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Working Paper

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GLO Discussion Paper, No. 883

Provided in Cooperation with:
Global Labor Organization (GLO)

Suggested Citation: Adhikari, Tamanna; Greyling, Talita; Rossouw, Stephanie (2021) : The ugly truth about social welfare payments and households' subjective well-being, GLO Discussion Paper, No. 883, Global Labor Organization (GLO), Essen

This Version is available at:
http://hdl.handle.net/10419/235525

The ugly truth about social welfare payments and households' subjective well-being

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Abstract: Social welfare payments (SWP) were designed with policy priority to transfer revenue to vulnerable groups, thereby addressing poverty and inequality. Previous studies have shown that SWPs alleviate poverty, but investigating their effect on well-being is sparse. We investigate the relationship between SWPs and the mean subjective well-being (SWB) of a household and analyse it across household income quintiles. We use the National Income Dynamics Study dataset, which is representative of South Africa. South Africa is an example of extremes, as it suffers from poverty, inequality, and low levels of SWB; yet, paradoxically, it has an exemplary social welfare system. We use a range of analytical methods, including ordered probit regressions and a quasi-experimental technique. We find that the highest household income quintiles claim SWPs meant for the poor, most likely leading to increased inequality. Additionally, SWPs are positively related to SWB for quintiles one to four, but the relationship is negative in the highest quintile.

Keywords Subjective well-being; social welfare payment; quasi-experiment; South Africa

JEL Codes I31; J13; J18

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1. Introduction

In the year 2020, 9.2 per cent of the world population lived in extreme poverty. The World Bank predicted that an additional 88 million to 115 million people would fall into this category in 2021 because of COVID-19 (World Bank 2020). Therefore, it is no surprise that there is an increased uptake of social welfare payments (SWPs) worldwide. This increased uptake of SWPs means that globally social welfare systems will come under significant pressure to ensure the survival of vulnerable households (Bassier et al. 2020). Additionally, an increase in extreme poverty, which can lead to higher levels of inequality, is of great concern because it is causally associated with decreased psychological well-being and an increase in mental stress. Stressed individuals with lower psychological well-being in unequal societies are poor decision-makers in crucially important areas such as long-term investments in education and health (Haushofer and Fehr 2014). In addition, higher levels of inequality increase social tension concerning social-capital problems, health-related problems and human-capital problems (Helliwell et al. 2015, Wilkinson and Pickett 2009).

It is widely recognised that countries use SWPs because it is positively associated with better economic well-being outcomes (poverty alleviation, more equitable distribution of income and improved well-being) for underprivileged and vulnerable people (Neves et al. 2009). However, human well-being is a multidimensional concept. Therefore, it is important to broaden our understanding of the impact of SWPs beyond merely the economic well-being to the wider concept of subjective well-being (SWB). SWB includes satisfaction with life (the cognitive dimension) and a positive mood or emotions (the affective dimension), overall referring to the hedonic perspective of well-being. Even though SWB is now a well-established measure that complements traditional economic measures such as the Gross Domestic Product (GDP), studies focusing on the effect of SWP on SWB are scarce (see section 2.2). Therefore, our focus is on investigating whether SWPs contribute to people's well-being and whether this holds across the income spectrum.

Previous studies investigating the effect of SWPs focused on only one specific type of SWP. For example, child support payments (Ribar 2017) or elderly support payments (Requena 2010) and, to a lesser extent, payments to people with disabilities (see section 2.2 for full details). However, social welfare systems in most countries are normally made up of a collection of varied payments, and the payments are pooled into the household income (Knight et al. 2013, Whitworth and Wilkinson 2013). In addition, often the recipient of an SWP is not the main beneficiary. For example, a mother who receives a child support payment is not the beneficiary, but adds this income to the household budget to provide for the child’s needs. Therefore, it is important to not only consider the effect of a single payment on a specific individual's well-being, but to rather take the effect of aggregated welfare payments on the household's mean subjective well-being into

consideration. Only once the influence on the entire household is considered, can we judge the effect of SWPs on well-being.

Given the above, as well as the hypothesis that social welfare systems improve SWB and inequality (MacCulloch 2018, Neves et al. 2009), we test this hypothesis by analysing the data of a country known for its extremities. South Africa has high levels of poverty, high inequality and low levels of well-being. However, it has one of the most extensive social welfare systems in the developing world (Goldblatt 2005).

We will primarily focus on answering three specific questions using a representative dataset, the National Income Dynamics Survey (NIDS), and different methods. Firstly, we will answer the question of which income quintiles in South Africa receive SWPs and secondly, what type of SWPs are accessed. These questions are answered using descriptive analysis. Lastly, we will answer the question of whether receiving an SWP increases SWB across different income quintiles. We will use several models to answer the third question, increasing in complexity and ranging from a basic ordinary least square and an ordered probit model to a quasi-experimental framework.

We contribute to the literature by being the first study investigating the effect of aggregated SWPs on the mean households' SWB. Furthermore, we are the first study to consider this across the income spectrum. Lastly, we are one of a handful of studies that specifically investigate the causal relationship between SWPs and SWB.

The rest of the paper is structured as follows. The next section contains a short discussion of the case study country, South Africa, and the relevant literature pertaining to SWPs. Section 3 outlines the methodology and describes the data used. The results follow in section 4, while the paper concludes in section 5.

2. Background and relevant literature review

2.1. Case study

Our case study, South Africa, is a developing country with a population of approximately 57.7 million people. In 2019 the economy managed to grow by only 0.15 per cent. The unemployment rate (as measured by the expanded definition) is estimated at 43.2 per cent (Statistics South Africa 2021). In the year 2021, South Africa was noted as the country with the highest level of inequality, with a Gini coefficient of 0.66 (World Bank 2021). According to the Human Development Report (2020), 18.9 per cent of the population, i.e. approximately 11 million South Africans, live on less than R28 ($1.90) a day, which is close to R800 ($55) per month. South African NIDS researchers Zizzamia et al. (2019) estimate that about 52 per cent of South Africans live in chronic poverty. However, an additional 11.4 per cent can be classified as 'transient poor', and about 19 per cent form part of the 'vulnerable middle class'.

In terms of life satisfaction, Stoop et al. (2019), using all five waves of the NIDS data, found that the average life satisfaction score for South Africans when comparing their current life situation to ten years before, was 5.4, with 35 per cent scoring less than 5. They used the question, "Are you more or less happy than you were ten years ago?" Stoop et al. (2019) also found a strong correlation between psychological well-being and income levels. Those individuals who fall in the lower expenditure deciles score an 8 for the Epidemiological Studies Depression Scale (CES-D) and 4.3 for life satisfaction. Individuals in higher expenditure deciles score a 6 for the CES-D and 6.3 for life satisfaction.

