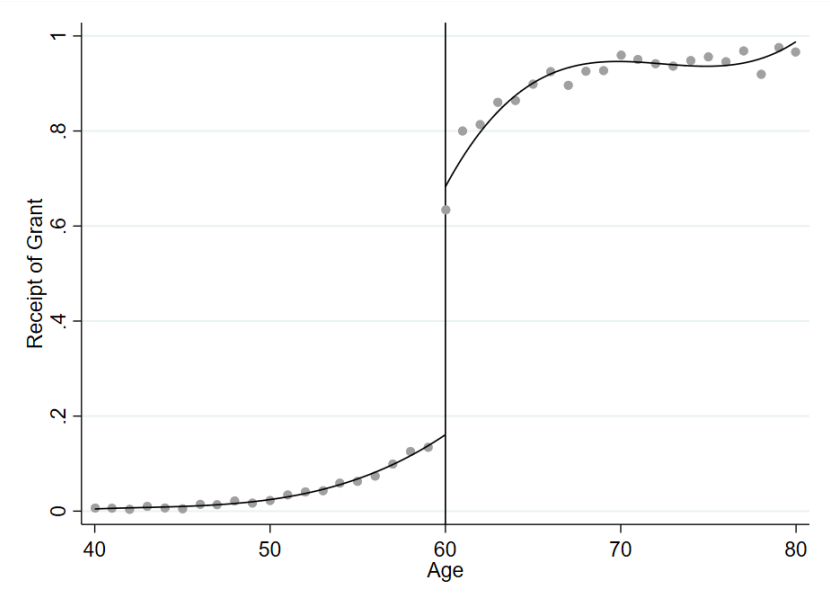
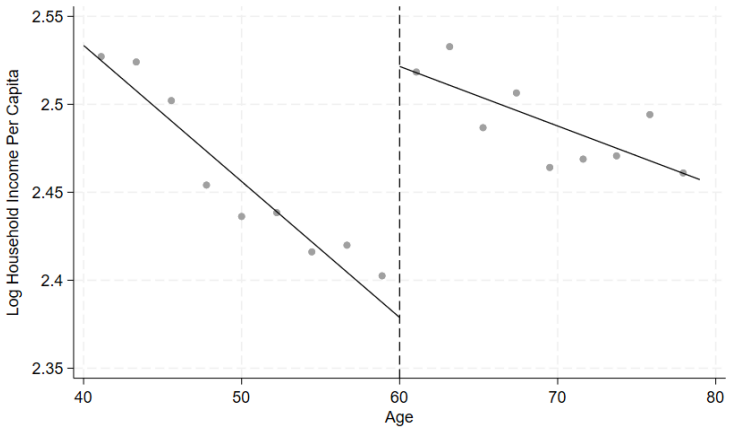
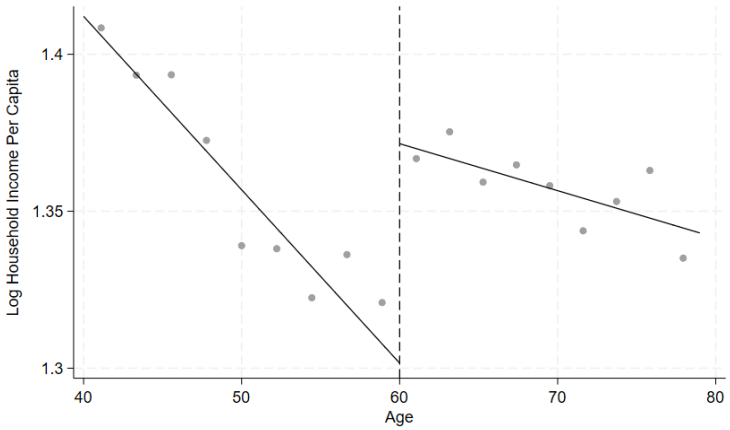


