Measuring the Impact of the Child Support Grant: Tracking Educational and Health Wellbeing Outcomes for Child Recipients from 2008 to 2014

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1 Introduction

South Africa's Child Support Grant (CSG), has been shown to positively impact the lives of recipients and their families, to reduce poverty and improve food security (Coetzee, 2014; Agüero, Carter & Woolard, 2007; Case, Hosegood & Lund, 2005; DSD, SASSA & UNICEF, 2012; Eyal & Woolard, 2011; Patel, Knijn & van Wel, 2015; Bhorat & Cassim, 2014). While the CSG as a social protection programme has been very successful, cash transfers alone are not enough to meet the needs of children to support child wellbeing. Child wellbeing must be considered broadly, in the context of the social environment and support structures surrounding the grant recipient.

Despite the great progress in social protection programme delivery, many children continue to live in poverty in South Africa, with negative impacts on their wellbeing. In addition, how the context in which grant recipients live – their family, social and community structures – interacts with grant receipt is not adequately understood in South Africa. Consequently, policy makers do not have a comprehensive understanding of the mechanisms through which grants influence well-being outcomes. This has implications for policymakers wishing to scale-up the positive impact of grants and to improve outcomes for grant recipients.

This report shares the findings from an analysis intending to contribute to our understanding of child wellbeing, the CSG, and family contexts. This is the second in a short series of analyses that uses national data from the National Income Dynamics Survey (NIDS), which is a nationally representative panel study on households across South Africa. The first report (Patel et al, 2017), here called the 2017 CSDA study, focused only on Wave 1 data from 2008. This current report tracks the same children from Wave 1, 2008, to Wave 4, 2014. Findings from the first report are summarised below, and then the new findings are described.

2 Findings from the 2017 CSDA study

In 2017, the CSDA published a report[1] entitled "Family contexts, the Child Support Grant, and Child Well-being Outcomes" (Patel et al, 2017). This report sought to uncover the mechanisms through which the CSG impacts recipient livelihoods in a South African context, to understand how to strengthen efforts of families to enhance the wellbeing of CSG beneficiaries. A mixed-

[1] This research was conducted in partnership with PSPPD, EU, Universities of Chicago and Utrecht.

methods study was conducted using Wave 1, 2008, data from the NIDS to investigate these issues quantitatively and qualitative focus groups. The CSDA quantitative analysis investigated the relationship between family structure, caregiver characteristics, family social and community contexts and child well-being outcomes in poor families in South Africa, in a sub-sample of families with children under the age of 8 years old who receive a CSG.

The 2017 research was based on the social development approach to child welfare, which asserts that children do not exist in isolation of their families and the communities in which they live; hence, child wellbeing, and the interventions intended to promote wellbeing, must be considered in relation to the broader community, cultural, economic and societal contexts of CSG beneficiaries. Using this approach, child wellbeing was understood in multiple dimensions: material (or economic), physical, cognitive, social and emotional wellbeing, including access to services to meet basic needs of children for shelter, water, sanitation and energy (Laryea-Adjei & Sadan, 2012; Hall & Woolard, 2012); adequate nutrition for cognitive development of children (Casale, Desmond & Richter, 2014; Haile, Nigatu, Gashaw & Demelash, 2016); and, the effect of early childhood food deprivation on long-term development (Casale et al., 2014).

Measuring child wellbeing in relation to enrolment in an Early Childhood Development (ECD) centre or school, anthropometric measurements and caregiver perceived child health, the main finding from the 2017 CSDA study is, firstly, that food-security is a key, mediating factor influencing well-being outcomes of CSG recipients, particularly in rural areas. We know from other research that the effects of poor nutrition are long-lasting. Using NIDS data, Casale (2016) examines the effects of stunting of children aged 0 – 8 years in 2008 (Wave 1) on educational outcomes in 2014/15 (Wave 4). Children who were stunted in Wave 1 were found to have enrolled later for Grade 1; completed fewer years of schooling, and were more likely to fail the grades they had enrolled for in the preceding years.

Secondly, the 2017 CSDA study finds that in urban areas, caregiver depression significantly negatively impacts child wellbeing. Other research supports this finding, showing that maternal depression is significantly reduced when receipt of the CSG increases, more so the more children the mother has (Eyal & Njozela, 2016). Through the mechanism of improved maternal mental health, child educational outcomes, measured in years of schooling attained, are significantly higher as cumulative CSG receipt increases (Eyal & Njozela, 2016).

Thirdly, having a relative in a household, a higher living standard (access to basic services and shelter), a higher income, good mental health and the caregiver's positive view of their own health, are also found to be protective factors for child wellbeing in the 2017 CSDA study.

