Food and Agriculture Organization of the United Nations

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Impact evaluation of Lesotho's Child Grants Programme (CGP) and Sustainable Poverty Reduction through Income, Nutrition and access to Government Services (SPRINGS) project

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Food and Agriculture Organization of the United Nations (FAO) and United Nations Children's Fund (UNICEF)

Rome, December 2018

This study by the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Children's Fund (UNICEF) was made possible thanks to the support of the Kingdom of Belgium, the Netherlands, Sweden and Switzerland through the Multipartner Programme Support Mechanism (FMM) and the International Fund for Agricultural Development (IFAD) through the Universidad de los Andes.

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Acknowledgments

This evaluation was conducted by the Social Protection Team at FAO, jointly with UNICEF Lesotho. The organizations would like to thank the following institutions and individuals for their contributions to the study:

Food and Agriculture Organization of the United Nations (FAO): Silvio Daidone, together with Ervin Prifti, for the evaluation design, the analysis of the NISSA dataset and the sampling strategy, and together with Noemi Pace for training and supervising the survey enumerators, cleaning and analysing the data, and writing the evaluation report. Laxon Chinengo, Alejandro Grinspun, Ana Ocampo and Pamela Pozarny provided useful comments at various stages of the evaluation.

United Nations Children's Fund (UNICEF): Mohammed Shafiqul Islam, Mokete Khobotle, Fatoumatta Sabally and Mookho Thaane for their contributions to the Terms of Reference, managing the data collection process and providing useful comments, advice and support at various stages of the evaluation.

Ministry of Social Development: Malefetsane Masasa, Principal Secretary, and Mankhatho Linko, Director Planning, for their leaderships and guidance for the conduct of the evaluation; and Setlaba Phalatsi, Manager, National Information System for Social Assistance (NISSA) for facilitating access to the NISSA database.

Catholic Relief Services and SiQ: Ehsan Rizvi, project manager of CRS, for facilitating the design of the evaluation and assisting with the organization of the media mission held by Massimiliano Terzini and Cristian Civitillo from FAO; and Eugene du Preez, CEO, and Henriette Badenhorst, Project Manager of SiQ, rfor organizing the fieldwork and conducting the collection of data for the evaluation.

European Union (EU): Financial support was provided by the EU for the implementation of SPRINGS, one of the two programmes evaluated in this report.

International Fund for Agricultural Development and Universidad de los Andes: IFAD provided funding for carrying out an independent evaluation of the impacts of the Child Support Grant and the SPRINGS project in Lesotho. Jorge Higinio Maldonado, Viviana Leon and John A. Gomez from the Universidad de los Andes, Colombia, gave valuable comments to the design of the evaluation and the survey instruments.

FAO and UNICEF would like to acknowledge and thank all stakeholders for their invaluable inputs and generous time, especially during the validation workshop held in Maseru on 13 September 2018.

This study was made possible thanks to the financial support of the Kingdom of Belgium, the Netherlands, Sweden and Switzerland through the FAO Multipartner Programme Support Mechanism (FMM) and the International Fund for Agricultural Development through the Universidad de los Andes.

Abbreviations

CCFLS	Community-led Complementary Feeding and Learning Sessions
CDM	Community Development Model
CGP	Child Grants Programme
FAO	Food and Agriculture Organization of the United Nations
IGA	Income Generating Activities
IPW	Inverse Probability Weighting
LFSSP	Linking Food Security to Social Protection Programme
LSL	Lesotho Loti
MoLG	Ministry of Local Government
MoSD	Ministry of Social Development
NISSA	National Information System for Social Assistance
OPM	Oxford Policy Management
OVC	Orphans and other Vulnerable Children
PMT	Proxy Means Test
SILC	Savings and Internal Lending Communities
SiQ	Spatial Intelligence
SPRINGS	Sustainable Poverty Reduction through Income, Nutrition and Access to Government Services
UNICEF	United Nations Children's Fund
USD	United States Dollar
VAC	Village Assistance Committee

Executive summary

Background

Social protection has been recognized as a key strategy to address poverty, vulnerability and social exclusion in Lesotho. As a result, the Government, with support from UNICEF and the European Union, developed the Child Grants Programme (CGP), which provides unconditional cash transfers to poor and vulnerable households registered in the National Information System for Social Assistance (NISSA). In order to strengthen the impact of the CGP on poverty, the accumulation of assets and on savings and borrowing behaviour for investment, FAO Lesotho began a pilot initiative in 2013, called Linking Food Security to Social Protection Programme (LFSSP). It sought to improve food security among poor and vulnerable households by providing vegetable seeds and training on homestead gardening to CGP beneficiaries. The CGP and LFSSP impact evaluation results encouraged UNICEF, the Ministry of Social Development (MoSD) and Catholic Relief Services (CRS) to implement a more comprehensive livelihood programme in 2015, called the Sustainable Poverty Reduction through Government Service Support (SPRINGS). The programme provides support in the form of: i) Community-based savings and lending groups, with financial education, known as Savings and Internal Lending Communities (SILC); ii) Homestead gardening, including support to keyhole gardens and vegetable seeds distribution; iii) Nutrition training through Community-led Complementary Feeding and Learning Sessions (CCFLS); iv) Market clubs for training on market access; v) One Stop Shop / Citizen Services Outreach Days.

Evaluation design and objectives

The quantitative impact evaluation presented in this report seeks to document the welfare and economic impacts of CGP and SPRINGS on direct beneficiaries and assess whether combining the cash transfers with a package of rural development interventions can create positive synergies at both individual and household level, especially in relation to income generating activities and nutrition. The impact evaluation looks specifically at several CGP and SPRINGS outcome and output indicators, related to the following areas: consumption and poverty, dietary diversity and food security, income, agricultural inputs and assets, children wellbeing, financial inclusion, gardening and operational efficiency of both programmes. The findings of this evaluation aim to inform the design of the UNICEF-supported Community Development Model (CDM), which is currently planned by the Government to facilitate poor people's graduation out of poverty.

The impact evaluation design consists of a post-intervention only non-equivalent control group study. This method is based on the NISSA registry data and matches households with and without CGP based on their socio-demographic characteristics. Data collection was conducted between November 2017 and January 2018 by Spatial Intelligence (SiQ). The impact estimates are based on a regression adjusted by a generalized propensity score.

Impact of the CGP and SPRINGS

The evaluation investigate the impacts of the programmes on a large set of outcomes: consumption and poverty, dietary diversity and food security, income, agricultural inputs and assets, children wellbeing, financial inclusion and gardening. A summary of the main results is presented here:

Consumption and poverty

While the programmes do not seem to affect total consumption nor the poverty head count rate significantly, **the joint impact of CGP and SPRINGS is positive and significant on non-food consumption (at 10% level) and is negative and significant (at 5% level) on the poverty gap index**. The size of the impacts is also substantial. Per capita non-food consumption increased by 21.5 maloti (LSL), corresponding to a 24 percent increase with respect to the comparison mean, while the poverty gap index decreased by 12 percent. The estimate of the CGP-only group is not statistically significant, and is negative and significant (at 10% level) on per capita food consumption. However, the statistically significance of this negative impact disappears once observations with extreme values of consumption are eliminated from the sample.

Dietary diversity and food security

Diversity in diet is measured through several indicators of women's consumption of different kinds of foods. **The estimates show a strong positive and significant impact of both CGP alone and CGP plus SPRINGS on the consumption of dark green leafy vegetables (13 and 27 percentage points increase, respectively, for CGP and CGP-plus-SPRINGS treatment arms, with respect to the comparison mean), vitamin A rich fruits and vegetables (12 and 24 percentage point increase), and organ meat (20 and 21 percentage point increase).** The impact on legumes, nuts and seeds, and on milk and dairy products, is positive, but it is significant only for CGP-plus-SPRINGS group (12 and 13 percentage point increase with respect to the comparison mean). All these positive impacts for the CGP-plus-SPRINGS group are reflected in **the women dietary diversity score, which increases by 1.1 food groups** (equivalent to a 20 percent of the comparison group mean).

Food security is measured looking at the change in several indicators of perceived food insecurity, such as being worried about not having enough food to eat, being unable to eat healthy and nutritious food, etc. The report also includes the Food Insecurity Experience Score (FIES), calculated as the sum of all indicators of perceived low-quantity or quality of food eaten. **The estimates of both CGP and CGP plus SPRINGS have the expected negative sign, but they are never statistically significant.**

Income

The report looks at the impact of the programmes on all different sources on income, as well as the gross sum of the sources. As expected, **public transfers increase significantly in both CGP and CGP-plus-SPRINGS group, as a result of the CGP transfers**. For the **CGP-plus-SPRINGS treatment arm**, it is also possible to observe an **increase of the value of sales of**

fruits and vegetables (21.5 LSL), corresponding to an increase of more than 100 percent with respect to the value of the comparison group. In the CGP treatment arm, income from sharecropped harvest decreased by 106 LSL, corresponding to 76 percentage point decrease. This reduction in income is not compensated for by an increase in other sources of income, with the exception of the transfer received through the CGP. This result seems to suggest that the transfers cause some crowding out effect in the CGP treatment arm.