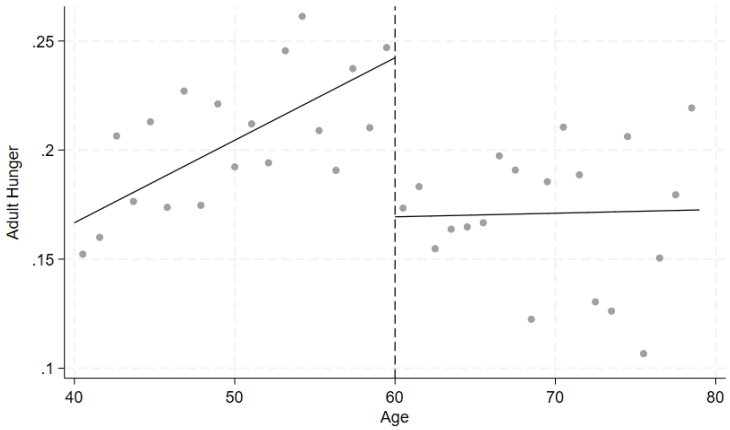
FIGURE 2: Individual-level receipt of the Older Person's Grant by age. There is a clear discontinuity of grant receipt around the age of eligibility of 60. Figure A.1 in the Supplemental Appendix shows a similar discontinuity using the first and last waves of the CRAM data.



(A) Log Household Income

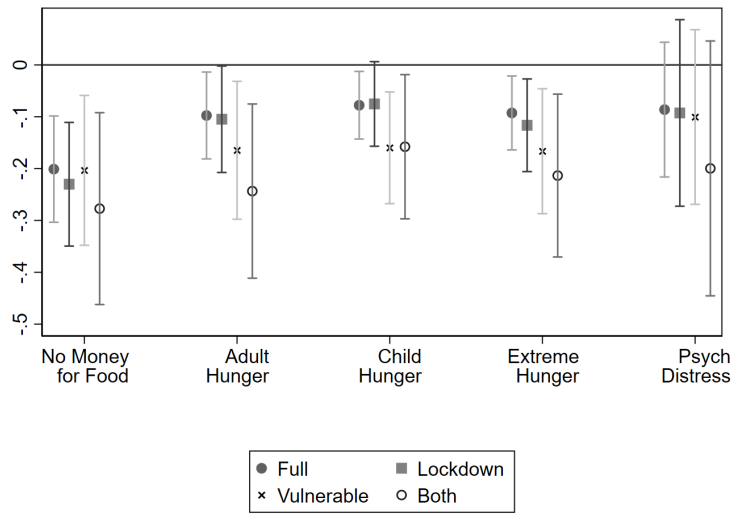


(B) Log Food Expenditure

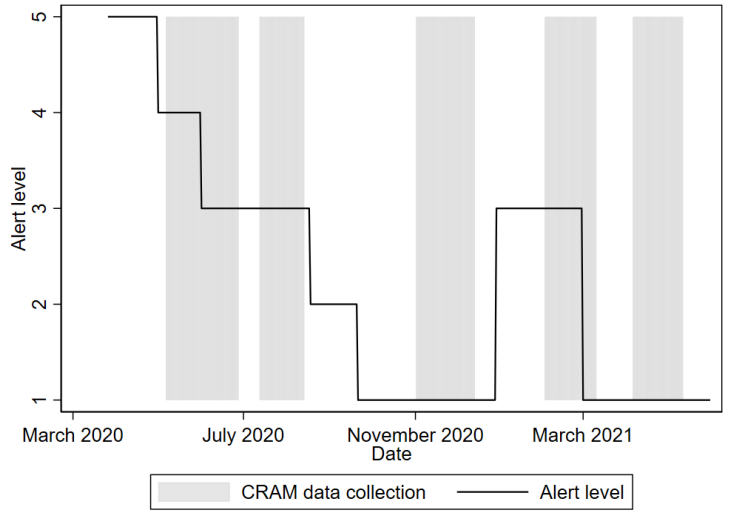


(C) Adult Hunger

FIGURE 3: Measures of Well-being by the Age of the Household Head.



(A) Heterogeneity by lockdown level and pre-pandemic vulnerability (i.e., below-average wealth)



(B) Time series of COVID-19 alert levels and CRAM data collection periods

FIGURE 4: Estimated Effects of the Older Person's Grant are larger for vulnerable households and during lockdowns. The estimates here are weighted averages of those shown in Table 5 (full sample), and Supplemental Appendix Tables A.1 (vulnerable sub-sample), A.2 (lockdown sub-sample), and A.3 (vulnerable sub-sample during lockdowns).

Supplemental Appendix: Additional Tables and Figures

This Supplemental Appendix provides additional tables and figures that support the analysis and results reported in the main manuscript.