While the 2017 CSDA study focused on the *mechanisms* through which CSG receipt affects child wellbeing, other research has tried to measure the *magnitude* of the impact of the CSG. To this end, Coetzee's (2013) research used a generalised form of the propensity matching scores model to estimate the impact of the CSG on child health, nutrition and education. A positive, albeit small, effect on two of the selected outcomes (children's height-for-age and progress through the school system) was found when the effect is estimated with a continuous treatment variable. Although the paper shows some evidence of a positive effect, the estimates are small and do not provide clear evidence that CSG transfers received by caregivers are spent on maximising the wellbeing of beneficiaries.

Finally, the 2017 CSDA report concluded that there is room to enhance beneficiary wellbeing, and that family strengthening interventions are needed to scale up the positive impacts of the CSG. The study contributes to the limited evidence on the efficacy of existing parenting programmes in South Africa, especially in the context of intra-familial, family and community structures – characteristics that are seldom captured in child wellbeing assessment surveys (Minkkinen, 2013). The study has helped to support the design and implementation of appropriate family- and community-based interventions to enhance the established social protection programme.

3 Rationale and aim of this study

The NIDS dataset tracks individual respondents since 2008 in subsequent waves, making it possible to follow the well-being outcomes of the children who receive the CSG over time. Using NIDS 2014 data, this study measures the health and educational wellbeing of the same children included in the previous CSDA study, six years later. The follow up study is intended to examine the effect of CSG receipt over time, and to validate the model previously devised by the CSDA to capture the factors associated with child wellbeing.

The aim of the study is to (i) understand the relationship between family structure, caregiver characteristics, social and community structure and food security and child wellbeing; (ii) test and validate the explanatory quality of the social development model of child wellbeing; and (iii) provide policy and programmatic recommendations to enhance the positive impacts of the CSG. The analysis in this report is limited to an investigation of family context and the effect of maternal depression on CSG receipt. The impact of food security is not investigated in this report as this information is not captured in the wave 4 NIDS survey. Insofar as family context is measured, we look only at household size and not number of relatives in the household. Other research has shown that the number of adults living in a household is likely to match the number of relatives in the household.

By keeping track of families with children receiving CSGs and their well-being outcomes, the study is intended to contribute to strengthening the social protection system through revisions to policy and practice.

4 Data source and methodology

4.1. Data Source

This study uses the South African National Income Dynamic Survey (NIDS) dataset for 2008 and 2014. The NIDS is a nationally representative panel survey conducted by the South African Labour and Development Research (SALDRU) unit of the University of Cape Town[2]. The survey captures detailed information about health, migration, labour force, fertility, access to social services (e.g., CSG receipt), expenditure, and income of the respondents.

Our study aims to use the NIDS dataset to track beneficiaries and non-beneficiaries of the Child Support Grant between Wave 1 (2008) and Wave 4 (2014), in order to investigate the educational and health outcomes of the children who receive the CSG over time. Other outcome variables are not available in the NIDS, which is a limitation in assessing overall multidimensional wellbeing of children. The Wave 1 (2008) survey incorporates data on some 7 296 households, containing 31 144 household members as well as 9 605 children under the age of 14 years. The Wave 4 (2014) survey comprises 11 895 households, containing 49 540

[2] http://www.nids.uct.ac.za/

household members as well as 13 918 children under the age of 14 years. This study tracks the same children that were 0-7 years in the 2008 survey to the 2014 survey, when they were between 6-13 years, and we constructed a panel dataset of the respondents accordingly.

4.2. Methodology

We begin the empirical analysis by presenting some descriptive data of the characteristics of the sampled children, using data from 2008 and then 2014.

We then use a simple bivariate regression model to investigate whether CSG receipt is associated with children's health and educational outcomes. We therefore estimate the impact of CSG receipt on children's health and educational outcomes, using the specification below:

$$Y_{iht=}\alpha_0 + \alpha_1 CSG_{iht} + \alpha_2 X_{iht} + \alpha_3 HH_{ht} + \varepsilon_{iht} \quad (1)$$

Y_{iht} denotes educational and health outcomes for child *i*, in household *h*, and time t. CSG_{iht} is a binary (dummy) variable that represents the receipt of CSG by child *i*, in household *h*, at time *t*. X_{iht} represents a set of individual characteristics that include child and parental/caregiver characteristics such as age, gender, employment status, race variables, and other key characteristics. HH_{ht} denotes household variables such as household size, gender of the household head, marital status of the household head, education of the household head, and consumption household expenditure. Lastly, ε_{iht} represents error terms. The estimation of equation (1) takes into account province and time differences that are likely to confound our results. Hence, we controlled for these differences using province and time dummies.

