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RESEARCH

Child Deprivation and the Power of Cash: Evidence from Northern Uganda's NUSAF3 Programme

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Abstract
This paper presents the first empirical analysis of the Northern Uganda Social Action Fund 3 (NUSAF3) using a Consensual Approach child deprivation index based on socially perceived necessities. Panel data on a sample of NUSAF3 beneficiaries shows that between 2016 and 2021, child deprivation declined significantly among beneficiaries, especially among those receiving cash transfers. These reductions outpaced those seen among recipients of enterprise grants or skillstraining, and exceeded national trends. The findings support growing evidence on the effectiveness of direct cash transfers in reducing poverty and show the potential of the Consensual Approach for effective poverty reduction assessment.

1 Introduction

Uganda has witnessed remarkable improvements in living standards in the last 20 years. In line with commitments like the 2000 Uganda Poverty Eradication Action Plan (PEAP) the Uganda National Development Plans, and Vision 2040, national indicators of monetary poverty and child and maternal mortality have improved, as has life expectancy for both men and women (UBoS, 2021; WHO, 2024). Social pro-

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tection coverage, with programmes such as the Senior Citizens Grant (2010-ongoing) and Vulnerable Family Grant (2010–2015), has expanded and is an integral part of the inclusive economic growth advocated by the Government of Uganda and external donors (Lawson et al., 2020). However, rates of monetary and multidimensional poverty in Northern and Western Uganda are persistently higher than the rest of Uganda (Gordon et al., 2024; Pomati & Najera Catalan, 2023); Bird et al., 2010; Ssennono et al., 2021); this disparity has been attributed to a range of factors including a historic prioritisation accorded to southern regions, the marginalisation of northern and western regions (Mamdani, 1982; Bakwesegha, 2004; Golooba-Mutebi & Hickey, 2010), national and international conflicts displacing populations and growing environmental stresses in the form of droughts, floods, and disease outbreaks (UNHCR, 2025).

Begun in 2003, the Northern Uganda Social Action Fund initiatives (NUSAF1, NUSAF2, and more recently NUSAF3) aimed to reduce the gap between the north and south of Uganda through cash transfers. The World Bank praised the relevance of NUSAF3 (2016–2020) in enabling beneficiaries to increase household assets and for reducing food insecurity (World Bank, 2021), but there is little publicly-available detail about the data on which such judgments are based. These lacunae make evaluations of change over time, as well as comparisons across NUSAF3 subcomponents challenging.

This paper provides the first detailed evaluation of NUSAF3's three main subcomponents, using observational panel data collected at the start and end of NUSAF3. It also presents the first evaluation of a cash transfer initiative using the Consensual Approach to multidimensional poverty measurement (Townsend, 1979; Mack & Lansley, 1985; Pantazis et al., 2006; Barnes & Wright, 2012). Used across a range of high-, middle-, and low-income countries, including the European Union, the Consensual Approach measures poverty by identifying items and services which a majority of people in a given country agree as being necessary for an acceptable standard of living. A person/household is considered deprived if they lack these said necessities due to insufficient resources (as opposed to choosing to lack them). The approach allows for an evaluation of NUSAF3 based on whether respondents are able to access goods and services deemed to be necessities by most Ugandans (UNICEF Uganda et al., 2019). This approach to assessing poverty is clearly aligned with Sustainable Development Goal 1.2, part of the global framework adopted by all UN member states to guide action on poverty, inequality, and sustainable development. Not only does SDG 1.2 call for separate estimates for children and adults, but it explicitly requires poverty be reflected more broadly, *in all its dimensions* and importantly, *according to national definitions* (Pomati & Nandy, 2020). This evaluation focuses specifically on families with children, and assesses changes (between the start and end of NUSAF3) in the range of child-specific socially perceived necessities (SPNs) families could afford and access.

We begin this paper with a brief discussion on how regular cash transfers can reduce child deprivation, and then review the most recent cash transfer initiative in Northern Uganda, NUSAF3. We explain the measurement of child deprivation adopted in this paper and describe the survey data and statistical analysis used to explore changes in child deprivation among NUSAF3 households. The main analysis examines these changes, and compares them to those observed among the general population in the NUSAF3 regions. The concluding section reflects on the findings and summarises the lessons learned.

1.1 The Reduction of Child Deprivation Through Regular Cash Transfers

While a unified theory linking cash transfers to improved living standards is yet to be established (Deaton, 2010; Aurino & Giunti, 2022), it is evident that regular cash transfers can help households smooth income and consumption in the face of economic and environmental shocks such as job loss, illness, bereavement, price fluctuations, and adverse weather events. In stabilising consumption, they reduce vulnerability and enable households to plan more effectively and invest in child development (Gennetian et al., 2021). One of the most immediate and widely documented effects of cash transfers is the improvement in both the quantity and quality of food consumed, which is often a household's largest and most responsive expenditure category. With greater income stability, families are better positioned to absorb the indirect costs associated with child-focused services — such as transportation, school uniforms, clothing, and health-related expenses — leading to increased uptake of education and healthcare (Bastagli et al., 2019; Evans & Popova, 2014). The experience of poverty, possibly as a result of illness or debt, may lead to a lag between acquiring new resources and better living standards (Gordon, 2006), while structural barriers such as disability and discrimination (Sen, 1992) may shape how effectively households can convert cash into material well-being.

Empirical evidence supports this causal pathway. There is now considerable evidence that even when not paired with additional services, children in poverty benefit from regular cash transfers (Davis et al., 2016), and this is shown through evaluations which find improvements in nutrition, health, and education and reductions in child labour and early marriage (Handa et al., 2018; Parazzuolo et al., 2025), as well in studies that examine the multiplier effects of direct income support programmes (Egger et al., 2022).

In the context of low income countries, cash transfers are often promoted and supported by international donors like the World Bank. Donor conditionalities are contested, but direct cash transfers are comparatively simple and reliable, a point often set against authors skeptical of the direct benefits of growth-driven foreign aid to low income countries (Anetor et al., 2020; Mahembe & Odhiambo, 2019). Despite this, it can be argued that social security, and specifically direct income support for children in need in low-income countries like Uganda, is increasingly seen as an effective investment in the future for both central and local governments as well as donors (Bukenya & Hickey, 2019). This is in line with prior international agreements like the Convention on the Rights of the Child, the Sustainable Development Goals, as well as Uganda's Third National Development Plan, the 2015 National Social Protection Policy, and the 2020 National Child Policy, all of which, at least on paper, make the extension of social protection to vulnerable children a priority. Uganda's Social Protection Review, commissioned by the Ministry of Gender, Labour and Social Development noted that "Social protection is required across lifecycle groups, but supporting children is a priority" (2019, iv); it states that social security coverage remains low and is limited to the Senior Citizens' Grant and NUSAF3 (ibid., vi), neither of which focus on children per se. The first targets those beyond working age, while NUSAF3 targets households living in poverty. Within these policy documents,

it is acknowledged that Northern and Eastern Uganda have the highest poverty rates in Uganda.

1.2 The Third Northern Uganda Social Action Fund (NUSAF3)

The Northern Uganda Social Action Fund (NUSAF, 2003–2009) was initially funded by the World Bank with the aim of bringing much needed investment for infrastructure and social development to tackle longstanding insecurity and poverty made worse by the Lord's Resistance Army (LRA) war. The intention was to enable affected regions to benefit from wider developmental progress made in Uganda in the 1990s. NUSAF1 and NUSAF2 (2010–2015) were aimed at post war recovery, with major investments in infrastructure and livelihoods; NUSAF3 (2016–2020) was also deployed to support livelihoods. Each received significant financial support from donors to enable financial aid, infrastructure creation, education and upskilling, as well as the promotion of entrepreneurship, and local government and private sector development (World Bank, 2016).