Agricultural inputs and assets

In **the CGP-plus-SPRINGS treatment arm, household expenses on seeds and chemical fertilizers increased respectively by 32 and 37 LSL** (approximately a 70 and 85 percent increase from the comparison mean). Among the expenses incurred for agricultural assets, **rental expenses for tractors increased by 55 LSL. This result translates into an 8.3 percentage point increase in the use of tractors**. The CGP treatment arm shows no significant results, with the exception of a decrease of 74 LSL for other crop input expenditures, which include hired labour, herbicides and rented land.

Children wellbeing

The report investigates the impact of CGP and SPRINGS on child education, labour and child anthropometrics. The estimates for child education suggest that the **CGP alone increased the share of children completing secondary school by 1.3 percentage points**. Though small in absolute terms, this impact is not trivial in relative terms, given that only 0.3 percent of children in the comparison group had completed secondary school. **Children in the CGP-plus-SPRINGS group report a larger number of completed years of schooling (0.27) and a 4 percentage point reduction of the illiteracy rate**.

Child labour is measured by a set of indicators that are coherent with international standards. **The estimates for child labour show a significant reduction in the number of hours worked by children (-2.5 hours per week)**, which translates into a 10 percentage-point reduction of children working an excessive amount of time. There is also **a reduction in the share of children working with dangerous tools and being exposed to extreme heat/cold/humidity**. With respect to the CGP-plus-SPRINGS group, the absence of any significant effect is a positive result, because it entails that the greater engagement in income generating activities foreseen by SPRINGS did not come at the detriment of children's wellbeing.

Child anthropometrics are measured for children below 60 months of age to assess programme impact on nutritional status. **The analysis shows that children living in CGP-plus-SPRINGS households experienced improved nutrition, especially in relation to moderate and severe wasting and, to a lesser extent, to moderate and severe underweight**.

Financial Inclusion

The findings show a **large significant increase in the number of households saving and borrowing in the year prior to the survey.** The impacts on these two indicators are large, 12.5 and 23 percentage point respectively, especially in relation to the comparison group mean (almost 130 and 90 percent). The evaluation also revealed **an increase in the amount of money**

saved and borrowed, though significant at 10% only. These results are likely to be underestimated, given the general reluctance of survey participants to provide this kind of information to enumerators, especially programme beneficiaries who may fear to lose their benefits.

Gardening

In the CGP-plus-SPRINGS treatment arm, **the share of households** building and using keyhole gardens **and the number of keyhole gardens used have increased dramatically (by 67 percentage points and 2.6 keyhole gardens**, respectively). As a consequence, **the CGP-plus-SPRINGS households are not only more involved in homestead gardening production (17 percentage points), but also produce more vegetables (2.2), have more harvests during the course of the year (7.7) and are more likely to process these harvested vegetables (9.8 percentage points).** The latter result can also be explained by the training offered on processing techniques such as drying and canning. The results on fruits production are also positive and statistically significant, though the magnitudes are smaller, probably due to the larger investment needed in growing orchards, compared to vegetables. Finally, results on the CGP-only group are mostly positive but non-significant, with the exception on the indicators related to keyhole garden.

Programme operations

Size of the payments and beneficiaries' experience with the CGP transfers

Compared to the previous CGP impact evaluation, the relative size of the transfer has declined slightly from 21 to 20.4 percent of total household consumption. Given the current structure of the payments, children in larger households continue to receive in per capita terms slighty less than half of the amount received by children in smaller households.

In the 12 months prior to the survey, 94.5 percent of the respondents did not miss any payment. Cash distribution at pay point is still the main delivery mechanism for the CGP, followed by mobile payments and bank transfers. Regarding the targeting criteria, most of the respondents mention household poverty, followed by the presence of children or orphans in the household, and the result of random selection or luck. Regarding the instruction on how to spend the transfer, the overwhelming majority of the CGP recipients reported having received instructions on the use of the transfer, and almost everyone confirmed that the money was meant to be spent to meet children needs.

Participants' experience with SPRINGS activities

Overall 458 SPRINGS beneficiaries responded to the SPRINGS survey module, but only 383 households were aware of CRS activities. Of these, a total of 345 respondents were participating in any of the SPRINGS components.

According to the survey, 214 respondents reported having at least one household member engaged in Savings and Internal Lending Communities (SILC) groups; most of them received instructions on savings and lending policies.

Most of SPRINGS participants were aware of the existence of either keyhole or trench gardens (96 percent) and almost everybody owned and cultivated at least one. 65 percent of SPRINGS participants took part in a demonstration session of keyhole / trench construction and planting given by a lead farmer.

Only 20 percent of SPRINGS households took part in the Community-led Complementary Feeding and Learning Sessions (CCFLS), in which participants were trained or sensitized on a wide range of topics concerning nutrition, preventing and managing illness, reviewing and planning a week of meals, good hygiene and feeding practice and support active feeding, food handling, processing, preparation and preservation, cooking demonstrations and infant complementary feeding.

Recommendations

The results of the impact evaluation suggest several programme and policy level recommendations.

Programme recommendations

- **Adjust the transfer value**. It is important to adjust the transfer value to mitigate the impact of inflation on household budgets and to consider different family sizes. Under the current scheme, bigger families are penalized.

- **Improve CGP delivery and switch to e-payments**. Most of the CGP payments are still delivered at paypoint. Currently, only 16 percent of beneficiaries are reached by mobile payments such as M-Pesa. This form of delivery can be improved, since more than 80 percent of the sample households own a cell phone, despite the wide poverty levels.

- **Clarify CGP inclusion criteria to avoid negative community dynamics**. Despite the substantial understanding of program objectives, a large minority of beneficiary households is not aware of the eligibility criteria for being included in the CGP. The lack of clarity around the inclusion criteria is very often one reason for negative community dynamics. This could be avoided by improving messaging provided by district officials and local leaders.

- **Encourage participation of CGP beneficiaries in SPRINGS activities**. To enhance the overall effectiveness of the programmes, participation in SPRINGS should increase through clear messaging that CGP and SPRINGS are not competing, but complementary interventions.

- **Increase participation in all SPRINGS components over time**. All SPRINGS components are designed to be complementary to achieve the initiative's intended objectives. This impact evaluation highlights the importance of both the length of engagement and the intensity of participation in programme activities as key factors for sustaining effects over time.

Policy recommendations

SPRINGS ended in September 2018 and the Government envisages the roll-out of a new Community Development Model (CDM) of social assistance. Based on the experience of the

CGP-plus-SPRINGS impact evaluation, several policy recommendations can be drawn to help shape the implementation of the CDM and related programmes:

- **Strengthen engagement of social assistance beneficiaries in groups like SILC**, which allow participants to get access to funds for investing in income generating activities.

- **Foster investments in farm and non-farm income generating activities to increase the probability of having medium and long term impacts**. Impacts on household income need to be sustained over time. Households with labour capacity and assets need to be supported for greater productive inclusion.

- **Establish and support greater linkages to markets**. One potential drawback from SPRINGS is the prospect for market saturation. To avoid saturation, it is advised to establish and support wider market access, with accompanying support to farmers' marketing knowledge and skills.

- **Provide support for prolonged periods of time.** Interventions running out after 1 or 2 years are unlikely to achieve the objective of graduating households from social assistance. This impact evaluation shows that greater impacts are obtained when households receive support for a longer period.

Lessons learned for future evidence generation initiatives

- **The quality of the NISSA dataset has greatly improved from the oldest to the most recent version.** This will allow future researchers to continue exploiting this administrative dataset for the design of additional impact evaluation studies. However, *the capacity of the NISSA to be used directly as a tool for economic research is quite limited*, unless some changes are made to the questionnaire.

- **The data collection with electronic platform has greatly improved the quality of the data.** However, it is suggested *for future data collecton to to give at least 4 weeks* from the time of approving the survey instrument and training the enumerators to develop the electronic application and test the device in the field.

- **The inception phase is the first and key moment to shape the impact evaluation.** For future studies, it is suggested that *discussions with the main stakeholders in the country not be confined to bilateral meetings, but preferably include a 3/4 day workshop with all the key actors jointly*. This would allow them to agree not only on the objectives of the evaluation, but also its design, theory of change and the indicators to which priority should be given.

- **The length of the survey instrument was excessive, with an average time of 2 hours per household, with a decreasing quality of interviews.** When reducing the questionnaire size proves to be impossible, *it is suggested to reimburse respondents for the time spent in the interview, either in-kind or cash*, to at least compensate them for the opportunity cost of not going to work.