For the purpose of estimating a causal effect of the receipt of CSG on children's health and educational outcomes, we generated the treated and control groups of CSG receipt by using the eligibility criteria of the child's age and means test. We make use of the information on income reported in the NIDS to calculate the means test variable, which indicates whether the caregiver qualifies for the grant.[3] The treated group is defined as children who are eligible for the CSG and receive the grant in both 2008 and 2014. The control group is defined as those children who are eligible for CSG receipt but do not receive the CSG in 2008 and 2014 respectively.

[3] The means test as at 2008 was based on a monthly income threshold of R2, 300 for single caregivers, and 4,600 for couple. However, in 2014, the amount was increased to R3, 200 for single caregiver, and R6, 400 for couple.

We can use the control group as a potential counterfactual because we expect the treated and control groups to be similar in terms of background characteristics, as opposed to the untreated and non-eligible children who will be different.

The major contribution of this study to the literature is the investigation of the role of family context in the relationship between the receipt of CSG and children's health and educational outcomes. The role of family context such as family functioning, family structure, social and community organisation, and financial capacities are examined to establish the extent to which they matter to wellbeing along with the receipt of the CSG.

We consider the role of family context, using the specification below:

$$Y_{iht=}\alpha_0 + \alpha_1 CSG * FC_{iht} + \alpha_2 X_{iht} + \alpha_3 HH_{ht} + \varepsilon_{iht} \quad (2)$$

Our parameter of interest is α_1, which captures the role of family context in the relationship between receipt of the CSG and child outcomes. Family contexts refer to household characteristics such as the presence of both or single parent in the household, presence of relatives in the household, number of resident members in the household, and mental health of the caregiver.

5 Results and findings

5.1. Descriptive characteristics of sampled children

From Table 1, the standard height-for-age for children in 2008 and 2014 sample is 0.81 standard deviations below the median of the height-for-age distribution. The weight-for-age in our sample is 0.27 standard deviations below the median weight-for-age distribution. Moreover, the weight-for-height is 0.48 standard deviations above the median weight for height distribution, and the body mass index is 0.18 standard deviations above the median body mass index distribution. The mean age of the children's entry into grade 1 is 6.6 years (although the sample includes children from 0 – 5 years old which is before school-going age), and 7 percent of children in the sample reported to have failed or repeated a grade at school, although given that these children are all in the very early years of schooling, this is not indicative of the likely grade repetition rate in the future. The average age of children in the sample is 6.4 years old, and 51 percent of them are male.

For the household characteristics, the average house size is 7 members, higher that the national average of 3,3 (StatsSA, 2016), and 81 percent of the sampled children reported that they were still receiving the CSG in 2014. Also, 60 percent of children live in a female-headed household, 40 percent of the household heads are married, 35 percent of the sampled children have their biological father as a household resident, and 64 percent of the sampled children have their biological mother resident in the household.

Table 1: Summary Statistics of some variables used in the analysis

Variable	Mean	Standard Deviation
Child Outcomes		
Height-for-age z score	-0.8132	1.3490
Weight-for-age z score	-0.2713	1.3762
Weight-for-height z score	0.4824	1.4536
BMI z score	0.1831	1.3451
Age child started grade 1	6.6607	1.2719
Exam failed or repeat grade	0.0718	0.2581
Grade completed	3.0652	2.3522
Child Characteristics		
Age	6.4357	3.9956
Gender (male=1)	0.5090	0.4999
Household Characteristics		
Household size	7.2063	3.8489
CSG Receipt	0.8076	0.3942
Male headed household	0.4045	0.4908
Household head married	0.4029	0.4905
Father is resident in the HH	0.3539	0.4782
Mother is resident in the HH	0.6440	0.4788
Total household expenditure (month)	5019.4	7484.422
Observations	8,778	

Table 2 presents the mean difference of the receipt and non-receipt of the CSG, using the 2008 and 2014 data. The treated group reported higher household consumption expenditure compared to the control group. The difference between the two groups is statistically significant at a 10 percent level. There is no statistical mean difference in household size between the treated and control group. For households not receiving the CSG, 54 percent are female-headed, whereas of households receiving the CSG, 65 percent are female-headed households. For our outcomes variables, we found no statistical difference in terms of standardized height-for-age of the children between beneficiaries and non-beneficiaries of the CSG. We however, obtained different results for the standardised weight-for-age of the CSG beneficiaries and non-beneficiaries: the recipients of the CSG weigh less compared to the non-beneficiaries of the CSG. Moreover, we found a statistical difference in BMI z scores, age at first enrolment and grade completion between recipients of the CSG and non-recipients of the CSG. CSG beneficiaries had a lower BMI z score than the non-beneficiaries, which follows from the finding that weight for age is lower for CSG recipients. Children in poorer households may weigh more due to consumption of lower nutritional, cheaper foods. Beneficiaries of the CSG enrolled in school earlier than non-beneficiaries and completed more grades.

