Impact of Cash Grants on Multidimensional Poverty in South Africa

Atika Pasha

Chair of Development Economics

Georg August University, Göttingen

Abstract

South Africa has allocated about $12 billion for the 2014/15 fiscal year on account of social grants (Bhorat & Cassim, 2014). With such an extensive coverage and budget, South Africa has one of the most progressive social security schemes in the developing countries context. It has led to declining poverty and inequality according to several studies (Leibbrandt & Levinsohn, 2011; Bhorat & Westhuizen, 2012; Woolard & Leibbrandt, 2010).There have been several academic studies and policy reports that look at the impact of these grants on household socioeconomic outcomes like health and education, income poverty, employment and other demographic outcomes (Lund, et al., 2008; Heinrich, et al., 2012; Barrientos & DeJong, 2006; Barrientos & DeJong, 2004). However none of them have examined the impact of these grants on the overall deprivation across households. In this study, I intend to derive the Multidimensional Poverty Index (MPI) and Correlation Sensitive Poverty Index (CSPI) for South Africa and thereafter estimate the impact social assistance grants have on both these composite indices of poverty measurement. The study makes use of the National Income Dynamics Survey (NIDS) panel data with a Fixed Effects estimation to analyse the hypothesis. The results seem to suggest that increases in the cash grant income leads to higher multidimensional poverty. A more important result is how cash grants seem to have reduce the CSPI as well, which seems to suggest that even the inequality quotient within South African households is being affected.

Keywords: Social Assistance Grants, Multidimensional Poverty Index (MPI), Correlation Sensitive Poverty Index (CSPI), National Income Dynamics Survey (NIDS), South Africa

INTRODUCTION

There are many studies which examine the income and expenditure of individuals and households and how they are affected over time. However, although money-metric measures of poverty are important and useful to provide an indication of the broad poverty dynamics over time, these measures are limited in that they do not take into consideration the actual wellbeing of household and need to be complemented by other non-metric measures of poverty. This distinction between poverty and wellbeing as defined by poverty or by other subjective definitions of wellbeing is very important to help understand and fight the battle against poverty.

(Alkire, 2002) and later (Ravallion, 2012a) provide a veritable list of indicators that can be chosen to represent development or poverty, as proposed by the World Bank, and several other works that were based on empirical, economic or philosophical foundations. The Millennium Development Goals (MDGs) for instance are defined as a set of goals to achieve in terms of development targets. One of the more widespread ways in which to supplement the usual money-metric measures of poverty is to make use of a multidimensional poverty index, which is comprised of a broader range of wellbeing indicators (or dimensions) so as to provide a more complete indication of whether an individual is deprived or not. Recently, focus on multidimensional deprivations has increased, especially after the Human Development Index and the Millennium Development Goals became popular and several countries struggled to improve their score or achieve these goals.

The most recent popular work on multidimensional poverty measurement has been conducted by Alkire and Foster (2011), who provide directions on how to integrate various dimensions of deprivation into a single composite index and thereby measure the wellbeing of an individual. Alkire and Foster base their approach on Sen's work (1999, inter alia), which has criticised the money-metric approach as being one-dimensional and too simplistic. The MPI was developed by the Oxford Poverty and Human Development Initiative (OPHI) and the UNDP as an index of acute multidimensional poverty. It depicts the deprivations in 10 basic indicators for household across 104 countries, making it one of few measures that have such a global comparison of multidimensional poverty. The MPI is the first measure that aims to quantify acute poverty while simultaneously adhering to the minimum internationally comparable standards in terms of the millennium development goals (Alkire & Santos, 2014).

Making use of a multidimensional approach allows for the consideration of several dimensions of deprivation which places wellbeing in the space of capabilities (Alkire & Foster, 2011). The advantage of using this Multidimensional Poverty Index (MPI) is not only the fact that it includes a wider measure of actual wellbeing than only income or expenditure, but also the fact that it takes into account the intensity of the poverty

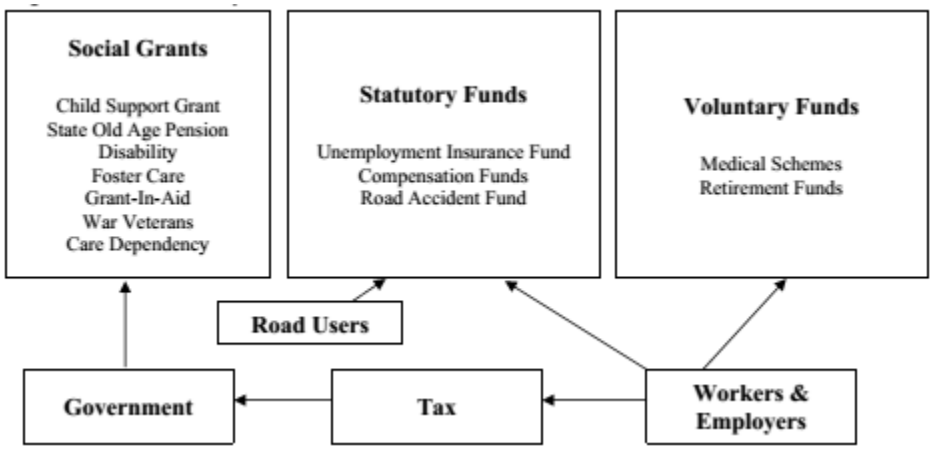
Rippin (2012a; 2012b) then introduced the Correlation Sensitive Poverty Indices (CSPIs), which account for the correlation sensitivity between indicators and dimensions, effectively the associative nature of simultaneous deprivations across the population and how that affects the headcount of multidimensional poverty. This assumes that we have to account for the nature of the associations between the poverty dimensions, which can be substitutes, complements or completely independent of each other. The CSPI was a measure that accounts for this and is the first additive poverty index that is able to decompose itself into all of the "three I's" of poverty: incidence, intensity and inequality, out of which the MPI only captures the first two. This third additional property of these indices has been found to make it easier to understand and tackle the associations within multidimensional indices of poverty, most famously the MPI.

In the South African context, not many studies have focussed on measuring poverty in this multidimensional way. Using their MPI, Alkire and Santos (2014) make use of the World Health Survey of 2003 to estimate MPI poverty for South Africa. They estimate a MPI estimate for South Africa of 0.014, which is much lower than any of the measures using a money-metric approach. More recently, Finn, Leibbrandt and Woolard (2013) estimate a MPI for South Africa using data from the 1993 Project for Statistics on Living Standards for Development (PSLSD) and wave 2 of the National Income Dynamics Study (NIDS), collected in 2010. They estimate a MPI for South Africa in 1993 of around 0.17 and 0.03 for 2010. They come up with a headcount of multidimensional poverty of 8% for the year 2008 and given the reducing trends in poverty, likely even lower for 2012. Recent MPI figures for the year 2012 in South Africa, however, lie around 8-9% depending on which estimates are examined (Coetzee, mimeo). Using the study by Woolard and Klasen (mimeo) the figure is a little higher and around 9%. All of the studies estimate the level of multidimensional poverty in South Africa but there are no studies that show the impact of any policies or intervention programmes on this figure of poverty. This study is an attempt to do so, while specifically looking at the cash grant system in South Africa.

Cash grants in South Africa

South Africa allocated R155.3 billion for the 2015/16 fiscal year on account of social grants: Child support grants, old age pensions, disability grants etc. There are around 16.4 million beneficiaries for these grants (more than 10 million for child grants alone). Apart from these grants, there are a range of other complementary programmes for the poor, like the contributory unemployment insurance and pensions, public works programmes for the working poor and the 'social wage' package, which comprises access to several basic means to wellbeing like education and health (Hagen-Zanker, et al., 2011). Figure 1 shows the full extent of the social security system in South Africa. In terms of the allotted sum in the budget as well as the extent and reach of these grants go, South Africa has one of the most progressive social security schemes within low income countries around the world and also within several middle income countries.