1. Introduction

Social protection is one of the key priorities in the National Strategic Development Plan 2012-2017 and in the National Policy on Social Development approved in 2014 (Government of Lesotho, 2015). Spending in the sector represents at least 4.6 percent of GDP which is well above 1 to 2 per cent spent by most developing countries (Government of Lesotho, 2014). There are currently ten different social protection/assistance programmes implemented in Lesotho, the two largest being the Old Age Pension and the Child Grants Programme (CGP).[1]

Originated from a four-year project funded between 2005 and 2009 by the European Commission in response to the HIV/AIDS pandemic and the increasing number of orphans and vulnerable children (OVC) in Lesotho, the CGP is an unconditional cash transfer (CT) targeted to poor and vulnerable households with children.[2] It provides beneficiary households quarterly payments of between 360 and 750 Lesotho Loti (LSL), depending on the number of children living in the household. This corresponds to about 19.5 percent of CGP beneficiaries' consumption.[3] Targeting is a fairly sophisticated process, including a census-style interview to collect data from all households within a given community, feeding into a National Information System for Social Assistance (NISSA) database, and thereafter categorizing households using a proxy means test (PMT), which attempts to estimate the poverty status of each household using a set of variables. Households in the poorest two categories are deemed to be eligible for the programme. Their selection is further validated by community-level Village Assistance Committees (VAC), and, only after the PMT and the VAC have both verified a household as being eligible, is the household included in the programme. The primary objective of the CGP is to improve the living standards of OVCs so as to reduce malnutrition, improve health status, and increase school enrolment among them.

The official independent impact evaluation of the CGP was carried out by Oxford Policy Management, under the guidance of UNICEF and funding from the European Union (Pellerano et al., 2014). FAO contributed with an analysis of the impacts on productive activities and labour supply (Daidone et al., 2014), a local economy study on the income multipliers generated by the CGP (Taylor et al., 2014) and a qualitative analysis of the CGP on household income and community dynamics (OPM, 2014). Overall, these and other companion studies found many areas where the CGP brought about positive impacts, such as: i) increased levels of household expenditure on schooling and health needs for children largely due to the programme's "messaging" (OPM, 2014; Pace et al., 2018); ii) some increase in food security, especially for indicators on children, and dietary diversity (Pellerano et al., 2014; Tiwari et al., 2017); iii) small decrease in casual labour, but no overall "dependency effect" (Daidone et al.,

[1] The ten social protection programmes are: the CGP, the Old Age Pension, the Public Assistance programme, the Orphans and Vulnerable Children bursary programme, the Tertiary bursday scheme, the School Feeding programme, the Nutrition support programme, the Disability grant, the Seasonal Employment Guarantee scheme and the public works programme known as *Fato-Fato*,

[2] For all the details concerning the genesis and the evolution of the CGP from a small donor-funded pilot project into a public-owned national programme, we forward the reader to Pellerano et al. (2016).

[3] More details about the transfer value are provided in section 6.1.

2014; Prifti et al., 2018); iv) increased farm production and relevant income spillovers (Daidone et al., 2014; Taylor et al., 2014); v) improved education outcomes for secondary school children, especially girls (Sebastian et al., 2018). However, these impact evaluation studies also highlighted very limited effects on other domains, such as accumulation of assets and savings and borrowing behaviour, and no significant impact on standard poverty measures.

In July 2013 FAO-Lesotho began a pilot initiative called "Linking Food Security to Social Protection Programme (LFSSP)". The programme's objective was to improve the food security of poor and vulnerable households by providing vegetable seeds and training on homestead gardening to households eligible for the CGP. The decision to target these specific households was made under the idea that the two programmes, in combination, would result in stronger impacts on the food security of beneficiary households as compared to the impacts that would obtain from each programme in isolation. LFSSP was implemented in partnership with CRS (Catholic Relief Services) and Rural Self Help Development Association. The LFSSP impact evaluation carried out by FAO found positive effects of the combined programmes on home gardening and productive agricultural activities (Dewbre et al., 2015; Daidone et al., 2017).

The CGP evaluation, along with the experience with the LFSSP, encouraged UNICEF, the Ministry of Social Development (MoSD) and CRS to implement a pilot project, with European Union funding, which aimed at reducing vulnerabilities and increasing resiliency in poor rural communities of the country. The first phase of the initiative, known as Improving Child Wellbeing and Household Resiliency (ICWHR), was implemented in three Community Councils (CCs) where MoSD provided CGP transfers:[4] Likila (district of Butha-Buthe), Menkhoaneng (Leribe), Makhoarane (Maseru). The second phase, known as the Sustainable Poverty Reduction through Income, Nutrition and access to Government Services (SPRINGS), was launched in two additional community councils: Tebe-Tebe (Berea) and Tenesolo (Thaba-Tseka). Originally, this study was meant to evaluate these new SPRINGS cohorts. However, due to problems that emerged during the inception phase and summarized in the research design section, the focus shifted to the old cohorts (see

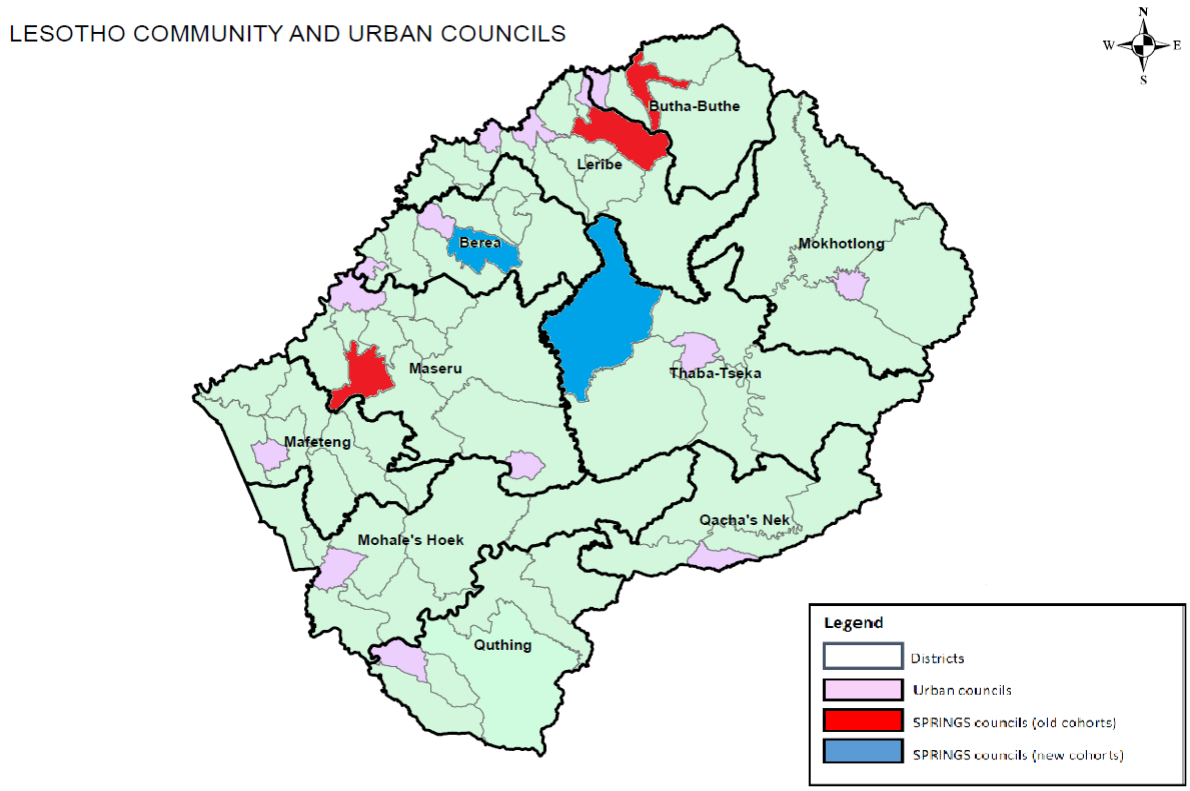
Figure **1** for a geographical reference of the community councils involved). For simplicity, and given the substantial equivalence of the set of interventions provided in both phases, hereinafter the report will always refer to SPRINGS.

Within the targeted CCs, UNICEF prioritized vulnerable communities as determined by a high percentage of social assistance beneficiaries and/or high rates of poverty according to the NISSA. At the beginning of the project, UNICEF had planned to target only those households who were receiving the CGP. However, this would have meant excluding similar households that were not receiving the CGP because of either a system quota or errors in targeting.[5] These households in particular felt that providing additional services to the households that were already reaping the benefits from the cash grants was making an already unfair system more

[4] Originally, ICWHR and SPRINGS were thought to be offered in territories where any social assistance programmes were provided. However, this substantially translated into targeting areas with CGP transfers.
[5] Given Lesotho's high rates of poverty, the government has had to implement a quota system for enrollment in the social assistance program. Thus, not all households meeting eligibility criteria are able to be enrolled.

unfair. UNICEF therefore opted to target cash grant participants, but allowed participation from other interested community members in SPRINGS, thus avoiding a source of possible tensions within the communities.