Table 2: Mean difference of the receipt of CSG, child and household characteristics

Variable	Control	Treated	Difference
Household expenditure	1261.4880 (40.9661)	1421.5740 (39.7855)	-160.086* (93.84233)
Household size	6.9059 (0.1319)	7.121938 (0.05808)	-0.2160 (0.1452)
Female headed household	0.5393 (0.0187)	0.6461 (0.0078)	-0.1068*** (0.0197)
Household head married	0.4129 (0.0185)	0.3892 (0.0080)	0.3930 (0.0073)
HAZ	-0.8769 (0.0465)	-0.8370 (0.0186)	-0.0399 (0.0473)
WAZ	-0.2295 (0.0554)	-0.3267 (0.0224)	0.0973* (0.0563)

Variable	Control	Treated	Difference
WHZ	0.4712 (0.0810)	0.5027 (0.0399)	-0.0315 (0.0889)
BMI Z Score	0.2803 (0.0476)	0.1309 (0.0187)	0.1495*** (0.0482)
Age at first enrolment	6.8030 (0.0646)	6.6559 (0.0231)	0.1470** (0.0644)
Grade completion	3.0468 (0.0402)	3.3618 (0.1261)	-0.3150*** (0.1127)
Failed or grade repetition	0.0778 (0.0054)	0.0746 (0.0138)	0.0032 (0.0151)

Note: Standard errors are in parentheses. ***, ** and * represent significance at 1 percent, 5 percent and 10 percent levels respectively.

5.2. Regression analysis

Table 3 presents the regression results, measuring the impact of the CSG on children's school outcomes using two proxies. We investigate the effect of the receipt of the CSG on (i) age at first enrolment in school (ii) grade repetition and (iii) grade completion. We found the CSG beneficiaries are more likely to enrol in school at an earlier age compared to non-beneficiaries of the CSG. More precisely, receipt of the CSG lowers the age of first enrolment of the child by 0.04 years. This outcome means that a small proportion of children were enrolled a year earlier than the mandatory age, and these children were more likely to be in the CSG recipient group. However, we found no statistically significant results for other measures of educational outcomes – failed or repeat grade and grade completion. The regression controls for child and household characteristics, as well as province and year dummies.

Table 3: Effect of the receipt of CSG on children's educational outcomes

Variable	Age at first child enrolment	Failed or repeated grade	Grade completion
CSG Receipt	-0.0420*	0.0202	0.0140
	(0.0288)	(0.0624)	(0.0408)
Household size	0.4957**	-0.0138**	-0.01613
	(0.2119)	(0.0061)	(0.0161)
Age in Years	-0.0829	0.0256	0.1563
	(0.2138)	(0.0477)	(0.1188)
Education of HH	-0.0171	0.0020	-0.0069
	(0.0117)	(0.0025)	(0.0068)
Urban	0.6385*	-0.1141	-0.4060*
	(0.4279)	(0.1020)	(0.2437)
African	0.5061	-0.5399	-0.0289
	(3.2594)	(0.3821)	(0.0402)
Quintile 2	0.1325	0.0139	-0.0880
	(0.2030)	(0.0409)	(0.1113)
Quintile 3	0.4957**	-0.0289	-0.140804
	(0.2118)	(0.0402)	(0.1139)
Quintile 4	0.3062	-0.0258	-0.2114*
	(0.2617)	(0.0576)	(0.1478)
Quintile 5	0.1077	-0.0293	0.0032
	(0.3621)	(0.0646)	(0.1817)
Constant	6.4899***	0.4647*	-1.7122*
	(1.9641)	(0.3120)	(0.9228)
Year dummy	✓	✓	✓
Province dummies	✓	✓	✓
R-squared	0.1435	0.0643	0.4814
Observations	4458	2724	3574

Note: Standard errors are in parentheses. ***, ** and * represent significance at 1 percent, 5 percent and 10 percent levels respectively.

Table 4 presents the regression results for the impact of receipt of the CSG on children's health indicators. The two measures used in our analysis as proxies for health outcomes are standardised height-for-age and standardised weight-for-age. We found that the receipt of the CSG is positively associated with children's standardised height-for-age and weight-for-age.

This means that receipt of the CSG is associated with higher height for age when controlling for other variables despite having found no statistical difference in the mean height for age of recipients and non-recipients. And receipt of the CSG is associated with higher weight for age when controlling for other variables, despite finding that CSG recipients weigh less than non-recipients on average. Specifically, receipt of the CSG is positively associated with height-for-age z scores of the child by 0.0057, and also positively associated with weight-for-age z scores by 0.1711. This means that, after adjusting for other socio-economic effects, CSG recipients, on average, had a significantly higher mean HAZ (height for age) than non-CSG recipients. HAZ is a standardised score measuring stunting. Any HAZ value < -2SD indicates stunting and HAZ<-3 SD indicates severe stunting. However, we found no significant relationship between receipt of the CSG and children's standardised body mass index of the sample children. The regression takes into account year and province fixed effects accordingly.

