Rethinking Economic Policy for South Africa in the Age of Covid-19:
Innovative policy responses for the post-lockdown Phase

Fragmented Social intervention versus a Basic Income Grant

Fragmented Social intervention versus a Basic Income Grant: An exploratory analysis for South Africa

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Abstract

Study Purpose
This paper considers a Basic Income Grant as an alternative to the current fragmented social intervention in South Africa. It investigates the advantages and disadvantages of such policy change on poverty, inequality and fiscal sustainability of social assistance in South Africa.
Research objectives
The two research objectives that this study explores are; a) what are the poverty and inequality effects of replacing old age pension and child support grant with a basic income grant? b) what are the fiscal implications of adopting a basic income grant?
Data
The study uses the National Income Dynamic Study (NIDS) and the National Income Dynamic Study- Coronavirus Rapid Mobile (NIDS-CRAM) surveys.
Main finding and limitation
The result indicates that while a basic income grant might be more expensive in the short run, the removal of incentives for higher fertility in poorer households, will not only reduce poverty and inequality, but also improve the fiscal sustainability of social assistance in the long run. However, the caveat of our study is that we are not able to model with complete certainty the change in long-run procreation behaviour in poor households resulting from a shift from child support grant to basic income grant.

Key words: Social assistance programme; Basic Income Grant; Child Support Grant; Poverty; Inequality; Fiscal sustainability

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Executive Summary

While South Africa's public transfer system is designed to target the most vulnerable, it also raises the concern that some households without individuals with qualifying age profiles (e.g. elderly for Old Age Pension or children for the Child Support Grant) may be left behind. The objective of the current study is to reimagine the fragmented transfer system to ensure both short and long term benefits in terms of alleviating poverty and inequality. Using data from National Income Dyamcs Study (NIDS) and NIDS-CRAM (Coronvirus Rapid Mobile Survey), the study makes a case for a basic income grant (BIG) in South africa to replace the Child Support Grant (CSG) and Old Age Pension (OAP). The following are the main findings of this exploratory analysis:

- The current fragmented social transfer system, despite its limitations, plays a vital role in reducing poverty and inequality in the country. Without it, poverty rate would be 16 per cent higher and Gini would be 9 points higher. The poverty gap and poverty severity as well is significantly lower due to the current transfer system.

- However, 1.2 million of the poorest live in households that are left outside of the social security net under the fragmented system. This accounts for 5.6% of the poor living in households without any form of support.

- The study estimates 44% of population to be below the food poverty line (R585 pm) in February 2020. The government has provided temporary relief through top-ups of OAP, CSG and introduction of Covid Social Relief of distress grant. The Covid social relief of distress grant has brought 4% of population under the coverage of social security for the first time.

- May 2020 saw a per child top-up of R300 per CSG, while this was replaced with per caregiver top-up of R500 in June-October. As a result, poverty rate declined to 38% and 40% under the May and June-October policies.

- A comparison of the May policy and the June-October shows that the income distribution under the former is slightly to the right of the latter resulting in a marginally higher Gini coefficient (by 0.003 points) and an estimated half a million more individuals (1% of total population) fall below the poverty line under the June-October policy relative to the May policy.

- The poverty impact of the shift from per child to per caregiver policy has been marginal from a national average perspective. The study finds that a household has to receive up to 4 CSGs on an average under the per child top-up policy in order to reduce the probability of living in poverty.

- The poverty gap difference between the May and June-October policy also is marginal (0.01 points). Therefore, in terms of headcount poverty, poverty gap and poverty severity, the change has not been massive between per child top up and per caregiver top up.

- Ideally, CSG should assist in breaking the cycle of poverty across generations by providing additional support for the health, education and overall well-being of the child, and most importantly transition the child from poverty as an adult.

- Contrary to this, we find evidence of CSG being used as a livelihood supplementation strategy resulting in higher fertility rate and larger household sizes. This has the perverse effect of increasing poverty as the CSG amount is lower than the food poverty line.

- Following from the above, it is not surprising then that there is intergenerational transfer of poverty with little evidence of income mobility through CSG. With the CSG beneficiaries having a significantly higher probability of depending on CSG for their own children.

- These findings imply that built-in incentive of CSG to drive up the population would lead to increased fiscal burden in future years without the resultant improvement in poverty and inequality.

- The study hence looks at Basic Income Grant (BIG) for adults as a policy alternative that would not leave any household behind and does not provide the perverse incentive of increasing fertility. A BIG of R1200 (upper bound poverty line) is expected to reduce poverty rate, poverty gap and poverty severity by half.

- It is important to note that the upper bound poverty line as at August 2020 is R1, 268. Therefore, the fact that there will still be 19% of the population under the food poverty line of R585/person/month under the BIG1200 policy is an indication of the number of children (minor dependents) in these households.

- The cost of following a hybrid model, BIG along with the continuation of the existing CSG, will be especially high while transitioning from a fragmented model to a BIG. But this can ensure that big size families already receiving more than 3 CSGs are not compromised due to the transition.

- As these simulations are based on Covid economic scenario, the poverty figures are expected to improve further as the economy bounces back.

- The biggest hindrance to the introduction of a BIG is the fiscal cost. The study estimates the BIG1200 and BIG1800 policies will require 150% and 275% more than the current budgeted allocation. While this looks discouraging, the study argues that the long run implications of a BIG on poverty and inequality will be more effective than the current fragmented social support system which encourages population increase and reduces the probability of income mobility.

- In the absence of ability to implement BIG, there is a need to consider radical alternate policies. One of the options is to consider a female BIG (FBIG) exclusively for women. Although the immediate poverty and inequality benefits of FBIG will not be as substantial as discussed for BIG, this will have the additional benefit of empowering women in a country that is ravaged by gender-based violence. Further, female BIG will reduce the wage gap in the country. Also,

as shown by Duflo (2003), the efficiency of public transfer programs may depend on the gender of the recipient. Following the same argument, BIG to women are more likely to benefit the household and children as a whole, providing additional motivation for Female Basic Income Grant (FBIG) as an effective form of public transfer program within the current fiscal constraints.

- An FBIG is not a radical departure from the existing system as it may appear at first glance. The current system already has a bias towards women built into it with over 97% of CSG being received by women on behalf of the children. Kohler & Bhorat (2020) shows that the overwhelming majority of recipients of every grant type (with the exception of the War Veteran's Grant) are women. The study therefore suggests that a means-tested female BIG, without conditioning on dependent children, will serve the national priorities better in the long run.

- There is a need to rethink the social support system in South Africa. While this study makes a benchmark contribution towards this end, further studies using administrative data is required to give shape to a new policy approach to the problem of poverty, unemployment and inequality in the country. More work needs to be done to identify an appropriate income threshold to apply the means-test to substitute the varied thresholds applied under the current fragmented system.

Introduction

South Africa has a fragmented approach to social security, designed to target the most vulnerable. Of the eight transfer programs[3] in South Africa, old age pension (OAP) and child support grant (CSG) are by far the most important, representing 71% of total transfers in the country (Kohler & Bhorat, 2020). While these transfers are designed to target the most vulnerable, it also raises the concern that some households without members with qualifying age profiles (e.g. 60 years and above for OAP or children under 18 years of age for the CSG) may be left behind. In a context of high unemployment, this means that many poor households are left behind[4]. The structure of social assistance will therefore have implication for poverty and inequality in the country. This is perhaps more important now because of employment and income losses as a result of the COVID-19 pandemic.

The COVID-19 pandemic and the subsequent lockdown response to it is having a devastating impact on all fronts of the South African economy. With 49.2% of the population under the (upper bound) poverty line prior to the pandemic[5], this figure is expected to have increased substantially in 2020. The government has put in place a series of fiscal interventions to ease the blow on the most vulnerable. This has taken the form of a Special COVID-19 Social Relief of Distress (SRD) pay-out of R350 per month, for the period from May until October 2020. This grant is for individuals above the age of 18 years with no other income and not receiving any another grant or support from the government. The additional measures put in place includes topping-up of the payout to grant recipients. Recipients of the Child support grant (CSG) received an additional R300 per child in May and, from June to October the per child grant top up was replaced with per caregiver receiving an additional R500 each month. All other grant beneficiaries like old age pensions (OAP) received an extra R250 per month for the six month period May-October 2020.

The intervention through the Child support grant (CSG) top-up has kick-started a debate on whether this needs to be tailored per child or per caregiver. The two approaches would result in a differentiated impact on households qualifying for child support grant based on the number of benefiting children. It is straight forward to argue that households with a single child will benefit more on a per capita basis through the lumpsum caregiver supplementation rather than per child approach. Contrary to this, households with more than one child will benefit more through the per child supplementation strategy. A payment increase per caregiver means that instead of a household with two children receiving an additional R600 per month under the R300 per child top-up, they will only get an additional R500 – the

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3 Old age pension grant, Social Relief of Distress, Grants-in-aid, Child Support Grant, Foster Care Grant, Care Dependency Grant, War Veteran's Grant and Disability Grant.
4 One can argue that lack of employment or income is a vulnerability in itself
[5] See http://www.statssa.gov.za/?p=12075

same amount as a family with one child. This has been condemned by civil society groups and researchers who called for grant increases per child (Maeko & Mathe, 2020).

The incentive structures that the two different types of CSG intervention create for the long run are also different. The per child strategy incentives are aligned with that of the normal child support grant where the household can maximise benefit by increasing the number of children (Jagannathan & Cammasso, 2003). Whether the child support grant has incentivised more child births among the recipients is yet to be studied fully. Existing studies only look at the timing of the first childbirth (in particular teen pregnancy), and the gap between first and second child birth (Udjo 2013, Rosenburg et al. 2015). While these studies suggest that the CSG does not incentivise childbirth, Kollamparambil (2019) and Oyenubi & Kollamparambil (2020) provide evidence that points in the opposite direction. The authors show that over the last decade, birth attempts are higher for recipients when compared with non-recipients of the CSG. This would indicate the presence of perverse incentive. In relation to the top-up structure, this would be indicative of per caregiver strategy being a more prudent strategy keeping in mind the perverse incentive structure of per child strategy and the long run fiscal burden that this entails. Per caregiver strategy boils down to a basic income grant for the qualifying individuals while the current CSG strategy (even without top-up) is per child in nature.

Another aspect to grants is the amount dispensed (per month). This is important especially for the CSG. While the pre-COVID CSG amount of R430 /child/month may be an important source of income for poor households where there is no other source of income (or income is very small compared to the cost of living), it is just below the Food Poverty Line (R585 as at April, 2020[6]). The implication of this is that the amount falls short of the investment required to give a benefiting child a reasonable chance of breaking the cycle of poverty. Especially, in a country where intergenerational earning mobility is low (Piraino, 2015). In other words, a child that benefits from the CSG now may also need to rely on the fiscus when he/she becomes a parent. The most substantial grant in South Africa is the Old age pension (OAP) grant (at a pre-COVID value of R1,860/person/month). Evidence in the literature suggests that the OAP is useful in providing investments that are unrelated with food security. For example, households with elderly (over 60 years) are able to sustain the unemployed through this grant (Sienaert, 2008), they are also able to facilitate job search and migration (Maitra and Ray, 2003). However, death of the elderly leaves the dependents with little recourse.