Figure 1: Map of SPRINGS community councils



The SPRINGS project builds on gaps and priorities already identified by the National Social Protection Strategy for 2012-2017, which puts significant emphasis on reducing vulnerability through social protection, with a focus on consolidating, improving efficiency and coverage of social protection and providing support to vulnerable able-bodied persons to adopt sustainable livelihood strategies (CRS, 2015). SPRINGS aims to complement the cash transfer from the CGP and other social assistance programmes with a community development package which consists of:

- Community based savings and internal lending groups, with financial education, also known as Savings and Internal Lending Communities (SILC)
- Homestead gardening (keyhole gardens, vegetable seeds distribution)
- Market clubs
- Nutrition training with Community-led Complementary Feeding and Learning Sessions (CCFLS)

- One Stop Shop / Citizen Services Outreach Days.[6]

As part of the second phase of SPRINGS, FAO and UNICEF, with the leadership of MoSD, commissioned to carry out an independent impact evaluation of the combined CGP and SPRINGS programmes. This evaluation had two main objectives:

1) to establish the welfare and economic impacts of CGP plus SPRINGS and assess synergies promoted by their components (effectiveness);
2) To evaluate how the programmes affect the local community where they operate, beyond those who directly benefit from them (spillovers).

Following a mixed methods approach, the evaluation uses four methodological tools to provide a robust and coherent understanding of the degree to which outcomes have been met. The four methodologies include: (i) household and individual level quantitative analysis; (ii) qualitative methods; iii) a lab experiment in the field and (iv) general equilibrium models. This report focuses on the first component of the impact evaluation, a quantitative econometric assessment, and is structured as follows: section 2 provides a theory of change of the combined CGP-plus-SPRINGS impacts; section 3 shows the impact evaluation design and how it changed from the inception; section 4 presents the descriptive statistics of the data, including both NISSA and those collected for the impact evaluation; section 5 reports the programmes' impact estimates, while section 6 discusses the results and concludes with a set of lessons and programme and policy recommendations.

2. A theory of change for CGP plus SPRINGS

The analysis of the CGP-plus-SPRINGS impacts originates from a theory of change that disentangles the different pathways along which the interventions could tackle poverty and vulnerability, while promoting broader developmental impacts. This section describes the pathways through which the cash and the livelihood component of the interventions exert their influence on the outcomes, both separately and jointly by complementing each other.

First, by providing an injection of resources into the household economy, the CGP is expected to boost consumption expenditure of goods and services that correspond to core household needs, and contribute in this way to improving the overall wellbeing of household members, especially children, due to the strong messaging that the money should be spent on children's needs. The cash transfer not only provides a safety net, by allowing people to cope with risk and providing a minimum income level, but can also generate productive impacts. The

[6] As described in official CRS proposal to UNICEF (CRS, 2015) "One Stop Shops aim to expand the range of services available to citizens at local level in order to address the multidimensional character of poverty and vulnerability. The One Stop Shop has two components; (i) a permanent structure based at community council level where population can access information on different services, get specific services or referred to service providers and (ii) an outreach component where services providers at all levels (public, private and CSO) and for multiple sectors (health, civil, etc.) are called in one place to meet and provide services to the population. In principle, the citizen outreach model improves vulnerable households' access to key services by taking the services where vulnerable group of the population can access them. The Ministry of Local Government (MoLG) plans to use the One Stop Shop as its approach to strengthen service delivery under the National Decentralization Policy". Improved access to services by households under social assistance is the outcome directly affected by this component.

economic literature has identified several channels through which cash transfers might generate productive impacts: 1) by providing the liquidity needed to reduce credit and liquidity constraints and increase the recipient's creditworthiness; 2) by reducing farmers' degree of risk aversion; 3) by changing incentives to work and inducing labour reallocation thereby adjusting livelihood strategies, especially in the context of imperfect labour markets (Rosenzweig and Wolpin, 1993; Serra et al., 2006).

In turn, livelihood interventions can promote growth in the productivity of small family farmers, by addressing structural constraints that limit access to land and water resources, inputs, financial services, advisory services and markets. For instance, participation of beneficiary households and their communities in SILCs aims at improving household access to savings and lending services that smooth income and improve access to start-up capital. As with the CGP, participation in SILCs can help circumvent credit market failures and enable greater financial inclusion of groups, such as the very poor or vulnerable youth, who are generally excluded from traditional financial services. Participation in SILCs could also increase human capital, by means of training group members in new skills such as record keeping, accountability, savings and lending policies. An expected outcome for households participating in SILCs is investment of the financial capital in income generating activities, for instance agricultural inputs.

Market development through market clubs can potentially affect beneficiary households (and the local economy) in two ways. First, by lowering transaction costs, the share of the exogenously-set price that local farmers receive increases. A reduction in transaction costs results in a larger share of the market price going to farmers instead of outside agents. Second, by giving farmers access to outside markets, participation in market clubs can help turn nontradable crops into tradables. Instead of producing only for the local market, with the price set by local supply and demand, farmers can now produce for outside markets, selling at the price determined in those markets.

Like for CTs, there is evidence that agricultural interventions such as the homestead gardening support provided by SPRINGS can improve the diversity of food produced, which can contribute to better diets (Dewbre et al., 2015; Escobal and Ponce, 2015). Beneficiary households and their communities are expected to improve nutrition and dietary diversity, by producing diverse vegetables and adopting better infant and young children feeding practices. This should allow them to allocate a lower portion of their cash grants to food consumption. Improved mental development associated with strong nutritional foundations will also contribute to reducing the intergenerational effects of poverty.

Finally, if beneficiary households and their communities attend citizen service outreach activities organized by MoLG, they will be able to access health, nutrition, education, and protection services that can improve their well-being and non-income determinants of poverty.

As shown in Gavrilovic et al. (2016), coordinated livelihood and social protection interventions such as SPRINGS and CGP can complement and mutually reinforce each other. The CGP component can allow poor smallholders beneficiaries to engage in more profitable agricultural and non-agricultural activities and increase demand for food and other goods and services. In tirn, the SPRINGS component can improve beneficiary access to natural resources, services

and markets, increase employment opportunities and food availability and reduce the need for social protection in the future.

3. Methodology and data

The econometric impact evaluation study has changed various times to respond to practical circumstances related to programme implementation and the feasibility of the evaluation design as originally proposed. Initially in 2016, two waves of data collection were foreseen, one before and one after 12 or 24 months of programme implementation. Unfeasibility of randomizing treatment in either treatment arm led the evaluation team to opt for a quasi-experimental approach and the associated methods of analysis, namely, Difference in Differences, possibly combined with Propensity Score Matching (PSM).[7] For logistical reasons, implementation of the CGP started before baseline data collection. This forced the evaluation team to change the study design to a post-intervention only non-equivalent control group type of quasi-experiment. In this design no baseline (pre-intervention) data are collected, therefore the treatment arms can only be compared *after* the intervention (Daidone and Prifti, 2016). The method of analysis associated with this study design is Regression Discontinuity (RD), for which programmes are assigned on the basis of a score (for example, a poverty score) and a threshold or cut-off point below which units (households and individuals within households in our case) are deemed to be eligible for a programme and above which they are not. In fact, the CGP targeting mechanism is based on the PMT, which is a sort of poverty index computed from the NISSA dataset. However, when the evaluation team analysed the dataset, several limitations emerged that made the use of RD unfeasible.[8] For this reason it was decided to use a Propensity Score Matching design for the estimation of programme impacts for the following groups:[9]

- Group A receives both CGP and SPRINGS (households below the cut-off value of the score variable in the CCs covered by CGP plus SPRINGS);
- Group B receives CGP but not SPRINGS (households below the cut-off value of the score variable in another CCs covered by CGP only);
- Group C receives neither the CGP nor SPRINGS and constitutes the pure comparison group (households above the cut-off value of the score variable in areas where NISSA data is available but CGP payments have not been disbursed).

This design allows to calculate three types of impacts at the programme level:

[7] Randomization of SPRINGS was unfeasible, due to specific targeting criteria. While CGP targets households, SPRINGS has a territorial approach to targeting, which includes a self-selection mechanism into the programme. This basically rules out the possibility of randomizing beneficiaries into CGP-plus-SPRINGS group.
[8] For the details, please see Daidone and Prifti (2017).
[9] From the technical point of view, an additional fourth treatment arm should be created: a group of households benefitting, from SPRINGS, without receiving the CGP. The inclusion of this group would have allowed to gauge: 1) the impact of SPRINGS alone; 2) the incremental impact of receiving the CGP when a household already receives SPRINGS; 3) the synergistic effect of both programmes. However, SPRINGS is supposed to be implemented by CRS only in CGP areas, ruling out the possibility of a more complete evaluation design with four treatment arms: one comparison/control group and three groups of beneficiaries. This fourth "SPRINGS only" group can form accidentally as a result of the lack of explicit targeting and selection mechanisms used by CRS during implementation.