Table 4: Effect of the receipt of CSG on children's health outcomes

Variable	HAZ	WAZ	ZBMI
CSG Receipt	0.0057*	0.1711*	0.1092
	(0.0038)	(0.1160)	(0.0834)
Household size	0.0098	0.0007	-0.0182**
	(0.0082)	(0.0137)	(0.0090)
Age in Years	-0.0594	0.0529	0.0214
	(0.0695)	(0.1159)	(0.0764)
Education of HH	0.0761	-0.0034	0.0015
	(0.0747)	(0.0069)	(0.0042)
Urban	0.0106	-0.1458	-0.1727
	(0.1292)	(0.2173)	(0.1449)
African	0.6523*	-1.8326**	-0.8895*
	(0.4780)	(0.7269)	(0.5699)
Quintile 2	0.2252	0.0287	-0.0039
	(0.3453)	(0.1057)	(0.0690)
Quintile 3	0.0196	0.0912	-0.0614
	(0.0661)	(0.1134)	(0.0732)
Quintile 4	0.0736	0.0216	-0.0511

	(0.0793)	(0.1347)	(0.0867)
Quintile 5	0.1167 (0.1035)	-0.1547 (0.1833)	-0.0388 (0.1138)
Constant	-0.7603* (0.4528)	0.6376 (0.6469)	0.5819 (0.4962)
Year dummy	✓	✓	✓
Province dummies	✓	✓	✓
R-squared	0.0445	0.0566	0.0964
Observations	5735	4000	5564

Note: Standard errors are in parentheses. ***, ** and * represent significance at 1 percent, 5 percent and 10 percent levels respectively.

Following Casale (2016) we used the standard WHO cut-offs to classify children as stunted, i.e. height-for-age z-score (HAZ) <≈ 2 (in other words, the child's height-for-age is two standard deviations below the mean of a healthy reference population), whereas severe stunting is HAZ <≈3. Moreover, there are different ways of classifying children as overweight and obese. Overweight is defined as a BMI z-score >2 for children under 5 years and > 1 for children aged 5-14 years, and obese is defined as a BMI z-score >3 for children under 5 years and > 2 for children aged 5-14 years.

Table 5 shows the relationship between receipt of the CSG and additional indicators for children's health outcomes. The result in Column (1) shows that beneficiaries of the CSG are less likely to be stunted compared to non-beneficiaries of the CSG. More specifically, beneficiaries of the CSG are 5 percentage points less likely to be stunted compared to non-beneficiaries of CSG. In Column (3), we found the receipt of the CSG to be associated with a child being overweight. Receipt of the CSG increases the probability of a child being overweight by 6 percentage points relative to a non-beneficiary of the CSG. However, we found no significant relationship between the receipt of the CSG and children being severely stunted or obese.

Table 5: Effect of the receipt of CSG on children's health outcomes

Variable	Stunted	Severe Stunted	Overweight	Obese
CSG Receipt	-0.0506**	-0.0071	0.0562***	0.0265
	(0.0225)	(0.0141)	(0.0205)	(0.0202)
Household size	0.0010	-0.0031**	-0.0055**	-0.0002
	(0.0025)	(0.0015)	(0.0025)	(0.0022)
Age in Years	0.0080	0.0114	0.0449**	0.0643***
	(0.0209)	(0.0132)	(0.0201)	(0.0186)
Education of HH	-0.0036**	-0.0017**	-0.0019*	-0.0022**
	(0.0011)	(0.0007)	(0.0011)	(0.0010)
Urban dummy	-0.0148	-0.0266	-0.0590*	-0.0573*
	(0.0390)	(0.0245)	(0.0367)	(0.0351)
Population group (1=African)	0.0192	0.0159*	0.1317	-0.0123
	(0.0188)	(0.1581)	(0.1660)	(0.1366)
Quintile 2	0.0050	-0.1067*	0.0009	0.0039
	(0.0199)	(0.0655)	(0.0186)	(0.0169)
Quintile 3	0.0029	0.0368*	-0.0198	-0.0000
	(0.0239)	(0.0196)	(0.0197)	(0.0179)
Quintile 4	0.0029	0.0115	0.0012	0.0132
	(0.0239)	(0.0150)	(0.0235)	(0.0213)
Quintile 5	0.0111	0.0528	0.0175	0.0466*
	(0.0313)	(0.0847)	(0.0308)	(0.0280)
Constant	0.2558*	0.0876	0.0994	-0.0325
	(0.1366)	(0.0859)	(0.1293)	(0.1217)
Year dummy	✓	✓	✓	✓
Province dummies	✓	✓	✓	✓
R-squared	0.0807	0.0693	0.0126	0.0336
Observations	5735	5735	6755	5842

Note: Standard errors are in parentheses. ***, ** and * represent significance at 1 percent, 5 percent and 10 percent levels respectively.