Since the enactment of the Social Assistance Act of 1992, "*a policy priority has been the direct transfer of revenue to vulnerable groups outside the labour force, particularly children and older adults living in poverty, adults and children with disabilities, and children needing care due to parental illness, death, abuse or neglect*" (Godfrey et al. 2016: 775). The major share of the social welfare system comprises of five categories (two targeted at adults and three at children): the old age payment (OAP), the disability payment (DP), the child support payment (CSP) (introduced in April 1998 when it replaced the child maintenance payment), the foster care payment (FCP), and the care dependency payment (CDP). Three lesser-known SWPs that are also applied for from time to time include grant-in-aid, social relief of distress, and war veterans' payment[4]. According to South African Social Security Agency (SASSA) (2020a), by the end of December 2020, more than 18 million SWPs were paid to more than 11 million beneficiaries. Of the SWPs listed above, most of those paid in 2020 were in the CSP category, namely 12 945 457, while the OAP was awarded 3 729 103 times (SASSA 2020a).

2.2. Literature review

In the literature, most studies investigating the effect of SWPs[5] focus on *CSP*. There is a near-uniform belief that CSP has a positive effect on the *material well-being* of the child (Cooper et al. 2020, Patel and Ross 2020, Coetzee 2013, Case et al. 2005) and the caregiver (Granlund and Hocheld 2020, Patel and Ross 2020, Patel et al. 2015), but *negative effects* on the spouses or partners with increased feelings of shame (Granlund and Hocheld 2020). Cooper et al. (2020) found that the *SWB* effects of the CSP were low and that recipients experienced a decrease in their level of dignity, since they faced negative attitudes and prejudices from their own communities. Additionally, recipients stated that they felt 'unworthy' due to an arduous application process, queuing for extraordinarily long periods only to be treated disrespectfully by officials when trying to prove they were meeting the qualifying criteria. Cooper et al.'s (2020) study was in direct contradiction to those of Attah et al. (2016) and Diener et al. (2018). They argued that socio-economic policies such as

[4] See Appendix B for exact grants per year with any associated changes.
[5] Please note that it falls outside the scope of the current study to discuss literature that focused on the relationship between social grants and poverty alleviation.

income security and social protection programmes are related to increased psychosocial well-being. Additionally, Oyenubi and Kollamparambil (2020) exposed the dark side of CSP when they found that beneficiaries of the CSP had more birth attempts than non-beneficiaries. This finding is problematic because people who choose to have more children to receive a higher income generated from CSP only increase the poverty and inequality problems.

The effect of the *OAP*[6] on SWB is clearer than that of the CSP. Consistent and significant positive effects of the OAP on the elderly have been found, although there is still a debate regarding gender differences. Kollamparambil and Etinzock (2019) and Grogan and Summerfield (2019) found positive relationships between SWB and the OAP, although they argued that this only applied to elderly females. Bando et al. (2017), Galiani et al. (2016) and Kapteyn et al. (2013) all confirmed that the OAP decreased depression among the elderly (as measured by a reduction in the Geriatric Depression Scale), thereby increasing their mental well-being. Studies that contradict the above state that there is no significant relationship (Schatz et al. 2012, Shin 2018). However, it should be noted that these studies were flawed. For example, Shin (2018) failed to identify a causal impact and did not differentiate between genders.

Knight et al. (2013) conducted a qualitative study of ten households in KwaZulu-Natal, South Africa, using *DPs*. Their interest lay in investigating whether receiving DPs, and antiretroviral therapy, would impact poor households affected by HIV. They concluded that positive health outcomes were associated with households where individuals received the DP while undergoing antiretroviral therapy.

Only a handful of studies *combined different categories of SWPs* to determine the impact on the recipients. Using the first four waves of NIDS data, Waidler and Devereux (2018) investigated the impacts of CSP and OAP and remittances on one set of well-being outcomes, namely food security and nutrition. Interestingly, Waidler and Deveraux (2018) found that the CSP had no significant impact on the dietary diversity index used in the study. Thus, the positive and significant impacts are only limited to the OAP and remittances. In a study conducted by Mackett (2020), the OAPs' significant impact was confirmed. Using the first five waves of the NIDS data and transition matrices, Mackett (2020) studied poverty and labour market outcomes due to receiving SWPs. By comparing SWP recipients to those who were not, Mackett (2020) concluded that non-SWP recipients had a more favourable market outcome than SWP recipients. Additionally, Mackett (2020) concluded that an OAP had a better impact on labour outcomes and poverty than CSP.

[6] Old age payments are a non-contributory means-tested income transfer to persons aged 60 and above.

Given the above literature review, to the authors' knowledge and as stated in section 1, no other study has considered all SPWs when determining the impact on the mean SWB of a household across different income quintiles.

3. Methodology and data

3.1 Methodology

We use descriptive analysis to answer our first and second research questions. To address the third, we adopt three different estimation techniques. Firstly, we estimate an OLS model; secondly, we estimate an ordered probit model using the categorical household SWB as our dependent variable. Lastly, we use a quasi-experimental model, namely Propensity Score Matching, to investigate the causality of the relationship. If all the estimation techniques used produce similar results, we are confident that our results are robust. We run all models for the whole sample and also per income quintile.

To estimate the ordered probit model, we use the following specification:

$$\boldsymbol{Pr(Subjective\ Well-Being = i) = \beta_0 + \beta_1 D + \beta_2 X + \mu} \qquad \textbf{(1)}$$

Here $i = 1,2,3 \ldots . 10$ representing the ten categories of the SWB variable. *D* refers to our treatment variable, which takes a value of 1 if a household receives an SWP and 0 if it does not. *X* represents a vector of controls for household characteristics. Finally, μ represents the stochastic error term.

Equation (1) estimates a score as a function of the independent variables and a set of "cut points". The probability of observing outcome *i* corresponds to the probability that this score plus the error term μ is within the range of the cut points estimated in the model. The estimates from these models provide us with an idea of the general association of our treatment with the outcome variable.

We run all diagnostic tests and find an absence of multicollinearity and autocorrelation. To address heteroscedasticity, we make use of clustered (at household level) robust standard error estimations.

As our data comes from non-random observational studies, we admit that traditional econometric methods may bias the effect of the "treatment" (in our case, this is the receipt of an SWP) due to the presence of confounding factors. Following the seminal work of Rosenbaum and Rubin (1983), matching techniques, which "match" the treated and the untreated in a range of observable characteristics, are now often used in impact evaluation. As a third model, we use a matching technique based on propensity scores. Propensity-score matching (PSM) essentially estimates each individual's propensity to receive a binary treatment (with a probit or logit model) as a function of observables, and matches individuals with similar propensities (Caliendo and Kopeinig 2008). Our quasi-experimental design identifies a control group that does not

receive an SWP, but is similar to the treatment group (individuals who receive an SWP). We match the treated and the untreated in a range of characteristics. The control group captures what would have been the outcomes if the policy of SWPs had not been implemented.

The starting point of our analysis is to estimate the "propensity score". We use a probit model for the estimation of our scores. In doing so, we follow Caliendo and Kopeinig (2008), who state that, "*In principle, any discrete choice model can be used. Preference for logit or probit models (compared to linear probability models) derives from the well-known shortcomings of the linear probability model.*" To select the covariates to match the data, we were largely guided by theory and the framework outlined in Garrido (2014). In particular, we are careful only to include variables that are relatively unaffected by the treatment. After choosing the variables and estimating the probability of receiving the treatment, we ensure that the propensity score is calculated and balances covariates across treatment and control cohorts. In other words, there is no significant difference in being selected into the treatment group, given the control. We report diagnostic tests for the same in the results section.