- the impact of the cash provided by the CGP by comparing the outcome for group B with the outcome of group C;
- the combined impact of the cash provided by the CGP and the livelihood support given by SPRINGS, by comparing the outcome of group A with the outcome of group C;
- the incremental impact of receiving a livelihood intervention when a household already receives a cash transfer, by comparing the outcome of group A with the outcome of group B.

3.1. Propensity Score Matching design

In order to assess the combined impacts of the CGP and SPRINGS programmes, and given the issues related to programme implementation and NISSA data characteristics, the evaluation team considered Propensity Score Matching as a feasible option for the evaluation design. This approach uses a set of variables that are deemed to influence eligibility for CGP, combine them into a score which indicates the probability or "propensity" to be eligible for the programme, and then "match" households using this score. This allow for the identification of a comparison group that can be used for evaluating the impact of the programmes. Before implementing this procedure, the evaluation team took the following decisions concerning the list of households in NISSA to be included in the PSM analysis:

1. Including only households having at least one household member below 18 years of age
2. Including households residing in one of the six districts of Berea, Butha-Buthe, Leribe, Mafeteng, Maseru, Mohale's Hoek.
3. For the comparison group they considered only households living in villages without either CGP or SPRINGS
4. Excluding households living in community councils where CGP had been implemented for more than seven years and less than four years.

The objective of the first condition was to target the same typology of households, i.e. those eligible for the CGP. The second condition aimed to limit the extent of the fieldwork to similar agro-ecological areas, while the third condition was needed to minimize the extent of spillovers, which could lead to bias in our impact estimates. Finally, the fourth condition aimed to make households as comparable as possible in terms of CGP receipt at community level. The vast majority of these households (96.7 percent) are either ultra-poor or very poor. The remaining 3.3 percent comes from the other three NISSA poverty classes and includes only potential comparison households, as by construction CGP beneficiaries include only households in NISSA class 1 and 2. The researchers decided to keep households belonging to classes 3, 4 and 5 in the reference population to avoid reducing the potential number of comparisons for the study.

Table 1 reports the geographical distribution by district of the households and individuals in the reference population.

Table 1: Households and individuals geographical distribution of NISSA reference population, 2011-2013

District	# households	# individuals
Berea	3,819	21,191
Butha-Buthe	2,388	12,515
Leribe	2,134	11,605
Mafeteng	2,079	11,692
Mohale's Hoek	1,380	7,574
Maseru	3,871	21,626
Total	15,671	86,203

Note: Own elaboration from the NISSA dataset

For the identification of the comparison group, the researchers carried out the PSM procedure in three steps:

I. Selected a list of characteristics that are thought to influence the probability of being eligible for the CGP.
II. Estimated the propensity score for each household in the reference population (irrespectively of receiving CGP only, CGP and SPRINGS or nothing) and excluded households out of the "common support".[10]
III. Matched/paired each CGP household with a household in the potential comparison group with the closest propensity score.
IV. Randomly extracted 450 households from the CGP and CGP-plus-SPRINGS groups and selected the matched/paired comparison households.

For step I, ideally the analysis would have included measures of both monetary (such as per capita consumption) and non-monetary well-being, demographic and head of the household characteristics. But the evaluation team was limited by the variables available in NISSA, which is an administrative registry built for targeting beneficiaries of social assistance programmes and not for impact evaluation purposes. For instance, there is no variable in NISSA indicating who the head of the household is or who is contributing the most to income generation. Further, there are no monetary measures of welfare. Nonetheless, it was possible to include variables that can be considered as proxy for non-monetary wellbeing, such as self-reported experience

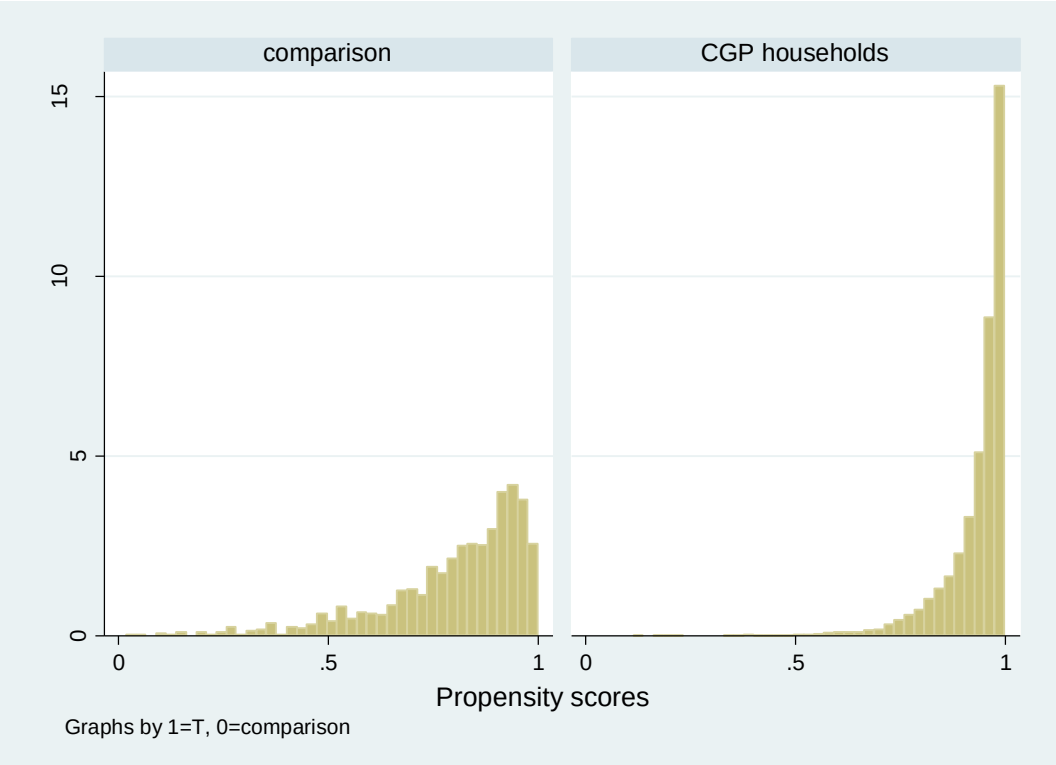
[10] With the term common support, we refer to the overlapping region of the distributions of the propensity scores for CGP and comparison households. Thi allows us to match potential comparison households with similar or identical scores to CGP households.

of hunger, or the quality of the dwelling where the household lives, such as availability of toilet or connection to electric grid, number of durable goods owned like cell phones, etc. Further, even if in the old NISSA it is not possible to know whether orphaned children are present in the household, researchers included variables such as median age or share of dependents in the household, to capture household's labour constraints and vulnerability.

3.2. NISSA data analysis

Figure 2 shows the distribution of the propensity scores for CGP and comparison households. By interpreting these scores as the propensity or likelihood of being eligible for CGP, it is possible to see that the scores are significantly higher for CGP households, as expected. The key point is whether there is any area of overlap in the two distributions, i.e. whether there are some potential comparison households with similar or identical scores to all or most CGP households (the "common support" of step II). Figure 2 shows that even though the distribution of the comparison population is shifted to the left of the CGP population, there are households with overlapping scores, indicating the potential for finding a valid sample for the comparison group. In order to avoid selecting households that are not comparable in terms of the given observable characteristics, the potential sample of households ws restricted to those that are in the common support, which is the region in which the propensity scores for both households with and without CGP overlap. This translates into dropping only 34 observations from the list of potential sample households for the study out of 15,671.

Figure 2: Distribution of balancing scores by group



Note: Own elaboration from the NISSA dataset

The evaluation team matched CGP households with households in the potential comparison group, based on the absolute distances between propensity scores. To facilitate the sampling for the evaluation study, they created a long list of potential comparison households (up to 20 neighbours, compared to the required 3 neighbours for reaching the target sample). Finally, following step IV, the researchers extracted 450 households from the CGP and CGP-plus-SPRINGS groups. For the CGP-plus-SPRINGS areas they randomly sampled 150 households in each of the three Community Councils where SPRINGS was implemented. Since CGP has been provided for a longer period in Makhoarane than in Likila and Mekhoaneng (84 months compared to 57 months), for the CGP-only group the evaluation team randomly sampled 300 households from areas where CGP had been offered for 57 months and 150 households from areas where CGP had been provided for 84 months. In this way, the evaluation team ensured comparability between the two treatment groups in terms of the length of cash transfer receipt.