5.3 The Role of Family Context

We examine the role of family context in three ways: first, we look at the effect of both parents present in the household that receive the CSG; second, we look at the effect of the CSG being received directly by a parent in a household versus a household where the CSG is received by any other caregiver; third, we consider the impact of the number of adults present in the household that receives a CSG. Table 6 presents the regression results when we test the effect of the interaction between receipt of the CSG and households where both parents are present (two-parent households). Column (2) shows that two-parent households receiving the CSG are less likely to have a stunted child compared to single-parent households receiving the CSG. Specifically, a two-parent household reduces the probability of child stunting by 10 percentage points. Other research has shown that children living in two-parent households are more advantaged than children growing up in single-parent, step-parent or grandparent-headed households (Amoateng, Heaton & Mcalmont, 2017; Argeseanu & Elo, 2006). Growing up with

both parents in the household has been shown to be correlated with greater investment in children's education, health and overall wellbeing (Sewpaul & Pillay, 2011). But this finding has been challenged in other studies which have shown that children in female-headed households perform better in educational outcomes than those raised by two biological parents (Amoateng, Heaton & Mcalmont, 2017). One reason for the positive result in this report may be that two-parent households provide increased food-security which reduces the likelihood of child stunting. We however found no statistical relationship between two parents' households and other child wellbeing outcomes.

Table 6: The Role of Family Context in the Receipt of CSG (both parents household)

Variable	Age at first child enrolment	Stunted	Severe Stunting	Overweight	Obese
CSG Receipt	0.3070	-0.0351*	-0.0045	0.0627***	0.0291
	(0.2866)	(0.0231)	(0.0145)	(0.0212)	(0.0208)
CSG*both parents	0.0665	-0.0630***	-0.0104	-0.0250	-0.0102
	(0.2394)	(0.0220)	(0.0138)	(0.0222)	(0.0197)
Additional Control	✓	✓	✓	✓	✓
Constant	6.5038***	0.2409*	0.0851	0.0952	-0.0342
	(1.9673)	(0.1364)	(0.0859)	(0.1293)	(0.1217)
Year dummy	✓	✓	✓	✓	✓
Province dummies	✓	✓	✓	✓	✓
R-squared	0.1437	0.0845	0.0695	0.0130	0.0337
Observations	3508	5735	5735	6755	5842

Note: Standard errors are in parentheses. ***, ** and * represent significance at 1 percent, 5 percent and 10 percent levels respectively. Additional control variables used include household size, child age in years, education of household head, urban dummy, population group dummy (1=African), and expenditure quintiles.

From Table 7, Column (2) shows that direct receipt of the CSG by the child's parents reduces the probability of the child being overweight compared to non-parent recipient of the CSG. Although we found that receipt of the CSG increases the likelihood of a child being overweight, the magnitude of the impact is reduced when the recipients of the CSG are the children's parents. We however found no statistical relationship between parent's direct receipt of the CSG and other indicators of children's educational and health outcomes.

Table 7: The Role of Family Context in the Receipt of CSG (Parent Receipt of CSG)

Variable	Age at first child enrolment	Stunted	Severe Stunting	Overweight	Obese
CSG Receipt	0.1738	-0.0054	-0.0030*	0.1033**	0.0348
	(0.4177)	(0.0461)	(0.0017)	(0.0480)	(0.0405)
CSG*parent receipt	-0.2651	0.0230	-0.0099	-0.0404*	-0.0019
	(0.2675)	(0.0265)	(0.0146)	(0.0267)	(0.0231)
Additional Control	✓	✓	✓	✓	✓
Constant	6.1144***	0.3245*	-0.0434	-0.0249	-0.0008
	(1.8571)	(0.1761)	(0.1068)	(0.1836)	(0.1579)
Year dummy	✓	✓	✓	✓	✓
Province dummies	✓	✓	✓	✓	✓
R-squared	0.1666	0.0626	0.0708	0.0134	0.0392
Observations	3186	4934	4934	5542	5043

Note: Standard errors are in parentheses. ***, ** and * represent significance at 1 percent, 5 percent and 10 percent levels respectively. Additional control variables used include household size, child age in years, education of household head, urban dummy, population group dummy (1=African), and expenditure quintiles.