- Tables A.1, A.2, and A.3 report tabular results associated with Figure 4 in the main manuscript.
- Figure A.1 shows the discontinuity of grant receipt using the first and last waves of the CRAM data.
- Figure A.2 shows the share of households receiving the grant by wealth decile between households with and without children.
- Figure A.3 shows the share of income spent on food and non-food items by the age of the household head.
- Figure A.4 shows the discontinuity in household income, food expenditure, and adult hunger using the age of the oldest member of the household within the age window of 50 and 69.
- Figure A.5 shows the relationship between hunger and wealth using the NIDS data (panel A) and the DHS data (panel B).
- Figure A.6 shows the share of households reporting hunger within a given wave of the CRAM survey by (i) all households, (ii) households with a member below the age-eligibility threshold, and (iii) households with a member above the age-eligibility threshold.

TABLE A.1: Heterogeneity Among Vulnerable Households (CRAM)

	Member Age Range centered at 60				
	55-64	**56-63**	**57-62**	**58-61**	**59-60**
	Panel A: Report Running out of Money for Food				
Older Person's Grant Receipt	-0.225***	-0.211***	-0.200***	-0.228**	-0.032
	(0.055)	(0.059)	(0.069)	(0.095)	(0.180)
	Panel B: Report Adult Hunger				
Older Person's Grant Receipt	-0.173***	-0.178***	-0.170***	-0.200**	-0.015
	(0.049)	(0.054)	(0.063)	(0.088)	(0.178)
	Panel C: Report Child Hunger				
Older Person's Grant Receipt	-0.155***	-0.159***	-0.137***	-0.258***	-0.051
	(0.038)	(0.043)	(0.053)	(0.077)	(0.139)
	Panel D: Extreme Hunger (Almost Daily)				
Older Person's Grant Receipt	-0.139***	-0.150***	-0.156***	-0.254***	-0.209
	(0.042)	(0.047)	(0.059)	(0.085)	(0.166)
	Panel E: Psychological Distress				
Older Person's Grant Receipt	-0.102	-0.098	-0.072	-0.200*	0.018
	(0.065)	(0.070)	(0.082)	(0.102)	(0.212)
N	2,995	2,468	1,911	1,321	640
First-Stage F-Stat	417.0	350.7	242.5	110.5	37.2

Notes: We control for wave and lockdown-level fixed effects in addition to a host of household controls. We instrument for grant receipt using a dummy variable of having a member above the age 60 in the age range reported in the column. Panel E is the reported psychological distress of the member who is responding to the CRAM phone-interview who in over 90% of the observations is under the age of 55 and is not the recipient or potential recipient of the Older Person's Grant. The sample size in Panel E is smaller as the mental distress questions were only asked in waves 2, 3, and 5. Standard errors clustered at the original (i.e., wave 1) sampling cluster area are presented in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

TABLE A.2: Heterogeneity During Pandemic-Related Lockdowns (CRAM)

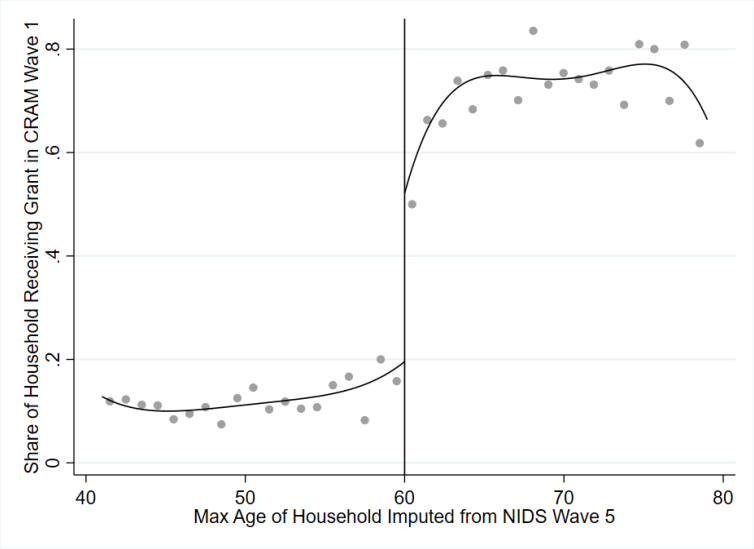
	Member Age Range centered at 60				
	55-64	**56-63**	**57-62**	**58-61**	**59-60**
	Panel A: Report Running out of Money for Food				
Older Person's Grant Receipt	-0.232***	-0.243***	-0.228***	-0.236***	-0.166
	(0.046)	(0.050)	(0.059)	(0.076)	(0.136)
	Panel B: Report Adult Hunger				
Older Person's Grant Receipt	-0.107***	-0.098**	-0.090*	-0.114*	-0.146
	(0.039)	(0.044)	(0.050)	(0.066)	(0.118)
	Panel C: Report Child Hunger				
Older Person's Grant Receipt	-0.084***	-0.092***	-0.047	-0.106*	0.009
	(0.030)	(0.035)	(0.041)	(0.054)	(0.092)
	Panel D: Extreme Hunger (Almost Daily)				
Older Person's Grant Receipt	-0.104***	-0.1111***	-0.097**	-0.134**	-0.217**
	(0.033)	(0.037)	(0.044)	(0.060)	(0.108)
	Panel E: Psychological Distress				
Older Person's Grant Receipt	-0.115	-0.090	-0.040	-0.183	0.037
	(0.071)	(0.078)	(0.091)	(0.111)	(0.180)
N	3,354	2,787	2,146	1,476	718
First-Stage F-Stat	602.1	488.9	360.0	199.2	68.3