Funded by a $130 million International Development Association credit from the World Bank and a $2.857 million grant from the Japanese Social Development Fund, NUSAF3 operated between March 2016 and 2021. Its main objectives were to provide effective income support to, and build the resilience of, 600,000 poor and vulnerable households (approx. 3 million persons) in selected watersheds (small sub-district areas) within the eight subregions of Lango, Acholi, West Nile, Bunyoro, Teso, Karamoja, Elgon and Bukedi. Households were supported through the direct provision of income support and fostering of household resilience via four components.

The first two subcomponents were a Labour-Intensive Public Works (LIPW) programme, and Disaster Risk Financing (DRF). These provided poor and vulnerable households with a seasonal transfer in return for participation in the LIPW. DRF provided specific support to poor and vulnerable households immediately following disaster events and droughts. The objectives of LIPW and DRF were to provide short-term employment to improve food security and consumption smoothing during the lean season, and also create infrastructure assets to mitigate the impacts of environmental degradation and improve access to markets and services. LIPW and DRF offered the poorest of the poor 54 days of work on public works projects. Participants were paid with daily wages of UGX 5,500 (~US$1.52), up to a possible maximum of UGX 297,000 each (~US$82). A minority of LIPW beneficiaries unable to work, such as pregnant mothers and disabled, received the same amount in the form grants (World Bank, 2021). The third and fourth NUSAF3 subcomponents aimed to improve household incomes (Improved Household Investment Support Program, IHISP) through skills development training, mentoring and livelihood grants, and the promotion of sustainable livelihoods (the Sustainable Livelihoods Pilot, SLP). The IHISP provided grants of UGX 18 million (~US$5,000) to small groups to invest in market-oriented enterprises and to generate profit to improve their incomes. The SLP focused on groups and communities rather than individual households by tapping into pre-existing community savings groups and mobilizing and supporting other poor households to form savings groups of their own. Community business agents

offered mentoring and technical assistance, as well as the establishment of community-based institutions (i.e., village livelihood committees).

Participating watersheds were selected based on the ecological zones as defined by the Ministry of water and Environment. Focus was on those watersheds that were more environmentally degraded than others. Households were then allocated to components based on their levels of poverty using the Expanded Participatory Rural Appraisal methodology (Coghlan & Brydon-Miller, 2014; World Bank, 2021). Households found to be poor were assigned to Labour Intensive public works (LIPW) to enable them to engage in temporally employment to earn income to smoothen their consumption. Households that were deemed active poor (those doing some form of economic activity) were assigned to the Livelihood (IHISP) component to engage in income generating activities. SLP was for existing groups already involved in savings and credit schemes among themselves. Information about each subcomponent analysed is summarised in Table 1.

While this paper focuses on three of NUSAF3's main subcomponents - IHISP, LIPW and SLP - it is worth noting there were others, which dealt with strengthening transparency, accountability, and anti-corruption (TAAC), through community sensitisation and awareness raising about the potential misuse(s) of programme funds. Mechanisms for these included regular inspection and monitoring of programme activities by both communities and the Uganda Inspectorate of the Government (IG). A final NUSAF3 component was the Safety Net Mechanism and Project Management which aimed to establish and use social safety nets and other social protection measures to promote social inclusion. Finally, due to the small sample size, as well as its focus on natural disasters and climate shocks, we do not analyse data on the DRF.

1.3 NUSAF3 and Inclusive Growth

Inclusive growth features heavily in Uganda's Vision 2040, the Sustainable Development Goals, and aims of NUSAF3. Inclusive growth entails financial support as well as the promotion of employment, entrepreneurship and competition among the poorest (Gupta et al., 2015). Due to constraints on funding as well as the diversity of economic and social contexts, initiatives like NUSAF3 often promote different aspects of inclusive growth. A major difference between NUSAF3 subcomponents is the use of *direct* financial assistance to poor households. The SLP used a revolving fund approach, providing UGX 36 million (~US$10,000) to an average of five Self Help Groups (SHGs) per village to invest in business enterprises. SHGs had on average around 25 members, and any profits from group businesses were shared; around 30% SHGs reinvested into business. SLP households did not, however, receive direct financial assistance comparable to households in the IHISP and LIPW. The focus instead for the SLP was on the creation of businesses and self-help through the use of revolving village funds (which are returned to provide other groups with funding opportunities) rather than grants (World Bank, 2021). The prioritisation of this type of programme over social protection, has been lauded for fostering long-term self-reliance in the affected communities (Boonperm et al., 2009), but it has also met criticism.

Table 1 NUSAF3 programme subcomponents, target Populations, and eligibility implications

Component/Subcomponent	Description	Target Population	Eligibility Criteria	Funding/ Benefits
Labour-Intensive Public Works (LIPW)	Short-term paid employment on public works (e.g. roads, environmental restoration).	Poorest of the poor (those in extreme poverty).	With labour capacity (i.e., able-bodied adults) and without (10%) (World Bank, 2021).	Paid UGX 5,500 per day for 54 days (max UGX 297,000). Total funding: USD 49 million.
Improved Household Income Support Program (IHISP)	Grants and skills training for small groups to support new/ existing enterprises.	Poor but less vulnerable households with entrepreneurial potential.	Group-based, active in income generation	Grants of up to USD 5,000 per group (10–15 households). Total funding: USD 42.5 million.
Sustainable Livelihood Pilot (SLP)	Village revolving fund (VRF) for self-help groups, savings and credit access.	Better-off among the poor; often those already in savings groups.	Members of savings groups or those willing to form them.	VRF capital: UGX 15.9 billion (triggered UGX 20 billion in savings). 410 VRFs supported.

Golooba-Mutebi and Hickey (2010) argue that some of the sub-components in NUSAF1 programme promoted a contradictory form of "inclusive neoliberalism" adopted by the Ugandan government since the late 1980s. Such critics point to the Vulnerable Group Support sub-component of NUSAF1, which was designed to enable the poor to generate incomes and increase cooperation and entrepreneurship through microfinance and other assets. Through interviews with local government officials, they argue there was little success outside of those groups which

had *already* been successful prior to the NUSAF programme. They concluded that this type of "community empowerment" or community-driven development fails to recognise the underlying reasons for the lack of new enterprises, including intra-group conflict, low levels of education and expertise, poor and unequal land access and insecure ownership rights, and the self-interested practices of group facilitators and leaders. They argued that making chronically-poor people responsible for their own escapes from poverty through these community group initiatives is contradictory. Caravani's interviews about NUSAF2 in Karamoja also provide evidence that among many households facing repeated crop failures the programme's attempts to "graduate" households to self-sufficiency through productivity-enhancing agricultural inputs had limited short- and long-term success (Caravani, 2024); instead, participants found the food and cash transfers they received more beneficial. This is in line with research which increasingly shows that regular unconditional cash transfers can improve a wide range of child outcomes, from monetary poverty to nutrition, health and education (Bastagli et al., 2019a; Handa et al., 2018; Haushofer & Shapiro, 2016), in both ordinary and humanitarian settings (Mishra & Battistin, 2018), for both direct beneficiaries and local economies (Egger et al., 2022).