Figure 1: Social security in South Africa



Source: Woolard and Leibbrandt (2013)

Fiscal incidence estimates indicate that 76% of government spending on social grants is received by the poorest 40 percent of the population which indicates that this is a well targeted cash grant system (Gutura & Tanga, 2014).The impact of the grants has been proven in several studies which find that it has led to declining poverty and inequality over time (Leibbrandt & Levinsohn, 2011; Bhorat & Westhuizen, 2012; Woolard & Leibbrandt, 2010). Therefore they form an important part within the backbone of any programmes that tackle poverty and inequality in South Africa.

After an extensive search of the literature, no work looking at the Multidimensional poverty and its relation to the cash grants in South Africa, and especially the dynamics trends within using the waves of the NIDS dataset, has been found. The special structure of the dataset is such that there are individuals that can be followed over time but that is not the same for households, since they are allowed to change over time. This means that the exercise of following each household has to be conducted manually so as to decide the impact of receiving grants on a household. Therefore these are important contributions of the paper, in terms of the addition to the impact of cash grants on economic wellbeing literature, as well as the linking of each household and thereby evaluating the impact on a particular household over time for the South African NIDS case.

In the following section the literature on the impact of cash grants on poverty in general and specifically the multidimensional poverty is examined. Thereafter the methodology and data used within the data will be elaborated. Section 4 will present the results from the empirical analysis while the final section will discuss the implications of the results as well as conclude with the future work to be done in this area of research.

LITERATURE

There is already work that examines the nature of income and multidimensional poverty South Africa, although most of this is not published and is available only in its working paper versions. One of the earliest works on Multidimensional poverty in general, but looking specifically at the case of South Africa, is by Klasen (2000), who develops a multidimensional index of poverty based on 12 different components of wellbeing and uses two different techniques (equal weighing as well as PCA derived weights) to arrive at similar results with both methods. He finds that the nature between expenditure and multidimensional poverty is always correlated and there are large deviations at lower levels of expenditure, i.e. the not so well of South Africans share the greater burden of deprivation in the measures of poverty the most. This disparity is also observable across other categories like race, headship of the household, the location of the household (which naturally influences the access to several services) and so on.

The earliest work on the multidimensional poverty index (MPI) from Alkire and Foster is in Alkire and Santos (2014), who make use of the World Health Survey of 2003 to estimate MPI

poverty for South Africa. According to their estimates, MPI for South Africa was at around 0.014, which is much lower than any of the measures using a money-metric approach (Coetzee, mimeo). The most recent figures for multidimensional poverty in South Africa from OPHI (2015), using the NIDS dataset, indicates that nearly 11% of the individuals are multidimensional deprived with an average intensity of nearly 40%, bringing the MPI score to 0.044.

Finn and Leibbrandt (2013) look at multidimensional poverty from 1993 and 2010, using two completely different datasets- the PSLSD dataset for the first case, while using one wave of the NIDS dataset for the second cross section in 2010. The results show that the headcount of multidimensional poverty has fallen from 37% to 8%, implying that nearly 30% of the population that was multidimensionally poor is not so anymore, bringing multidimensional poverty to nearly a quarter of the initial levels. Woolard and Klasen (mimeo) use the first two waves of the NIDS data and also find that multidimensional poverty figures fall from 10.7% to 9% in 2010. This figure is higher than the Finn et al (2013) study but is still close to the 8% they came out to, and is probably influenced by the methodology as well as the definition of the MPI that were used within both works. The Woolard and Klasen (mimeo) paper also suggests that there are non-overlaps between the income and multidimensionally poor individuals, where there are nearly 15% households who are multidimensionally non-poor and income poor and vice versa in the first and second waves, although the composition changed to a certain extent within both waves.

Finn, et al. (2013) examine the channels through which most progress within MPI has been made and the results seem to suggest that a high level of wellbeing enhancement came from improvements in water and electricity, although in general there has been an improvement in all the other indicators.

While there is a lot of work on the MPI and multidimensional measures of poverty and deprivation in South Africa, there is so far no study that looks at the levels and dynamic changes within the Correlation Sensitive Poverty Index in South Africa (Rippin, 2012a; 2012b). These sets of indices prepares for the nature of associations between the dimensions of poverty, which can be substitutes, complements or completely independent of each other. However, taking a simple average or headcount, as done within most measure of multidimensional poverty measurement

(including the MPI), tends to ignore this problem of associativity, the so called inter-personal inequality. The CSPI was a measure that accounts for this and is the first additive poverty index that is able to decompose itself into all of the "three I's" of poverty: incidence, intensity and inequality, out of which the MPI only captures the first two. This third additional property of these indices has been found to make it easier to understand and tackle the associations within multidimensional indices of poverty, most famously the MPI. A slightly deeper explanation of the method will be provided within Section 3 of this paper which looks at the data examined as well as the empirical methodology and modelling being used.

Most policies often try to replace those just under the poverty line to above it and therefore reduce the overall headcount of poverty. However with the CSPIs, one is also able to understand where the synergies between dimensions would be highest and therefore such a manoeuvre to reduce poverty would only result in a reduction in the headcount while both the intensity and the inequality would be further aggravated. In the case of South Africa there are so far no studies that look at CSPI, and therefore it becomes even more important to examine multidimensional poverty und this glass. At the end of apartheid, South Africa had one of the highest levels of income inequality in the world and performs poorly in most social indicators, in comparison to countries with similar income levels (Klasen 1993). More recent work finds that real per capita household expenditures declined for those at the bottom end of the expenditure distribution, at the very least even 10 years after the end of apartheid, resulting in the increase of extreme poverty, especially within the African population (Hoogeveen & Özler, 2005). Branson et al. (2012) use income decompositions to show that labour market is the biggest driver of overall household's inequality. Moreover education and returns to education seem to have a large impact on the earning inequality, meaning that increasing educational attainment counteracts the impact of inequality. However earning inequality has been a great concern for South Africa for a long period of time, especially since the apartheid ended (Leibbrandt, et al., 2010).

Meanwhile, although there has been decent work on the levels of MPI within South Africa, another interesting gap in the literature relates to the impact of these cash grants on the levels of multidimensional poverty. Woolard and Leibbrandt (2011, 2013) examine the impact of cash grants on household income poverty and other long run effects and find that there is a positive impact of these grants on all of the measure they have examined, especially over the

longer term. These effects relate to lower levels of poverty, improved child health outcomes, better enrolment and schooling etc. Leibbrandt et al. (2013) also examine the impact of cash grants on labour supply and mostly on the female labour force participation. They find ambiguous results, wherein depending on the income level the decision to work was affected by the receipt of grants as the woman then decided to stay at home rather than supplement the low household income. Woolard et al (2010) on the other hand finds that there exists a positive relation between grant income and labour supply. The same result is found in the case of health and education as well, which are two of the three equally weighted dimensions of the MPI.

Two particular studies evaluate the influence of the cash grants and particularly the child cash grants on the measure of child health and wellbeing. Coetzee (mimeo) derives three different types of multidimensional poverty indices in line with the Alkire and Santos (2014) and Finn, Leibbrandt and Woolard (2013) and extends the definition of child poverty that might be more applicable and feasible in the case of South African. This includes other measures such as the household's access to the labour market, employment in the household as well as the household's life satisfaction and hopefulness for the future. She finds that that although MPI poverty has declined over time, large proportions of those children who have been identified as being MPI poor remain deprived in many of the dimensions including access to basic amenities, access to the labour market, quality schooling and life satisfaction. Agüero, et al. (2007) also examine the unconditional Child Support Grant (CSG) and its impact on child nutrition and like before, find improvements in child nutrition via the extra grant income given at early life especially.

All of these studies, except for a few seem to correspond to the success story of each of these well targeted cash grants in South Africa. Moreover, there is a flurry of literature on the positive impact of cash grants on indicators of wellbeing around the world. Barientos and DeJong (2004, 2006) summarize this literature to a great extent and talk about the various improvements in child poverty via the several in kind and cash transfer programmes, conditional and otherwise, that exist around the world.