After the initial balance tests, we match the sample to perform our propensity score analysis. There are several ways to do this (e.g. kernel weighting, nearest neighbour, caliper matching, local linear regression). In the end we choose the nearest neighbour weighting, as it retains the sample size while leading to the best post weighting balance (see Garrido 2014). Additionally, we also provide estimates from other matching techniques as robustness tests.

Our parameter of interest is the Average Treatment Effect on the treated (ATT) which focuses on those households for which the social welfare system was created. The PSM estimator for the ATT can be represented by

$$ATT = E_{P(x)|D=1} = \{E[Y(1)|D = 1, P(x)] - E[Y(0)|D = 0, P(x)]\}$$

Here *Y(D)* refers to the outcome based on the value of the treatment *D*. *P(x)* refers to the probability for a household to receive the treatment (receive SWP) given his observed covariates *X*. Therefore, the ATT in our case is the mean difference in SWB, between those who receive an SWP and those who don't over the common support, weighted by individual household propensity scores.

We acknowledge the critique against PSM as argued by King and Nielsen (2019). The authors argue that PSM, "*as it is commonly used in practice or with many of the refinements that have been proposed, can and usually does increase imbalance, inefficiency, model dependence, research discretion, and bias at some point in both real data and in data generated to meet the requirements of PSM theory"* (King and Nielsen 2019:1). A propensity score method is, thus, a trade-off between sample size, generalisation, and balance.

This has implications for the internal and external validity of the estimations. To address this, we apply several diagnostic tests to verify the balancing property of our covariates carefully. To address the selection bias, we estimate our models with different sets of covariates. Next, in addition to using a calliper method for matching, we also use the nearest neighbour matching, so the choice of a narrow calliper does not taint our estimations. Lastly, the PSM model is one of the three models we estimate. Our baseline results are consistent in all the models, thereby increasing our confidence in the estimation results.

3.2 Data

The data used in this paper comes from five waves of the National Income Dynamics Survey (NIDS). The first wave was conducted from 2008 to 2009 and wave five in 2017. We chose this dataset as it is a rich dataset, providing information on respondents' and households' different well-being domains. NIDS is a face-to-face longitudinal survey following the same individuals (NIDS 2016). However, NIDS does not follow households over waves and allocates different household identifiers in each wave. As an analysis over time is not our main concern, we pool all households across the waves. The number of households is approximately 42 700, and after controlling for successful interviews, it decreases to approximately 42 400.

3.2.1 Selection of variables

To select the variables included in the models, we are led by the literature and data availability. In the next section, we first discuss the dependent variable, followed by the derived variables and the covariates included in the estimations.

3.2.1.1 Household subjective well-being

Among the many groups that people belong to, the family household probably has the greatest personal importance for most individuals (Krys et al. 2019, Lee et al. 2012, Cousins 1989). Data collected in the World Values Survey (Inglehart et al. 2014) confirm that among six aspects of life—family, religion, politics, leisure time, work, and friends — family is rated as the most important in the over sixty analysed countries; followed by work and friends. As argued by Veenhoven (1987:345), "*happy parents get on better with their children"*, "*good contacts appeared more frequent among happy mothers*", and "*adolescent children of happy mothers more often claimed to be fond of them*". Clair (2012) and Casas et al. (2008) argue that it is logical that parents' SWB would influence the SWB of their children. There are three primary explanations for this — genetic influences, environmental factors and common stressors (Clair 2012, Powdthavee and Vignoles 2008, Larsen and Eid 2008, Bookwalter et al. 2006). Clair (2012), using data from the British Household Panel Survey and running linear and logit regressions, found a significant and positive relationship between a parent's life satisfaction and the life satisfaction of their children. Therefore, we believe using the SWB of adults in a household can represent the mean SWB of the entire household.

To measure our dependent variable, household SWB, we use the mean level of satisfaction of the adults in the household. Within the adult questionnaire of the NIDS dataset, individuals 15 years and above are asked to rate the current level of general life satisfaction on a scale from 1 to 10, where 1 represents 'very dissatisfied', and 10 represents 'very satisfied'. Following the standard procedure of deriving life satisfaction at an aggregated level (see the World Happiness Report by Helliwell et al. (2021) and the UK Office for National Statistics (2021)), we derive the mean household life satisfaction. Additionally, we create a categorical variable in line with the SWB literature and use this in ordered probit estimations. The categorical variable measures life satisfaction on a level from 1 being not happy to 10 being very happy and approximates the distribution of the continuous variable.

3.2.1.2 Covariates and other derived variables

i) Household head: As we include certain demographic variables of the household head in our estimated models, we first need to determine the household head for each household. To do this, we combine the answers given to the direct question, 'Who is the head of the household?' and the question determining the household member's relationship to the resident head, where one option in this is "household head".

ii) Income quintiles: To determine the income quintiles, we use the NIDS dataset's imputed household income variable, which includes all income sources (wages, rent, interest, profit share, remittances, and SWPs received (Brophy et al. 2018)). To derive a household income variable at constant 2014 prices, we deflate household income for the year 2017 and inflate household income for the years 2009 and 2011 with the applicable price index (Brophy et al. 2018). As we need household income excluding any SWPs when deriving income quintiles, we deduct household SWPs at constant prices from household income at constant prices. We divide the income into quintiles using the net-household income (household income minus SWPs at constant prices). This allows us to determine the 20 per cent bottom household income earners (absolute poor), 40 per cent bottom income earners (poor), the 60 per cent and 80 per cent quintiles and the top 20 per cent, which are seen as the wealthiest households of the population. First, we run all models using the whole sample, and then we run them in the different income quintiles.

The covariates included in the regression analyses are[7]:

i) Household education: To represent education, we use the mean of the highest level of education attained by the adults in the household. The level of education varied from no schooling (coded

[7] We could not include marital status or religion due to a large number of missing values.

as 0) to 18 years of education (coded as 18) (reflecting post-graduate qualifications). As early as the 1980s, the positive relationship between SWB and education was established (see, for example, Ngoo et al. 2021, Dittmann and Goebel 2010, Witter et al. 1984).

ii) Household health: To measure health, one of the most important determinants of SWB (Rossouw and Greyling 2021, Kollamparambil and Etinzock 2019), we use the mean of a self-assessed measure of health reported by adults in the household, namely "How would you describe your health at present?" with a response on a scale from 'poor' (1) to 'excellent' (5).

iii) Household size: It has been shown that the number of members of a household is positively related to the SWB of the household (see Kollamparambil and Etinzock 2019, Reyes-García et al. 2016).

iv) Dwelling type: To account for dwelling type, we coded responses into a binary variable with formal dwelling types equal to one and informal dwelling types[8] equal to zero. From the literature, it is evident that dwelling type is a determinant of SWB because of the detrimental effects living in informal settlements have on self-worth, sense of belonging and social cohesion (Rossouw and Greyling 2018, Zakerhaghighi et al. 2015).