1.4 Assessing Changes in Living Standards and SDG1.2

Assessing the effectiveness of an intervention requires reliable outcome indicators against which performance is tracked over time. Appropriate outcome indicators should reflect what the intervention is seeking to address (Gordon & Nandy, 2016). In the case of NUSAF3, the overarching aim was enabling a degree of social protection for participants. The aim of any social protection programme should be to reduce people's vulnerability to, and the experience of, poverty and deprivation; as such appropriate indicators would need to demonstrate whether levels of poverty increased, decreased, or remained the same. However, collecting accurate data on household incomes and/or expenditure (for assessing monetary poverty) is challenging, requiring detailed (lengthy) questionnaires, and highly trained enumerators. Even with these in place, there remain uncertainties (and thus potential sources of error) associated with the reliability of recall, and the estimated 'value' of home production, and in kind transfers (Jerven, 2013). Such data then need adjusting to account for local prices, inflation, and household composition (i.e. equivilisation), before meaningful and comparable measures of income and/or expenditure can be used.

This paper uses an indicator of multidimensional poverty which, contrary to other multidimensional approaches (Alkire & Santos, 2014; Milliano & Plavgo, 2018) directly reflects the inability of households to afford items which a majority of Ugandans consider necessary for a decent standard of living (UNICEF Uganda et al. 2019; Pomati et al. 2020). These items are considered in the poverty literature to be "socially perceived necessities" (SPNs). Having identified these items, households which state they lack them because they cannot afford them are identified as deprived; the number of deprivations can be added up, producing a deprivation score. The method, known as the Consensual Approach (Mack & Lansley, 1985; Noble et al., 2008; Barnes & Wright, 2012) has been successfully applied in high-, middle-, and low-income countries, including South Africa, the 27 countries of the European Union, Australia,

Bangladesh, India, Benin, Vietnam, Mali, Zimbabwe, Japan, the UK, South Korea and Argentina (Abe & Pantazis, 2013; Barnes & Wright, 2012; Beccaria et al., 2023; Bosch, 2001; Davies & Smith, 1998; EUROSTAT, 2012; Hallerod, 1995; Kaijage & Tibaijuka, 1996; Mahbub Uddin Ahmed, 2007; Mtapuri, 2011; Nájera Catalán et al., 2020; Nteziyaremye & Mknelly, 2001; Pomati et al., 2024;Saunders, 2011; Weon et al., 2024; Pomati & Nandy, 2020; Guio et al., 2016). Items identified as SPNs across a range of countries include being able to have three meals a day, or two pairs of all-weather shoes, or to have transport to school, be able to participate in school trips, to replace broken electrical goods, and to fix a leaking roof. A list of SPNs for Uganda was identified by the Ugandan Bureau of Statistics (UBoS), in collaboration with UNICEF, in 2016, using 60 focus groups across Uganda[1] (UNICEF Uganda et al. 2019; Pomati et al. 2020). Statistical analysis to examine the extent and nature of consensus about SPNs was conducted on nationally-representative data from the Uganda National Household Survey (UNHS), with a new measure of multidimensional (MD) poverty validated in 2018. This measure of MD poverty has been used by UBoS in official national reports and by independent researchers subsequently' following endorsement by the Office of the Prime Minister (OPM), it is used here to assess the impact of NUSAF III and the Development Response to Displacement Impacts Project (DRDIP). The methodology and indicators developed reflect the lived experience of participants in these programmes and can be used to assist in reporting on progress towards Sustainable Development Goal 1.2.

With SPNs established, the Consensual Approach simply entails asking respondents whether they possess these SPNs and if lacking them, whether because they cannot afford them (i.e. an enforced lack) or for another reason (e.g. because they do not want or need them). Respondents wanting an SPN but who cannot afford it are categorised as deprived. The number of deprivations reported are added up resulting in a simple index showing deprivation of SPNs (also known as the sum of deprivations score). This approach is straightforward and easy to use in small-scale, local surveys like those undertaken to assess the effectiveness of programmes like NUSAF3; this is an advantage, given the known challenges (and considerable costs) associated with collecting reliable data on income, expenditure/consumption, savings and other assets (Townsend, 1979; Sen, 1987, 1999; Walker, 2023). The index maintains a clear relationship with consumption by measuring *enforced* lack of goods and services, while avoiding the use of items like bicycles, radios and TVs, frequently used in asset indices, which quickly become outdated and often have a strong urban bias (Martel et al., 2021). This paper presents the first-ever evaluation of a government cash transfer programme using the Consensual Approach to measure changes in multidimensional child poverty among beneficiaries. It is the first example of a child-specific multidimensional poverty index constructed through national public consultation, that is integrated in both the programme's monitoring and evaluation

[1] For full details of this work see:

www.unicef.org/uganda/reports/multidimensional-child-poverty-and-deprivation-uganda-report-volume-1 and.

www.unicef.org/uganda/reports/multidimensional-child-poverty-and-deprivation-uganda-report-volume-2.

framework as well as national reporting (starting with the 2016 Uganda National Household Survey), following collaboration and consultation between the Uganda government and UNICEF.

Concerns sometimes raised about use of the Consensual Approach relate to the issue of 'adaptive preferences' or 'bounded realities' of the poor (Burchardt, 2004). Critics suggest that people who have grown up poor or who are currently poor may have very different perspectives about what constitute 'acceptable' living standards which everyone should have. For example, such groups may be less likely to believe and thus state that having a secondary education, or having well-remunerated stable employment, or being able to obtain medical care when sick should be *universal entitlements*, accessible for/by all (Nussbaum 1999). As such, the inclusion of their views may lower socially defined thresholds about what constitutes 'decent' living standards for all and thus underestimate the extent of deprivation among them. Research from several countries, however, shows that there is in fact remarkably little evidence that adaptive preferences are consistent or widespread, even in contexts of extreme poverty and displaced communities (Depio et al., 2018), or that adaptive preferences undermine the development of valid and reliable poverty indicators (Hallerod, 1995; Mckay, 2004; Wright & Noble, 2013). This paper considers this important issue in the context of a targeted intervention like NUSAF3.

2 Data and Methods

2.1 Data

Three waves of the NUSAF3 assessment survey were run by the Office of the Prime Minister (OPM) between November 2019 and March 2021. A two-stage random sample, with watersheds representing the first stage, was taken using the NUSAF3 Management Information System. The first wave (November 2019) collected information from 3,498 households across three subcomponents (IHISP: 1,635, LIPW:1,597 and SLP:266). Waves 2 (August 2020) and 3 (March 2021) aimed to re-interview respondents from Wave 1. NUSAF3 participants in each watershed were selected by local OPM workers in consultation with local residents and this methodology was implemented across each subcomponent. It is important to acknowledge that due to the sampling strategy adopted, the data and estimates presented should not be used to make wider generalisations about the levels of poverty in any region or across subcomponents. The focus of this paper is primarily on the changes in living standards of the panel of NUSAF3 assessment survey participants, interviewed between Waves 1 (November 2019) and 3 (March 2021). While a second wave of interviews was carried out in August/September 2020, this occurred when many were engaged in seasonal work as well as just before the first major Covid-19 surge and before the March 2021 vaccination programme (Elayeete et al., 2022), which resulted in a considerable number of missing responses. In contrast, almost all (99%) Wave 1 (Baseline) respondents were re-interviewed in Wave 3 (Endline, March 2021). Such high response rates are in line with those of the 2019/20 Uganda National Household Survey (94% in rural areas (Uganda Bureau of Statistics, 2021) and Uganda National

Panel Survey (96% (FAO, 2020)) and reflect the training and experience acquired over the last three waves by the enumerators. Data were collected at household level, so households are identified as deprived of any particular necessity if any children of the relevant age in the household are deprived.