Given the foregoing, this study argues that a substantial Basic Income Grant (BIG) for adults (who satisfy the requirement of a mean test) may be a more productive and sustainable form of social security for a number of reasons. First, given the argument in Oyenubi & Kollamparambil (2020), a BIG may

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[6] See https://www.farmersweekly.co.za/agri-news/south-africa/stats-sa-adjusts-food-poverty-line-to-r585-per-month/

curtail perverse incentive that may be associated with the per-child grant (i.e. caregivers having multiple births to increase grant amount or prolong their stay on the CSG roll). Second, a substantial BIG can assist individuals to make investment that may facilitate their ability to escape poverty through job search (similar to the OAP) or entrepreneurial activities. Third, this automatically takes care of individuals who are poor but remain helpless because they don't live with people that satisfy age profile under the current social assistance framework. There is hence a case for a cohesive form of social support rather than the current fragmented approach. It is however important to note that a BIG may be more expensive for the fiscus, at least in the short run.

There have been calls for the government to extend the current top-up structure given that the impact of COVID-19 on the labour market still remains even though the economy is opening up. Kohler & Bhorat (2020) argue that the extension of the current grant package (i.e. the one prevailing between June and October) may be preferable to a BIG (at R1,200/person/month) because based on their simulation the former will lead to the greatest reduction in poverty for a given amount spent. However, this conclusion is based on the short-term impact of the current strategy. Given the argument in Oyenubi & Kollamparambil (2020) this strategy may be more expensive in the long-run if the per-child component of it encourages childbearing as a way to gain or maintain access to the CSG roll. Interest of policy makers should not only be on reducing poverty now, some weight should be given to sustainability of the social assistance system.

In this paper we consider the OAP, CSG and SRD since the first two account for over 70% of total grants dispensed in South Africa and the last one, introduced temporarily, is in line with a basic income grant that is only based on a means test. We estimate the poverty and income inequality effect of the per child versus the per caregiver strategies (as implemented during the pandemic). We then explore the implication of the number of children in the household for the welfare of the household under the two strategies. Specifically, Kohler & Bhorat (2020) estimate show that 66.8% of CSG-receiving households receive more than one CSG[7]. The implication is that these households will lose income under the per-caregiver top-up (and the amount that will be lost will depending on the number of children benefiting from the CSG). This will have implication for household and overall poverty and inequality (we call this segment as analysis 1, for ease of reference). Next, we consider the long-run implication of possible perverse incentive under the current per child CSG approach. Under this exploratory analysis (analysis 2) we examine the relationship between CSG receipt, procreation behavior and intergenerational mobility.

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[7] Note that this may not necessarily be as a result of multiple births, it may be because some household have multiple mothers.

Lastly, under analysis 3 we consider the poverty and inequality effect of a transition to BIG in lieu of the current fragmented social grants approach (specifically, OAP, CSG and SRD[8]). We simulate different scenarios for BIG and compare the implication in terms of poverty and inequality. This provides an idea of how such a policy move will change the household income distribution in South Africa and an approximate idea of what this may mean in terms of the cost to the fiscus (analysis 3).

Data

Our data is sourced from the National Income Dynamic Study (NIDS) and NIDS-CRAM (Coronavirus Rapid Mobile Survey). NIDS is a nationally representative panel household survey that is conducted approximately every 2 years from 2008 till 2017. NIDS follows 28, 000 South Africans residents over ten years in five waves and provides a rich variety of variables at the individual and household-levels. NIDS-CRAM is a telephonic survey based on a sample of adult in the NIDS (wave 5) dataset (Ingle 2020). Therefore, it is only representative of the outcome of 2017 adult population in 2020. For a full description of NIDS and NIDS-CRAM sampling process see Brophy et al (2018), Ingle et al (2020) and Kerr et al (2020).

The analysis is separated into three parts and we provide more information about the data and methodology under the relevant analysis.

Results

Analysis 1: Gainers and losers under per child versus per caregiver COVID top up and its implication for poverty and inequality

Our analysis on the poverty and income inequality effect of the per child versus the per caregiver strategies is based on wave 2 of NIDS-CRAM. This analysis is based on three major transfers: the CSG, OAP and SRD. Using June 2020 data, we calculate the total grant amount received at the household level[9]. This allows us to derive household income without grants. However, for some of the households (1, 340 of them), household income is lower than the calculated grant amount based on the information they supplied[10]. Following Kohler & Bhorat (2020) we use the limited earnings data available to replace household income values with a lower-bound estimate if the latter exceeded the former. The lower

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[8] Note there there are other grants in the system that are not considered here (e.g. disability grant, foster care grant and care dependency grants). This is becuae these grants target volnurable groups for other reasons in addition to poverty and it may not be desirable to consider replacing such grants with a BIG which specifically target poverty as a result of unemployment.

[9] Note that for the CSG per caregiver top-up we made the assumption that each household has one caregiver since we do not have information on the number of caregivers in the household.

[10] This may be as a result of some repondents not being knowleddgable enough about number of grants or/and total household income

bound is calculated as the sum of reported wage income and an estimate of grant amount based on the number and kind of grants reported as received by the household.

It is important to note that of the 7,000 interviews attempted in wave 2 only 3, 448 supplied rand amounts for household income. An additional 1, 207 provided bracket household income. One approach to deal with this is to replace missing income with the mean or median of rand amounts that fall within that bracket where bracket information is supplied. However, this approach creates spikes in the income distribution and distorts inequality measures and estimates of percentiles (Wittenberg, 2017). Instead, we reweight those who provide rand amounts to account for missing bracket values. This is achieved by multiplying the survey weight with the inverse of the probability that an individual will report a rand amount in that bracket. Wittenberg (2017) noted that the reweighting approach works almost as well as multiple imputation except it doesn't deal with cases of completely missing information (i.e. where there is no bracket information). In other words, our analysis is based on 3, 448 observations that supplied rand information but the survey weights were adjusted such that they account for the 1,207 households that supply income-bracket information.

Figure A1 in the appendix displays the kernel density of the household income per capita under the median (i.e. household income replaced with median of rand amounts that fall withing the bracket) and reweighting approach. It is clear that there are spikes in both kernel densities but the spikes are more pronounced under the median approach. Consistent with the argument of Wittenberg (2017) this has implication for the Gini coefficient under the two methods. Specifically, the Gini coefficient under the median approach is 2 points higher when compared with the reweighting approach. For the rest of our analysis we use the reweighting approach.

Figure 1 presents the kernel density estimate of log household income per capita with and without social grants[11]. It is clear that the social grants are instrumental in getting a lot of households out of poverty (the red line represent the April 2020 food poverty line of R585/person/month). Obviously, inequality and poverty head count will be worse without social grants. Furthermore, without grants the distribution of household income will be bimodal with a clear distinction between the rich and the poor. The Gini coefficient with and without grants are 10 points apart (0.81 and 0.71 for the without grants and with May grant scenario (table 1). Similarly, under the no-grant scenario, about 60% of the population will be under the food poverty line while this figure is 44% under the pre-COVID grant amounts. This underscores the importance of the social security system in South Africa. Lastly, note that even with grants, the density has a little mass at the bottom of the distribution. As noted earlier, this represents households that are left behind by the current fragmented grant system.

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[11] The with grant density refers to the June/October policy. Furthermore, we note that household income using adult equivalence scales is an option. However since we do not have detailed information about children and their ages we use the per capita approach. We also note that the result under adult equivalent scales is sensitive to the choice of parameter.

Figure 1:Log of Household income per capita (with and without social grants)
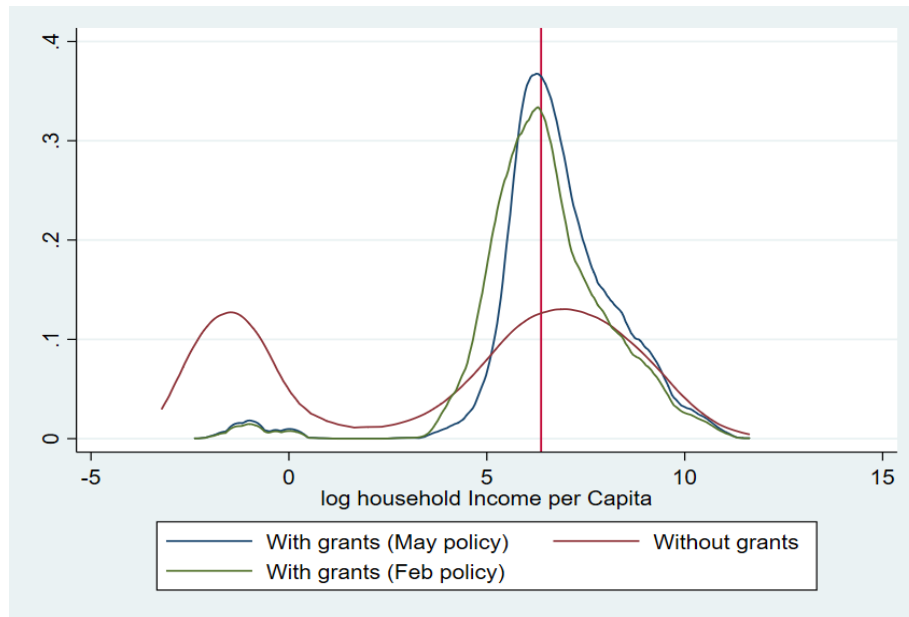
Source: NIDS-CRAM, weighted

*Table 1: Gini Coefficient and Poverty indices under different Policies*

Household income per capita	Gini					
	Gini	**std err**	**t**	**Pval**	**lower**	**upper**
No grants	0.816	0.01	84.15	0.00	0.80	0.84
May Policy	0.711	0.01	50.71	0.00	0.68	0.74
April-October Policy	0.714	0.01	51.48	0.00	0.69	0.74
February Policy	0.731	0.01	55.76	0.00	0.70	0.76

Poverty indices	FGT				
	0	**1**	**2**	**Poor (actual)**	**Poor (Weighted)**
No grants	0.60	0.49	0.45	2,465	17,583,132
May Policy	0.38	0.17	0.10	1,552	11,228,053
June-October Policy	0.40	0.18	0.11	1,643	11,790,780
February Policy	0.44	0.22	0.14	1,814	12,925,066
Total no of observations 3569; Total no of observations (weighted); 29,435,295					

Source: NIDS-CRAM, weighted

Figure 2 compares log per capita household income under the February (pre-COVID), May (per child top-up) and June-October (per caregiver top-up) policies. The policies did not affect the distribution at the top-end, as one would expect, given the means test. In terms of the poverty and inequality figures, the order of preference should be May policy, June to October policy and then February policy (Table 1). Kohler & Bhorat (2020; table 6) estimates the additional cost to the fiscus under the May policy to

be R 240 million/month and it is obvious that the February policy is less expensive than the June to October policy. May policy has the highest fiscal burden, but also has the highest impact on poverty and inequality.