v) Water: To measure household access to piped water, we coded answers into a binary variable with piped water equal to one and no piped water equal to zero[9] (see Rossouw and Greyling 2021, Bookwalter and Dalenburg 2002, Møller and Saris 2001).

vi) Age: We use the age of the household head. We include age and age squared to capture the U-shaped relationship between age and well-being, revealed in the SWB literature. This indicates higher levels of well-being for the young and older generations and lower for the middle-aged cohort (Frijters and Beatton 2012).

viii) Gender: We include the gender of the household head in our models. From the literature we know that the gender debate is still ongoing. For example, on average, males have been found to have a higher level of SWB than females by Kundu (2011) and Becchetti and Conzo (2013). However, drawing from the Gallup World Poll and using a sample of close to 2 million participants across 166 countries, Joshanloo and Jovanović (2020) found that women across all income, education, and employment groups reported higher levels of life satisfaction than men.

ix) Relative income: Here, we use the household head's response when asked to assess their income relative to that of their neighbours; the options are below average, average and above average. We include relative income in our analyses because relative or comparison income may play

[8] Formal dwelling refers to dwellings consisting of bricks, a flat or an apartment, a townhouse, etc. Informal dwellings refer to traditional huts, caravans, shacks, etc.

[9] Piped water refers to piped water in dwellings or piped water on site, whereas no piped water refers to water from a borehole, spring etc.

an important role in determining well-being (see Rossouw and Greyling 2021, Clark et al. 2008).

x) Race: To measure the race of the household, we use the race identified by the household head. South African inequality and even poverty can be attributed to racial discrimination and, in particular, to Apartheid. This is an important determinant of well-being and differs significantly across races (Rossouw and Greyling 2021, Van der Berg 2011).

xi) Geotype: The geotype variable distinguishes between traditional, urban and farmland areas. Based on the literature, the relationship between the geographical type and SWB is inconclusive. Some studies find a higher level of well-being in urban centres. In contrast, others find higher levels of well-being in traditional areas (see, for example, Greyling and Rossouw 2019, Bhuiyan and Ivlevs 2019).

xii) Employment: To capture the household's economic status, we distinguish between economically not active, unemployed, and employed. According to the literature, there is a direct link between life satisfaction and paid employment (Ngoo et al. 2021, Schröder 2020).

Table 1 summarises the variable name, means, standard deviation and the minimum and maximum values for the selected covariates and the derived variables used in the model estimations (see section 3.1). To provide a better picture of the data, we report the statistics for the full sample and those that receive (treated group) and do not receive (control group) SWPs.

Table 1 shows that households that receive an SWP, record lower SWB than their counterparts. However, if we control for other factors, specifically years of education and level of employment, the group that receives SWPs, experiences higher levels of satisfaction than their counterparts. The number of years of education differs with more than three years between the two groups, and most people receiving SWPs are either unemployed or not economically active (64 per cent). In contrast, the opposite is true for those not receiving SWPs (28 per cent).

Table 1: Descriptives of the variables included in the ordered probit

Full sample				**No SWP**				**Receive SWP**			
Variable	**Obs**	**Mean/ Frequencies**	**Std. Dev.**	**Mean/ Frequencies**	**Std. Dev.**	**Min**	**Max**	**Mean/ Frequencies**	**Std. Dev.**	**Min**	**Max**
SWB_ categorical	41 631	5.47	2.23	5.70	2.32	1	10	5.55	-	1	10
Household head	42 717	-	-	-	-	-	-	-	-	-	-
Household income – SWP (constant 2014 prices)*	40 160	5 364.66* ($495.16)	18 790.49	9 633.55 ($889.17)	30 169.56	0	884 636.40	3 067.03 ($283.08)	6 177.54	-20 604.34	310 265.90
Household income	40 130	6 032.83 ($556.83)	18 737.22	9 635.61 ($889.31)	30 182.64	0	884 636.40	4 094.00 ($377/82)	6 257.00	0	310 439.60
Household expenditure	40 130	4 426.80 ($409.59)	9 477.20	7 145.79 ($659.28)	14 159.99	29.19	464 227.20	2 964.09 ($273.57)	4 915.29	72.99	177 926.80
SWP (0 = no SWP)	42 717	0.65	0.48	-	-	0	1	-	-	0	1
HH_ education	42 717	8.15	3.53	10.12	3.65	0	18	6.99	2.88	0	18
HH_health	41 305	3.72	0.91	3.90	0.92	1	5	3.62	0.89	1	5
HH_ size	42 717	3.99	2.76	2.53	1.73	1	23	4.78	2.88	1	41
Dwelling type (0 = informal)	42 205	0.77	0.42	0.82	0.38	0	1	0.74	0.43	0	1
Water (0 = no piped water)	42 321	0.70	0.46	0.81	0.40	0	1	0.64	0.48	0	1
Age	42 717	47.09	16.44	42.11	14.18	11	111	50.43	16.99	11	110
Gender (0=female)	41 614	0.44	0.19	0.63	0.48	0	1	0.34	0.47	0	1
Relative Income											
Below	20 077	0.47	-	0.37	-	-	-	0.53	-	-	-
Average	17 941	0.42	-	0.48	-	-	-	0.38	-	-	-
Above	4 969	0.11	-	0.15	-	-	-	0.09	-	-	-
Race											
African	35 339	0.78	-	0.70	-	-	-	0.84	-	-	-
Coloured	5 997	0.13	-	0.14	-	-	-	0.13	-	-	-
Asian/Indian	661	0.01	-	0.02	-	-	-	0.01	-	-	-
White	3 053	0.07	-	0.14	-	-	-	0.01	-	-	-
Geotype											
Traditional	15 595	0.36	-	0.19	-	-	-	0.46	-	-	-

Urban	24 964	0.57	-	0.72	-	-	-	0.48	-	-	-
Farm	3 264	0.07	-	0.09	-	-	-	0.06	-	-	-
Employment											
Not economically active	16 451	41.20	-	19.39	-	-	-	52.70	-	-	-
Unemployed	4 150	10.29	-	8.43	-	-	-	11.43	-	-	-
Employed	19 332	48.41	-	72.18	-	-	-	35.88	-	-	-

*South African Rand (ZAR) to US dollar exchange rate in 2014 was R1 = 0.0923 USD.
Source: Authors' own calculations using NIDS (2019) data.

Households receiving grants are less healthy, less likely to stay in formal housing and less inclined to have piped water. In terms of demographics, the older population, female gender, people of African descent and traditional and urban areas are over-represented.

4. Results and analysis

4.1 Descriptive Analysis

Using descriptive analysis, we answer our first two research questions, namely: which household income quintiles receive SWPs, and what types of SWPs do they access.

In section 3.2 we saw that, in the pooled dataset, there are 42 717 (42 384) successfully interviewed households[10]. Of these households, 65 per cent (27 558) receive an SWP, while 35 per cent (14 826) do not. In this section, we are only interested in those receiving an SWP. We divide the households that receive an SWP into income quintiles.