The small sample size of the NUSAF3 panel survey and limited set of socio-demographic variables collected as part of these surveys also make it challenging to use probability surveys like the Uganda National Household Survey (UNHS) to post-stratify and adjust the NUSAF3 estimates. Moreover, NUSAF3 was implemented at the watershed-level, which means that only a minority of people within a given region would be direct NUSAF3 beneficiaries. The UNHS is representative down to region level, so comparisons of regional poverty rates would not provide reliable estimates of the effect of NUSAF3. With these limitations in mind, we also use two nationally-representative UNHS surveys (collected in 2016 and 2019/20) to put the results of the NUSAF3 panel survey into a broader context.

2.2 Measures

Dependent Variable The same set of twenty child deprivation Consensual Approach questions (i.e. items) developed for and used in the nationally representative UNHS were asked in the NUSAF3 evaluation survey (for more details, see UNICEF Uganda et al. 2019).[2] For each item (e.g. three meals a day) each household could either state they did not have the item, they didn't want the item or that they wanted it but could not afford it, in which case they were identified as deprived. The full list of items are shown in Figs. 1 and 2. The deprivations due to an enforced lack (i.e. cannot afford) was summed, resulting in a (material and social) child deprivation index score. Household that either had or did not want any of the items would be allocated an index deprivation score of 0, whereas a household that wanted but could not afford *all* items would be given a deprivation score of 20.

Independent Variables The NUSAF3 panel survey contained a limited number of questions and here we focus primarily on time-varying characteristics associated with poverty: which sub-component they were allocated to, the number of school-aged children in the household, total household size (i.e. number of household members), and main source of earnings[3].

2.3 Measuring Change: Analytical Strategy

As there are no comparable data for a control group (i.e., a group of comparable respondents in the same watershed who did not participate in NUSAF3) and no survey data representative at the watershed level, it was not possible to use either experimental or quasi-experimental analyses to determine the causal effect of the ini-

[2] A full copy of the questionnaire can be found in the Appendix of Pomati and Nandy (2020), available at: https://doi.org/10.1007/s11205-019-02198-6.

[3] Respondents were asked: What was your household's most important source of earnings during the last 12 months?

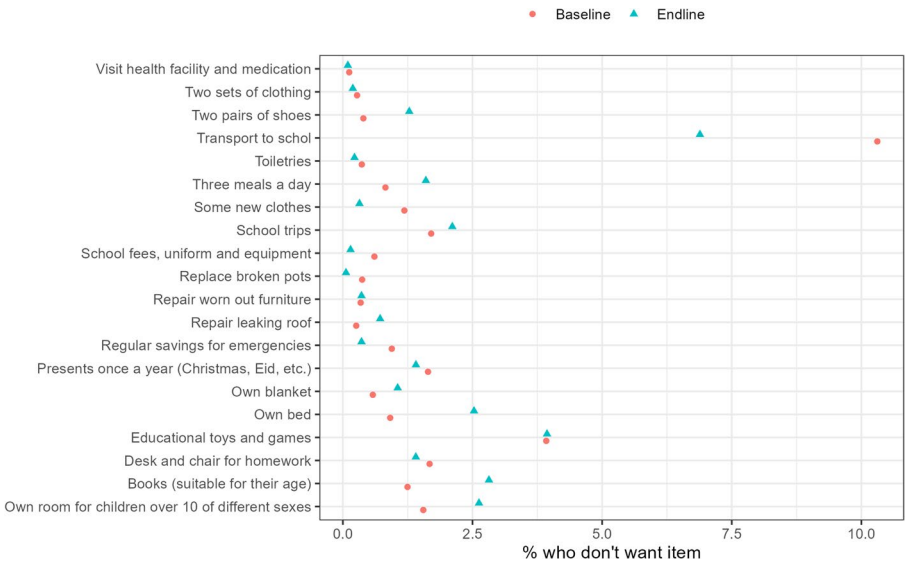

Fig. 1 Percentage of household respondents who state they do not want or need each item.
Source: NUSAF3 assessment survey. Authors' calculations.

Fig. 2 Percentage experiencing deprivation in each item across NUSAF3 subcomponents and in Uganda (UNHS).
Source: NUSAF3 assessment survey. Authors' calculations

tiatives. This also means that although we may reliably compare the living standards of respondents between baseline and endline surveys, there is no guarantee that any observed improvements in outcomes are due either entirely or partly to NUSAF3. In other words, poverty may have decreased, but for reasons beyond NUSAF3. As such, the current data cannot wholly quantify the contribution of interventions to any observed improvement. Lack of sufficient sample size at the watershed level also prevents comparison of changes at the watershed level over time. Nevertheless, we present two main comparisons to provide some level of evidence on the difference in the changes between Wave 1 (Baseline) and Wave 3 (Endline). First we compare changes in individual child deprivations as well as the sum of these deprivations (the child deprivation index) between Baseline and Endline for the three subcomponents. We then compare changes between Baseline and Endline across IHISP, LIPW and SLP sub-components more formally using a fixed-effects panel model, which models within-person change and thus allows us to mitigate variation of the non-random selection into the three subcomponents based on time-invariant characteristics (Wooldridge, 2010; Angrist & Pischke, 2009). We then compare these changes in deprivation to changes between 2016 and 2019/20 in the same regions using the 2016 and 2019/20 Uganda National Household Surveys to put the progress observed in the NUSAF3 survey into a broader regional context.

Given the way in which households were selected for NUSAF3, it is important to note that participation generally required the ability to work. This means that households where no member could participate in labour-intensive activities—such as those with elderly or severely disabled members—were less likely to participate in NUSAF3. LIPW represented the one programme out of the three aimed at both able and unable poor, yet the report from the World Bank suggests that just over 10% (223,565 out of 1,915,050) of all LIPW beneficiaries received grants for unable-bodied adults (World Bank, 2021). As a result of this and the lack of information on able and non-able-bodied participants in our survey, the evaluation findings likely also reflect the programme's impact on a subset of households who were generally relatively better off in terms of labour capacity. From a population-wide perspective, this selection bias means the estimated treatment effects may be upwardly biased: NUSAF3 participants were more able to benefit from the intervention, both because they could engage in income-generating activities *and* because (as we show later) they started from a slightly higher baseline than the general population in NUSAF3 regions. Therefore, we should interpret the results as applying primarily to the "work-capable poor", and not to the full spectrum of extremely poor households. The focus should also be on differences in the relative change across time within each programme subcomponent, because as described above we would expect different groups to start from different levels of deprivation.

A priori we expect two key differences between the three NUSAF3 subcomponents analysed. First, because of existing evidence pointing to the benefits of cash transfers (Handa et al., 2018), we expect that IHISP and LIPW sub-components to produce considerably greater reductions in child deprivation between Baseline and Endline compared to SLP beneficiaries and the overall population in the region. Second, we assume SLP beneficiaries to be considerably less deprived than IHISP or LIPW ones at Baseline, as they come from watersheds with pre-existing businesses.