The aim of this study would be to answer the question: can we capture the effect of these child cash grants on multidimensional poverty and inequality in South Africa? This relation can in some way be labelled as the quasi-causal impact of these cash grants since in principal these

are supplements on income and therefore are not large enough to impact all aspects of the multidimensional poverty index, particularly those that are provided within the standard of living dimension. However we attempt to now examine the impact of these cash grants on each component of multidimensional poverty and especially the various channels that this might be working though.

DATA

The data, as already mentioned, is the National Income and Dynamics Survey (NIDS) from South Africa. This is a nationally representative panel data with 3 waves: 2008, 2010 and 2012, and the fourth wave is underway already and the data should be available relatively soon. The South African Labour and Development Research Unit (SALDRU) are the people who are responsible for this very rich dataset which contains information of about 8000 households, in total more than 90000 observations, over three years on several variables like all of the Multidimensional Poverty index indicators except flooring, socioeconomic and demographic indicators, on negative income shocks, cash grants in general and information on old age grants, child grants and disability grants, information on income and expenditure, whether households have access to labour market and health services, how households perceive their state of wellbeing / hopefulness, the incidence of crime and several other variables. This makes it easy to have a relatively stable empirical analysis with a rich and high quality data.

The nature of the dataset is also such that one could not follow a household over time and only individuals are followed over time. This means that one only has the household identifier for each household for each wave as well as the link variables which allows one to determine which individual was in which household in each wave. Therefore there is no way to track a household over time. This was a deliberate strategy on the part of the survey researchers, who wanted individuals to have complete freedom to jump household and then try and follow them even across difference households. Indeed, there are several cases where a household divides in the second wave and then comes together in the third wave. Alternatively there are also cases where two households combine within the second and third wave to become one household. And there exist many more cases where a household divides into completely different households which do not intersect over any of the following waves. This makes the analysis a little harder,

given that MPI is a household level indicator and there was technically no way to determine a household over time. Therefore a strategy was followed to manually identify and categorize households to form a household level panel for the three waves of NIDS dataset that were available at the time of the analysis.

The method to determine a household is as follows: in the cases where households divided, the household where the majority of members went is followed, even if that household did not include the household head in the first wave. In the case that the household divided itself equally, then the household with the household head from the first wave is considered the original household in the consecutive wave, while the other household gets the new household identifier. When the household head dies and then the household divides itself equally, then the household where the oldest member of the original household went is considered the original household. In case the age is not clear or missing, if any of the original members are not the household head in the new households, then that household is considered as a new household.

By this way of identification, nearly 21000 households are identified over the 3 waves, out of which there are approximately 9000 actual households, which means that on average, each household was repeated around 2.3 times in the panel. There are several reasons why this excessive censoring of the date was done in the first place. One of the main reasons is because the MPI is a household level variable and therefore conducting a panel analysis at the individual level can lead to several empirical and methodological problems and biases. For instance, the individuals that are household members would definitely have factors which would influence the standard errors, which is not necessarily taken care of by clustering them, especially since in the first case these households identifiers were only available for each wave and those that carried over the waves needed to be generated. Other forms of omitted information bias have already been mentioned before. This analysis is considered the most robust form of this dataset to examine MPI and CSPI over time, although we look at several other forms of specification in the effort of making this a highly informative study. These checks on variables subsamples of the dataset will be presented and explained to a greater extent later in the paper.

The aforementioned method lead to a dataset with nearly 81000 individuals, which were effectively 16000 households repeated around 2.2 times over the three waves (meaning we have a minimum or around 7000 households observed over the three waves). Table 1 provides the

summary statistics for the some of the important socioeconomic and demographic variables for this dataset.

Table 1: Summary Statistics for the panel at household level keeping households constant

Variable	Observations	Mean	Min	Max
MPI weighted score	14718	.1891539	0	.8333333
CSPI score	14718	.0332279	0	.6944444
Household size	16108	.4955302	1	41
Married	16106	.2111331	0	1
Female head	16108	.6231065	0	1
Children	16108	1.871306	0	20
Age	16101	28.74567	5	101
Elders	16108	.4019742	0	4
Adults	16108	2.682021	0	20
Per capita Income	15427	1223.457	.0113939	164598.4
Per capita Income without grants	15427	996.0559	0	164506.3
Per capita Grant Income	16108	217.7872	0	7706.422
Per capita Old Age Pensions	16108	126.3221	0	1227.77
Per capita Child Grants	16108	57.15292	0	2829.095
Rural	16108	.0949839	0	1
Urban	16051	.4826491	0	1
Tribal	16108	.4205364	0	1
Employment status	16045	.3197625	0	1
Indian	16108	.0125304	0	1
Coloured	16108	.1481571	0	1
Black	16108	.7945634	0	1
White	16108	.044749	0	1

We can see some interesting trends in the data when examining the descriptive shown in Table 1. For instance, around 62% of the households are female headed, which is a very high percentage compared to the reality. This is probably a data collection error, has also been acceded by the persons in charge of the collection of the NIDS dataset, the SALDRU team[1]. The income without grants here is about 6 times higher than the income grants, which would suggest

[1] The fieldworkers were perhaps confused by the instruction that they were to interview the oldest woman in the households and therefore put the first person who was in the household roster as the household head. Therefore there are an exceptionally large number of female headed households, which might not necessarily be the case in actuality.

that grant income is actually a large source of income for the survey households which are receiving any form of grants (since the grant size is around 320 Rands for child grants[2] and 1350 Rands for old age pension[3]). According to the means testing method for ascertaining eligibility for receiving grants, a recipient is eligible to receive a child grant if their income is not more than 10 times the grant value (McEwen, et al., 2013) and therefore these are some of the poorest households that we are looking at In terms of employment, a very large proportion of the population seems to be unemployed as well since only 31% percent of the population seems to be employed in this dataset. This is not surprising given the high rate of youth unemployment and unemployment in general that is prevalent in South Africa. Since the given sample is very young (on average 28 years old), this would mean a large number of people are young and therefore likely to be unemployed. The unemployment situation is actually the worst in the case of the South African Black population, which represent nearly 80% of the current sample. The lowest representatives are the whites, with only 4.5% of the total sample being white. Per household there are actually very few children (1.8). A majority of the sample also resides in the urban areas (48%) while the tribal area (42%) and rural area (10%) form the remaining sample.

But to delve deeper into out topic of multidimensional poverty, we can also examine how the MPI figures look when separating the two samples.

Table 2: Multidimensional poverty statistics separated by grant receipt

Variable	Non-Grant households			Grant households		
Year	**2008**	**2010**	**2012**	**2008**	**2010**	**2012**
Per capita household income	2815.3	2669.1	3036.2	715.28	744.3	817.68
MPI	0.0486	0.0494	0.0341	0.1159	0.1071	0.0895
Headcount	0.118	0.122	0.085	0.285	0.264	0.219
Intensity	0.412	0.405	0.402	0.407	0.406	0.409

Source: Own calculations

As can be seen in Table 2, the grant receiving households are poorer non only in terms of income but also on multiple levels of deprivation. For instance, the per capita income for grant households is between 3.5 to 4 times lower than those in grant households. Also, the MPI headcount is more than double in all three years for grant receiving households, This would seem