Next we consider the effect of the number of residents in the household on CSG receipt. In the 2017 CSDA study we looked at the number of relatives present in the household. Investigating the effect of the number of relatives in the household yields similar results to the number of household members. We examine here the latter. Table 8 presents the regression results of the interaction between receipt of the CSG and number of household residents. From Column (2), we found that the number of household residents is positively associated with child stunting. Specifically, an increase in the number of household residents increases the probability of child stunting by 2.21 percentage points. It is possible that this is the consequence of sharing limited resource for food with more household members, reducing the nutritional intake of the child. We found no significant association between the interaction of CSG receipt and the number of household residents, using other measures such as age at first child enrolment, severe stunting, overweight and obesity as the dependent variable.

Table 8: The Role of Family Context in the Receipt of CSG (Number of Household Residents)

Variable	Age at first child enrolment	Stunted	Severe Stunting	Overweight	Obese
CSG Receipt	0.0202 (0.0624)	-0.0228* 0.0138)	-0.0613 (0.2014)	0.0171 (0.0160)	0.0171 (0.0160)
CSG*HH Residents	-0.0624 (0.2015)	0.0449** (0.0201)	0.0171 (0.0160)	-0.1801 (0.2718)	-0.1903 (0.2717)
Additional Control	✓	✓	✓	✓	✓
Constant	-2.5380 (3.9591)	18.3232*** (3.1709)	0.0014 (0.0020)	42.1266*** (4.0827)	- 0.0208*** (0.0020)
Year dummy	✓	✓	✓	✓	✓
Province dummies	✓	✓	✓	✓	✓
R-squared	0.1330	0.0258	0.0920	0.0110	0.0125
Observations	3186	4934	4934	5542	5043

Note: Standard errors are in parentheses. ***, ** and * represent significance at 1 percent, 5 percent and 10 percent levels respectively. Additional control variables used include household size, child age in years, education of household head, urban dummy, population group dummy (1=African), and expenditure quintiles.

Drawing on the findings of the 2017 CSDA study which found that caregiver depression had a significant effect on lower levels of child well-being, we consider next the impact of caregiver health status and, following this, caregiver depression on CSG receipt. Table 9 presents the regression results of the interaction between health status of the caregiver and the receipt of the CSG. The health status of the caregiver is based on the self-reported health status perception of the caregiver's health. The health status is a self-reported categorical variable, which includes: (1) Excellent (2) Very good (3) Good (4) Fair (5) Poor. We recoded the variable to 1 or 0, where 1 denotes poor health status and 0 otherwise. From Column (1), we found that the interaction of CSG and poor health status is not significantly associated with any of the child outcomes (age at first child enrolment, stunted, severe stunting, overweight, and obese).

Table 9: The Role of Family Context in the Receipt of CSG (Health Status of the Caregiver)

Variable	Age at first child enrolment	Stunted	Severe Stunting	Overweight	Obese
CSG Receipt	-0.1801 (0.2718)	-0.3051** (0.0965)	-0.0590* (0.0367)	-0.0123 (0.1366)	0.0132 (0.0213)
CSG*Health Status	0.0012 (0.0235)	0.0171 (0.0160)	0.0029 (0.0239)	0.5819 (0.4962)	0.0175 (0.0308
Additional Control	✓	✓	✓	✓	✓
Constant	0.0309 (0.0135)	0.0981 (0.4513)	6.5605*** (0.0846)	1.1539** (0.5840)	3.0527 (10.9040)
Year dummy	✓	✓	✓	✓	✓
Province dummies	✓	✓	✓	✓	✓
R-squared	0.1666	0.0626	0.0708	0.0134	0.0392
Observations	3186	4934	4934	5542	5043

Note: Standard errors are in parentheses. ***, ** and * represent significance at 1 percent, 5 percent and 10 percent levels respectively. Additional control variables used include household size, child age in years, education of household head, urban dummy, population group dummy (1=African), and expenditure quintiles. Health status is a categorical variable, which include: (1) Excellent (2) Very good (3) Good (4) Fair (5) Poor. We recode the variable to be 1 or 0 outcome, which 1 denotes poor health status and 0 otherwise.

Table 10 presents the regression results of interacting mental health of the caregiver with receipt of CSG. Mental health is measured using the 10-item Center for the Epidemiological Studies of Depression short form (CES-D), following the methodology used in the 2017 CSDA study. The CES-D is used to measure depressive symptoms internationally and a number of studies show that it strongly predicts clinical diagnoses of depression and anxiety disorders. The total score is calculated by finding the sum of 10 items and any score equal to or above 10 is considered depressed. We found that the coefficient of the interaction between the receipt of CSG and depression is positive and statistically significant. This means a CSG recipient that is depressed is more likely to be associated with child stunting. Specifically, in terms of magnitude, a CSG recipient that is depressed increases the likelihood of child stunting by 7 percentage points. The direction of causality is not shown here. We, however, found no significant association between the interaction of CSG and depression for other child outcomes including age at first child enrolment, severe stunting, overweight, and obesity.