2.4 Statistical Models

For comparing NUSAF3 participants, we use a fixed-effects panel model, which allows us to compare within-household changes in child deprivation for the three different NUSAF3 subcomponents, differencing out time-invariant characteristics related to subcomponent allocation[4]. In addition to the change from Baseline to joining the subcomponent (measured through subcomponent dummy variables coded 0 at baseline for all and then 1 at Endline according to allocation) we also look at the effect of other time-variant variables, such as changes in number of school-aged children and household size between Baseline and Endline. Due to only two panel waves being available, we did not use more advanced models like growth modelling and dynamic panel modelling. All NUSAF3 confidence intervals and p-values are corrected for repeated sampling using robust (clustered by household) standard errors (Abadie et al., 2023), using the plm package in R (Croissant & Millo, 2008), which are robust to heteroskedasticity and within-panel household correlation. Model results were also confirmed with the xtreg command in Stata 18 (StataCorp, 2025).

To put these findings into context we compare these results to the changes observed in the Uganda National Household Survey (UNHS). This is done by estimating the changes between the UNHS 2016/17 and UNHS 2019/20 for all children in NUSAF3-regions and non-NUSAF3-regions. All analyses used the household sample weights supplied on the UNHS. In line with the fixed-effect model specifications, we control for the number of school-aged children, household size, and the main source of earnings. As roughly half of all cases in the 2019/20 UNHS were sampled after the onset of the Covid-19 pandemic, we also add an additional control, whether the UNHS household was interviewed after March 2020. The set up of this model is the same as a repeated cross-sectional difference-in-difference model. This model allows us to compare differences in progress between NUSAF3 and non-NUSAF3 Uganda regions. Although it is unlikely to account for all unobserved differences between and among NUSAF3 and UNHS respondents, it allows us to position the changes in child deprivation between NUSAF3 subcomponents against the broader changes across Uganda.

3 Results

Table 2 provides descriptive statistics for the main outcome (Child Deprivation Index), as well as the main source of earnings, regional distribution, number of school-aged children, and household size (i.e. number of members).

Table 2 shows that NUSAF3 respondents had a greater number of school-aged children in the household, and larger household sizes compared to the Ugandan average (UNHS). There are also considerable differences in the main sources of earnings across datasets, in line with subcomponent differences discussed above. The change between 2016 and 2019/20 in children's material and social deprivations in Uganda according to the UNHS was relatively modest, decreasing from 10 to 9 deprivations. Differences

[4] That is, participant characteristics that did not change between Baseline and Endline.

Table 2 Main variable descriptives by dataset and NUSAF3 subcomponent

		UNHS		NUSAF3 evaluation data		
Variable	Categories	Uganda 2016	Uganda, 2019	IHISP	LIPW	SLP
Child Deprivation Index[0–20], mean (sd)		10 (6)	9 (6)	Baseline:10(5) Endline: 6(5)	Baseline:11(5) Endline: 7(5)	Baseline:7(6) Endline:6(5)
Main Source of Earnings %	Commercial farming + others	25%	22%	43%	46%	55%
	Remittances	6%	6%	0%	1%	1%
	Job employment	23%	20%	1%	1%	3%
	Subsistence	46%	53%	56%	53%	41%
Region %	KAMPALA	4%	4%			
	ANKOLE	9%	8%			
	SOUTH BUGANDA	13%	13%			
	NORTH BUGANDA	11%	11%			
	BUSOGA	10%	10%			
	BUKEDI	5%	5%	8%	8%	3%
	ELGON	5%	5%	10%	9%	9%
	TESO	5%	4%	12%	11%	10%
	KARAMOJA	3%	3%	27%	28%	22%
	LANGO	6%	6%	14%	14%	12%
	ANCHOLI	4%	5%	13%	14%	23%
	WEST NILE	8%	8%	11%	11%	2%
	BUNYORO	6%	6%	5%	5%	18%
	KIGEZI	4%	4%			
	TORO	7%	8%			
N. of school-aged children, mean		2	2	3	3	3
Household size, mean		5	5	7	7	7
N		*12,518*	*11,131*	*1,604*	*1,556*	*263*

Percentage missing for all variables shown below 5%. Authors' calculations

between overall UNHS and NUSAF3 subcomponent characteristics reflect known differences between Northern Uganda and the rest of the country, so the analysis below differentiates between UNHS estimates of child deprivation in NUSAF3 regions and the rest of Uganda. We begin our analysis by inspecting potential issues of adaptive preferences and reliability of the main outcome variable, the Child Deprivation Index.

3.1 Adaptive Preferences and Reliability

Next, we explore the extent to which the NUSAF3 evaluation survey data allow us to identify adaptive preferences. Following Guio et al. (2017), we look at the percentage who do not want this item as a proxy for not considering them necessities. Figure 1

shows the full set of 20 items for the material and social Child Deprivation Index. We find only minor differences at Baseline and Endline in the proportion of NUSAF3 survey respondents who, when asked about an item, said they lacked it because they did not want it (see Fig. 1).Moreover, prevalence was very low (below 5%) for all items with the exception of transport to school; it is worth noting though that the percentage not wanting this item declined from 10% to 7%. This is in line with findings from the UNHS (Uganda et al., 2019). In summary, only a very small minority of households report not wanting these items, consistent with prior evidence that these are widely regarded as necessities even among widespread deprivation. Finally, despite substantial improvements in living standards over the study period (see below), the share reporting 'do not want' remained very low and stable. These three key findings point once again to limited evidence that adaptive preference forecloses the measurement of enforced lack and that changes in material and social deprivation measured by the Consensual Approach are driven by affordability rather than adaptive preferences (Burchardt, 2004; Halleröd, 2006; Noble et al., 2006; Wright & Noble, 2013; Depio et al., 2018; Pomati & Nandy, 2020; Nandy & Pomati, 2015; Pomati et al., 2024).

3.2 Changes in Material and Social Deprivation

We now turn to changes in material and social child deprivation items. Figure 2 shows that the reductions in deprivation across items are generally greater among IHISP and LIPW participants than for the SLP participants, and for Uganda overall (using UNHS 2016 and 2019/20 data). Most items for the IHISP and LIPW subcomponents saw reductions in deprivation of at least 10% points, with some seeing reductions by up to 30% points (e.g. new clothes, educational toys and games). In contrast, average changes nationally were at most 10% points, with many less than this. According to the UNHS data, NUSAF3 regions saw larger decreases in deprivation than non-NUSAF3 regions. Figure 2 suggests that while levels of deprivation among IHISP, LIPW and UNHS respondents in the same subregions (see rightmost pane) were similar in 2016, the progress made by IHISP and LIPW beneficiaries was greater.

Overall this suggests there has been considerable reduction in child deprivation among NUSAF3 (and especially IHISP and LIPW) beneficiaries. Looking at the whole NUSAF3 survey (analysis not shown here) we see considerable reductions in rates of item deprivation of between 10 and 35% points. Items like clothes, shoes, educational toys and games, having desk and chair for homework, and presents once a year (for occasions like Christmas or Eid) saw decreases of between 20 and 35% points between Baseline and Endline. Differences in the magnitude of reduction are driven by complex budgeting decisions and unique household circumstances but Fig. 2 suggests how households invested heavily in and prioritised children's wellbeing and education, and how they were able to do that to a much greater extent than the general population in the same region, which saw considerably weaker improvements. Overall, households in IHISP and LIPW saw decreases in deprivation of all the socially perceived necessities.