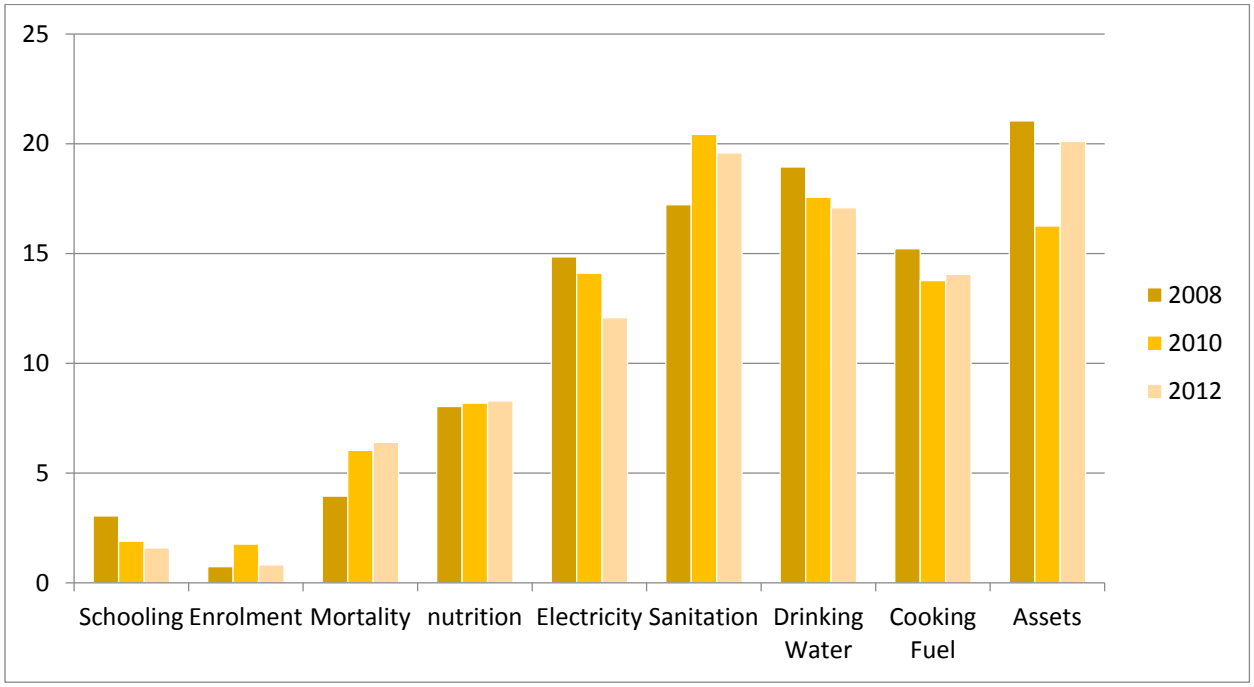
[2] This is a small amount equivalent to 24$. The WDI database puts South Africa's per capita income at 6800$ at current prices.

[3] 100$

to suggest that those households which are receiving grants are thereby those that are much poorer and thereby also those likelier to be part of the social support system of South Africa.

I also look at the particular impact of each indicator on the overall headcount of poverty. Figure 2 below shows us which indicator of the multidimensional poverty index plays a large role in the wellbeing deprivation in South Africa

Figure 2: Contribution of each indicator to total multidimensional poverty



Source: Own calculations

It can be seen that apart from schooling, electricity and drinking water, there have been fluctuations in the contributions of each of these indicators, thereby signalling inadequate access to most of the standard of living indicators[4]. The highest contribution in general is from the Sanitation and Assets indicators. Both of these inferences suggest that there is a large scope for improvement in services delivery and access in South African households.

[4] Mortality cannot be counted as increasing since it a stock variable and will never reduce as the number of households with child deaths 20 years before the start of the survey will only increase.

METHODOLOGY

The MPI uses 10 indicators, broadly categorized into 3 dimensions namely, health, education and standard of living. The weights are nominally and equally assigned to each dimension, to constitute an index with equally weighted dimensions, i.e. 1/3rd each; and the indicators within these dimensions also assume equal weights amongst themselves. Figure 3 gives the basic overview of the MPI as explained above. It also describes the threshold set within each indicator to determine whether a household is to be considered deprived in the particular basic functioning or not.

Figure 3: The Multidimensional Poverty Index

Indicator	Weight	Deprived
Health	**1/3**	
Child Mortality	1/6	If any child has died in the family
Nutrition	1/6	If any adult or child in the family is malnourished (BMI<18.5)
Education	**1/3**	
Years of Schooling	1/6	If no household member has completed 5 years of schooling
Child Enrolment	1/6	If any school-aged child is out of school in years 6-14 / 7-15/ 8-16
Standard of Living	**1/3**	
Electricity	1/18	If there is no electricity
Drinking Water	1/18	If MDG standards are not satisfied
Sanitation	1/18	If MDG standards are not satisfied including shared toilet
Flooring	1/18	If flooring is made of earth, sand or dung
Cooking Fuel	1/18	If wood, charcoal or dung is used
Assets	1/18	If household does not own more than one of radio, television, telephone or motorbike; and does not own a car/truck

Most of the standard of living indicators follow the MDG guidelines, and their cutoffs are set on that basis. Each household receives the a priori weight when it fails to pass the cutoff and is therefore considered to be 'poor' in terms of that particular indicator. In the end, the weights for each household are summed up to generate the weighted deprivations matrix for each household. A household has to be deprived in at least the equivalent of 33 percent, or equivalently, have a weighted deprivation score larger than .33, in order to be considered multidimensionally poor.

Based on the dual cut-off method, a threshold of 30 percent applies for a country to be categorized as multidimensionally poor, and all those who have a higher score are considered multidimensionally poor. The MPI for a country is calculated as the product of Headcount (H), which is the percentage of households whose weighted deprivations lie above the 33% cut-off

and are therefore considered multidimensionally poor, and the Intensity of Deprivation (A), which reflects the weighted sum of deprivation in which the poor households within each country data are considered deprived. Although the AF method does not specify dimensions, indicators, weights or cut-offs, it current global formula does set the aforementioned 10 indicators within the 3 dimensions and assigns equal weight within each dimension, and to each dimension as well (Alkire & Santos, 2014).

For the NIDS data, the MPI was calculated at the household level, given the household information that was available. Of the aforementioned 10 variables, flooring was one variable for which the data was not within the survey and therefore the MPI that has been calculated was done using the remaining 9 variables. These were the exact same variables used to generate the Correlation Sensitive Poverty Index of Rippin (2012a; 2012b). The method to derive the CSPI figure for each individual/household in the dataset was basically to raise the MPI weighted deprivation score to the power of 2, thereby allowing higher scores to be penalized at a non-linear rate. Therefore small changes at the ends of the spectrum will be given higher weight than those in the middle of it: This is not necessarily an ideal solution to measuring and tackling inequality but it is at present the best method available.

The first part was to replicate the results so as to get similar figures of MPI as has been found in the literature and calculate the CSPI for each household as well. The second part of the results would deal with the relation between cash grants and the multidimensional nature of poverty in South Africa, over the four years of the survey. The results presented in the paper are those of the second half of the analysis.

Empirical Methodology

This paper tries to measure the impact of these cash grants over a certain time t, which is three waves (four years) in this case, on multidimensional poverty over the same time. Given the nature of the data, it is easily possible to apply a fixed effects model, considering the individuals as the panel variable. However with the procedure described above in the methodology, using households as the panel variable is also made possible, with the first three waves. The following fixed effects specification with the weighted deprivation score as dependent variable is applied:

$$Y_{it} = \beta_i X_{it} + \beta_i \theta_{it} + \alpha_i + \varepsilon_t + \mu_{it}$$

Here X_{it} are household demographics, province dummies, locality, employment status and other such socio-economic controls, at the household level, θ is the variable of interest, that is alternatively the Multidimensional poverty index weighted deprivation score or the CSPI deprivation score, α_i are the household fixed effects, ε_t are the year/ wave fixed effects and μ_{it} is the error term.

RESULTS

The specification for the aforementioned model was initially tested by pooling the data and running an OLS model with year dummies. The results for the OLS model on the MPI as well as the CSPI score for the entire sample described above are given in Table 3. The results suggest that there is a positive effect of receiving grant on the multidimensional poverty weighted score, where a unit increase in the grants leads to a 0.00003 unit increase in the MPI weighted score. This means that an increase in the grant would lead to more multidimensional poverty! While this is quite the contrary result to that expected we can think of several circumstances that might affect these results in a pooled OLS structure, and therefore to control for all of these unobserved time invariant heterogeneity, we decide to use the Fixed effects model. The log values for both MPI and CSPI however are not significant.