Notes: We control for wave and lockdown-level fixed effects in addition to a host of household controls. We instrument for grant receipt using a dummy variable of having a member above the age 60 in the age range reported in the column. Panel E is the reported psychological distress of the member who is responding to the CRAM phone-interview who in over 90% of the observations is under the age of 55 and is not the recipient or potential recipient of the Older Person's Grant. The sample size in Panel E is smaller as the mental distress questions were only asked in waves 2, 3, and 5. Standard errors clustered at the original (i.e., wave 1) sampling cluster area are presented in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

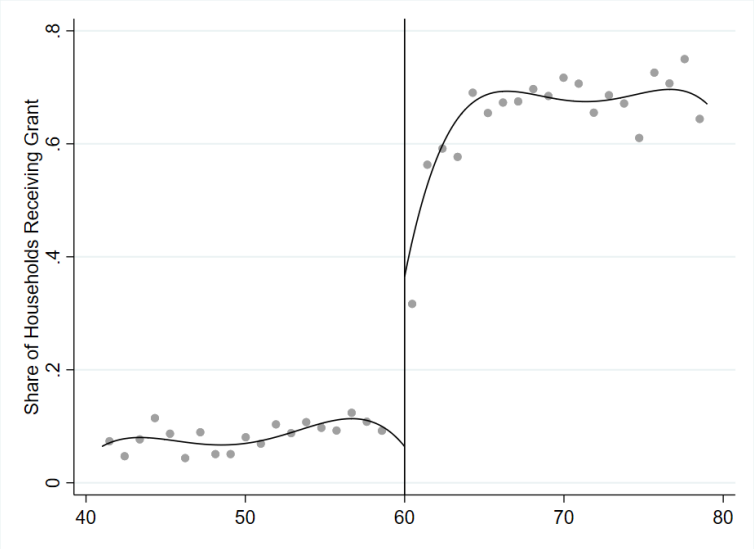
TABLE A.3: Heterogeneity During Pandemic-Related Lockdowns Among Vulnerable Households (CRAM)

	Member Age Range centered at 60				
	55-64	**56-63**	**57-62**	**58-61**	**59-60**
	Panel A: Report Running out of Money for Food				
Older Person's Grant Receipt	-0.316***	-0.297***	-0.214**	-0.296**	-0.167
	(0.069)	(0.074)	(0.089)	(0.129)	(0.231)
	Panel B: Report Adult Hunger				
Older Person's Grant Receipt	-0.228***	-0.233***	-0.223***	-0.301***	-0.299
	(0.063)	(0.069)	(0.080)	(0.116)	(0.204)
	Panel C: Report Child Hunger				
Older Person's Grant Receipt	-0.165***	-0.179***	-0.111	-0.264***	0.042
	(0.050)	(0.056)	(0.069)	(0.101)	(0.166)
	Panel D: Extreme Hunger (Almost Daily)				
Older Person's Grant Receipt	-0.170***	-0.197***	-0.191**	-0.296***	-0.380*
	(0.055)	(0.061)	(0.077)	(0.115)	(0.209)
	Panel E: Psychological Distress				
Older Person's Grant Receipt	-0.210**	-0.207**	-0.158	-0.331**	0.043
	(0.100)	(0.106)	(0.129)	(0.146)	(0.207)
N	1,818	1,504	1,1667	805	380
First-Stage F-Stat	265.1	229.8	149.4	66.9	23.8