We find that households in all income quintiles receive SWPs, though the percentage of households decreases as the income quintile increases. In the lowest household income quintile, 88 per cent of the households receive an SWP, while households that receive SWPs in the highest quintile and top decile are 37 and 28 per cent, respectively (Table 2).

From this, the question arises how it is possible for households in the highest income quintile to access SWPs reserved for the poor? To qualify for an SWP, an individual or married couple must pass the means test. Given that the means test is based on a certain level of income or assets, it is possible that an individual (even one that is married) ─ could earn an income below the means test, which legally gives them the right to access a particular SWP. To provide some perspective, let us consider the highest income quintile. Here, we notice that the income band is very wide, from R6 941 ($486) to almost R900 000 ($62 993), highlighting that South Africa's income distribution is extremely skewed. This implies that the lowest cut-off point in the highest income quintile is still relatively low, therefore, making it possible for individuals in these households (although they are higher-income households) to earn an income below the means test and, therefore, legally have access to SWPs.

[10] We would like to remind the reader that since this is a pooled dataset, we include all households for the time period from 2008 to 2017. Therefore, we do not consider the time periods as such (though we do look at them on page 17), but rather the number of households in the entire sample. This is because in the dataset, households have different household identifiers per year, and often the construction of the household differs from year to year, thus from year to year we are working with a new set of unique households.

Table 2: SWPs per income quintile

	Income Quintiles				
	1 (bottom 20%)	**2 (bottom 40%)**	**3**	**4**	**5 (top 20%)**
% of HH receiving an SWP	88.37	70.07	65.59	59.34	37.27
% of HH receiving an SWP by deflated expenditure quintile (includes SWP)	67.54	74.98	73.20	67.87	40.38
Income band (with SWP)	29.19 – 988.19[11]	988.21 -1 647.35	1 647.49 – 2 712.67	2 712.85 – 5 235.02	5 236.99 – 884 636.4
Mean income (with SWP)	653.71	1 301.48	2 121.99	3 739.67	115 368.20
Income band (less SWP)	-20 601.30 - 520.89	520.59 -1 501.75	1 501.80 – 3 666.36	3 666.65 – 6 694.27	6 941.27 – 884 636.40
Mean income (less SWP)	570.59	972.73	2 2514.82	4 706.62	19 764.74
Median (less SWP)	216.62	956.14	2 214.17	4 537.39	12 605.85
% of HH receiving an CSP	30.11	25.77	23.85	19.67	7.77
% of HH receiving an DP	8.01	4.45	3.39	2.19	1.14
% of HH receiving an FCP	2.44	1.79	1.91	1.33	0.94
% of HH receiving an CDP	0.89	0.58	0.50	0.30	0.22
% of HH receiving an OAP	38.73	21.48	18.12	14.12	9.23
% of HH receiving an WVP	0.02	0.02	0.12	0.00	0.04
% of HH receiving grant-in-aid	0.10	0.07	0.04	0.12	0.06

[11] R1 = $0.0923 (2014 exchange rate)

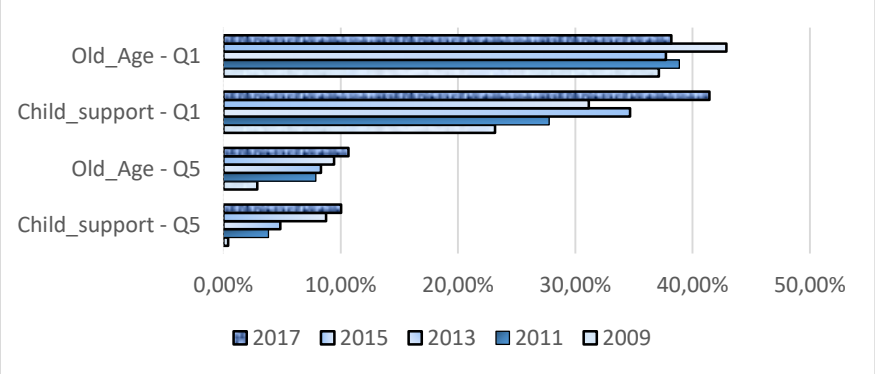
Source: Authors' own calculations using NIDS (2019) data.

Nonetheless, should it be the goal of a social welfare system to also give the highest income quintile households access to SWPs? If we consider households in the top quintile, their median income is 66 times more than the median in the lowest quintile. Thus, a ratio of 1:66 means that for every R1 earned by the lowest quintile, the top quintile earns R66. In contrast, if we consider the number of households that access SWPs, the median income ratio is 1 (lowest quintile): 0.41 (highest quintile). In other words, for almost every two households that claim an SWP in the bottom quintile, one household in the top quintile claims an SWP. Clearly, something is amiss. If SWPs were introduced to decrease poverty, this goal might have been accomplished. However, instead of decreasing inequality, it has now most likely ended up having the opposite effect.

Additional reasons for households in the highest quintile claiming SWPs could, for example, be the FCP, which is not subject to a means test and is accessible to all (see Table 9 in Appendix B for a summary of SWPs). Another major concern revealed by SASSA (2020b), is various fraudulent activities related to claiming SWPs in cases where people are not entitled to claim. This fraudulent behaviour has increased over time as the ease of bypassing requirements is common knowledge. People make use of fraudulent personal identification documents (IDs), or use the IDs of people who have passed away. Additionally, they claim for deceased children, or children of an ineligible age, and many claim OAP though they are still employed.

When we consider the different types of SWPs (Table 2), we notice that all income quintiles access all types of SWPs. Again, we notice that as the income quintile increases, the percentage of SWPs claimed by households decreases. For example, in the lowest quintile, 30 per cent of the households claim CSP, while households in the highest quintile claim 7.7 per cent. Similar trends are seen with all types of SWPs claimed.

Figure 1: Trend in CSP and OAP for quintiles 1 and 5



Source: Authors' own calculations using NIDS (2019) data.

If we consider the trend over time (Table 3), approximately all categories of SWPs claimed by households increased in both the lowest and highest quintiles. Remarkable are the increases in the CSP within the highest and lowest quintiles, as is the increase in the OAP in the highest quintile (see figure 1 and Table 3).

Table 3 shows that the percentage of households claiming CSP almost doubled for the lowest quintile, whereas for those households in the highest quintile, CSP is a staggering 23 times more from 2009 to 2017. For the lowest quintile, the households that claim FCP and CDP increased by 74 per cent and 115 per cent over the time period. In the highest quintile, the percentage of households that claim SWPs (except for CSP) increased by between 2 and 4 per cent.

Table 3: Trend over time for households in the lowest and the highest income quintile.