Table 3: OLS: MPI and cash grants

	(1)	(2)	(3)	(4)
VARIABLES	MPI	MPI	CSPI	CSPI
Grant	3.34e-05***		1.10e-05***	
	(4.42e-06)		(2.79e-06)	
Income	-4.16e-06***		-5.98e-07**	
	(3.96e-07)		(2.50e-07)	
Log grant		0.00204		0.00112
		(0.00214)		(0.00137)
Log income		-0.0131***		-0.00526***
		0.00204		(0.000587)
Constant	0.0984***	0.138***	-0.0170**	-0.00664
	(0.0112)	(0.0199)	(0.00705)	(0.0127)
Observations	14,081	7,866	14,081	7,866
R-squared	0.378	0.316	0.157	0.144

*** p<0.01, ** p<0.05, * p<0.1

I also ran a Hausman test for model selection which showed that the fixed effects model is preferable to random effects and therefore the choice was made to stick to this model throughout the paper. The results for the fixed effects regression is presented in the Table 4. The same Fixed effects regression but for the CSPI score is presented in Table 5.

Table 4. Fixed Effects regression with MPI and cash grants

VARIABLES	(1) MPI	(2) MPI	(3) MPI	(4) MPI
Grant	8.87e-06*		1.54e-05**	1.55e-05***
	(4.52e-06)		(7.55e-06)	(5.56e-06)
Income	-8.39e-09		1.56e-08	3.57e-07
	(5.46e-07)		(5.45e-07)	(5.29e-07)
Log grant		0.00322		
		(0.00325)		
Log income		-0.00174		
		(0.00114)		
Square grant			-2.21e-09*	
			(1.18e-09)	
Grant#income				-3.89e-09**
				(1.69e-09)
Constant	0.0664**	0.115	0.0666**	0.0667**
	(0.0309)	(0.0705)	(0.0308)	(0.0309)
Observations	14,081	7,866	14,081	14,081
R-squared	0.029	0.025	0.029	0.030
Number of hhid	6,940	4,826	6,940	6,940

*** p<0.01, ** p<0.05, * p<0.1

Table 5. Fixed effects regression with CSPI and cash grants

VARIABLES	(1) CSPI	(2) CSPI	(3) CSPI	(4) CSPI
Grant	7.11e-06**		1.23e-05**	9.81e-06**
	(3.27e-06)		(5.31e-06)	(3.94e-06)
Income	2.02e-07		2.21e-07	3.53e-07**
	(1.80e-07)		(1.82e-07)	(1.79e-07)
Log grant		-0.000240		
		(0.00210)		
Log income		-0.000493		
		(0.000798)		
Square grant			-1.73e-09**	
			(8.22e-10)	
Grant#income				-1.59e-09**
				(7.72e-10)
Constant	-0.0602**	0.0189	-0.0600**	-0.0600**

	(0.0284)	(0.0370)	(0.0284)	(0.0285)
Observations	14,081	7,866	14,081	14,081
R-squared	0.019	0.016	0.019	0.019
Number of hhid	6,940	4,826	6,940	6,940

*** p<0.01, ** p<0.05, * p<0.1

As can be seen from the results of Table 4 and Table 5 however, even controlling for the time invariant sources of bias, we find that increase in the grant income leads to an increase in multidimensional poverty and inequality respectively. For instance, as can be seen in columns 1 of each Table, a unit increase in the grant income leads to a 0.000008 unit increase in multidimensional poverty and a 0.0000071 unit increase in the CSPI. These are very small numbers but they are significant and the size of the coefficient might be affect by the fact that both the MPI weighted score and the CSPI weighted score lie between 0 and 1. When we look at the log grant income values however, the effect is insignificant and even turns negative in the case of multidimensional inequality (column 2 of both Tables).

This naturally raises concerns regarding the channels through which the grant might be affecting the wellbeing of poor households. It could be the size of the grants that might be determining their effect on the households' well-being. In view of that, I decided to include a square grant term within the specifications 3 of the Table to examine if there are perhaps non-linear effects of these grants. As can be seen from the columns 3, there seems to be a negative effects of cash grants on multidimensional poverty and inequality at higher values of the grant income. Upon calculation, it seems that the turning point of this positive effect of grants on MPI score is at around 3556 Rand per person. These are nearly 15 times the size of the average per capita grant income of the households. It seems that these cash grants are of too low a quantity to make a impact on multidimensional poverty in the short run. Either a larger grant, or alternatively the same grant over a longer timer period might turn out to have a larger impact on multidimensional poverty and inequality as well.

Another scenario could be that the grant incomes are only helpful as additional supplements to income. In our dataset we find several household which are sustaining themselves only on the basis of grant incomes. Therefore it becomes necessary to ascertain whether this might be an important channel through which grants might impact multidimensional

poverty and inequality. To that effect, I include an interaction terms between grant income and other household income. The results for the same can be found in column 4 of Table 4 and Table 5. It can be seen that there is indeed a negative effect of grant incomes on the multidimensional poverty and on multidimensional inequality at higher levels of income. This effect is robust at even the 5% level of significance.

The results and inference based on the last two columns of the previous Tables seems to suggest that it is not that receiving grants leads to increasing multidimensional poverty or inequality, but rather it is the size of the grant as well as its effect in combination with other household income that leads to a better standard of well-being for South African households. There are however several checks that we can conduct on the given data to eliminate sources of bias or alternatively examine to see if the results are robust to different sub-samples. The following section would try to do the same as well as investigate, to some extent, the channels through which grants affect multidimensional poverty.

ROBUSTNESS

Types of grant

There can be several ways one can curtail the size of the sample (while still retaining its power as well as representativeness) and then optimize the control group to check the strength of the results. It could be that there is a particular type of grant income that influences the results and therefore one can check for the type of grant that a household receives and how it influences the wellbeing therein. Information on amount of grant was only available for the old age grants as well as child grants and I test the results for both of them. The results for the same are given in Table 7 and Table 8.

For the case of child grant, we can see that the grant seems to have a positive effect on the MPI weighted score and CSPI, although it is insignificant. However the non-linear terms is negative in both cases, although it is not significant for CSPI, which indicates the size effects of child grants are more important for the MPI than the CSPI, and that it is only at larger amounts that the child grants seems to affect MPI negatively. This is also natural since the child grants are very small grants, especially in terms of South African per capita income. The interaction term is negative as well although not significant, whereby one can conclude that the child grants are too

small to even interact with the income and then have an impact on wellbeing. Looking at Table 8 however, we see that some interesting patterns emerge in terms of the old age pensions.

Table 6: Household only received child grants

VARIABLES	1 MPI	2 MPI	3 MPI	4 CSPI	5 CSPI	6 CSPI
Grant	6.85e-06	2.87e-05	1.26e-05	1.32e-05	1.88e-05	1.51e-05
	(1.61e-05)	(2.07e-05)	(1.68e-05)	(1.03e-05)	(1.42e-05)	(1.14e-05)
Income	-2.19e-07	-1.82e-07	-9.36e-08	1.36e-07	1.46e-07	1.77e-07
	(5.55e-07)	(5.54e-07)	(5.46e-07)	(1.78e-07)	(1.79e-07)	(1.66e-07)
Square grant		-4.96e-08***			-1.26e-08	
		(1.70e-08)			(1.01e-08)	
Grant#income			-5.58e-09			-1.80e-09
			(5.12e-09)			(2.20e-09)
Constant	0.0644**	0.0640**	0.0637**	-0.0624**	-0.0625**	-0.0627**
	(0.0307)	(0.0309)	(0.0307)	(0.0283)	(0.0284)	(0.0284)
Observations	14,081	14,081	14,081	14,081	14,081	14,081
R-squared	0.028	0.029	0.028	0.019	0.019	0.019
Number of hhid	6,940	6,940	6,940	6,940	6,940	6,940