Table 2 illustrates the PSM approach followed in the study, by comparing the statistical difference of observable characteristics between the randomly extracted sample of CGP households and the comparison group of households which represent their three relatively closest neighbours. As expected, there are several statistically different variables between the extracted comparison group and the group of households that includes both the CGP and the CGP-plus-SPRINGS households. Apart from the demographic variables, which are fairly well balanced across groups, other indicators are quite different, especially those representing the quality of dwelling and assets ownership. This fact stresses the importance to properly control for these variables in the econometric analysis for the impact evaluation. The mean and median standardised percentage bias of the extracted sample are respectively 13.3 and 8.9.[11]

Table 2: Differences in observable characteristics between treatments arms in NISSA

	Comparison	CGP			comparison	CGP
Demographics				*Assets owned*		
hh members 0-5	0.23	0.192		# freezers	0.056	0.04
hh members between 6-12	1.124	1.154		# stoves	**0.872**	0.473
hh members 13-17	0.743	0.788		# televisions	0.156	0.123
hh members 18-59	2.845	2.887		# cell phones	0.928	0.864
hh members 60+	0.509	0.541		# landline phones	**0.089**	0.05
household median age	23.705	23.494		# sewing machines	**0.319**	0.147
hh share of dependents	0.487	0.489		*Livestock owned*		
Housing				Total TLU	1.137	0.839
hh doesn't have toilet	**0.344**	0.439		# horses	0.116	0.084
hh has own latrine	**0.399**	0.454		# cattle	1.113	0.976
heating: wood	**0.536**	0.734		# sheep	**1.624**	0.987
heating: gas & paraffin	**0.239**	0.089		# goats	**1.402**	1.003
heating: electricity	**0.054**	0.024		# chickens	1.923	1.602
no heating	0.022	0.028		*Other variables*		
roof material:	**0.498**	0.419		hh member with pension	**0.274**	0.339

[11] The standardized % bias is the % difference of the sample means in the treated and non-treated sub-samples as a percentage of the square root of the average of the sample variances in the treated and non-treated groups (Rosenbaum and Rubin, 1985). It can be considered as a measure of the goodness of our comparison group. As a rule of thumb median biases above 10 should be avoided for impact evaluation purposes.

roof material: asbestos sheet	0.002	0.001	hh in hunger	0.283	0.278
roof material: brick tiles	**0.01**	0.001	CGP payments (months)	**62.426**	65.66
roof material: wood	**0.11**	0.031			

Note: Own elaboration from the NISSA dataset. TLU=Tropical Livestock Unit. Bold figures represent statistically significant differences at conventional 5% level.

As a robustness analysis, the evaluation team checked the latter statistics against alternative comparison groups to assess the possibility of extracting a better counterfactual. First they looked at the same observable characteristics for the households living in the three districts where SPRINGS operates, again considering the first three closest neighbours as potential comparison households. In this scenario, three fewer variables were statistically significant at 5 percent level, which resulted in a larger mean bias (17.1) and a smaller median bias (8.1). Unfortunately, selecting households only from these districts would reduce the potential "pool" for the sampling of the comparison group to 750 households. Even though this study needed at least 600 households for the comparison group, having only 750 households as potential interviewees could have made the fieldwork risky, in case of substantial attrition or high non-response rate. The researchers then assessed the adequacy of the PSM approach by extracting twenty random samples of comparison households, of size equal to 600. The mean of the mean standardized bias and the mean of the median bias for these twenty samples were respectively 26.6 and 17.2, which are considerably larger than the study's benchmark model.

3.3. CGP-plus-SPRINGS impact evaluation survey data

Data collection was conducted between November 2017 and mid-January 2018 by Spatial Intelligence (SiQ), whose final report provides key details on the sampling targets and deviations occurred during the fieldwork (SiQ, 2018). This report also includes a section on the challenges encountered and lessons learned for possible future data collection exercises in the country. The data collection comprised a household, a community and a business survey. Not all households originally targeted by the PSM design were interviewed. The lack of geo-referenced coordinates, such as latitude and longitude, and the incorrect spelling of village names in NISSA dataset made the tracking of these households impossible. At the same time, fieldwork teams faced several logistical and other typical survey complications, including:

- interview refusal
- displacement of respondent households in different villages from the ones where they resided
- relocation of other family members due to family break-ups, leaving other respondents not unaware of whether the CGP was still being received by the relocated member, especially if they have relocated with children
- some households were not supposed to be receiving the CGP, because the children for whom the programme was being received have other homes and were not living and had never lived in the receiving household.

Overall, SiQ surveyed 2,014 households, 1,550 of whom were eligible for the CGP (8,212 individuals), while 464 were not (2,106 individuals). The former group is used for the present study, while the full set of 2,014 households is used for a spillover and cost-effectiveness analysis. Among the eligible households interviewed by SiQ, 1,343 were targeted by the PSM analysis, while the remaining 207 households were on the list of potential substitutes provided to SiQ (13.35 percent replacement rate).

Table 3 provides a summary of the geographical distribution of the household sample, by eligibility and treatment status. Households in the CGP-plus-SPRINGS group come exclusively from Maseru, Butha-Buthe and Leribe, due to SPRINGS targeting of selected Community Councils within these districts. Due to the lack of available substitutes for the ineligible households in comparison villages, the group of ineligibles in CGP areas was oversampled.

Table 3: Survey sample by eligibility, treatment status and districts

	eligible				ineligible			
district	comparison	CGP	CGP + SPRINGS	Total	comparison	CGP	CGP + SPRINGS	Total
Maseru	272	22	164	458	40	13	59	112
Butha-Buthe	1	66	123	190	0	34	60	94
Leribe	81	61	154	296	16	18	62	96
Berea	67	230	0	297	10	48	0	58
Mafeteng	130	80	0	210	20	61	0	81
Mohale's Hoek	99	0	0	99	23	0	0	23
Total	650	459	441	1,550	109	174	181	464

Note: Own elaboration from survey data

Originally, the study was supposed to focus on Lesotho's lowlands and foothills, since the first pilot of SPRINGS was implemented in these agro-ecological areas.[12] However, the impossibility of finding a sample large enough to meet the minimum requirements of the evaluation, especially for the comparison group, led to the decision to broaden the geographical coverage of the sample. As shown in Table 4, the survey covers a variety of agro-ecological areas, including the mountains and the Senqu River Valley, which represent approximately 20 percent of households in the comparison group. Though unavoidable, this choice might affect the study's impact estimates, probably with a downward bias; for this reason the regression analysis controls for agro-ecological areas by including a set of dummy variables.

Table 4: Sample of eligible households by treatment status and agro-ecological areas

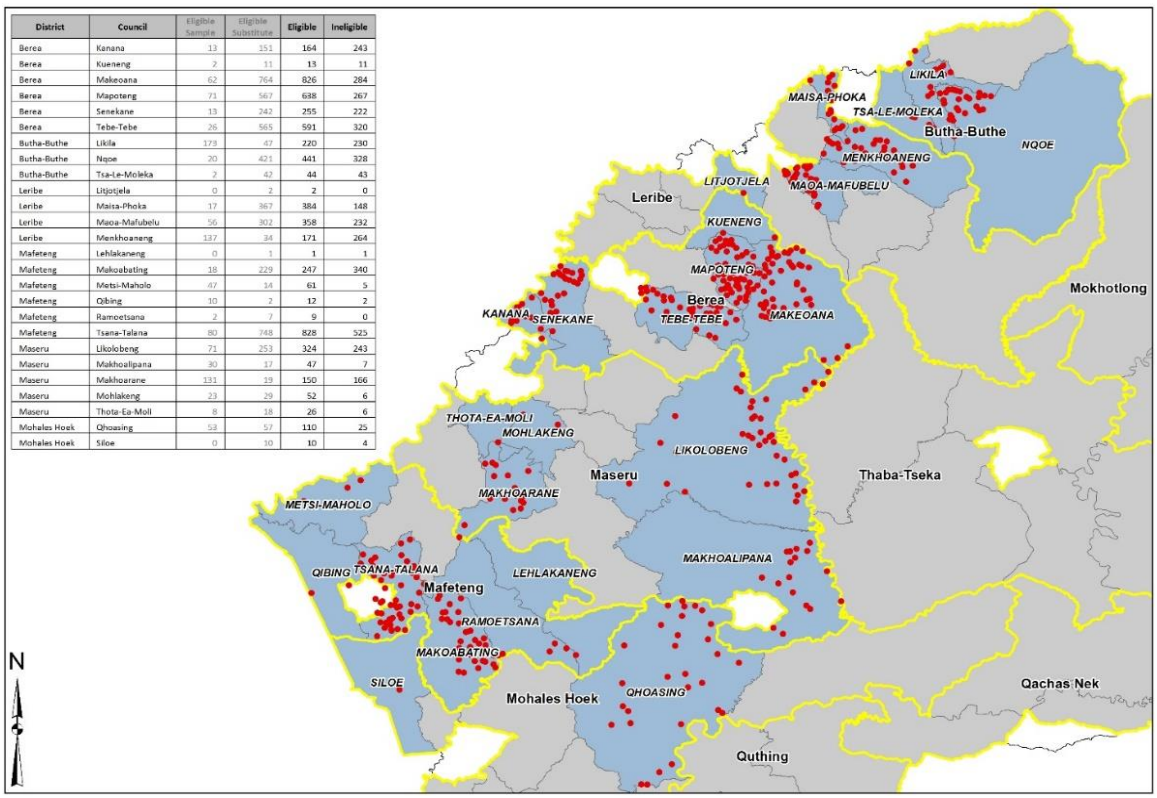
[12] The expansion pilot of SPRINGS is implemented in Tenesolo, which is concentrated in the mountains.

ecological area	treatment arm			Total
	comparison	CGP	CGP + SPRINGS	
lowlands	442	333	390	1,165
foothills	80	96	51	227
mountains	42	29	0	71
Senqu River valley	86	1	0	87
Total	650	459	441	1,550

Note: Own elaboration from survey data

The geographical distribution of the sample is shown in Figure 3, where each dot represents a village that was part of the survey. Community Councils in which SPRINGS was offered have the greatest concentration of the sample villages. Further, the challenges of the fieldwork emerge neatly when looking at the dispersion of the villages in the Senqu River Valley and the mountains of the Maseru district.