Table 10: The Role of Family Context in the Receipt of CSG (mental health of the Caregiver)

Variable	Age at first child enrolment	Stunted	Severe Stunting	Overweight	Obese
CSG Receipt	0.0660 (0.0580)	-0.0150* (0.0060)	-0.0010 (0.0030)	0.0330** (0.0170)	0.0100 (0.0220)
CSG*depression	0.0040 (0.0030)	0.0810* (0.0320)	-0.0020 (0.0010)	0.0040 (0.0030)	-0.0102 (0.0197)
Additional Control	✓	✓	✓	✓	✓
Constant	0.0750*** (0.0210)	0.0100* (0.0220)	0.0150 (0.0250)	0.0952 (0.1293)	-0.0400 (0.0340)
Year dummy	✓	✓	✓	✓	✓
Province dummies	✓	✓	✓	✓	✓
R-squared	0.0156	0.0115	0.0246	0.0184	0.0221
Observations	3508	5735	5735	6755	5842

Note: Standard errors are in parentheses. ***, ** and * represent significance at 1 percent, 5 percent and 10 percent levels respectively. Additional control variables used include household size, child age in years, education of household head, urban dummy, population group dummy (1=African), and expenditure quintiles.

6 Conclusion

The two key child wellbeing outcome variables, health and educational, that were assessed in our statistical analysis generated the following results:

First, in comparing the treated group to the control group, we found that the treated group reported higher household consumption expenditure. Moreover, we found statistical differences in age at first enrolment and grade completion between recipients of the CSG and non-recipients of the CSG. Beneficiaries of the CSG enrolled in school earlier than non-beneficiaries and completed more grades.

Second, the regression analysis assessed the effect of receipt of the CSG on children's educational outcomes. We found the CSG beneficiaries are more likely to enrol in school at an

earlier age compared to non-beneficiaries of the CSG. More precisely, receipt of the CSG lowers the age of first enrolment of the child by 0.04 years. This means that of those children enrolling in school a year before mandatory age, they are more likely to be CSG recipients than not.

Third, considering children's health outcomes, we found that the receipt of the CSG is positively associated with children's standardised height-for-age and weight-for-age. Specifically, receipt of the CSG increases height-for-age z scores of the child by 0.0057, and also increases weight-for-age z scores by 0.1711. Therefore CSG recipients, on average, had a significantly higher mean HAZ (height for age) than non-CSG recipients.

Fourth, we investigate the role of family context and receipt of the CSG by a parent directly, and the effect of the size of the household on receipt of CSG. We find that two-parent households receiving the CSG are less likely to have a stunted child compared to single-parent households receiving the CSG. Specifically, two-parent households reduce the probability of child stunting by 10 percentage points. Direct receipt of the CSG by the child's parents is found to reduce the probability of the child being overweight. Although we found that receipt of the CSG increases the likelihood of a child being overweight, the magnitude of the impact is reduced when the recipients of the CSG are the children's parents. The higher likelihood of children who receive the CSG being overweight is possibly due to higher consumption of cheaper and lower nutritional value foods. The number of household residents is found to be positively associated with child stunting. Specifically, an increase in the number of household residents increases the probability of child stunting by 2.21 percentage points.

Fifth, we consider the effect of the caregiver health status and depression on receipt of the CSG. The interaction of CSG and poor health status is not significantly associated with any of the child outcomes. But, a CSG recipient that is depressed is found to be associated with child stunting. Specifically, in term of magnitude, a CSG recipient that is depressed increases the likelihood of child stunting by 7 percentage points.

In interpreting the findings, the following limitations or caveats should be noted:

1. Only health and educational outcome variables are considered in the statistical model.
2. Not all of the mechanisms previously identified in our model of child wellbeing are tested in the statistical analysis in this report. We do not test the impact of food security

on child-wellbeing outcomes, in households that receive the CSG, in this study. This analysis is omitted because the questions on food security in wave 1 are dropped in the wave 4 NIDS survey.

3. For family structure the only differences we consider are the effect of two-parent households compared to single parent households as well as the effect of household size, which is closely related to number of relatives in the house. This study cannot take account of the diversity of family structures common in South Africa, such as household with multiple relatives and three generational families because such diverse family structures are difficult to identify using the NIDS dataset.
4. In relation to date of first enrolment in school, the analysis here was done using whole numbers in years for age. A more specific answer could be obtained by using the exact age of the child in months and days. This is recommended for future research.
5. This study was intended to validate the model previously devised by the CSDA to capture the factors associated with child wellbeing, by testing the relationship between family structure, caregiver characteristics, social and community structure and food security and child wellbeing. Data limitations, specifically the removal of food security from the NIDS questionnaire in wave 4, prevented the completion of a comprehensive validation exercise.

7 References

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