Notes: We control for wave and lockdown-level fixed effects in addition to a host of household controls. We instrument for grant receipt using a dummy variable of having a member above the age 60 in the age range reported in the column. Panel E is the reported psychological distress of the member who is responding to the CRAM phone-interview who in over 90% of the observations is under the age of 55 and is not the recipient or potential recipient of the Older Person's Grant. The sample size in Panel E is smaller as the mental distress questions were only asked in waves 2, 3, and 5. Standard errors clustered at the original (i.e., wave 1) sampling cluster area are presented in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.



(A) Wave 1 of CRAM



(B) Wave 5 of CRAM

FIGURE A.1: Using household information from Wave 5 of NIDS (2017), we project the age of household members forward into 2020 to predict who will report receiving the Old Age Grant. We find similar discontinuities as in Figure 2.

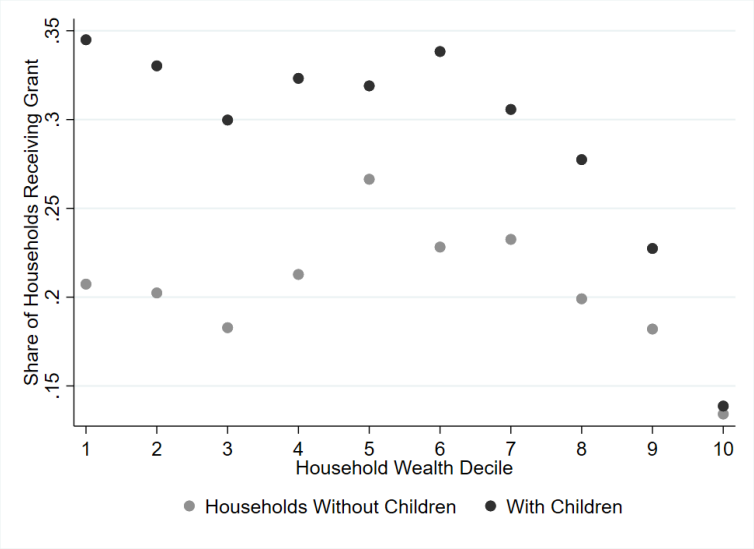


FIGURE A.2: Wealth deciles and grant receipt for households with and without children.

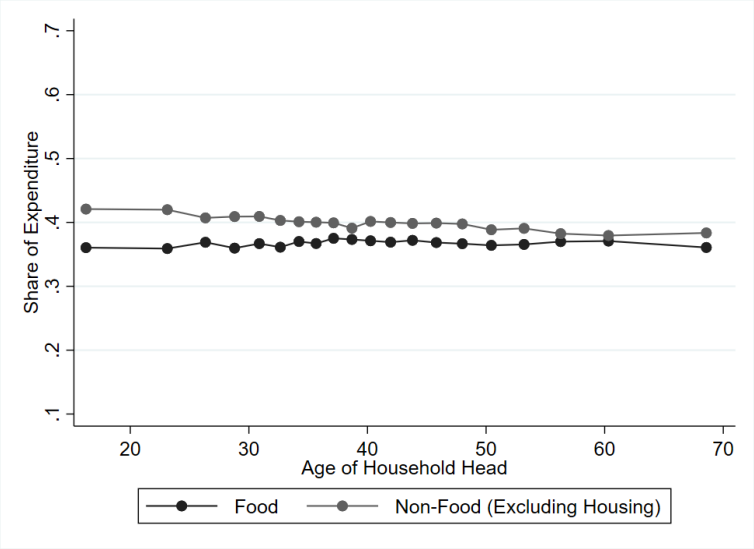
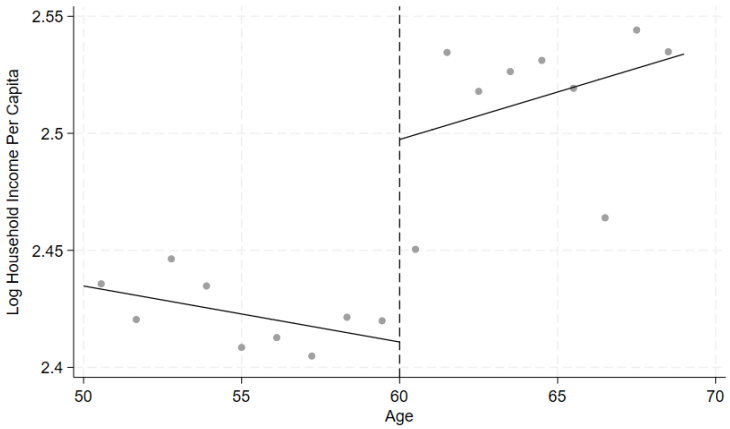
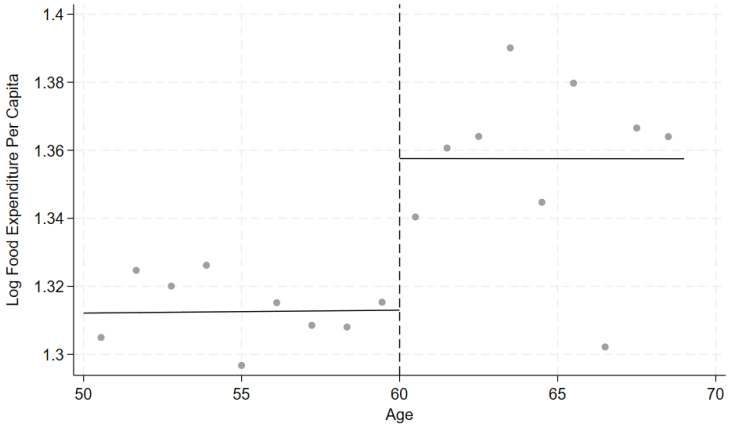