Figure 2: Kernel density for May and June-October Policies
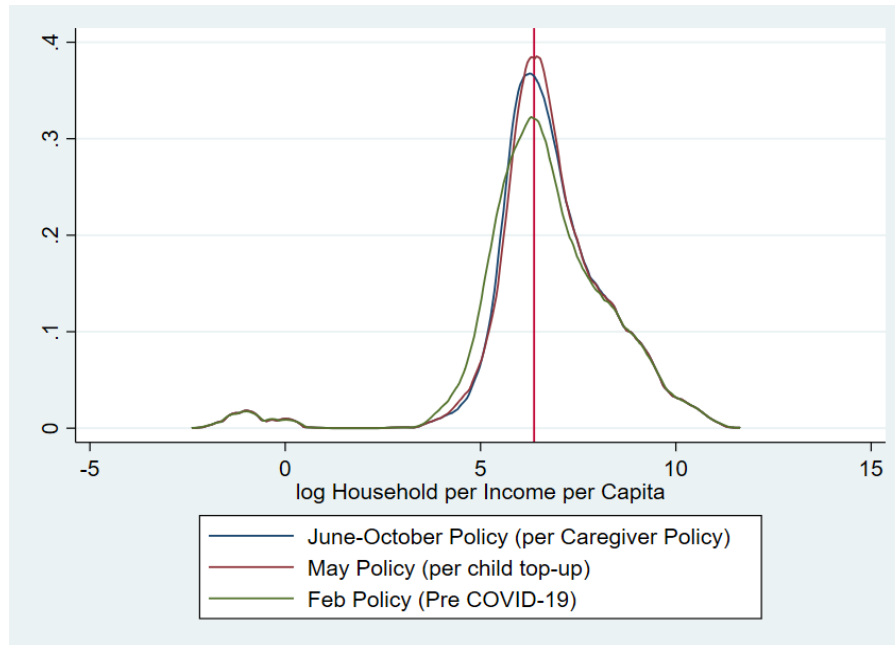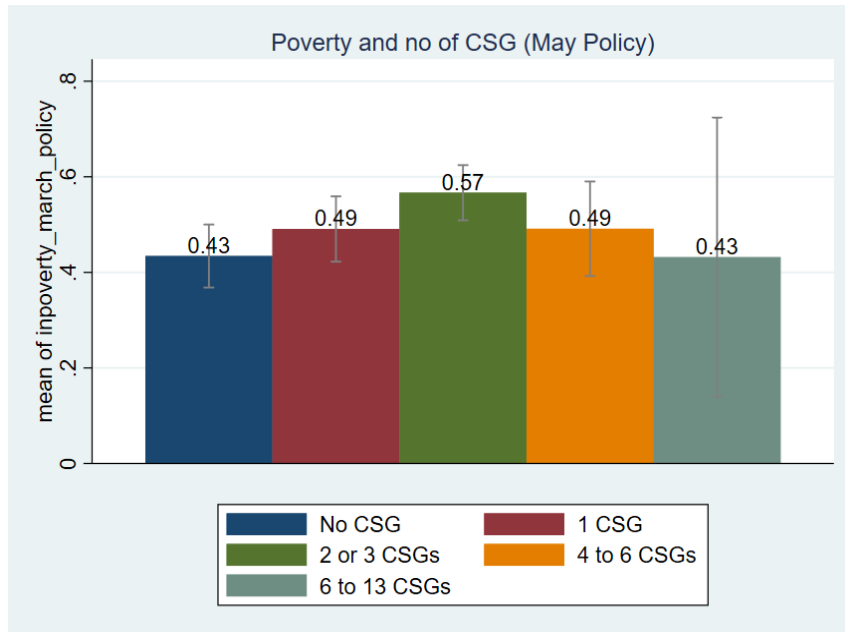

Source: NIDS-CRAM, weighted

For example, by changing from the May to the June to October policy approximately half a million (11,790, 780 minus 11, 228, 053) more individuals fall below the food poverty line. Furthermore, there are households that were left behind, as shown in the left tail of the distributions. These are most likely households that are poor (i.e. have household income below the poverty line) but are not part of the grant system because they do not have children or elderly or were not able to get into the grant system for other reasons[12] (we estimate that there are about one million people in this category).

The important point here is that the per child top-up strategy resulted in marginal improvement overall relative to the per caregiver strategy, if the pay-out was not increased at all about 1.1 to 1.6 million more people would have been below the poverty line in June 2020. Of course, a permanent increase in the CSG will lead to even more improvement, but will also be more expensive and possibly provide more incentive to increase fertility in the long-run (Kollamparambil 2019, Oyenubi & Kollamparambil 2020). It is important to note that the impact of these strategies on the inequality overall and in the population of those who qualify for grants depends on the number of CSGs received by the household (recall that both strategies have a per child component of R440). Therefore, we examine the relationship between

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[12] An important example in this respect is how some qualifying caregivers are unable to get the CSG because of lack of required documentation like the South Africa Identity document or birth certificate (see Oyenubi & Kollamparabil (2020)).

a household being under the food poverty line and the number of CSG received under the two strategies. This is important because the amount disbursed for the CSG is relatively small compared to other grants which suggests a thinner allocation of resources in poor households. Figures 3 & 4 show the results, under the per child top-up a household has to receive up to 4 CSGs before receipt of CSG start to reduce the probability of living in poverty.

Figure 3: Number of CSG grants and household poverty (May Policy)

Source: NIDS-CRAM, weighted

Figure 4:Number of CSG grants and household poverty (June/October Policy)
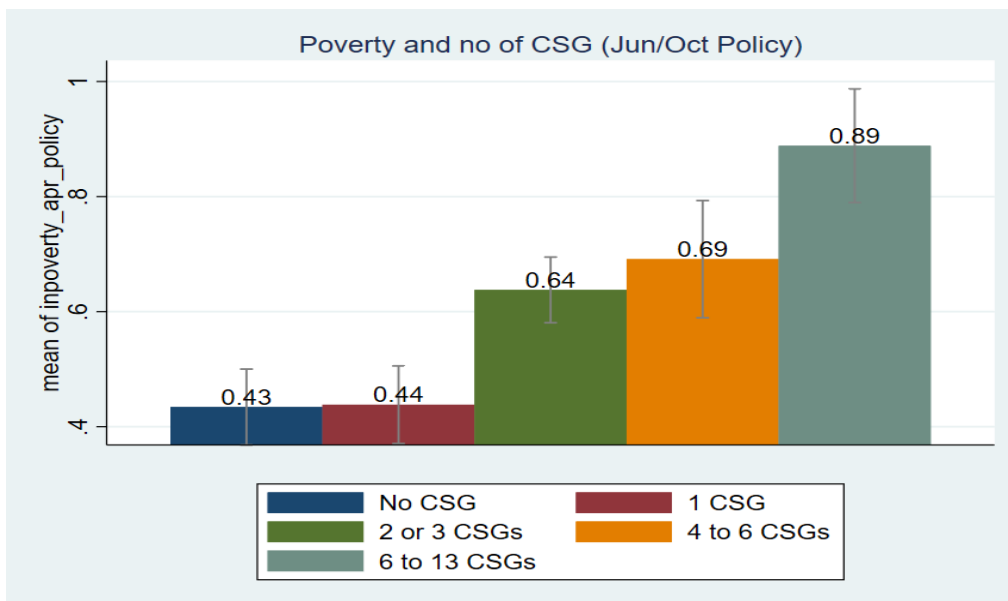
Source: NIDS-CRAM, weighted

In other words, even though receiving multiple CSG will result in gains under the per child top-up, this only becomes effective at about 4 CSG/household in reducing food poverty. This is because gains in receiving multiple grants under the per-child strategy (relative to the per caregiver strategy) increase with the number of CSGs receipts. On the other hand, under the per caregiver top-up probability of being in poverty is a non-decreasing function of the number of grants (Note that for households that receive more than 6 grants the probability of being under the poverty is 89%)[13]. In other words, the amount disbursed matters and multiple receipts of a grant like CSG is only effective in reducing poverty if it is substantial (like the May policy of R740) otherwise it is associated with an increase in the probability of living in poverty. With about 66.8% of CSG-receiving households receiving more than one CSG it is not surprising that a change in policy from the per child top-up to a per caregiver top-up has such a dramatic effect on households receiving multiple CSGs (Note that this is net of the effect of other grants). It is important to note that even without conditioning on CSG receipt, households with more children tend to be poorer (we examine the relationship between fertility and CSG under analysis 2).

Figure 5A in the appendix present the proportion of households in poverty by the number of people under 18 years old. Here we use the February CSG policy (R440/child) to get a sense of the relationship before the pandemic. Households with more children tend to be more likely to live in poverty. This shows that CSG is not effective in pulling this households out of poverty. This also has implication for female headed households, Posel et al (2016) noted that there are gendered patterns in co-residence with children that is explained by male-dominated patterns of labour migration and high rates of non-marital childbirth. The resulting effect is that children are more likely to reside with their mother than their father.

Ideally, CSG should assist in breaking the cycle of poverty across generations by providing additional support for the health, education and overall well-being of the child. However, as noted by Woolard & Klasen (2005), increase in the number of children within impoverished households is worrisome as it may lead to a thinner allocation of household resources. This is what the analysis in figures 3, 4 and 5A points to. To put a dent on poverty the CSG has to increase with cost of living. However, it has been noted that, adjusted for inflation, the CSG has either declined or stagnated in value[14] (the most recent increase because of COVID 19 too-up is perhaps a notable exception, but recent increase in food prices may have eroded this gain already[15]). Furthermore, poor households in general tend to have higher number of children which makes the situation worse. The implication is that while the CSG may be adequate for subsistence it is not substantial enough to make reasonable investment in the health,

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[13] Note that when the same calculation is performed with adult equivalence scales (AES) calculated as $AES = (Adults + (0.5 * children))^{0.9}$ the general pattern still holds but the effect is weaker.
[14] https://theconversation.com/south-africa-has-raised-social-grants-why-this-shouldnt-be-a-stop-gap-measure-138023
[15] https://www.enca.com/news/food-prices-have-increased-pmbejd

education and overall well-being of benefiting children in such a way that their prospects in future may be better. At the levels of CSG pay-out we have observed since the inception of the programme, it is not surprising that intergenerational mobility in South Africa is low (Piraino, 2015). This means that children that are being supported by the CSG are more likely to rely on the CSG when they have their own children. A combination of low employment levels, inadequate investment in child welfare and thinner allocation of resources in poor households (because of the number of children) suggests that the fiscal burden is likely to increase.