Figure 3: Villages covered by the CGP-plus-SPRINGS impact evaluation survey



District	Council	Eligible Sample	Eligible Substitute	Eligible	Ineligible
Berea	Kanana	13	151	164	243
Berea	Kueneng	2	11	13	11
Berea	Makeoana	62	764	826	284
Berea	Mapoteng	71	567	638	267
Berea	Senekane	13	242	255	222
Berea	Tebe-Tebe	26	565	591	320
Butha-Buthe	Likila	178	42	220	230
Butha-Buthe	Nqoe	20	421	441	328
Butha-Buthe	Tsa-Le-Moleka	2	42	44	43
Leribe	Litjotjela	0	2	2	0
Leribe	Maisa-Phoka	17	367	384	148
Leribe	Maqa-Mafubelu	56	302	358	232
Leribe	Menkhoaneng	137	34	171	264
Mafeteng	Lehlakaneng	0	1	1	1
Mafeteng	Makoabating	18	229	247	340
Mafeteng	Metsi-Maholo	47	14	61	5
Mafeteng	Qibing	10	2	12	2
Mafeteng	Ramoetsana	2	7	9	0
Mafeteng	Tsana-Talana	80	748	828	525
Maseru	Likolobeng	71	253	324	243
Maseru	Makhoalipana	30	17	47	7
Maseru	Makhoarane	131	19	150	166
Maseru	Mohlakeng	23	29	52	6
Maseru	Thota-Ea-Moli	8	18	26	6
Mohales Hoek	Qhoasing	53	57	110	25
Mohales Hoek	Siloe	0	10	10	4

Source: SiQ (2018).

3.4. Estimation method

The self-selection procedure of SPRINGS beneficiaries and the non-random nature of the study could bias the impact estimates, creating groups with very different characteristics. To deal with this potential sample selection issue, the evaluators adopted inverse probability reweighting, which combines regression analysis and generalized propensity score (GPS) weighting

adjustment. Table A1 (in Appendix A) shows the unweighted tests of differences between the three groups included in the study sample. As suspected, and with the exception of few variables related to household structure, such as the number of children aged 0-5, 6-12, 13-17 years and the number of adults in working age, the three groups show significant differences on most indicators available in NISSA.

The GPS or probabilities of being included in one of the three groups (comparison, CGP only, CGP plus SPRINGS) were estimated through a multinomial logit regression and are modelled as a function of a vector of control variables that trace those shown in Table 2. These GPS weights are used to 'rebalance' the sample and indeed, Table **5** shows that, with only one exception, the three groups are now identical after the GPS adjustment for all variables, except one.

Table 5: Balance of NISSA variables after GPS adjustment

variables	comparison	CGP	CGP + SPRINGS	F	pvalue	rmsd
hh members <=5 yrs old	0.193	0.182	0.208	0.434	0.648	0.055
hh members between >=6 and <=12 yrs old	1.119	1.139	1.096	0.256	0.774	0.016
hh members between >=13 and <=17 yrs old	0.762	0.791	0.779	0.185	0.831	0.015
members in hh >=18 but <=59 years old	2.918	2.934	2.919	0.015	0.985	0.002
members in hh >=60 years old	0.527	0.554	0.541	0.205	0.814	0.020
household median age	23.867	23.890	24.075	0.093	0.911	0.004
hh share of dependents	0.482	0.483	0.483	0.014	0.987	0.002
hh doesn't have toilet	0.405	0.393	0.388	0.187	0.830	0.019
hh has own latrine	0.407	0.418	0.435	0.415	0.660	0.027
heating system: wood	0.627	0.624	0.646	0.295	0.745	0.015
heating system: gas & paraffin	0.194	0.181	0.163	0.903	0.405	0.073
heating system: electricity	0.035	0.048	0.034	0.831	0.436	0.166
no heating	0.022	0.028	0.029	0.299	0.742	0.117
roof material:	0.455	0.451	0.455	0.010	0.990	0.004
roof material: asbestos sheet	0.001	0.000	0.002	0.398	0.672	0.841
roof material: brick tiles	0.007	0.000	0.006	1.566	0.209	0.690
roof material: wood	0.093	0.090	0.089	0.028	0.973	0.019
# freezers owned	0.048	0.044	0.043	0.071	0.932	0.047
# stoves owned	0.742	0.788	0.721	0.443	0.642	0.037
# televisions owned	0.153	0.181	0.159	0.597	0.550	0.075
# cell phones owned	0.926	0.910	0.837	0.876	0.417	0.043
# landline phones owned	0.077	0.087	0.071	0.336	0.714	0.081
# sewing machines owned	0.257	0.294	0.251	0.490	0.612	0.071
Tropical Livestock Units	1.143	0.924	0.962	2.428	0.089	0.094
# horses owned	0.127	0.109	0.104	0.455	0.635	0.087
# cattle owned	1.186	1.020	0.985	1.573	0.208	0.082
# sheep owned	1.426	1.185	0.886	1.977	0.139	0.188
# goats owned	1.517	1.254	1.218	0.668	0.513	0.100
# chickens owned	1.786	1.642	1.589	0.358	0.699	0.050
at least one hh member receives pension	0.327	0.329	0.311	0.235	0.790	0.026
hh experience hunger often or always	0.262	0.267	0.240	0.548	0.578	0.046
altitude	1792.343	1778.835	1780.561	0.960	0.383	0.003
5 classes poverty level	1.686	1.261	1.241	42.569	0.000	0.146

Note: Own elaboration from survey data. In the last column, rmsd is the root mean squared deviation. Figures in white under grey field represent statistically significant differences at conventional 5% level.

Equation (1) presents the regression equivalent of a simple difference with covariates and weighting based on the GPS:

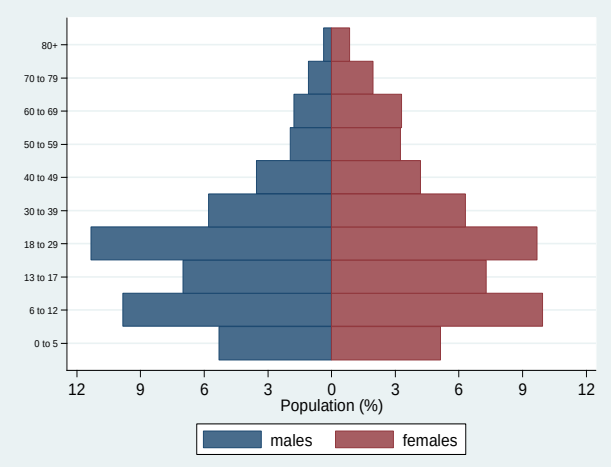
$$Y_i = \alpha + \beta_1 CGP + \beta_2 SPRINGS + \sum \gamma X_i + \sum \delta Z_c + \varepsilon_i \qquad (1)$$

Y_i is the outcome variable, CGP and SPRINGS are indicator variables for, respectively, exclusive assignment to the CGP group and participation in both CGP and SPRINGS. X_i is a set of household characteristics, which includes both the NISSA variables discussed before and three dummy variables for agro-ecological areas of residence. Z_c is a set of contemporary community level variables, which is composed of retail prices of common food commodities, prices of agricultural inputs and access to communities and markets. The parameters of interest are the coefficients β_1 and β_2, which are respectively the treatment effect estimates of the CGP alone and of the combination of CGP and SPRINGS. Finally, while it would be theoretically possible to disentangle who is participating in at least two of the various SPRINGS components (SILC groups and homestead gardening activities), the small group size for each component would entail estimating very large standard errors that would boil down into insignificant impact estimates. For this reason the evaluation team computed the impact of SPRINGS as a whole, though acknowledging that some of its components may have been more effective than others in reaching programme objectives.