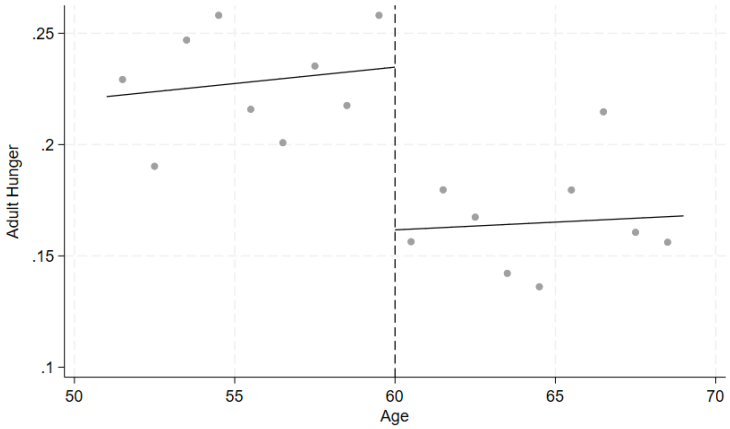
FIGURE A.3: Share of income spent on food by age of the household head. This figure suggests that preferences regarding food expenditure do not change abruptly at age 60.



(A) Log Household Income

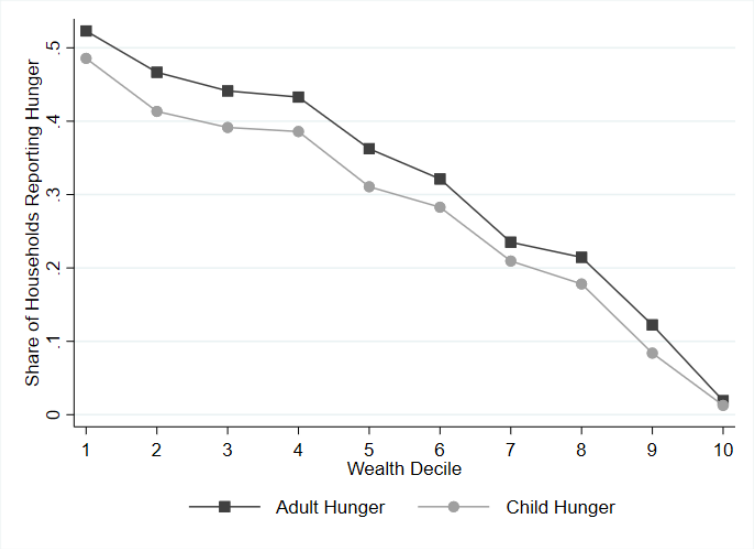


(B) Log Food Expenditure

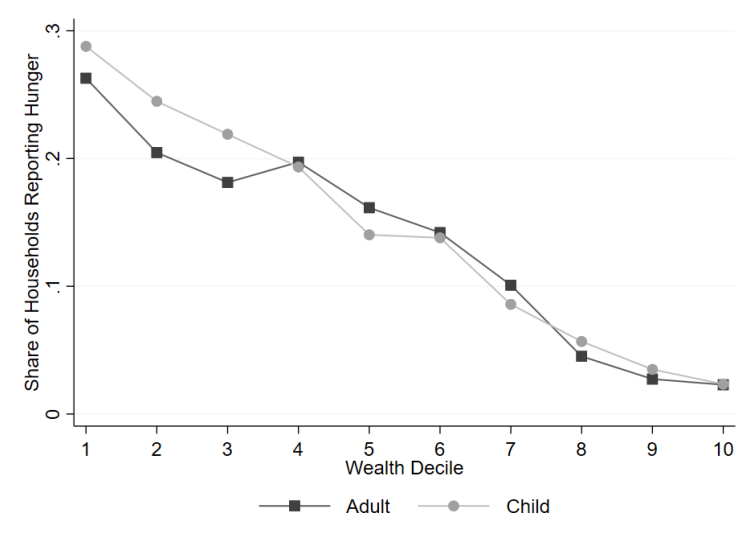


(C) Adult Hunger

FIGURE A.4: Measures of Well-being by the Age of the Oldest Household Member between 50 and 69.



(A) Hunger in the Past Year (Wave 1 of NIDS) by Wealth



(B) Hunger in the Past Week (DHS) by Wealth