In other words, the argument that the fiscal burden of CSG may increase with time does not even require CSG to incentivise childbirth (although this may be a factor). Specifically, women headed households tend to be poorer because of factors like gender pay gap and general labour market discrimination against women. Children are more likely to live in these poor households, and intergenerational earning mobility is low. These factors put together already predicts that the fiscal burden of CSG will be higher for the next generation, all things being equal.

Analysis 2: CSG and Fertility behaviour

The integral role of population control policy in the development strategy of a country is been well recognised (African Development Bank 2000). South Africa has been witnessing a decline in fertility level in the past decades. However, the decline is not uniformly distributed across race categories, with the black African and Coloured population witnessing the lowest decline and having fertility rates significantly higher than other race groups (StatsSA 2010, StatsSA 2015). Although existing South African analysis of fertility rate do not present figures across income categories, the race-based difference in fertility rates can be taken as an indication, given the race-based differences in economic indicators like poverty, employment, education etc. Higher fertility among the poor is both the cause and result of poverty. Higher fertility rates in families are associated with high dependency ratios and low investment in the human capital of children and young adults (African Development Bank 2000), making transitioning from poverty harder. We find evidence in this section that CSG adds to this vicious cycle by incentivising childbirth, yet not providing enough support to exit poverty.

The long-term impact of CSG is assessed via two mechanisms: the fertility behaviour of women and the dependence of the next generation on CSG. The existing literature on CSG analyses the timing of first and second pregnancy in South Africa and finds no evidence that CSG promotes early pregnancy or shortens the time between the first and second pregnancy (Makiwane et al. 2006 , Udjo et al. 2013). However, the perverse incentive of CSG needs to be assessed also in terms of higher-order birth rates and the overall fertility rate of women. We draw upon Kollamparambil (2019) to present evidence on the association between CSG and fertility behaviour in South Africa. The analysis uses the fourth wave of NIDS and restricts the sample to South African women ranging between the ages of 15 and 60 years (to account for the bio-cycle of women and the fact that child support grant was introduced in 1998).

Thus, the oldest women in our sample would be 45 years in 1998 and within the biological age to give birth in response to the CSG introduced as a policy that year. This ensures that pregnancy choice does not pre-date the existence of CSG. Also, only mothers with at least one child under the age of 18 years are included in the analysis.

Table 2: Average no. of children for women by age group, receiving and not receiving CSG

Age of mother, years	CSG			NO CSG			proportion receiving CSG	Gap
	no.	mean	SD	no.	mean	SD		
Under 20	138	1.13	0.35	238	1.07	0.26	0.37	0.06
Under 30	1507	1.6	0.81	1168	1.34	0.65	0.56	0.26
Under 40	2807	2.17	1.29	2078	1.72	0.99	0.57	0.45
Under 50	3636	2.65	1.72	3206	2.22	1.45	0.53	0.43
Between 20-30	1296	1.68	0.84	846	1.44	0.7	0.61	0.24
Between 30-40	1158	2.92	1.44	830	2.25	1.15	0.58	0.67
Between 40-50	720	4.35	2.02	1021	3.18	1.72	0.41	1.17
Between 30-50	1987	3.5	1.81	1958	2.77	1.56	0.5	0.73

Source: Kollamparambil (2019)

The average number of biological children is higher for women receiving child support grant across all age groups (Table 2). However, the difference in the mean number of children is negligible for women under 20 years of age and when considering the sample as a whole. The former is indicative that the age of first childbirth is not different between grant receivers and non-receivers. Also, given that the offtake of child grants was initially low upon its introduction in 1998 it is not surprising that, the gap in mean children is low when we include the oldest age group. The highest gap in the average number of children is observed for mothers in the age group 40 to 50 years group with mothers receive child support grant seen to have on an average 1.2 children more than those who do not receive the grant. The proportion of women (with at least 1 child) that receives the grant is below 40 % under the age of 20 years but rapidly increases to over 60% for women between the ages of 20 and 30 years and then is seen to decline to just over 40 % of women in the 40-50 age groups. This trend is expected as the initial years of introduction of CSG saw very little offtake of the program. Given that it has become pervasive only in recent years, the increasing dependence on the grant is clearly visible among the age 20 to 40 years.

As our sample is not based on experimental data, and child grant was not randomly assigned to households, we use propensity score matching to counter the problem of selection bias to enable causal inference (under the relevant assumptions). The negative relationship between income households and fertility is well documented (Becker 1960, Jones and Tertilt 2008, Schultz 2005), and as poorer

households qualify for CSG, there is likely to be a confounding effect of income that prevents us from drawing any causal relationship between CSG and fertility rate. We therefore use propensity score matching to allow for contrasts in the number of children of mothers who did and did not receive child grant but who, as indicated on the basis of a wide range of observed background characteristics (including income, age, education, geographical location etc), had the same or nearly the same probability of benefitting from CSG. Propensity score matching yields an average treatment effect for the treated (ATT), which is considered a better indicator of whether to continue policies or programs that target a specific group of interest than the population wide average treatment effect obtained using OLS regression methods (Heckman et al, 1997). Two matching techniques were used viz., nearest neighbour and kernel density. Both Nearest-neighbor matching and Kernel density matching techniques yield identical results and hence we present only the latter here (Table 3).

Table 3: Propensity Score Matching: Kernal Density						
	Sample (common support)	ATT (Standard Errors)	covariate t-test	Mean bias	LR test	Bounds critical Γ
Under 20	17 (15)	-0.011 (0.2545)	No	21.6	1.66	1
Under 30	480 (475)	0.335*** (0.107)	Yes	4.8	2.23	5
Under 40	1086 (1076)	0.376*** (0.107)	Yes	2.1	1.65	7
Under 50 (full sample)	1675 (1670)	0.474*** (0.106)	Yes	2.2	2.3	5
Between 20-30	440 (436)	0.333*** (0.111)	Yes	4.8	2.36	5
Between 30-40	557 (553)	0.411*** (0.176)	Yes	4.4	3.1	5
Between 40-50	512 (507)	0.765*** (0.246)	Yes	5.2	3.31	3
Between 20-50	1655 (1639)	0.367*** (0.141)	Yes	2.8		3
*** p<0.01, ** p<0.05, * p<0.1						

Source: Kollamparambil (2019)

The results of PSM across both matching techniques indicate that for the under 20 years sample as well as 50-60 years sample, the ATT is not significant and the results do not pass the matching test and sensitivity analysis. For the rest, the results are significant and seen to pass matching tests and sensitivity analysis. The positive ATT is seen to be increasing with the age of the mother across age groups. In the 20-30 age group a difference of 0.3 is observed with the difference peaking at 0.7 in the 40-50 age group. Therefore, although child support grant is not seen to differentiate among teenage pregnancy, young mothers under the age of 30 are observed to be impacted by child support grant. This

carries forward to women in her 40s up to 50 years of age. Therefore the conclusion emerging is that while our results agrees with studies that indicate the child support grant does not increase teenage pregnancy (Makiwane et al. 2006 , Udjo et al. 2013), the findings of our analysis indicate that recipients of grant continue to give birth and have a greater number of children more than non-recipients of child support grant. This implies that even though initial child birth decisions are not driven by child support grant, the decision regarding the higher order births are influenced by it. Oyenubi & Kollamparambil (2020) explains this through the parent's ability to deal with the bureaucratic process of application for the grant. Once the parent has accessed the grant, the process of applying for another CSG is expected to be a lot easier and therefore higher order births need to be taken more seriously as evidence of perverse incentive.

The further channel for fiscal burden is through the continued dependence on CSG for the next generation due to failure to transition from poverty. The increased number of children in a household not only pushes the household below poverty line even with CSG (given that CSG is below the FPL), but also decreases the probability of transitioning from poverty and increases the probability of next generation dependence on CSG. This is because the current CSG is not large enough to facilitate an exit from poverty. On the contrary, CSG results in larger household size which is a deterring factor to transitioning from poverty (Woolard & Klasen, 2005). To assess the second-generation effect, we analyse if a child who availed CSG is more likely to avail CSG for his/her child. Once again, using NIDS data (from all 5 waves), we classify parents and children according to their CSG status. We compare the CSG dependence of the second-generation parent by those who were CSG beneficiaries themselves (or in other words, on behalf of whom CSG was availed by the first generation CSG parents). The first and second generation CSG parents are denoted as CSGPP and CSGP respectively. Table 4 indicates that CSGP are four times more likely to avail CSG for their own children (0.52 vs 2.3). Given that CSG was introduced in 1998, initially for children under the age of 6 years old, the sample relates to individuals below 22 years of age.

Table 4: Second generation CSG parents below the age 22 years

| | CSG-PP | | |
CSG-P	No CSG	CSG	Total
No CSG	1,304.9	11,641.3	12,946.2
%	99.48	97.7	97.88
CSG	6.8	273.9	280.7
%	**0.52**	**2.3**	2.12
Total	1,311.77	11,915.23	13,227
%	100	100	100

Source: NIDS waves 1-5, weighted data

Table 5: Second generation CSG mothers below the age 22 years

| | CSG-PP | | |
CSG-P	No CSG	CSG	Total
No CSG	699.3	5,785.8	6,485.1
%	99.17	96.11	96.43
CSG	5.8	234.1	239.9
%	**0.83**	**3.89**	3.57
Total	705.12909	6,019.87	6,725
%	100	100	100

Source: NIDS waves 1-5, weighted data

Table 6: Second generation CSG fathers below the age 22 years

| CSG-P | CSG-PP | | |
	No CSG	CSG	Total
No CSG	607.0	5,850.4	6,457.44
%	99.82	99.26	99.31
CSG	1.1	43.5	44.6
%	**0.18**	**0.74**	0.69
Total	608.10489	5,893.90	6,502
%	100	100	100

Source: NIDS waves 1-5, weighted data

Table 4 shows the significantly higher probability of parents under 22 years of age depending on CSG if they were themselves beneficiaries of CSG. Further, tables 5 & 6 show that the difference plays out through mothers rather than fathers. The implication of this is that the fiscal burden of CSG is expected to increase with increased fertility rate as a response to CSG and the continued dependence on CSG of the next generation due to failure to exit from poverty. We argue that the increase in fiscal burden is

likely to exponentially increase in future as the next generation of CSG recipients are more likely to avail CSG for their children.

The results of this section suggest that the CSG incentivises procreation in poor households as a way of getting access to some money given the level of poverty in the country. The fact that households that don't have children or elderly residents are excluded from the present social assistance system lends credence to this argument. Having some income, even if small and below the poverty line, is better than having no income at all. Further, while the CSG is seen as a livelihood supplementation strategy, the meagre amount that it brings in does not suffice to take the household out of poverty. On the contrary it entrenches poverty and makes transition from poverty harder even for the next generation.