*** p<0.01, ** p<0.05, * p<0.1

Table 7: Household only received old age pensions

VARIABLES	1 MPI	2 MPI	3 MPI	4 CSPI	5 CSPI	6 CSPI
Grant	1.81e-05**	-6.34e-06	2.18e-05**	1.23e-05**	1.34e-06	1.36e-05**
	(8.35e-06)	(1.69e-05)	(8.48e-06)	(6.16e-06)	(1.23e-05)	(6.31e-06)
Income	-1.16e-07	-1.17e-07	2.78e-07	2.04e-07	2.04e-07	3.38e-07*
	(5.53e-07)	(5.53e-07)	(5.26e-07)	(1.81e-07)	(1.82e-07)	(1.74e-07)
Square grant		2.66e-08*		-0.0584**	1.20e-08	
		(1.56e-08)		(0.0285)	(1.21e-08)	
Grant#income			-7.09e-09***			-2.41e-09**
			(2.69e-09)	14,081		(1.20e-09)
Constant	0.0686**	0.0703**	0.0676**	0.019	-0.0577**	-0.0588**
	(0.0307)	(0.0312)	(0.0307)	6,940	(0.0288)	(0.0285)
				1.23e-05**		
Observations	14,081	14,081	14,081	(6.16e-06)	14,081	14,081
R-squared	0.029	0.029	0.030	2.04e-07	0.019	0.019
Number of hhid	6,940	6,940	6,940	(1.81e-07)	6,940	6,940

*** p<0.01, ** p<0.05, * p<0.1

The Old Age pension on the other hand are much larger in size in comparison to the child grants and are therefore more likely to reflect the same effect as in Table 4 and Table 5, which represented the entire grant income. The casual impact of old age pensions on the MPI and CSPI seems to be positive and significant (columns 1 and 4 in Table 8). However, when we add a non-

linear term, the effect turns negative in the case of MPI as the non-linear term even turns positive and significant at the 10% level (Column 2). In the case of the CSPI it is still positive, but even then the non-linear terms seems to be positive, although both are not significant (Column 5). Therefore I focus on the non-linear terms in the MPI specification only. It would seem that old age grants improve multidimensional wellbeing although at higher levels of grant income only. This seems to suggest that larger values of old age pensions have a positive effect on multidimensional poverty. It is calculated at around 110 Rands per person even.

On the other hand, the results for the effect of old age grants on CSPI are slightly different (columns 4 to 6). It seems that the size of the grant has a lesser effect on multidimensional inequality and it is rather the other household income that also seems to affect this. Which is why, the old age pensions seem to have a positive and significant impact on the CSPI score, which becomes insignificant when one add the non-linear term but again becomes positive and significant when interacted with the other household income.

Removing the non-eligible population

To further identify a control group more reliable for our analysis, we also removed all those households which did not have an adult above the age of 60 as well as a child below 18 years of age. Since the NIDS provides information only on the old age pensions and the child grants, therefore we look at those households which are only receiving these two grants to determine the effect of both these grants on multidimensional poverty[5].The results for the same can be found in the appendix Table 14 and Table 15.

Constant households

Another restriction was placed on the NIDS dataset to examine the sturdiness of the result. In the case of this dataset and particularly the tested hypothesis, there is some concern about the changes in the level of the MPI and CSPI figures, and how they are being brought about. For instance, it could just be the inclusion of a completely new household into the old

[5] There was also evidence within the data (confirmed with the SALDRU team) that some households were basically consistent of mothers who were receiving grants, but the children had moved to live with the grandparents who are therefore not directly receiving the grants but then had children in the household and also those where there were no children but still individuals receiving grants. This step also helps to also remove this discrepancy to some extent.

households that makes it susceptible to higher levels of multidimensional poverty. The vice versa might also be the case as to why a households is multidimensionally much better off. Another concern is more of an anecdotal nature, which was revealed upon speaking with the SALDRU researchers. There are several cases where there are mothers who apply for child grants in a particular household and then choose to move to another household where better and larger opportunities for work and employment are available. These kids are then raised by the grandparents or other guardians and the mother may choose to transfer the money to them or not. In view of either of these cases and perhaps several other plausible arguments, it was decided to observe the trends in MPI and CSPI over households which are constant over the three waves and therefore do not introduce any unobservable biases within the analysis. The results for this sample is presented in Table 8 and Table 9.

Table 8: Fixed effects regression for MPI and cash grants (constant households)

VARIABLES	(1) MPI	(2) MPI	(3) MPI	(4) MPI
Grant	9.19e-06		1.21e-05	1.03e-05
	(7.95e-06)		(1.29e-05)	(8.15e-06)
Income	-1.47e-07		-1.36e-07	-1.15e-09
	(4.90e-07)		(4.92e-07)	(4.72e-07)
Log grant		0.000326		
		(0.00869)		
Log income		-0.00466		
		(0.00310)		
Square grant			-1.49e-09	
			(2.79e-09)	
Grant#income				-1.68e-09
				(1.35e-09)
Constant	0.00658	0.649	0.00689	0.196***
	(0.0657)	(0.429)	(0.0656)	(0.0560)
Observations	2,873	1,383	2,873	2,873
R-squared	0.026	0.034	0.026	0.027
Number of hhid	1,318	846	1,318	1,318

*** p<0.01, ** p<0.05, * p<0.1

It seems to suggest that a rand increase in grant income would lead to a 0.0000009 unit decrease in the MPI, although this is not significant. Infact in all of these specifications there is no significant impact of grant income on Multidimensional poverty. Furthermore even the squared and interaction terms are not significant.

Table 9 shows the same specification run for the CSPI scores. As can be seen the results for the OLS are again positive, and significant at the 1%. A unit increase in the grant income leads to a 0.000016 unit decrease in CSPI score, meaning that grant incomes are influencing multidimensional inequality in these households definitely. The logged values of grant income are not significant but has a positive relation to the CSPI score. Moreover, there is a negative and significant impact of the non-linear term. The interaction terms is not significant in this case, although it is retains its sign as in the cash of all households.

Table 9. Fixed effects regression for CSPI and cash grants (constant households)

VARIABLES	(1) CSPI	(2) CSPI	(3) CSPI	(4) CSPI
Grant	1.59e-05***		2.53e-05***	1.61e-05**
	(6.09e-06)		(9.25e-06)	(6.31e-06)
Income	3.98e-07*		4.35e-07*	4.33e-07**
	(2.20e-07)		(2.23e-07)	(2.17e-07)
Log grant		0.00214		
		(0.00571)		
Log income		-0.00200		
		(0.00266)		
Square grant			-4.81e-09**	
			(2.11e-09)	
Grant#income				-4.03e-10
				(5.25e-10)
Constant	-0.00748	0.122	-0.00648	0.00372
	(0.0364)	(0.277)	(0.0362)	(0.0344)
Observations	2,873	1,383	2,873	2,873
R-squared	0.026	0.036	0.027	0.026
Number of hhid	1,318	846	1,318	1,318

*** p<0.01, ** p<0.05, * p<0.1

In case of the multidimensional poverty index and its structure, it could be that there is a particular dimension that is driving these results and therefore to examine each of these particular dimensions would be one way to check for the particular impact of cash grants on each dimension of poverty, and where the effects are the largest. The results for that are presented in Table 6 below. The results suggest that it is basically the education dimension which is mostly driving the results for the positive impact of cash grants on multidimensional poverty[6]. This

[6] The results for the CSPI cannot be broken down at the households level and therefore they are not calculable.

might be slightly counterintuitive, given that one component, i.e. the child grants are basically shown to improve child education indicators. However upon deeper introspection of the construction of the multidimensional poverty index, on can understand this better. For instance, one of the

Table 10: Impact of cash grant on particular dimensions of MPI

	1	2	3	4	5	6
VARIABLES	Education	Education	Health	Health	Stdofliv	Stdofliv
Grant	3.29e-06*		3.17e-06		1.40e-05	
	(1.93e-06)		(2.49e-06)		(1.26e-05)	
Income	1.00e-08		4.74e-09		9.10e-07	
	(1.14e-07)		(1.81e-07)		(8.21e-07)	
Log of grants		0.00145		-0.00136		-0.00805
		(0.000962)		(0.00204)		(0.00939)
Log of Income		-0.000290		0.000172		-0.00425
		(0.000364)		(0.000734)		(0.00378)
Constant	-0.0113	-0.0279	-0.0525**	0.0133	-0.00797	0.314*
	(0.00848)	(0.0241)	(0.0263)	(0.0318)	(0.0681)	(0.169)
Observations	14,081	7,866	14,081	7,866	14,081	7,866
R-squared	0.024	0.025	0.013	0.014	0.023	0.023
Number of hhid	6,940	4,826	6,940	4,826	6,940	4,826

*** p<0.01, ** p<0.05, * p<0.1

Another reason that can affect the result, and is a big source of potential concern, is the reverse causality that might be in our test hypothesis. Only those households and mothers who are really poor would apply and receive this grant, and consequently those who receive more grant income are those who are worse off in the first case and this might influence the final results. It might be one of the reasons why the entire sample of households depicts to a positive relation between grants and MPI and CSPI score. To test for this several strands of analysis is carried out to, at the very least, try reduce the problem to some extent. The quantity of the grant is replaced with a dummy depicting whether the house receives a grant or not in one specification. This can also be corrected to some extent by using lags of the grant income to compensate for the direction of the causality and moreover give more time to the grant income to be brought to use.