	Quintile 1					**Quintile 5**				
Variable	**Wave 1**	**Wave 2**	**Wave 3**	**Wave 4**	**Wave 5**	**Wave 1**	**Wave 2**	**Wave 3**	**Wave 4**	**Wave 5**
Child support	23.15%	27.78%	34.67%	31.15%	41.43%	0.41%	3.85%	4.85%	8.75%	10.03%
Disability	10.34%	7.05%	6.70%	7.27%	7.84%	0.41%	0.64%	1.19%	1.23%	1.27%
Foster care	1.69%	1.92%	2.58%	3.99%	2.94%	0.19%	0.92%	0.88%	1.10%	1.00%
Old age	37.14%	38.89%	37.74%	42.88%	38.20%	2.89%	7.87%	8.31%	9.43%	10.67%
Care	0.55%	0.75%	1.32%	0.93%	1.18%	0.21%	0.00%	0.10%	0.21%	0.32%
War veteran	0.00%	0.05%	0.05%	0.00%	0.00%	0.00%	0.16%	0.00%	0.05%	0.03%
Aid	0.00%	0.00%	0.00%	0.00%	0.10%	0.00%	0.00%	0.00%	0.00%	0.06%

In 2017 prices R10 367

Source: Authors' own calculations using NIDS (2019) data.

Clearly, these trends are not sustainable, especially considering that households from all income quintiles claim SWPs, and that they have increased markedly over time.

4.2 Ordered probit analysis

We now turn our attention to answering our last question regarding the relationship between receiving an SWP and mean household SWB. We report the ordered probit results followed by the propensity score matching model (see Appendix A for OLS results). In our analysis, we run all models with and without design weights and compare the results. Design weights are used to adjust for household non-response. As mentioned in section 3.1, we test the robustness of our results using different estimation techniques. Our analyses are for the whole sample and subsequent household income quintiles. All estimations are repeated for each quintile. The results are similar for quintiles one to four; thus, we only report on quintile one. However, quintile five differs and is also reported on separately (see Table 4).

Table 4: Ordered Probit with household SWB as the dependent variable

Variable	All		Lowest quintile		Highest quintile	
	Coefficient	S. E	Coefficient	S. E	Coefficient	S. E
HH SWP (No = 0)	0.0227*	(0.0138)	0.2016***	(0.0439)	-0.0873***	(0.0305)
HH size	0.0291***	(0.0021)	0.0185***	(0.0046)	0.0211***	(0.0059)
HH education	0.0205***	(0.0020)	0.0045	(0.0042)	0.0228***	(0.0051)
HH health	0.1132***	(0.0066)	0.1454***	(0.0132)	0.0844***	(0.0169)
Dwelling type	0.1198***	(0.0135)	0.0880***	(0.0245)	0.1158**	(0.0520)
Water dummy (no piped water = 0)	0.0851***	(0.0143)	0.0805***	(0.0271)	0.0209	(0.0489)
Geotype (Traditional = 0)	0.0000	(.)	0.0000	(.)	0.0000	(.)
Urban	0.0186	(0.0143)	-0.0362	(0.0299)	-0.0071	(0.0395)
Farm	0.0382*	(0.0229)	-0.0041	(0.0519)	0.0544	(0.0653)
Age (HH head)	0.0055***	(0.0004)	-0.0054	(0.0036)	0.0037	(0.0053)
Age^2 (HH head)	0.000214	(0.000183)	0.0001***	(0.0000)	0.0000	(0.0001)
Gender (Female = 0)	0.0397***	(0.0112)	0.0801***	(0.0246)	0.0886***	(0.0257)
Relative income (Below the neighbour = 0)						
Relative income Category (Average)	0.4399***	(0.0115)	0.4030***	(0.0258)	0.4183***	(0.0335)
Relative income Category (Above)	0.1507***	(0.0191)	-0.1677***	(0.0460)	0.4255***	(0.0413)
Employment status (not economically active = 0)						
Unemployed	0.0129	(0.0192)	-0.0289	(0.0337)	-0.0241	(0.0668)
Employed	0.1337***	(0.0132)	-0.0202	(0.0363)	0.0670*	(0.0357)
Race (African =0)	0.0000	(.)	0.0000	(.)	0.0000	(.)
Coloured	0.5172***	(0.0169)	0.5104***	(0.0477)	0.4131***	(0.0371)
Indian	0.4969***	(0.0489)	0.4944***	(0.1709)	0.3740***	(0.0732)
White	0.6545***	(0.0248)	0.3950**	(0.1587)	0.5026***	(0.0361)
Waved 1 (= 0)						
Wave 2	-0.3276***	(0.0190)	-0.3343***	(0.0339)	-0.1951***	(0.0605)
Wave 3	-0.2014***	(0.0172)	-0.2655***	(0.0323)	-0.1172**	(0.0503)
Wave 4	0.0455***	(0.0164)	0.0150	(0.0347)	0.0212	(0.0461)
Wave 5	0.0122	(0.0165)	-0.0535	(0.0408)	-0.0863**	(0.0433)
/						
cut1	-0.5000***	(0.0424)	-0.7083***	(0.1198)	-0.9501***	(0.1746)
cut2	0.0043	(0.0418)	-0.2089*	(0.1185)	-0.4888***	(0.1719)

cut3	0.5073***	(0.0418)	0.3273***	(0.1183)	-0.0392	(0.1712)
cut4	0.9819***	(0.0419)	0.8224***	(0.1183)	0.4101**	(0.1714)
cut5	1.5225***	(0.0423)	1.3929***	(0.1188)	0.9403***	(0.1718)
cut6	1.9770***	(0.0427)	1.8329***	(0.1195)	1.4252***	(0.1720)
cut7	2.4163***	(0.0432)	2.1891***	(0.1201)	1.9448***	(0.1724)
cut8	2.8862***	(0.0440)	2.5339***	(0.1213)	2.5335***	(0.1729)
cut9	3.2456***	(0.0451)	2.7639***	(0.1222)	3.0086***	(0.1737)
N	39 667		7 772		7 500	
Adj. R^2	0.040		0.030		0.027	
Wald (chi2)	6 789.83		831.88		849.96	
Prob>chi2	0.000		0.0000		0.000	

Source: Authors' own calculations using NIDS (2019) data

[1] Base Category is below that of the neighbour

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

As was expected, variables that have been established in the SWB literature, such as self-reported health, dwelling type and access to piped water, all behaved as expected (Table 4). Therefore, we will limit our discussion to those covariates that significantly contribute to the existing literature.

Table 4 shows that our variable of interest, the SWP, is positive and significantly related to mean household SWB, except for quintile 5. Here the sign is negative and significant, implying that those who receive SWPs have lower levels of SWB than those who do not receive SWPs. As receiving an SWP does not positively affect these households' SWB, one wonders why they then access these payments. To test the robustness of this finding, we also used household income and expenditure at constant 2014 prices to divide the sample into quintiles. This is not ideal, as SWPs are implicitly included in these measures. Nonetheless, we find the negative relationship in quintile five holds, though when household expenditure is used, the relationship is negative, but not significant.

A possible explanation for this negative relationship can be drawn from the literature (see section 2.2). Whereas studies find positive effects of OAP on well-being, the debate is far from over regarding CSP. It could be that those households in the top 20 per cent of income earners experience a significant and continuing decrease in their level of dignity since they, the so-called 'non-poor', are applying for SWPs, whether legitimately or fraudulently. Additionally, these households may face negative attitudes and prejudices from their communities, which might consider them not poor enough to use the social welfare system.