Analysis 3: Estimated cost of a Basic Income Grant

Analysis 3 considers alternative scenarios of the social assistance framework and its implication in terms of poverty and inequality, as well as the cost to the fiscus. Analysis in this section is based on wave 2 of NIDS-CRAM.

In order to simulate the implication of a less fragmented approach, we examine replacing the CSG, OAP and SRD with a BIG (note that CSG and OAP represent 71% of total grants in June 2020 (SASSA, 2020)). A BIG may assist in curbing possible perverse incentive that a per child CSG may be creating and thereby make social assistance more sustainable in the long run. It can also provide an amount that may make it possible for individuals to invest in themselves instead of just providing money for subsistence (similar to what the OAP has been shown to achieve in benefiting households (Sienaert, 2008; Maitra and Ray, 2003)). Lastly, the age profile requirement of the OAP and CSG means that some poor households are being left behind and a mean tested BIG can be more progressive (similar to the way the SRD grant reach individuals that would not have been reached under the age requirement of CSG and OAP). There are other grants in South Africa, but these other grants (e.g. Disability grant, Foster care grant, War veterans grant etc.) are not dependent on age characteristics and the amount disbursed under these grants are more substantial than the CSG. Therefore, in all our simulations we retain these grants as they are currently implemented.

Using the household income without the transfers, we calculate household income when a BIG of R1,200 (upper bound poverty line) is allocated to adult individuals replacing OAP, CSG and SRD, where: a) the household benefitted previously from either OAP, CSG or SDR (irrespective of the number of these grants they are currently receiving) or b) the household income is less than R 585/person/month (food poverty line) but the household is currently not receiving any grant. Under this scenario poor households that are currently not receiving any grant will gain income by getting into the

grant system, while other households may gain/lose income depending on the number of grants, type of grants and the number of adults in the household (we call this BIG1200 for ease of reference)[16].

Next, we calculate BIG1200WP (BIG of R1,200 without poor) i.e. we use the same calculation as BIG1200 but exclude households that are currently not receiving CSG, OAP or SRD (i.e. exclude condition b). This is important because one advantage of BIG is that it does not depend on age characteristics so that poor households will receive the grant irrespective of whether they have children or elderly people. Using similar calculation, we obtain BIG1800 (BIG of R1, 800) and BIG1800WP (BIG of R1,800 without poor) where OAP, CSG or SDR is replaced by a grant of R 1, 800 per adult household member.

Next, we calculate hybrid version of BIG1200 and BIG1800 (i.e. BIG1200_hybrid and BIG1800_hybrid respectively), this is motivated by the fact that a change in policy will require a phasing out period where the old fragmented approach and the new BIG approach will have to co-exist. Therefore, for the hybrid versions the BIG amount of R1, 200 or R1, 800 is only allocated individuals currently receiving the SDR or individuals that live in households where the household income is below the poverty line and they are currently not receiving any grant (i.e. CSG, OAP or SRD). All other grant receipts continue to receive the OAP, SRD and CSG as under the June policy.

Therefore, the scenarios considered are as follows

1. **BIG1200:** BIG of R1200 (replace CSG, OAP and SRD with Basic Income Grant of R1, 200 for all individuals that either report receiving any of these grants irrespective of the type of grant or live in households that are below the food poverty line and not receiving any grant)

2. **BIG1800:** BIG of R1800 similar to (4) but with a BIG of R1, 800

3. **BIG1200WP:** BIG of R1, 200 excluding poor households that are currently below the poverty line but not receiving any grant

4. **BIG1800WP:** Similar to BIG1200WP but with BIG of R1, 800

We start by comparing the BIG1200 and BIG1200WP policies with existing policies (Feb and May policies) in figure 5. Table 7 that shows the reduction in poverty and inequality under the BIG policies. For example, the Gini coefficient under BIG1200 (0.657) and BIG1200WP (0.673) is lower than even the May policy (0.711 in table 1). None of these figures belong in the confidence interval of Gini coefficient for the May policy (suggesting that they are significantly different). Recall that this income distribution is the prevailing one during the pandemic which means that these figures would even have been better in more normal times. The same argument can be made for the poverty indices.

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[16] For example a household receiving 2 OAPs pre COVID will lose R1200 as a result of this switch, while a household receiving 2 CSG pre-COVID will receive additional R320 even with one qualifying adult.

Table 7: Gini Coefficient and Poverty indices under different (Simulated) Policies

Household income per capita	Gini						
	Gini	std err	t	Pval		lower	upper
February Policy	0.731	0.01	55.76	0.00		0.70	0.76
BIG1200	0.657	0.02	39.73	0.00		0.62	0.69
BIG1800	0.603	0.02	32.79	0.00		0.57	0.64
BIG1200WP	0.673	0.02	42.69	0.00		0.64	0.70
BIG1800WP	0.625	0.02	35.58	0.00		0.59	0.66
BIG1200_hybrid	0.673	0.02	42.68	0.00		0.64	0.70
BIG1800_hybrid	0.654	0.02	39.93	0.00		0.62	0.69

| Poverty indices	FGT				
	0	1	2	Poor (actual)	Poor (Weighted)
February Policy	0.44	0.22	0.14	1,814	12,925,066
BIG1200	0.19	0.08	0.04	890	5,682,280
BIG1800	0.10	0.04	0.03	438	3,029,842
BIG1200WP	0.23	0.11	0.07	997	6,783,622
BIG1800WP	0.21	0.15	0.13	956	8,053,669
BIG1200_hybrid	0.25	0.09	0.05	1,148	7,476,320
BIG1800_hybrid	0.24	0.09	0.04	1,043	6,983,087

Source: NIDS-CRAM, weighted

The difference between poverty figures for BIG1200 and BIG 1200WP is also important. Since BIG1200WP allocates assistance based on current recipients, it also leaves some households behind. This difference translates into an increase of 4% in the percentage of people under poverty (0.23-0.19 see table 7). The poverty gap and severity FGT(1) and FGT(2) are larger under BIG1200WP relative to BIG1200 (0.08 vs 0.11 and 004 vs 0.07). This speaks to the distance (in terms of income) between the poor and the poverty line. In essence, not having proper coverage (which in part can be attributed to age requirement) actually increase not only poverty headcount but also poverty gap and severity. It has been noted that the pandemic and lockdown only exacerbate existing inequality. Even before the lockdown it is not hard to argue that households that deserved social assistance were excluded because they do not have members with the right age characteristic to access social grants.

It is important to note that the upper bound poverty line as at August 2020 is R1, 268. Therefore, the fact that there will still be 19% of the population under the food poverty line of R585/person/month

under the BIG1200 policy is an indication of the number of children/dependents in poor households as suggested by figures 3 & 4.

Figure 5: BIG1200 versus BIG1200WP
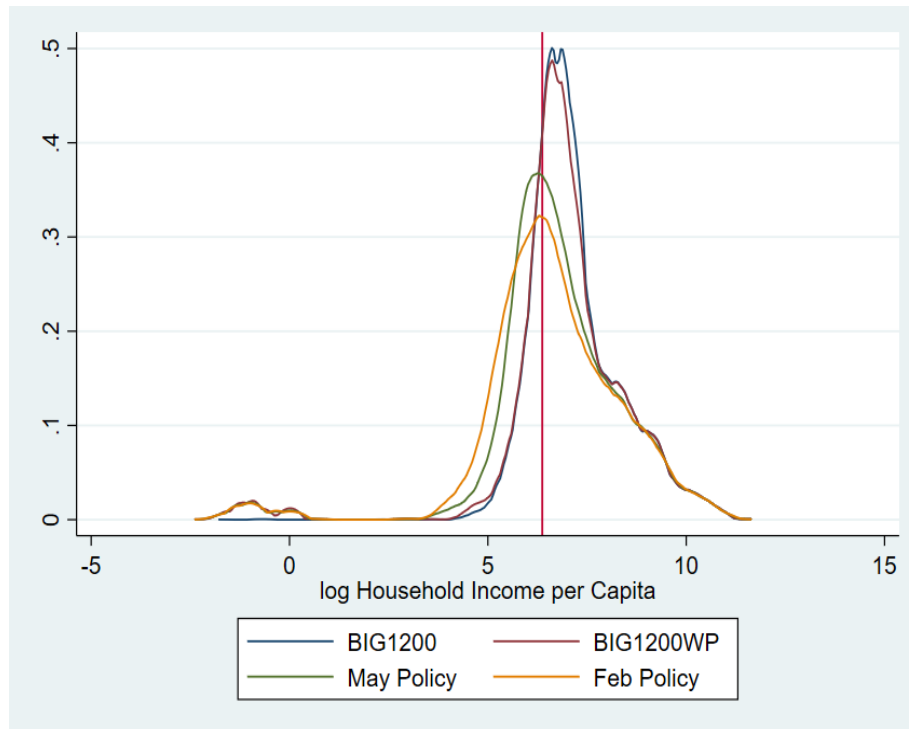
Source: NIDS-CRAM, weighted

There are two important points here (i) A well targeted BIG (i.e. BIG1200) will provide assistance to poor households that don't meet the age requirements of the present fragmented system[17] and reduce poverty and inequality substantially (ii) It is possible to improve the situation even further by dealing with the problem of larger number of dependents in poor households.

As one will expect, under a BIG of R1, 800 the figures improve further relative to BIG1200 (see figure A2 in the appendix and tables 1 & 7). However, there are still 10% of the population under the food poverty line even under this policy. Note that the ratio of number of children/dependents to adults has to be 2:1 or more for households to lose money under the BIG1200 policy relative to the May Policy (of R740 per child) and the ratio has to be 3:1 or more under the BIG1800 policy. The suggestion here is that apart from the left behind population, poverty and inequality is correlated with the size of households.

Comparing the poverty gap and severity under the BIG1200 and BIG1800 policies shows that while BIG1800 narrows poverty gap and severity relative to BIG1200, BIG1800WP actually increase these

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[17] It is important to note that this assumes perfect coverage which may not be attainable but the point is that the OAP and the CSG are designed to leave these types of households behind. Our estimate from the data shows that there are about 1.25 million people.

indices relative to BIG1200WP. As noted earlier this reinforces the fact that proper targeting is important.