These changes are now investigated more formally by looking at the average scores on the deprivation index (i.e. the sum of deprivations reported) across subgroups at the two timepoints. According to the UNHS, NUSAF3 regions saw on average a

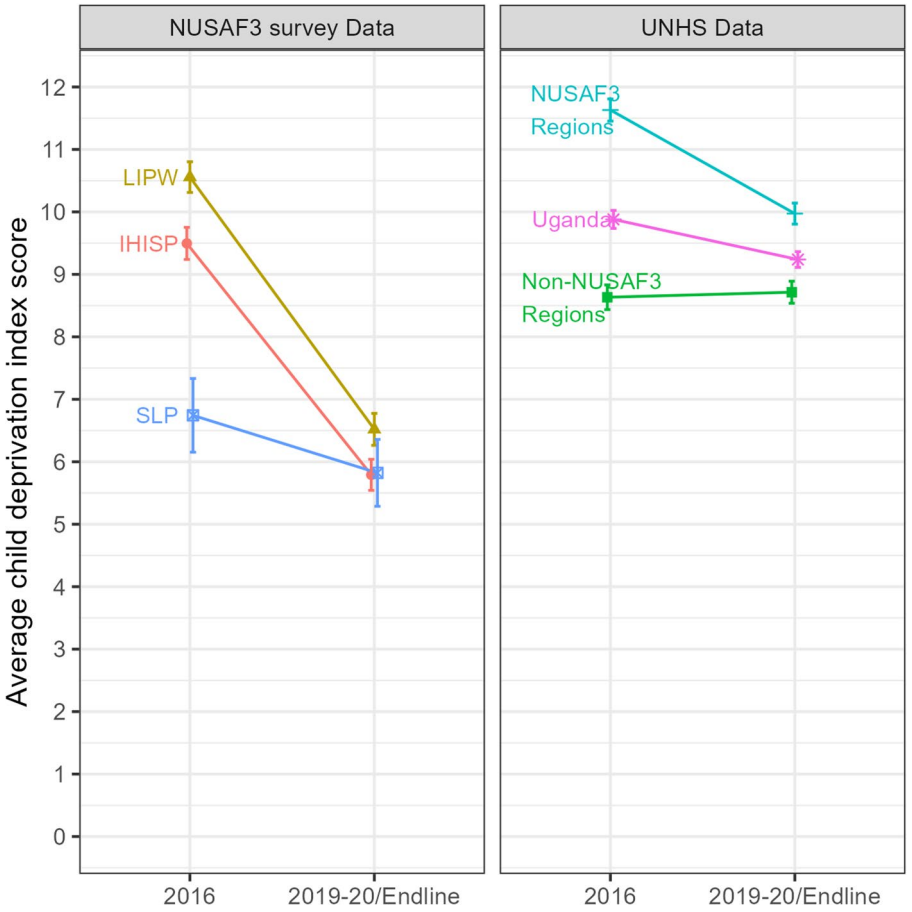

Fig. 3 Average child deprivation index score at baseline (2016) and endline (2019/20) by subcomponent

decrease of 1.5 deprivations between 2016 and 2019/20 ($p<0.05$); changes in LIPW and IHISP, over a slightly longer period (2016 to 2021), were however noticeably greater (4 deprivations, $p<0.01$); the SLP subcomponent saw a much smaller but significant decrease of 1 deprivation on average (see Fig. 3). Changes in other regions of Uganda (outside of NUSAF3 regions) were also lower, at under 1 deprivation.

One way to further understand these changes is by exploring shifts in the Child Deprivation Index and comparing them with changes in the prevalence of selected deprivation. Figure 4 compares changes between Baseline and Endline in the distribution of the Child Deprivation Index using density plots (top pane) and prevalence of low (0 to 1), medium (1 to 10) and high (10 to 20) number of deprivations (bottom pane)[5]. We compare changes in NUSAF3 subcomponents (IHISP, LIPW, SLP) to those observed in the UNHS for NUSAF3 regions.

[5] A density plot provides a smoothed-out visualisation of the variable distribution, which can lead to over-interpretation, so we also provide a "binned" version of the Child Deprivation Index to corroborate this.

The right hand side of the distribution shows a marked decrease in the percentage of children with many deprivations across groups, but particularly IHISP and LIPW households. In fact the percentage of households experiencing 10 or more deprivations was halved (from 52% to 24% and from 60% to 28% respectively). The second most striking difference is the considerable increase in households with no deprivations for IHISP (from 5% to 20%) and LIPW (2% to 15%), whereas SLP and data for all households in NUSAF3 regions show no or considerably weaker changes. Overall, IHISP and LIPW households experienced a consistent shift to lower levels

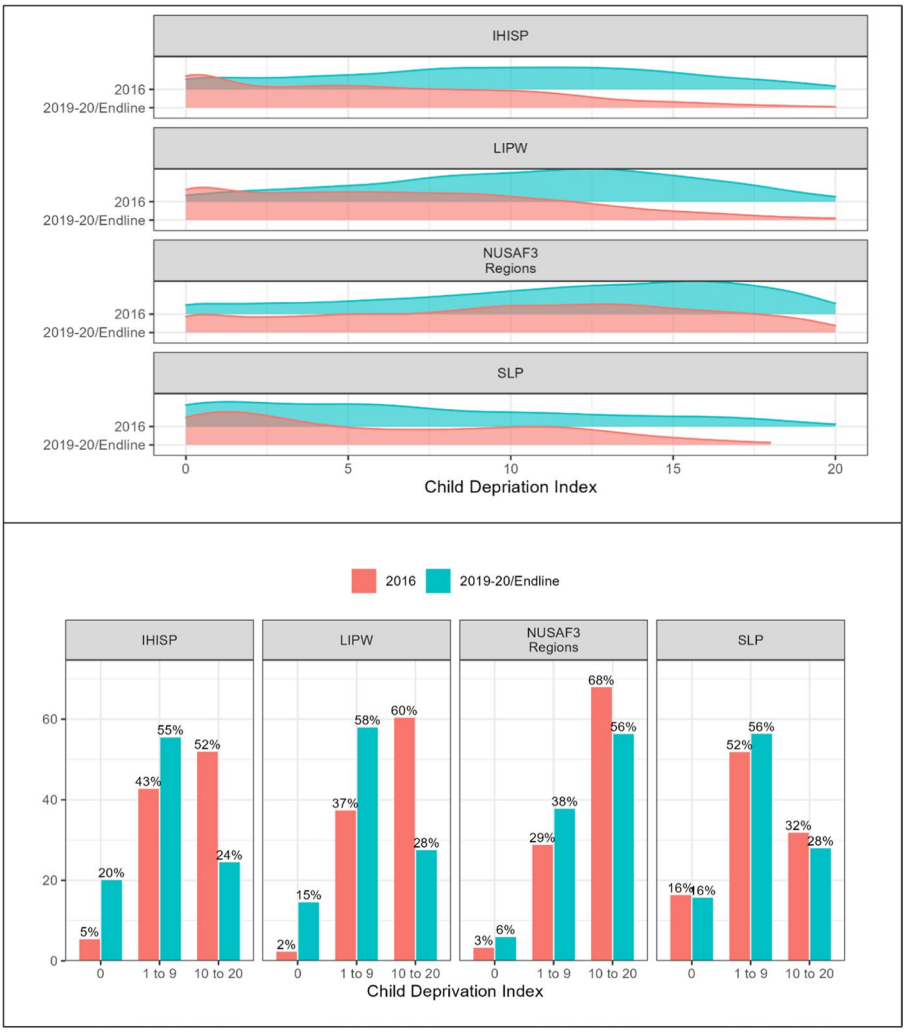

Fig. 4 Changes in the distribution of the child deprivation index by subcomponent