Instead of using the quantity of the grant I also try using a simple dummy to signify the receipt of a grant for the households and not the quantity itself. The results presented in Table 11 show that the coefficient is still positive, although not significant at all. The relation is found to

be positive and significant for the case of the CSPI. The columns 3 and 4 are representing the smaple with the constant households and there is also no significant effect in terms of MPI although the CSPI is significant and positive.

Table 11: Dummy for receiving grants (including for constant households)

VARIABLES	1 MPI	2 CSPI	3 MPI	4 CSPI
Grant	0.00518	0.00414*	0.00456	0.00868**
	(0.00327)	(0.00213)	(0.00604)	(0.00401)
Income	1.36e-07	2.34e-07	-4.40e-08	3.65e-07*
	(5.46e-07)	(1.46e-07)	(4.58e-07)	(1.91e-07)
Grant#income	-1.15e-06	-1.74e-07	-6.31e-07	-1.32e-07
	(8.51e-07)	(3.57e-07)	(6.53e-07)	(2.92e-07)
Constant	0.0633**	-0.0621**	0.193***	-0.000199
	(0.0309)	(0.0285)	(0.0565)	(0.0353)
Observations	14,081	14,081	2,873	2,873
R-squared	6,940	6,940	1,318	1,318
Number of hhid	0.029	0.019	0.026	0.025

*** p<0.01, ** p<0.05, * p<0.1

Within Table 12 are the results for the lagged grant income (wherein those of the constant household are mentioned in specifications 3 and 4) and no significant impact of grant income on multidimensional poverty is found, in the period of two years at least, although again the coefficient is negative for MPI. We also intended to run the regression with a two period lag, however, due to insufficient amount of observations we find that these were not possible.

Table 12: Lag of grant income (also constant households)

VARIABLES	1 MPI	2 CSPI	3 MPI	4 CSPI
Lag of Grant	-2.12e-06	1.66e-06	-1.93e-06	-3.38e-06
	(6.69e-06)	(4.60e-06)	(1.08e-05)	(6.69e-06)
Income	-7.60e-07	9.80e-08	-2.87e-08	-9.38e-08
	(6.09e-07)	(2.76e-07)	(7.08e-07)	(2.38e-07)
Constant	0.252***	0.0700**	0.166**	-0.00643
	(0.0392)	(0.0330)	(0.0796)	(0.0472)
Observations	9,370	9,370	1,965	1,965
R-squared	0.024	0.021	0.034	0.023
Number of hhid	5,806	5,806	1,253	1,253

Another check that was performed to examine the feasibility of using the fixed effects model was the Hausman test. Although we got the result that it is a more preferred model in relation to the Random effects model, the low within variability and the high within variability that we found within the given variables and controls led us to examining the random effects coefficients as well[7]. The results are presented in the appendix in Table 16. The results still seem to be positive and significant when using the specification in a random effects model.

CONCLUSION

The results seem to suggest that Multidimensional Poverty is affected by an individual or a household receiving grants or cash transfers. Our initial survey of the literature as well as the expected channel of the impact would suggest that higher grant would bring about a lowering in the deprivation levels across households, but that is not found within the analysis. Moreover, when we look at the case of CSPI, which also includes the inequality component of wellbeing, we find that the results have the same sign.

A more interesting issue that comes up is the non-linear, size effect of the grant. This seems to be robustly negative and significant, meaning that at larger values of the grant there is a negative effect on the MPI and CSPI. This does mean that an increase in the size of the grant is recommended (especially given the already large size fiscal burden on the economy of South Africa) but that the grant are too small to depict and impact on multidimensional poverty and inequality without being confused with the correlation between higher levels of poverty and grant recipt.

Also, it would seem, though not so robustly, that it is only at higher levels of income that grants seem to make a difference to multidimensional poverty. This is especially visible in the case of old age grants.

At a deeper glance, when examining several sub-samples, we find similar results in most cases, although they also seem to lose their significance in several of the other tests of robustness. It seems that there might be a problem of endogeneity here, given that using lags as

[7] The results for the same can be found in the appendix in Table 12.

well as using a grant dummy seems to remove the significance, although the direction of the relation remains the same. This means that, either one requires more waves of the dataset to prove the relation, or alternatively one finds another empirical strategy, instrumental variable for instance, that might predict this relation with lesser bias. The associations between the dimensions might be another factor that changes the relation between grants receipt and multidimensional poverty in a household. However each dimension was found to be positively related to the MPI and CSPI score, meaning that these social grants are not improving the overall wellbeing and not even just that in a particular dimension, which might have been driving the results. It was only in the case of education where the results were significant.

If these results are indeed to be believed, it would seem that the social grants in South Africa are not helpful in lowering multidimensional poverty and improving overall wellbeing. Moreover, they also appear to be not reducing the inequality between access to wellbeing across households. There appears to be a larger case not to figure out the channels through which multidimensional poverty is being affected by the cash grants and then to tackle these exact channels. Much of this work has already been done with the impact of grants on the individual dimensions of poverty and therefore this was not an exercise conducted within this paper. Furthermore, these effects are much harder to analyse given that the MPI entangles the wellbeing of all individuals into a single figure for the household.

REFERENCES

Agüero, J., Carter, M. & Woolard, I., 2007. The Impact of Unconditional Cash Transfers on Nutrition: The South African Child Support Grant. *International Poverty Centre Working Paper,* Volume 39.

Alkire , S. & Roche, J. M., 2011. Beyond Headcount: Measures that Reflect the Breadth and Components of Child Poverty. *Oxford Poverty and Human Development Initiative(OPHI) Working Paper.*

Alkire, S., 2002. Dimensions of Human Development. *World Development,* Volume 30(2), pp. 181-205.

Alkire, S. & Foster, J., 2011. Counting and multidimensional poverty measurement. *Journal of Public Economics,* August, 95(7–8), pp. 476-487.

Alkire, S. & Foster, J., 2011. Counting and Mutidimensional Poverty Measurement. *Journa of Public Economics*, 95(7-8).

Alkire, S. & Santos, M. E., 2010. *South Africa Country Briefing. Oxford Poverty and Human Development Initiative (OPHI) Multidimensional Poverty Index Country Briefing Series*, s.l.: s.n.

Alkire, S. & Santos, M. E., 2014. Measuring Acute Poverty in the Developing World: Robustness and Scope of the Multidimensional Poverty Index. *World Development*, July , Volume 59, pp. 251-274.

Barrientos, A. & DeJong, J., 2004. *Child Poverty and Cash Transfers*, s.l.: Childhood Poverty Research and Policy Centre.

Barrientos, A. & DeJong, J., 2006. Reducing Child Poverty with Cash Transfers: A sure thing?. *Development Policy Review*, 24(5), pp. 537-552.

Bhorat, H. & Cassim, A., 2014. *South Africa's Welfare Success Story II: Poverty-Reducing Social Grants*, s.l.: s.n.

Bhorat, H. & Westhuizen, C. V. D., 2012. Poverty, Inequality and the Nature of Economic Growth in South Africa. *DPRU Working Paper*, 12(151).

Branson, N., Garlick, J., Lam, D. & Leibbrandt, M., 2012. Education and Inequality: The South African Case. *Southern Africa Labour and Development Research Unit Working Paper*, Volume 75.