Figure 6:BIG1800 and BIG1200
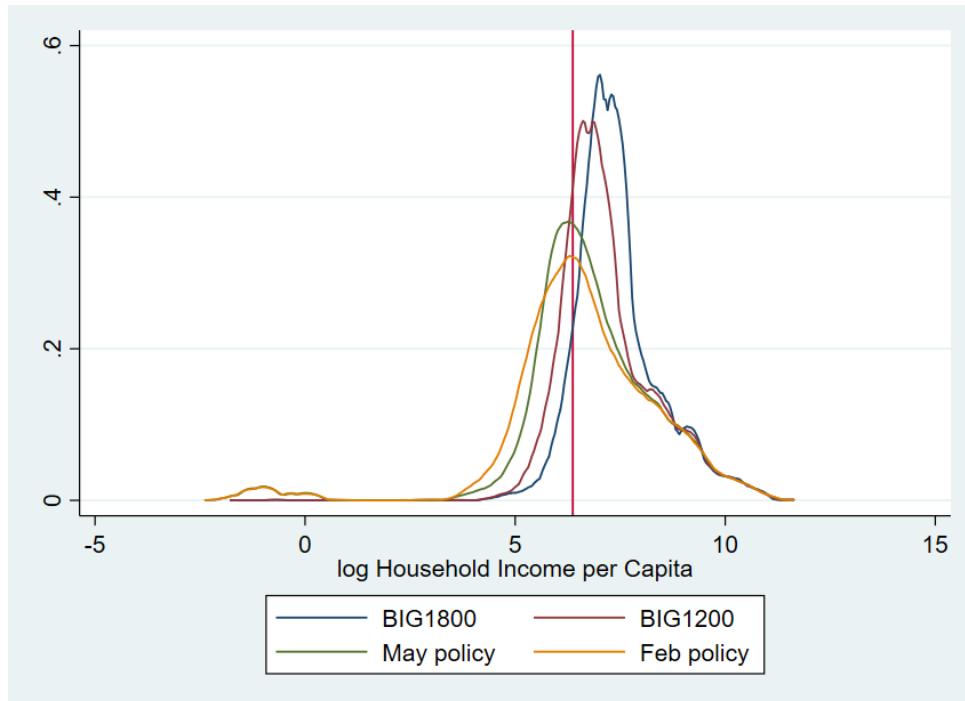
Source: NIDS-CRAM, weighted

Figure 6 shows BIG1200, BIG1800, February and May policies, and shows that the substantial BIG policies move more individuals above the food poverty line and improve the inequality figures. However, one should note that these policies will be a lot more expensive. A point we return to latter in this section.

Another point that relates to cost is that a transition from the present paradigm to one where social assistance is based on BIG will require a transition period where the current paradigm will be phased out. This is because a sudden change in policy to a BIG approach will lead to significant income loss for CSG receiving households at the bottom of the distribution. Given the relative size of these households this will not be desirable. Figure 7 shows the household log per capita income distribution for BIG1200_hybrid and BIG1800_hybrid.

Figure 7: BIG1800_hybrid and BIG1200_hybrid
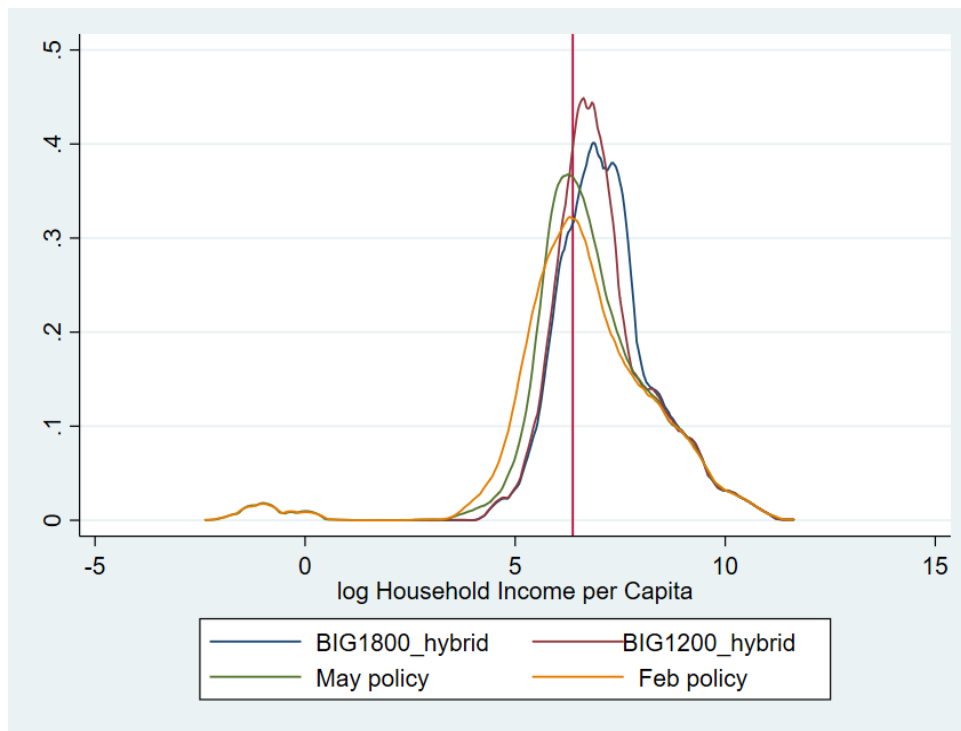
Source: NIDS-CRAM, weighted

The notable point is that the hybrid policies improve poverty and inequality figures relative to the existing policies (February, May or June) but are worse compared to the BIG policies (see table 7). One can think of the hybrid policies as some weighted average of the respective BIG policies and the May Policy. The hybrid policies will immediately improve the condition at the lowest quantiles relative to the existing policies.

Lastly, for this section of we explore the implication of the various policy changes in terms of cost to the fiscus. As one will expect improving poverty and inequality through social assistance will come at a significant cost. There are however data limitations which we discuss in section 2 of the appendix.

The result of our preferred approach is shown in table 8 (similar calculation under the May policy is presented in the appendix (section 2 table 3.2)), note that the percentages in the third column represent how much more expensive the cost of a policy change will be relative to the pre-Covid February policy. As one will expect the results show that all the alternative policies are a lot more expensive than the February policy with the BIG1200 requiring a 150.9% increase in social assistance budget. Further, a BIG1800 will require a 276% increase in fiscal commitment.

Table 8: Simulated cost under simulated grant scenarios

	Actual	Weighted	Est Cost	% relative to February 2020
BIG1200	2,102	11,277,244	36,220,000,000	150.90
BIG1800	2,102	11,277,244	54,300,000,000	276.14
BIG1200WP	1,978	10,222,041	33,600,000,000	132.75
BIG1800WP	1,978	10,222,041	50,400,000,000	249.12
BIG1200_hybrid	2,102	11,277,244	49,500,000,000	242.89
BIG1800_hybrid	2,102	11,277,244	55,800,000,000	286.53

Source: NIDS-CRAM, weighted

The hybrid policies BIG1200_hybrid and BIG1800_hybrid are understandably more expensive than the corresponding BIG policies. This is because they combine the current status with extending grants to deserving beneficiaries who are outside the system. The implication of this result is that a change in approach will involve significant cost. One can argue that with time the cost of the hybrid policies will first increase before reducing and moving closer to the cost under the pure BIG strategies. This is because as more children turn 19, they will lose their CSG and immediately qualify for BIG which is a net positive pay-out for the fiscus. However, they will only receive this grant for themselves and not their dependents. Such an unconditional pay-out is expected to encourage investment in human capital, encourage entrepreneurship and reduce fertility. This in turn, is expected to reduce the burden on the fiscus in the long-run.

Although a well targeted BIG will improve conditions it is very expensive especially given the state of the South African economy. However, there are a number of alternatives that can be considered which can achieve the same objective of reaching the left behind population and curtailing possible perverse incentive. Given available information on the number of OAP and CSG (SASSA,2020) one can calculate how much BIG is payable without increasing the social assistance budget. This can be done by dividing the total cost of OAP and CSG by an estimate of the number of adults that will be receiving the grant. Table 9 shows this calculation, panel A shows the figures from administrative data. Panel B shows the estimate of BIG under different assumptions. Currently there are 16.5 million CSGs and OAPs payed-out (monthly). Based on the cost per grant the estimate of total cost is 12.5 billion per month. Using these data, a BIG of R759 can be paid to each grant recipient. Note that this will mean OAP recipients will be on the losing end while this approach will also leave some households behind because it doesn't consider SRD. The finance Minister announced that 6 million SRD grants applicants have been approved during the October Budget Speech. Using this figure as an estimate of those who are poor but are not currently receiving any grant the amount of BIG that can be paid will drop to R557. Lastly this estimate will be R594 if the number of people under the food poverty line (according to NIDS wave 2 data) is used.

Table 9: BIG based on current values

Panel A			
	no of grants	Amount	Cost
CSG	12,824,805	440	5,642,914,200
OAP	3,708,333	1860	6,897,499,380
	16,533,138		12,540,413,580
	Panel B		
			BIG estimate
OAP & CSG	16,533,138		759
OAP & CSG SDR	22,533,138[A]		557
Under poverty line	21,104,762		594

Source: NIDS-CRAM, weighted
[A]According to the October, 2020 Budget speech by the Finance Minister, this is the number of people that have been approved for SRD grant is 6 million

Another alternative is to allocate BIG to women only (FBIG). This has the potential to curtail the problem associated with fertility but will also leave a lot of men behind. On the other hand, Kohler & Bhorat, (2020) show that the overwhelming majority of CSG recipients (and every other grant type with the exception of the War Veteran's Grant) are women. Their estimate show that just 2.3% of grant recipients are men. This means that bias towards women is already built into the current grant system. This will certainly be more cost effective than a general BIG and it will also rightly tilt the scale in favor of women given that factors like gender wage gap, gender-based violence, women autonomy etc. that put this demography at a disadvantage. Lastly, Duflo (2003) shows that the effectiveness of public policy is also contingent on the gender of the recipient, and that household allocation is likely to be beneficial with women recipients.

To be clear using social assistance to mitigate poverty and inequality will be expensive, a better approach is to consider alternative social assistance approach with aggressive job creation. Creating more jobs will result in a reduction in the number of both current and potential future beneficiaries of social assistance. Hence, it will make changing from the current fragmented approach to a BIG more feasible. Furthermore, the problem associated with the roll out of SRD grant has shown that there is a need improve the capability of the SASSA system to identify those who are genuinely in need. Using SARS data will certainly improve the targeting of social assistance. The main caveat to our analysis is that we have worked under the assumption that a BIG will influence fertility behavior. This is based on two reasons (i) providing assistance for a young adult (especially women) can help them make better choices in terms of sexual behavior. For example, Reed et al (2016) show that access to money is associated with the use of contraceptives in India. (ii) Knowing that social assistance does not increase with the number of children may help in reducing family sizes at the poorest households.

Conclusion

South Africa has a fragmented social transfer system with multiple programmes to target different vulnerable groups. The two most important of these are the OAP and CSG, which takes care of the elderly and the children. The population in the age group between these two categories are left uncovered by the social safety net. This is a major problem in a country where the unemployment rates are exceptionally high which renders households without a minor child or an elderly, without any form of public support. This lack of support in turn translates to unacceptably high poverty and inequality that has come to threaten the social fabric of the country. The crisis of Covid19, has thrown open the inadequacy of the social support system necessitating intervention from the government in terms of not just topping up the existing grants, but also for the very first time bringing the unsupported under the temporary Social Relief of Distress Grant net.