We find that the household's size is positive and significant across all samples. This is in line with the work done by Reyes-García et al. (2016), who investigated the SWB of 6 973 rural households in 23 countries throughout Asia, Africa, and Latin America. Additionally, a study conducted by Kollamparambil and Etinzock (2019) on the relationship between SWB and OAP in South Africa found that the size of the household increased the SWB by an average of 0.046 points in their chosen model of propensity score matching and difference-in-difference model.

Three interesting findings pertain to years of education, age squared and employment status. Education is not significant for those households in the lowest income quintile; thus, the number of years of education does not matter for these households' SWB. Normally education is a pathway to employment and a method used to move out of poverty. With very high unemployment rates among households that receive SWPs, the hope to be employed is small. Seeing that 88 per cent of this cohort depends on SWPs, it simply could be that long-term investments in education are not a viable option for them.

Regarding aged squared, we do not find the usual U-shaped relationship between age and SWB. Instead, for those households that receive SWPs and find themselves in the lowest income quintile, an inverted U-shaped relationship is identified. This relationship indicates relatively low levels of well-being reported for young people, higher for the middle-aged respondents and lower again during people’s later years. This low level of well-being among the youth is easily defended, since South Africa is

battling a youth unemployment rate of approximately 70 per cent (Statistics South Africa 2021). With almost no prospect for future employment, South Africa's younger generation feels destitute with no purpose for getting up in the morning. With regard to employment status, we find that employed households have a higher SWB than those who are not economically active, except for households in the lowest quintile. Here employment is not of any significance. Again, considering the significant number of households accessing SWPs, an SWP could be seen as a disincentive to work because their income might then become too high to pass the means test.

We find in terms of gender that households headed by males enjoy higher SWB than those headed by females. This is in line with Stoop et al.'s (2019) argument that individuals living in households where the head is female may face higher poverty risks, and subsequently decreasing SWB.

Over the years, relative income has become a more important indicator of well-being than absolute income (see Rossouw and Greyling 2021, Clark et al. 2008). Therefore, a household's well-being is not influenced by absolute income levels, but rather by perceived relative income levels. SWB is predicted to be diminished by the higher income of others through feelings of relative deprivation or reduced status (Posel and Casale 2015). We find for the whole sample and those households in the highest income quintile that, if the household head believes that the household has an average or above average income compared to their neighbour, the household's SWB is higher. This confirms studies such as Kollamparambil and Etinzock (2019) and Posel and Casale (2015). A finding that contradicts previous findings is the relationship identified within those households in the lowest income quintile. Here we find that if the household head feels that the household's income is above that of his neighbour, then the household's SWB is lower. Perhaps this indicates a sense of belonging to a community, or it could be that their higher income is conspicuous, and therefore neighbours approach them when a need arises.

In line with the findings of Stoop et al. (2019), Kollamparambil and Etinzock (2019) and Ebrahim et al. (2013), we also find that those of African descent experience the lowest household SWB compared to all other races, across all quintiles.

Regarding geographical location, we find that it is only significant for the sample as a whole, where people living on farmlands have higher SWB than those in traditional and urban regions. With an urbanisation rate of 66.86 per cent in 2019, it is possible that poor households in urban centres experience increased competition for already scarce amenities, thereby decreasing their SWB. On the other hand, households that choose to stay on farmlands have better health, more freedom and a constant food source, thereby increasing their SWB (see Greyling and Rossouw 2019, Bhuiyan and Ivlevs 2017).

4.3 Propensity Score Matching

Motivated by the OLS results (Table 8, Appendix A) and the ordered probit model, we further estimate the impact of receiving an SWP using a propensity score model (PSM). We match our estimates on health status, dwelling type and gender. The choice of these variables is driven by theory and model fit. The Average Treatment Effect (ATT) for the sample is given in Table 5, column 1. We find that the average SWB of the treated households (households that receive SWPs) is lower than that of the untreated households (households that do not receive SWPs). This is in line with the estimates reported in Table 4. However, this difference is not significant at the usual levels of significance and warrants further investigation.

Table 5: Average treatment effect by income quintiles

	Full- Sample				**Bottom 20%**				**Top 20%**			
	Unmatched		**Matched[1]**		**Unmatched**		**Matched**		**Unmatched**		**Matched**	
	Treated	Control	Treated	Control	Treated	Control	Treated	Control	Treated	Control	Treated	Control
Ave SWB	5.354	5.708	5.353	5.422	4.758	4.223	4.758	4.055	6.086	6.675	6.086	6.515
	-0.353*** (0.02)		- 0.068 (0.185)		-0.534*** (0.02)		0.702*** (0.202)		-0.589*** (0.044)		-0.428*** (0.156)	
N	40 671				7 784				7 667			

[1] Matching is performed on dwelling type, gender, and average household health.

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' own calculations using NIDS (2019) data

Table 6 provides a test to verify whether our matching exercise has sufficiently met the balancing assumption. Again, we find no significant difference between the mean characteristics of the treated and untreated households for all the variables for which observations were matched.

Table 6: Summary statistics of matched and unmatched sample characteristics

	Unmatched Sample		**P-value**	**Matched Sample**		**P- value**
Mean	**Treated**	**Untreated**		**Treated**	**Untreated**	
Average Household Health	3.59	3.89	<0.00	3.62	3.61	0.132
Dwelling Type	0.74	0.81	<0.00	0.744	0.742	0.555
Gender	0.31	0.51	<0.00	0.338	0.342	0.317

Source: Authors' own calculations using NIDS (2019) data.

Next, to assess the extent of heterogeneity in the treatment effect, we estimate the ATT for the five income quintiles. We can now see a pattern that could explain the difference being not significant for the full sample. The ATT at the bottom 20 per cent is estimated to be positive and significant at the 1 per cent level. This means that for households in the sub-sample, the SWPs of those who are treated is significantly higher than for those who do not receive the treatment (SWP). This is in line with the effect seen in the ordered probit estimates provided in Table 4 for the lowest quintile. However, the effect is reversed as we move along the income quintiles. For the highest income quintile, the difference in the ATT is -0.390, significant at the 1 per cent level. Thus, for this group of households, the SWB of those who receive an SWP is lower than those who do not. Again, this is in line with the ordered probit estimates provided in Table 4.

Table 7: Robustness

	Nearest neighbour	**Local linear regression**	**Model II[1]**	**Model III[2]**
Average Treatment Effect on Treated	-0.068 (0.185)	-0.137 (0.399)	-0.118 (0.117)	-0.135 (0.192)

Notes: [1] Matching is performed on health, gender, and source of water.
[2] Matching is performed on health, gender, and ownership of durable goods.
Standard errors in parentheses.
Source: Authors' own calculations using NIDS (2019) data.

Table 7 provides more robustness checks for the ATT. We experiment with using different methods to compute the standard errors and different covariates on which the matching is based. We get qualitatively the same results.

5. Conclusions

This study was the first to consider the relationship between SWPs and households' mean SWB across income quintiles. It is important to determine who benefit from SWPs and whether SWPs increase SWB, as they were created to increase the well-being of the most vulnerable groups.