Finn, A. & Leibbrandt, M., 2013. The Dynamics of Poverty in the First Three Waves of the NIDS. *SALDRU Woking Papers*, Volume 119.

Finn, A., Leibbrandt, M. & Woolard, I., 2013. What happened to multidimensional poverty in South Africa between 1993 and 2010?. *Southern Africa Labour and Development Unit (SALDRU) Working Paper Number 99.*

Gustafsson, M., 2005. *The relationships between schooling inputs and outputs in South Africa: Methodologies and policy recommendations based on the 2000 SACMEQ dataset.* [Online]
Available at: http://www.sacmeq.org.org/links.htm

Gutura, P. & Tanga, P. T., 2014. The Intended Consequences of the Social Assistance Grants in South Africa. *Mediterranean Journal of Social Sciences*, 5(2).

Hagen-Zanker, J., Morgan, J. & Meth, C., 2011. South Africa's cash social security grants: Progress in increasing coverage. *ODI Publications.*

Heinrich, C. et al., 2012. *The South African Child Support Grant Impact Assessment*, s.l.: UNICEF.

Hoogeveen, J. G. & Özler, B., 2005. Not Separate, Not Equal: Poverty and Iequality in Post-Apartheid South Africa. *William Davidson Institute Working Papers*, Issue 739.

Klasen, S., 2000. Measuring Poverty and Deprivation in South Africa. *Review of Income and Wealth,* Volume 46(1), p. 33–58.

Leibbrandt, M., Finn, A. & Woolard, I., 2011. Describing and decomposing postapartheid income inequality in South Africa. *Development Southern Africa,* 19(1), pp. 19-34.

Leibbrandt, M. & Levinsohn, J., 2011. Fifteen Years On: Household Incomes in South Africa. *NBER Working Papers,* Issue 16661.

Leibbrandt, M., Woolard, I., Finn, A. & Argent, J., 2010. Trends in South African Income Distribution and Poverty since the Fall of Apartheid. *OECD Social, Employment and Migration Working Papers,* Volume 101.

Lund, F., Noble, M., Barnes, H. & Wright, G., 2008. Is there a rationale for conditional cash transfers for children in South Africa?. *Working Papers,* Issue 53.

McEwen, H., Kannemeyer, C. & Woolard, I., 2013. Social Assistance Grants: Analysis of the NIDS Wave 1 Dataset. *NIDS Working Papers,* Volume 10.

Oxford Poverty and Human Development Initiative, 2015. South African Country Briefing. *Multidimensional Poverty Index Data Bank,* June.

Ravallion, M., 2012a. Mashup Indices of Development. *World Bank Research Observer,* Volume 27(1), pp. 1-32.

Rippin, N., 2012a. Distributional Justice and Efficiency: Integrating Inequality Within and Between Dimensions in Additive Poverty Indices. *Courant Research Centre: Poverty, Equity and Growth - Discussion Papers 128.*

Rippin, N., 2012b. Operationalising the Capability Approach: A German Correlation Sensitive Poverty Index. *Courant Research Centre: Poverty, Equity and Growth - Discussion Papers 132.*

Sen, A., 1999. *Development as Freedom.* Oxford: Oxford University Press.

Van der Berg, S. et al., 2011. *Low Quality Schooling as a Poverty Trap,* s.l.: s.n.

Woolard, I. & Leibbrandt, M., 2010. The Evolution and Impact of Unconditional Cash Transfers in South Africa. *SALDRU Working Papers,* Issue 51.

APPENDIX

Table 13: Summary Statistics for the panel at household level

Variable	Observations	Mean	Min	Max
MPI weighted score	42303	.238	0	.8333333

CSPI score	42303	.0513	0	.6944444
Household size	90707	5.947	1	41
Married	79199	.193	0	1
Female head	90707	.583	0	1
Children	90707	2.303	0	20
Age	90587	26.852	0	105
Elders	90707	.362	0	4
Adults	90707	3.28	0	20
Per capita Income	90707	1165.62	.0113939	164598.4
Per capita Income without grants	64007	415.7115	0	164506.3
Per capita Grant Income	64007	254.7075	.6306306	7706.422
Per capita Old Age Pensions	90707	85.221	0	1227.77
Per capita Child Grants	90707	58.7587	0	2829.095
Grant recipient	90707	.7056457	0	1
Health weighted score	42303	.1108787	0	1
Education weighted score	42303	.0162163	0	1
Standard of Living weighted score	42303	.228641	0	1
Rural	90707	.0981732	0	1
Urban	90414	.4550291	0	1
Tribal	90707	.4450373	0	1
Food Expenditure	89474	1142.476	3.6935	30489.16
Non-food Expenditure	89474	2320.978	1.07	399272.6
Entertainment Expenditure	28074	1.929365	1	2
Cigarettes Expenditure	28138	1.714798	1	2
Alcohol Expenditure	28146	1.777517	1	2
Employment status	54486	.3387	0	1
Indian	90707	.0119175	0	1
Coloured	90707	.138082	0	1
Black	90707	.8166294	0	1
White	90707	.0333712	0	1

Table 14: Cash grant and MPI when removing eligible population

VARIABLES	(1) MPI	(2) MPI	(3) MPI	(4) MPI
Grant	9.19e-06		1.21e-05	1.03e-05
	(7.95e-06)		(1.29e-05)	(8.15e-06)
Income	-1.47e-07		-1.36e-07	-1.15e-09
	(4.90e-07)		(4.92e-07)	(4.72e-07)
Log grant		0.000326		
		(0.00869)		
Log income		-0.00466		

		(0.00310)		
Square grant			-1.49e-09	
			(2.79e-09)	
Grant#income				-1.68e-09
				(1.35e-09)
Constant	0.00658	0.649	0.00689	0.196***
	(0.0657)	(0.429)	(0.0656)	(0.0560)
Observations	2,873	1,383	2,873	2,873
R-squared	0.026	0.034	0.026	0.027
Number of hhid	1,318	846	1,318	1,318

Table 15: Cash grant and CSPI when removing eligible population

VARIABLES	(1) CSPI	(2) CSPI	(3) CSPI	(4) CSPI
Grant	1.59e-05***		2.53e-05***	1.61e-05**
	(6.09e-06)		(9.25e-06)	(6.31e-06)
Income	3.98e-07*		4.35e-07*	4.33e-07**
	(2.20e-07)		(2.23e-07)	(2.17e-07)
Log grant		0.00214		
		(0.00571)		
Log income		-0.00200		
		(0.00266)		
Square grant			-4.81e-09**	
			(2.11e-09)	
Grant#income				-4.03e-10
				(5.25e-10)
Constant	-0.00748	0.122	-0.00648	0.00372
	(0.0364)	(0.277)	(0.0362)	(0.0344)
Observations	2,873	1,383	2,873	2,873
R-squared	0.026	0.036	0.027	0.026
Number of hhid	1,318	846	1,318	1,318

Table 16: Random effects Model

VARIABLES	1 MPI	2 MPI	3 MPI	4 CSPI	5 CSPI	6 CSPI
Grant	2.62e-05***			2.68e-05***		
	(5.94e-06)			(8.22e-06)		
Income	-3.10e-06***		-3.36e-06**	-2.58e-06***		-3.20e-06***
	(1.07e-06)		(1.44e-06)	(5.89e-07)		(8.91e-07)
Log of grant		0.00289			0.000403	
		(0.00210)			(0.00509)	
Log of income		-0.00922***			-0.0159***	

		(0.000889)			(0.00223)	
Lag of grant			2.08e-05***			3.04e-05***
			(5.22e-06)			(8.91e-06)
Constant	0.0880***	0.113***	0.0880***	0.0939***	0.164***	0.107***
	(0.0118)	(0.0216)	(0.0154)	(0.0237)	(0.0471)	(0.0286)
Observations	14,081	7,866	9,370	2,873	1,383	1,965
R-squared	6,940	4,826	5,806	1,318	846	1,253
Number of hhid	2.62e-05***			2.68e-05***		

*** p<0.01, ** p<0.05, * p<0.1