The basic objective of this paper is to analyse the poverty and inequality effect of the Covid19 interventions and to re-imagine the social grant system in order to reduce poverty and inequality in the country in a sustainable manner. The study begins with a comparative assessment of the poverty and inequality impact of the current social transfer system in South Africa and the Covid special interventions. The study gives special attention to the CSG because of its long run effect on the population dynamics of the country, which has fiscal implications for the future. Lastly, the study compares poverty and inequality under the existing system with a reimagined social security system in the form of a basic income grant. Further, the fiscal implications of the different forms of interventions are compared through simulations.

The main findings emanating from the study are as follows:

The current social security system in South Africa, no matter how flawed, plays a vital role in containing poverty and inequality. The Gini coefficient would be 9 points higher and an additional 16% of population would be under the food poverty line without the grants system. However, the current grants system is bypassing (an estimated) 1.2 million individuals at the bottom of the distribution without minor or elderly members in the household.

A comparison of the May policy (per child top-up) and the June-October (per caregiver top-up) shows that the income distribution under the former is slightly to the right of the latter resulting in only a marginally higher Gini coefficient (by 0.003 points). An estimated half a million more individuals (1% of total population) fall below the poverty line under the June-October policy relative to the May policy. The impact of the shift from per child to per caregiver policy has been marginal from a national average perspective. This is because a household has to receive on an average up to 4 CSGs, under the per child top-up policy, in order to reduce the probability of living in poverty. The poverty gap and severity difference between the May and June-October policy also is marginal. Therefore, in terms of headcount poverty, poverty gap and poverty severity, the change between the per-child and per caregiver top up policy has not been massive.

Ideally, CSG should assist in breaking the cycle of poverty across generations by providing additional support for the health, education and overall well-being of the child, and most importantly transition the child from poverty as an adult. Contrary to these expectations, we find evidence of CSG being used as a household livelihood supplementation strategy resulting in higher fertility rate and larger household sizes. This has the perverse effect of increasing poverty as the CSG amount is lower than the food poverty line. Following from the above, it is not surprising then that there is intergenerational transfer of poverty with little evidence of income mobility. With the CSG beneficiaries having a significantly higher probability of depending on CSG for their own children. These findings imply that built-in incentive of CSG to drive up the population would lead to increased fiscal burden in future years without the resultant improvement in poverty and inequality.

Based on the above argument, the study recommends a basic income grant for adults qualifying under a means-test as a more suitable form of social transfer. A well targeted BIG of R1200 will provide assistance to poor households that don't meet the age requirements of the present fragmented system and reduce poverty and inequality substantially. The fiscal burden of this initiative is high and will entail double the resource allocation under May policy. The argument is that even though the fiscal burden would be substantially higher in the short run, the long-run fiscal burden would be lower due to the impact on poverty and inequality. The study simulates the fiscal burden of various scenarios. The cost will be especially high while transitioning from a fragmented model to a BIG without compromising big size families already receiving more than 3 CSGs.

One can argue that, with time, the cost of the hybrid policies will first increase before reducing and moving closer to the cost under the pure BIG strategies. This is because as more children turn 19, they will qualify for BIG which is a net positive pay-out for the fiscus but they will only receive this grant for themselves not their dependents. This will have two effect, the compounding effect that may come from the fact that low mobility may lead to higher burden for the fiscus in the next generation will be eliminated. Furthermore, the BIG without creating additional dependents might give recipients a better chance of escaping poverty. The recommendation therefore is that welfare policies take into account not only short-run objectives of defeating poverty and hunger, but also consider the long run implications by ensuring that the incentives are aligned with the development strategy of the country.

Despite these promising long-run benefits of BIG, the current fiscal constraints faced by the country make it immediately out of reach. One of the options to make it achievable as a poicy is by considering BIG exclusively for women (FBIG). Although the immediate poverty and inequality benefits of BIG will not be as substantial as discussed in analysis 3, this will have the additional benefit of empowering women in a country that is ravaged by gender based violence. This has the potential to curtail the problem of higher fertility among the poor women. Further, there is a bias towards women already built into the current grant system with over 97% of CSG being received by women on behalf of the children. Kohler & Bhorat (2020) shows that the overwhelming majority of recipients of every

grant type (with the exception of the War Veteran's Grant) are women. Further, as shown by Duflo (2003),the efficiency of public transfer programs may depend on the gender of the recipient. Following the same argument, BIG to women are more likely to benefit the household and children as a whole, providing additional motivation for Female Basic Income Grant (FBIG) as an effective form of public transfer program within the current fiscal constraints. This will certainly be more cost effective than a general BIG it will also rightly tilt the scale in favor of women given that factors like gender wage gap in the country.

Another alternative is to use the current fiscal allocation towards CSG, OAP and SRD to utilise as BIG. The study provides the BIG amount that this would translate to. This study has shown that there is room to radically reimagine the public transfer program in the country. Fiscal constraints cannot be taken as an excuse for not engaging in more creative and effective forms of transfer. More detailed studies with administrative data are warranted to take this discourse further and to identify an appropriate income threshold to apply the means-test to substitute for the varied thresholds applied under the current fragmented system.

Study Limitations and future research

The study is based on sample data and all simulations are based on food poverty line for 2020. Although the data is nationally representative, the missing information on household income is of concern. Further studies must use administrative data to explore the issues raised in this paper. Future research suggestion would include simulations based on the upper bound poverty line and a common means-test for eligibility under a BIG strategy.

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Appendix

Section 1

Figure A1: Kernel density of Household income per Capita under the median and reweighting approach (Gini coefficient in bracket)
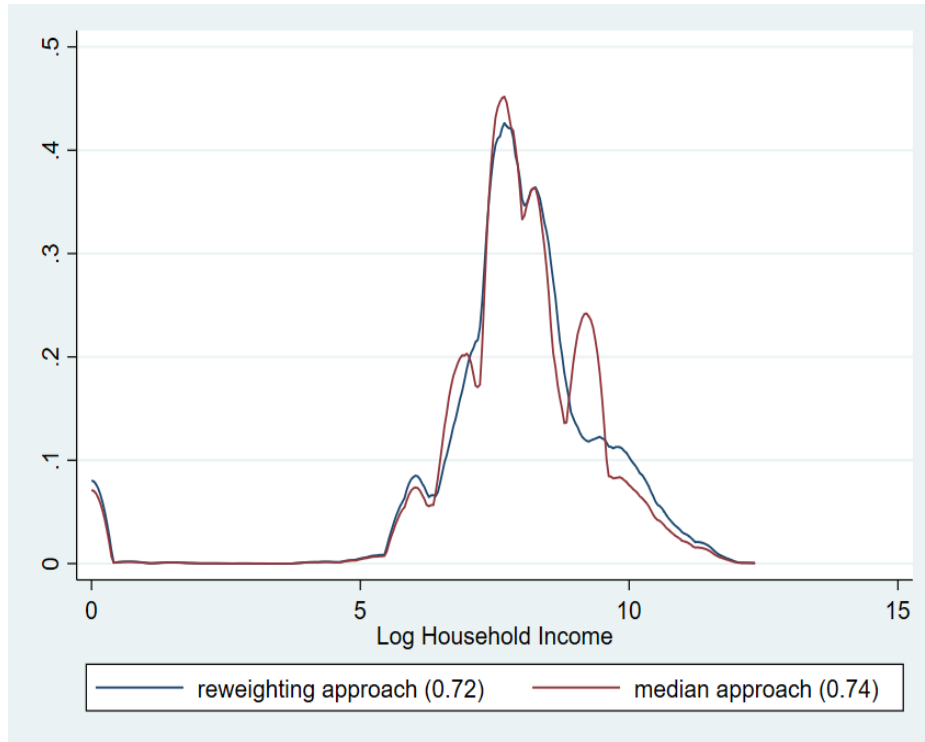
Note that the Gini coefficient (0.72 and 0.74) are based on household income per capita
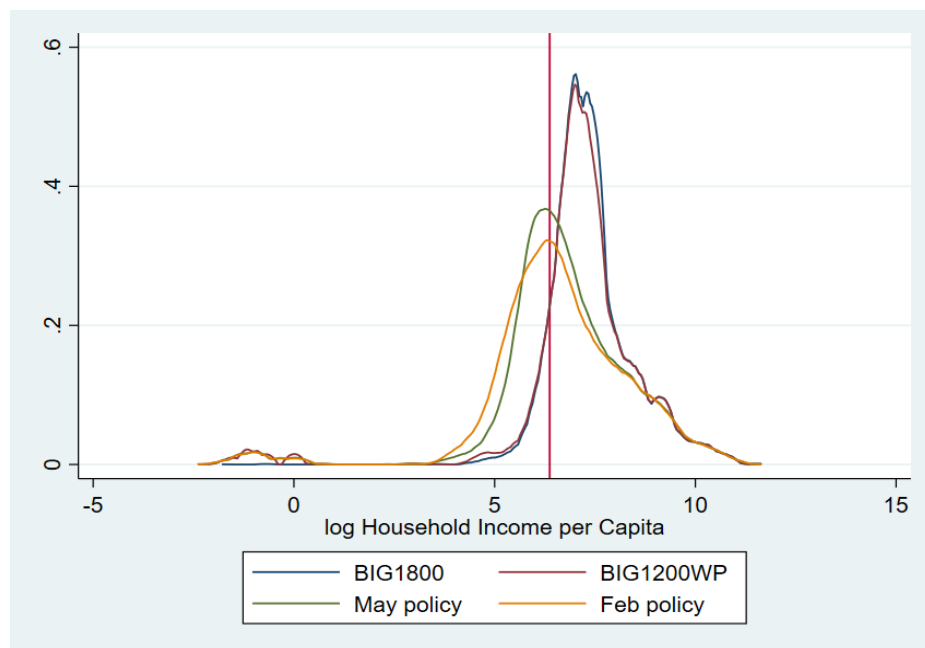
Figure A2:BIG1800 and BIG1800WP