To answer the above, we asked three separate questions. Firstly, which household income quintiles in South Africa receive SWPs? Secondly, what types of SWPs do each income quintile access? Thirdly, do SWPs increase households' SWB across all income quintiles? We used a combination of descriptive analysis and estimation techniques increasing in complexity ranging from a basic ordinary least square and an ordered probit model to a more complex quasi-experimental method.

We found that all income quintiles access all types of SWPs in South Africa. We did not expect to find that 37 per cent of households in the top 20 per cent income group access SWPs. Seeing as the ratio of the median income of households in the top 20 per cent to the bottom 20 per cent is 1:66, it is unacceptable that such a large proportion of the richest cohort access SWPs simply because individually

they pass the means test. If the government were to consider the household-level income alongside each individual's income, this cohort would not have access to these grants.

When we considered the relationship between receiving an SWP and the household's SWB, we found that it was significant and positive for the bottom 20 (40, 60 and 80) per cent. However, for the top 20 per cent income households, the relationship was significant and negative. This leads us to the question why these households access SWPs if their satisfaction with life does not improve.

If the social welfare system was designed with policy priority to decrease poverty and inequality, our study contributes to explaining why the South African government has not been successful in achieving the latter after nearly 30 years. Since households in the top 20 per cent income group that access SWPs experience a negative effect on their well-being, the SWP system most likely has the opposite effect than originally intended, decreasing well-being in some groups and increasing inequality.

These findings are of interest to the ongoing broader debates around the effects of SWPs globally on poverty, inequality and SWB. Many checks and balances should be in place to ensure only the most vulnerable access SWPs.

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Declarations

Funding

The following authors received salaries from their institutions, whom were also the funders of the research.

1. Dr Tamanna Adhikari: Al Akhawayn University via the School of Business Administration.

2. Prof T Greyling: University of Johannesburg via the University Research Fund.

3. Dr Stephanie Rossouw: Auckland University of Technology via the Faculty of Culture and Society.

The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Conflicts of interest/Competing interests

The authors have declared that no competing interests exist.

Availability of data and material

All relevant data are within the paper or will be made available on request.

Code availability

Will be made available on request.

Authors' contributions

All authors contributed equally to this work.

Ethics approval

Not applicable

Consent to participate

Not applicable

Consent for publication

Not applicable

Appendix A

Table 8: Ordinary least square with household SWB as the dependent variable

Variable	All		Lowest quintile		Highest quintile	
	Coefficient	S. E	Coefficient	S. E	Coefficient	S. E
HH SWP	0.0327*	(0.0276)	0.3451***	(0.0860)	-0.1726***	(0.0574)
HH size	0.0584***	(0.0043)	0.0332***	(0.0094)	0.0425***	(0.0113)
HH education	0.0408***	(0.0039)	0.0080	(0.0084)	0.0429***	(0.0097)
HH health	0.2247***	(0.0130)	0.2897***	(0.0264)	0.1540***	(0.0315)
Dwelling type	0.2428***	(0.0269)	0.1759***	(0.0494)	0.2366**	(0.0989)
Water dummy (no piped water = 0)	0.1737***	(0.0286)	0.1693***	(0.0546)	0.0459	(0.0936)
Geotype (Traditional = 0)	0.0000	(.)	0.0000	(.)	0.0000	(.)
Urban	0.0368	(0.0287)	-0.0719	(0.0600)	-0.0120	(0.0757)
Farm	0.0776*	(0.0458)	-0.0215	(0.1048)	0.1147	(0.1219)
Age (HH head)	0.0069*	(0.0037)	-0.0125*	(0.0073)	0.0076	(0.0100)
Age^2 (HH head)	0.0000	(0.0000)	0.0002***	(0.0001)	0.0000	(0.0001)
Gender (Female=0)	0.0805***	(0.0225)	0.1581***	(0.0497)	0.1650***	(0.0480)
Relative income Category (Medium) [1]	0.8815***	(0.0230)	0.8100***	(0.0527)	0.8063***	(0.0642)
Relative income Category (High)	0.3147***	(0.0381)	-0.3211***	(0.0904)	0.8053***	(0.0785)
Employment status (economically inactive = 0)	0.0000	(.)	0.0000	(.)	0.0000	(.)
Unemployed	0.0273	(0.0386)	-0.0741	(0.0674)	-0.0469	(0.1278)
Employed	0.2733***	(0.0273)	-0.0408	(0.0724)	0.1254*	(0.0672)
Race (African = 0)	0.0000	(.)	0.0000	(.)	0.0000	(.)
Coloured	1.0541***	(0.0337)	1.0712***	(0.0992)	0.7756***	(0.0681)
Indian	1.0133***	(0.0982)	0.9380***	(0.3636)	0.6889***	(0.1330)
White	1.3448***	(0.0495)	0.8132**	(0.3448)	0.9441***	(0.0658)
1.wave	0.0000	(.)	0.0000	(.)	0.0000	(.)
2.wave	-0.6443***	(0.0375)	-0.6255***	(0.0670)	-0.4180***	(0.1130)
3.wave	-0.4009***	(0.0341)	-0.5197***	(0.0643)	-0.2590***	(0.0940)
4.wave	0.0917***	(0.0330)	0.0393	(0.0713)	0.0089	(0.0855)
5.wave	0.0282	(0.0329)	-0.0782	(0.0829)	-0.1978**	(0.0802)
_cons	2.6491***	(0.1114)	3.0426***	(0.2358)	3.7243***	(0.3219)
N	38 201		8 361		7 016	
adj. R^2	0.161		0.098		0.105	

Source: Authors' own calculations using NIDS (2019) data

[1] Base Category if low relative Income

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix B

Table 9: SWPs for the period 2009-2017

Type of SWP	Year	Means test	Means test is done per individual or couple/family	Allowed to receive another grant as well
Child support payment (Child must be younger than 15 years of age)	2009	Income < R55 200 – couples Income < R27 600 – individual	Both	Yes
Age of child changed to 18 years and younger	2017	Income < R96 000 – couples Income < R48 000 – individual	Both	Yes
Disability payment	2009	Income < R18 000 – individual	Individual	No
	2017	Assets < R2 230 800 – couples Assets < R1 115 400 – individual Income < R156 240 – couples Income < R78 120 – individual	Both	No
Foster child payment	2009	No means test	Neither	Yes
	2017	No means test	Neither	Yes
Care-dependency payment	2009	Income < R242 400 – couples Income < R121 200 - individual	Both	Yes
	2017	Income < R405 600 – couples Income < 202 800 – individual	Both	Yes
Old-age payment	2009	Assets < R1 504 800 – couples Assets < R752 400 – individual Income < R89 760 – couples Income < R44 880 – individual	Both	No
	2017	Assets < R2 230 800 – couples Assets < R1 115 400 – individual Income < R156 240 – couples Income < R78 120 – individuals	Both	No

Grant-in-aid	2009	No means test – though you already need to receive another social grant	Neither	Yes. You must be living on a social grant to qualify for this grant.
	2017	No means test	Neither	Yes. You must be living on a social grant to qualify for this grant.
War veteran's payment	2017	Assets < R2 230 800 – couples Assets < R1 115 400 – individuals Income < R156 240 – couples Income < R78 120 – individuals	Both	No.