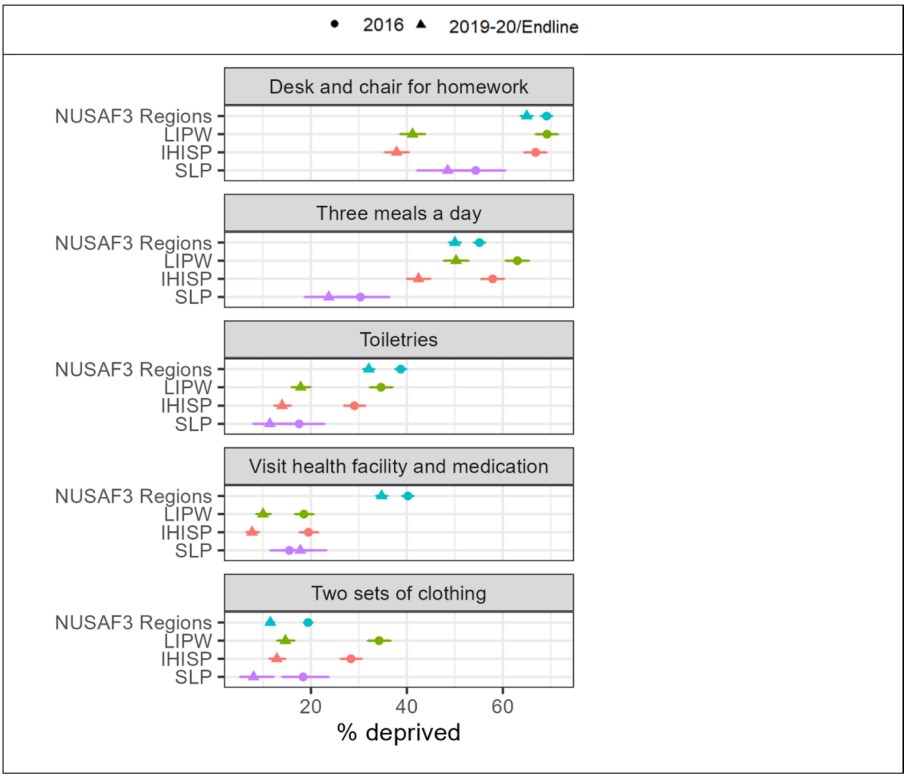

Fig. 5 Percentage deprived for selected deprivation items

of deprivation, which means they both *reduced* the prevalence of low or high levels of deprivation while *increasing* the prevalence of no deprivation. Such changes are considerably less evident for SLP and NUSAF3 regions. The decreases on the right-hand side of the distribution (i.e. extreme deprivation) have brought down the average number of deprivations, but because they have not also increased the percentage with no deprivations their gains have been lower than those for IHISP and LIPW households.

We can relate these findings to changes in selected individual deprivations (see Fig. 5)[6], drawing on Guio and Pomati (2017). An increase in the share of children experiencing no deprivation, would reflect a broader reduction in more widespread forms of material hardship, such as lacking a desk and chair for homework, or being able to have three meals a day. In contrast, reductions in the share of children experiencing very high levels of deprivation - those at the upper tail of the distribution - are likely to correspond to declines in deprivation of less common items indicative of more severe levels or poverty/deprivation, such as lacking two sets of clothing, basic toiletries, or being able to access health facilities. IHISP and

[6] These changes are already shown in Fig. 2 but are shown again for a selected number of high and low prevalence items to aid visual comparison.

LIPW participants saw a rise in the share of children with no deprivations and a concurrent decline in the share with high deprivation scores—reflected in Fig. 5 in a substantial improvement across both more common and more severe deprivation indicators. While the overall NUSAF3 regions and the SLP subcomponent also show evidence of movement away from high deprivation, the shift is more modest and concentrated in the middle of the distribution. In practical terms this means that while all NUSAF3 subcomponents reductions in extreme deprivation - particularly in access to two sets of clothing, toiletries, and visits to health facilities - only IHISP and LIPW beneficiaries recorded substantial reductions in more prevalent deprivations, such as adequate nutrition (three meals a day) and a place at home for children to study. As a result, children in these two subcomponents are not only less deprived on average but also much less likely to lack basic items that were once commonly lacked in the region. At the same time, children in the SLP group continue to have the lowest average levels of deprivation across most indicators, suggesting that they were indeed better off at Baseline. This group experienced the least pronounced reductions over time.

The shorter horizontal distance between 2016 and 2021 deprivation prevalence estimates points in Fig. 5 for SLP and the NUSAF3 region as a whole mirrors these smaller changes. By contrast, IHISP and LIPW beneficiaries began with similar (high) levels of deprivation across many items in 2016 - particularly in relation to school furniture, meals, and toiletries - but by 2021 had surpassed the overall NUSAF3 average, reflecting more substantial improvements in both breadth and depth of deprivation.

Table 3 Regression table for fixed effects panel regression model

	M1	M2
	Coefficient	Coefficient
Subcomponent IHISP	−3.7***	−3.8***
LIPW	−4.0***	−3.93***
SLP	−1.1*	−1.1**
Number of school-aged children		0.2***
Household size		0.3***
Main source of earnings: Job employment		0.4
Subsistence		1.9***
Remittances		2
Others		1.8***
N	*6,411*	*6,411*
R2 (within)	*32%*	*35%*

* Statistically significant at *5% level ($p<0.05$), **1% or ***0.1%. Note: All calculations include robust clustered standard errors. Likelihood ratio tests show increase in model fit across each subsequent model. Authors' calculations. Number of school-aged children and household size are mean-centered. Total number of households in the analysis is 3,423

3.3 Multivariate Analysis

We now investigate these changes more formally using panel fixed-effects and repeated cross-sectional difference-in-difference regression modelling. Table 3 shows the results from the fixed effects panel models. Model 1 (M1) looks at within-household change for the three subcomponents. IHISP and LIPW beneficiaries saw a decrease of roughly 4 deprivations, compared to a 1 deprivation decrease for SLP respondents. Model 2 controls for changes in number of school-aged children and household size, showing that increases in these are associated with increases in deprivation (i.e. larger families, and families with more children are more likely to be deprived). Model 2 also controls for changes in main sources of earnings, showing that a switch to subsistence farming (from non-subsistence) is associated with an increase of 1.9 deprivations. One important implication of the M2 results is that reductions in deprivation remain constant regardless of changes in household compositions and main source of earnings. M2 provides little additional explanatory power to M1, shown in a small increase in adjusted R^2 and does not lead to clear changes in the subcomponent coefficients, suggesting that NUSAF3 reduced child deprivation by increasing income rather than changing income generating activities (sources of income).

The key message from these analyses is that IHISP and LIPW beneficiaries saw greater reductions in material and social deprivation than SLP beneficiaries. We repeated these analyses using Poisson and negative binomial fixed effect models (not shown here), which confirmed the results above. In addition, interaction effects showed no significant differences in the effect of IHISP, LIPW or SLP according to household size or number of school-aged children, although this may also reflect lack of statistical power.