Figure A3: Number of CSG grants and household poverty using Adult Equivalence Scales (May Policy)
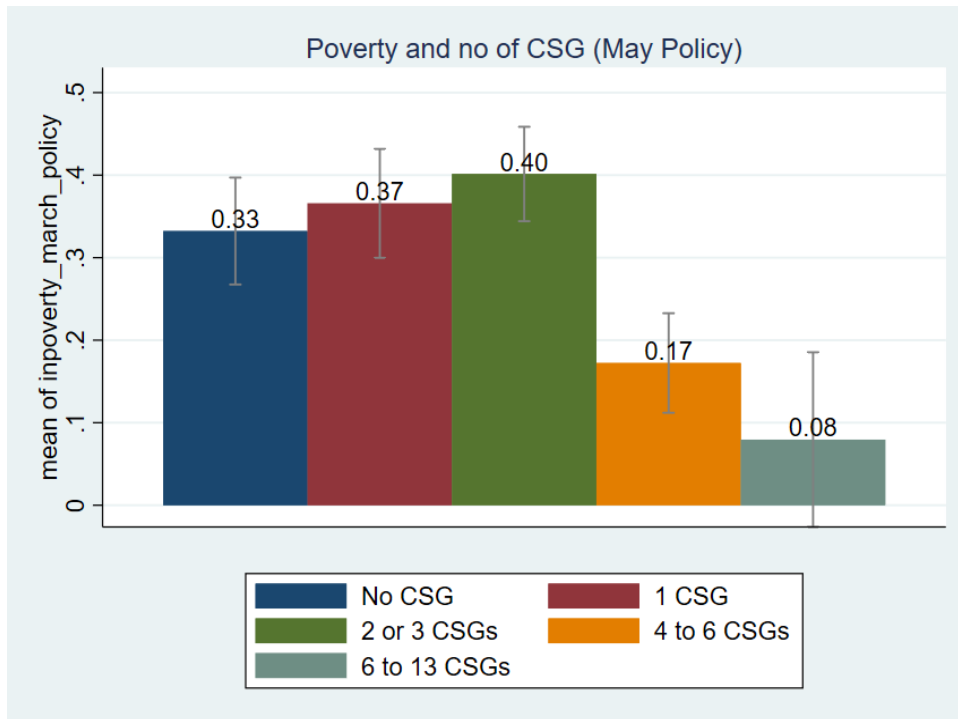

Figure A4: Number of CSG grants and household poverty using Adult Equivalence Scales (June/Oct Policy)
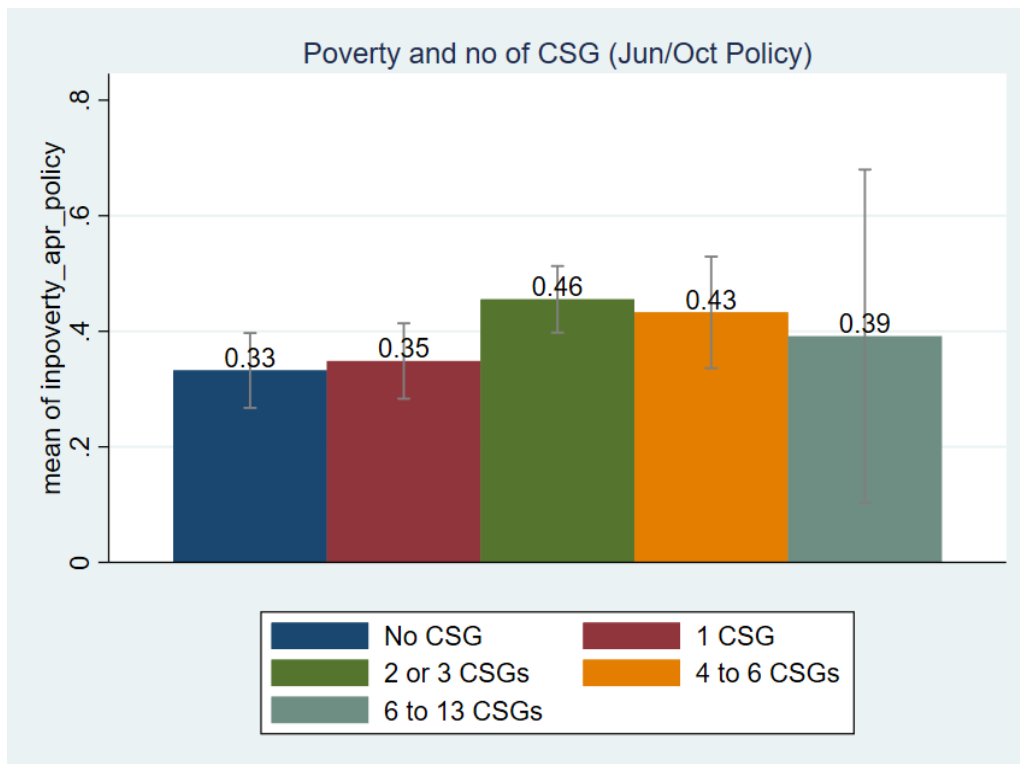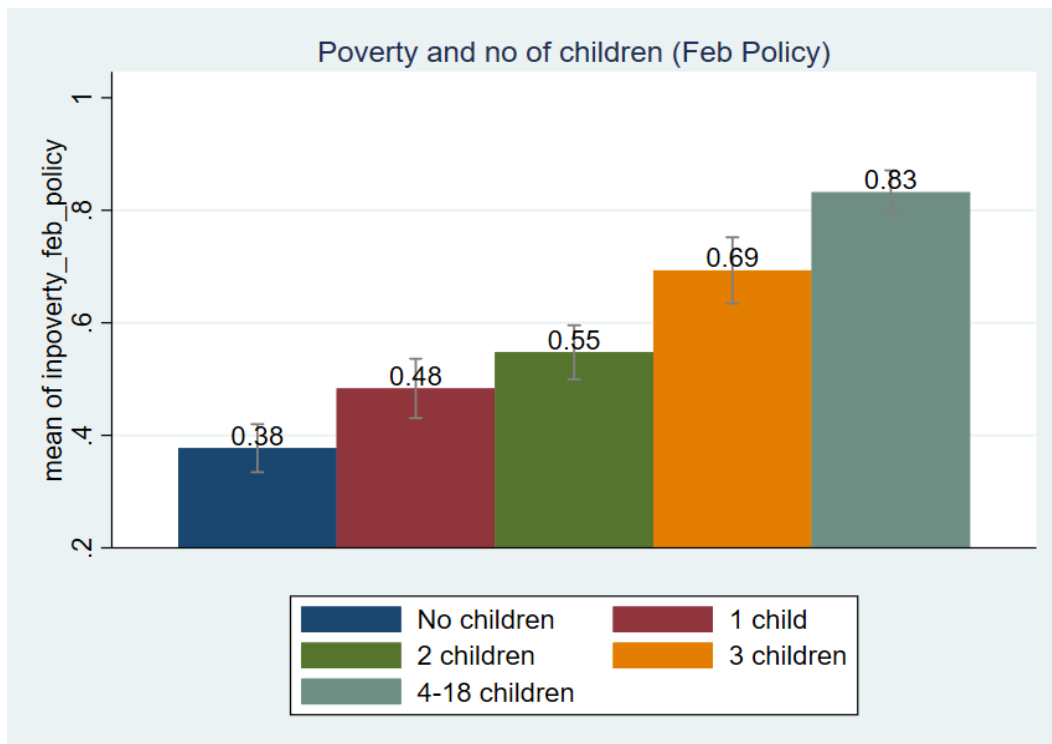
Figure A5: Number of children and household poverty (Feb Policy)

Section 2

There are number of ways one can attempt to estimate the number of grants disbursed, however the validity of the approach will depend on how close the estimates are to administrative data. For example, administrative data shows that as at June 2020, around 12.8 million CSGs are paid out to 7.2 million caregivers. Obviously, estimations that are closer to these figures will be more reliable.

The first approach to estimating number of recipients or cost is to use the question "How many [type of grant] did this household receive in June?" With information on the number of a particular grant a household is receiving, one can aggregate this amount using survey weights to get an estimate of the total number of such grants paid out in June. As shown in the first panel of table 2.1, with 3,429 CSG grants reported across all households the weighted estimate of the number of CSG grants paid out in June, is 38.7 million as against the 12.8 million shown in the administrative data (SASSA, 2020). The same argument can be made for the OAP, however we don't have accurate information on the amount of SRD grant paid out in June, all we know is that about 4 million applications have been approved[18]. One can argue that this should be expected since NIDS-CRAM weight is not designed to be

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[18] https://www.gov.za/speeches/minister-lindiwe-zulu-social-development-dept-budget-202021-23-jul-2020-0000

representative of South Africa in 2020[19]. Another plausible reason is that respondents may not be knowledgeable about the number of grants being received by the household.

Another approach is to use the question "which government grant(s) did you receive in June ". Note that unlike the previous question, this speaks to personal receipt. However, while this approach will work for the OAP (because the number of recipients is equal to the number of grants), it will not work for the CSG where number of recipients don't have to tally with the number of grants. Furthermore, given that we don't have information about the number of recipients per household, this approach will not be useful for our purpose (especially when it comes to analysing the CSG). However, the numbers based on this approach is much closer to administrative figures in terms of the number of receipts as shown in panel 3 of table 2.1.

The last point is the basis of our preferred approach. We combine the two information and use the information on the number of grants only if the respondent reports receiving that grant themselves in the other question. Panel 3 shows that the resulting estimates are a lot closer to the estimate of the total number of grants reported by SASSA. The last row shows the cost for the pre-COVID-19 amount of R440 per child for CSG and the administrative figure for April 2020. The figures are still similar. Therefore, our estimation of cost is based on the approach in panel 3. The cost of the various BIG policies are expressed as a percentage of the May 2020 (under the per child CSG top-up Covid policy) and regard them as rough estimates of how much more a change to BIG will cost the fiscus.

Table 2.1: Simulated cost under existing grant scenarios

	No of receipts			Cost in Rands	
Based on Total number of grants reported to be received by households					
	Actual	Weighted	Admin	Estimate	Admin
PANEL 1					
CSG	3,429	38,678,211	12,824,805	28,620,000,000	9,490,355,700
OAP	1,976	12,305,536	3,708,333	25,960,000,000	7,824,582,630
SDR	1276	10,260,454	**4,000,000**	2,617,000,000	1,400,000,000
Based on reported individual receipts					
PANEL 2					
CSG	967	4,440,475	7,177,871		
OAP	641	3,420,970	3,708,333		
SDR	441	2,674,892	4,000,000		
Based on total number and individual receipt					
PANEL 3					

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[19] It is designed to be representative of the outcome of a random sample of 2017 adults in 2020.

CSG (March)	925	10,403,178.00	12,824,805	7,698,000,000	9,490,355,700
OAP(March)	623	4,286,990	3,708,333	9,046,000,000	7,824,582,630
SDR(March)	371	3,229,330	4,000,000	813,200,000	1,400,000,000
CSG (pre COVID)	925	10,403,178.00	12,824,805	4,577,000,000	5,642,914,200

Table 2.2: Simulated cost under simulated grant scenarios

	Actual	**Weighted**	**Est Cost**	**% relative to May**
BIG1200	2,102	11,277,244	36,220,000,000	106.30
BIG1800	2,102	11,277,244	54,300,000,000	209.27
BIG1200WP	1,978	10,222,041	33,600,000,000	91.37
BIG1800WP	1,978	10,222,041	50,400,000,000	187.06
BIG1200_hybrid	2,102	11,277,244	49,500,000,000	181.94
BIG1800_hybrid	2,102	11,277,244	55,800,000,000	217.82