FIGURE A.5: Wealth Indices are predictive of hunger

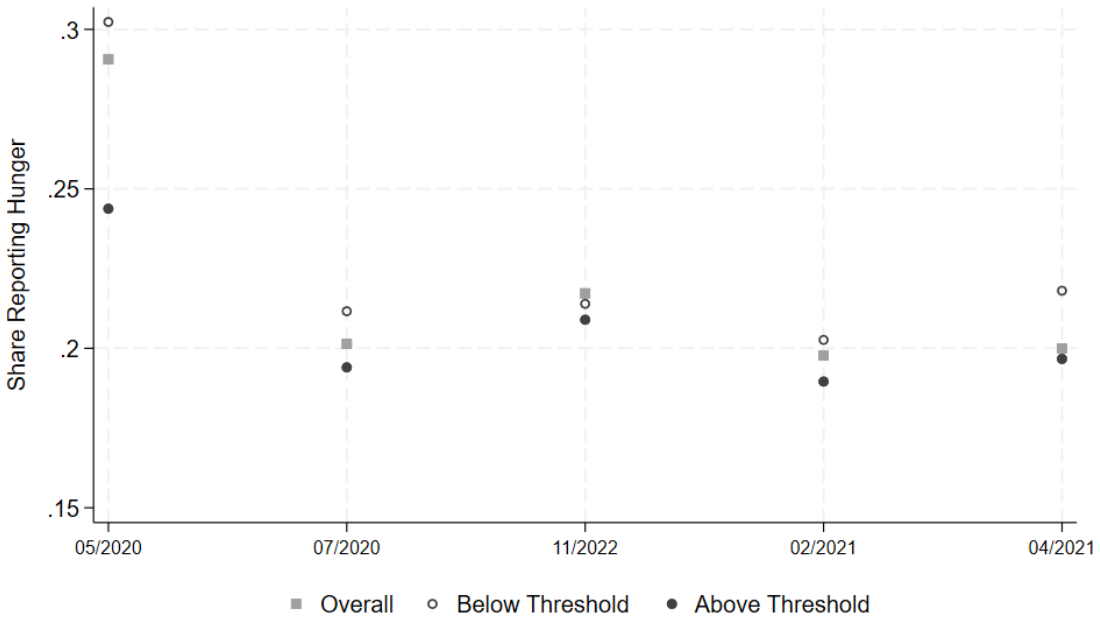


FIGURE A.6: Reported Adult Hunger during Covid-19 Pandemic. Each dot represents the share of households reporting hunger within a given wave of the CRAM survey. "Overall" includes all households in the given CRAM survey wave. "Below Threshold" and "Above Threshold" includes households with a member within a 6-year window around the age-eligibility threshold (i.e., 60 years old) and either below or above this threshold. The month indicates when surveying for the wave began.