Lastly, we compared changes between 2016 and 2019/20 in NUSAF3 and non-NUSAF3 regions using UNHS data, controlling for whether the household was interviewed during or after the onset of the Covid-19 pandemic as well as main source of earnings, number of school-aged children and household size (see Table 4).

The results confirm our findings shown in Fig. 3. NUSAF3 regions saw decreases of 1.9 deprivations ($p<0.05$) while other regions did not see statistically significant decreases (−0.3 deprivations, not statistically significant).[7]

4 Discussion

Our analyses suggest strongly that livelihood grants, direct income transfers, and better safety nets for those in greatest need have clear positive effects on the living conditions, prospects, and social relations of recipients. While evidence of clear positive impact is weaker for the one subcomponent which did not include direct financial assistance (the SLP), this does not mean it failed to meet its original aims. While we estimated that progress in reducing deprivation was weaker for SLP ben-

[7] It should be noted that this simply compares NUSAF3 and non-NUSAF3 regions, so analysis of individual regions may provide different insights.

Table 4 Linear regression for child deprivation index using combined 2016 and 2019/20 Uganda National household survey

	Estimates
(Intercept)	8.40 *
NUSAF3 regions *(ref: Non-NUSAF3 regions)*	2.99 *
2019/20 *(ref: 2016)*	−0.27
Covid-19 Period *(ref: Non-Covid-19 Period)*	0.58 *
Main source of earnings *(ref: Commercial Farming + others)*	
Job employment	0.28 *
Remittances	1.74 *
Subsistence	1.87 *
Number of school-aged children	0.89 *
Household size	−0.07 *
NUSAF3 regions * 2019/20	*−1.62***
Observations	23,364
R^2/R^2 adjusted	0.185/0.184

Sub-regional country dummies omitted. * $p<0.05$. Model estimated using probability weights provided in UNHS. Author's calculations

The model shows that, compared to other regions, NUSAF3 regions saw a further decrease of 1.62 child deprivations between 2016 and 2019. Adding the relevant terms (−1.62 and −0.27) provides a total predicted decrease of 1.9 deprivations for NUSAF3 regions, compared to only −0.27 for non-NUSAF3 regions. Estimates for interaction term when also controlling for specific sub-region remained consistent

eficiaries, our analyses point to positive change well above those suggested by the 2016 and 2019/20 UNHS data. In fact, the SLP may contribute to improvements in living standards over the longer term. Nevertheless, when assessing the impact of these interventions through observed changes in material and social deprivation among the poorest in society over the course of a year, our results demonstrate that programmes providing direct financial assistance (like IHISP and LIPW) are most effective. Future initiatives to develop entrepreneurial skills and business formation should seriously consider the direct provision of cash transfers to enhance the impact on local communities.

This paper demonstrates the adaptability and potential of the Consensual Approach as a monitoring and evaluation tool; in doing so, it provides further evidence of its reliability for measuring deprivation both at a point in time and longitudinally. We showed that the vast majority of respondents wanted the items, confirming the extensive analysis carried out by UNICEF Uganda et al. (2019) on nationally-representative data, and we found no clear evidence of adaptive preferences which might limit the effectiveness of the method. This is in line with evidence on the subject, at least when applied to the Consensual Approach, even in contexts of extreme poverty and displaced communities (Depio et al., 2018; Wright & Noble, 2013; Noble et al., 2006).

4.1 Limitations

The results presented in this paper come with several caveats. Estimating differences in deprivation trajectories across NUSAF3 subcomponents is challenging in the absence of control groups and only two waves of observational data. The impact of the pandemic as a confounder remains difficult to assess; our working assumption is that it limited the impact of NUSAF3. Half of the 2019/20 UNHS data were collected before March 2020 (onset of Covid-19 pandemic) and the remaining interviews conducted by November 2020; in contrast, NUSAF3 Endline data collection took place in March 2021, when the effects of the pandemic and related disruptions were more widely felt. The difference in data collection periods lead us to believe we would see smaller reductions in poverty from the NUSAF3 panel data analysis when compared to analysis of the UNHS data.

An additional source of uncertainty relates to the geography of the samples. Regional changes in deprivation in NUSAF3 and non-NUSAF3 between the 2016 and 2019 rounds of the UNHS are likely to under-estimate the impact of NUSAF3 because it operated at watershed level (i.e. sub-region) rather than region level. As such we do not claim our comparison of changes in poverty of NUSAF3 beneficiaries and UNHS households is a like-for-like comparison (i.e. treatment vs. control); rather it provides a useful estimate of average change in deprivation experienced by residents in northern Uganda in the absence of experimental data.

Lastly, it is worth noting that despite impressive reductions in multidimensional poverty shown here, far too many households across Uganda remain unable to afford basic material and social necessities (Gordon et al., 2024). While households may have incomes above the official monetary poverty line, it is also a fact that large sections of Ugandan society are deprived of important items which Ugandans consider necessary. A bespoke budgetary study could determine the levels of income different household types require to afford basic material and social necessities (e.g. adjusting for household composition and type), as is commonly done in other countries (Valadez-Martínez et al., 2018; Padley et al., 2019; Wright et al., 2020). Programmes like NUSAF3, as well as national policies, could use the findings of such studies to ensure that all Ugandans have the resources to secure decent living standards. This would also help benchmark different levels of child deprivation to other measures of poverty and well-being.

Finally, the lack of a control group or watershed-level representative data prevents the use of experimental or quasi-experimental methods for causal inference. Although a fixed-effects panel model allows comparison of respondents between Baseline and Endline, the model assumes time-invariant unobserved heterogeneity is controlled for, but it cannot account for time-varying confounders or external shocks which may bias estimates. Further analyses and data collection should enable a more robust evaluation of NUSAF3 with comparison of an appropriate control group, facilitating examination of longer term changes for participants as well as any spill-over multiplier effects.

5 Conclusion

Direct cash transfers are now routinely recommended and used as an intervention to effectively alleviate poverty and stimulate economic growth among low income communities (Handa et al., 2018; Bastagli et al., 2019; Parazzuolo et al., 2025). This paper shows how the provision of direct cash transfers to poor households in some of the poorest regions of Uganda contributed to marked reductions in material and social deprivation. Recipients used the money to improve their living conditions, and enabled their families to participate constructively in society. The Consensual Approach provided an effective and reliable means to identify relevant necessities, and to assess whether beneficiaries were more able to afford them by the end of the NUSAF3 project. Between Baseline and Endline there were sizable reductions (between 20 and 35% points) in deprivation of necessities for children, for items like clothes and shoes, educational toys and games, space and furniture for homework, and having presents once a year. The average number of deprivations among NUSAF3 beneficiaries decreased by between 1 and 4 (out of 20), which far exceeded national progress and progress in non-NUSAF3 areas.

The Consensual Approach provides means of operationalising valid and reliable indicators to meet the requirements of SDG target 1.2; it reflects the needs of adults and children, reflects poverty across different dimensions, and is in line with national definitions. The analyses presented here demonstrate its potential as an effective tool for evaluating social protection interventions like NUSAF3, and policy makers should consider integrating and adding it to existing evaluation toolkits; doing so would benefit the design of programmes, better identify those in greatest need, and in turn enable more effective targeting of resources.

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Author Contributions Marco Pomati- Lead writing and analysis. Shailen Nandy- Writing. Diego Angemi- Project management. Herbert Akampwera- Project management, data collection.

Data Availability No datasets were generated or analysed during the current study.

Declarations

Competing interests The authors declare no competing interests.

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