3.5. Descriptive statistics

This section describes the main socio-demographic characteristics of the households in the impact evaluation survey. Since the CGP targets poor families with children, especially orphans and vulnerable, and given the context of high HIV/AIDS rates, it is unsurprising to observe a large number of children in the survey. However, compared to the profile of rural households in Lesotho, Figure 4 shows many adolescents and a relatively smaller amount of young children (0-5 years of age). In line with the results of the first impact evaluation of the CGP (2014), the age population pyramid reveals the presence of a relatively large number of elderly people (above 60 years of age). This result is to be expected, since many of the heads of households are elderly people, often taking care of their grandchildren.

Figure 4: Age population pyramid of CGP-plus-SPRINGS survey participants



Note: Own elaboration from survey data.

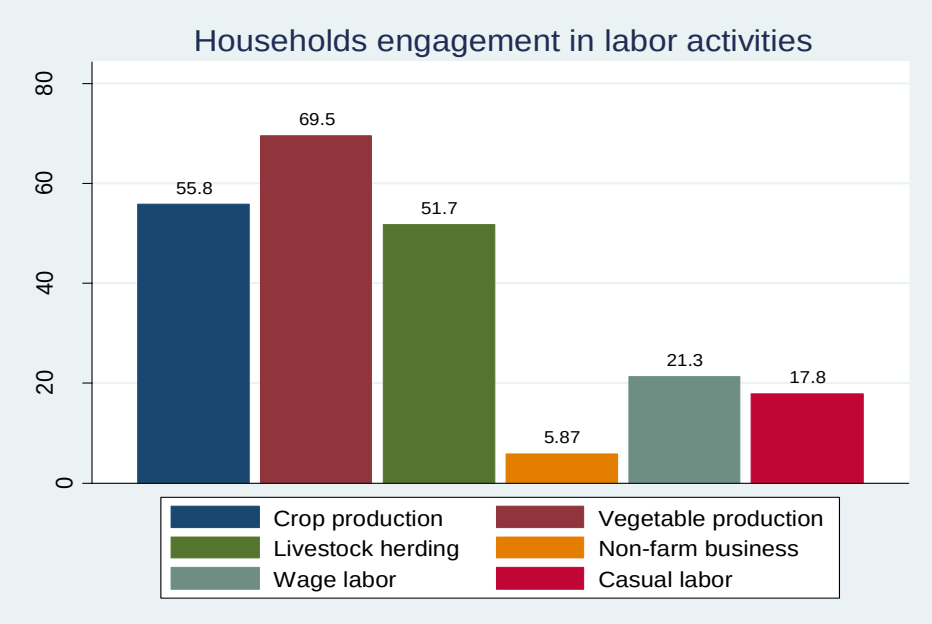
As reported in Table **6**, 47.8 and 50.1 percent of households are headed by women. The relatively higher share of female headed households in the CGP-plus-SPRINGS group is explained by the targeting of SPRINGS, which seeks to improve the living conditions of women through their participation in SILC groups and CCFLS sessions and to empower them by giving them greater access to income sources. Depending on the treatment arm, between 43 and 51 percent of households are headed by single women, both *de jure* and *de facto*. In the former case, most of these single heads are widow/widower, a not uncommon condition in a country with an HIV pandemic. In the latter instance, the most common occurrence is due to the partner/spouse of the head having migrated abroad, probably to neighbouring South Africa.

Table 6: Descriptive statistics of CGP-plus-SPRINGS survey participants

	comparison	CGP	CGP + SPRINGS
# members in the hh	5.184	5.310	5.727
# males in the hh	2.616	2.538	2.720
# females in the hh	2.568	2.773	3.007
female headed hh	0.349	0.478	0.501
head of hh age	53.179	53.754	55.673
single head of hh	0.438	0.528	0.531
head of hh married	0.556	0.471	0.466
head of hh widow	0.350	0.413	0.461
head of hh is >64 old	0.375	0.390	0.447
head of hh is <15 old	0.002	0.003	0.000
hh members <=5 yrs old	0.542	0.513	0.638
hh members between >=6 and <=12 yrs old	0.983	1.089	1.095
hh members between >=13 and <=17 yrs old	0.679	0.816	0.834
members in hh >=15 but <=59 years old	2.495	2.384	2.619
members in hh >=60 years old	0.485	0.508	0.541
no children in hh	0.112	0.068	0.036
# disabled hh members	0.216	0.097	0.268
elderly in hh	0.397	0.406	0.460
dependency ratio	1.499	1.655	1.714
labor unconstrained	0.786	0.766	0.737
labor constrained	0.214	0.234	0.263
share of dependents in hh	0.533	0.551	0.547
orphan living in hhld	0.281	0.358	0.341
head of hh yrs of education	4.347	4.788	4.943
highest yrs of education in hh	8.309	8.494	9.203
head of hh completed primary school	0.296	0.341	0.293
Observations	650	459	441

The survey data provides a snapshot of the livelihoods in the targeted rural areas. Figure 5 reports engagement in labour activities for the comparison group, as a benchmark for the full sample.[13] A large majority of households are crop and vegetable producers (almost 56 and 70 percent respectively). Slightly more than half (51 percent) raise livestock and 21 percent are employed in off-farm wage labour. Almost 18 percent of households have at least one member engaged in casual labour, in either agricultural or non-agricultural activities. A residual share of households has a non-farm business.

Figure 5: Comparison households, by engagement in labour activities



Note: Own elaboration from survey data.

Most of these agricultural households are subsistence farmers, growing food crops to feed themselves and their families, with little or no participation in the marketplace. This emerges clearly from

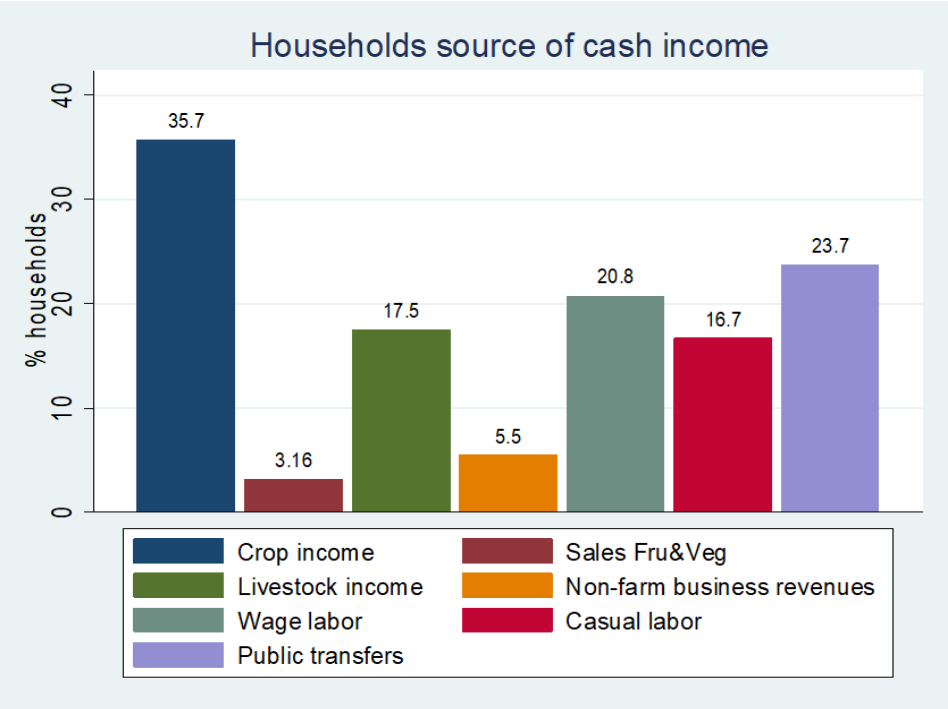
Figure **6**, which shows that only 36 percent of comparison households gain some cash income from crop sales, despite the fact that 55 percent of them are engaged in production. Market transactions are even more absent in the case of livestock and fruits and vegetables production, since only 17.5 and 3.1 percent of comparison households receive some cash from these sources of income.[14]

[13] CGP and SPRINGS might have affected livelihoods and more generally many other outcomes of interest for this evaluation, and for this reason we report only the descriptive analysis for the comparison group.
[14] Cash income from livestock production can originate from multiple sources, such as sale of live animals, sale of slaughtered animals, and sale of livestock by/products.

The small share of cash income from fruits and vegetables suggests that production of fruits and vegetables is basically for consumption purposes. Almost one-fifth of comparison households gain some cash income from public transfers. While it is possible that some of these households got enrolled in the CGP after NISSA data had been collected, the majority of them are beneficiaries of other public programmes, such as the Old Age pension, the Public Assistance scheme or other education grants.[15] Finally,

Figure **6** confirms the results from the statistics on production and highlights the relative importance of wage and casual labour as sources of cash for these rural households (21 and 17 percent respectively) and the marginal role of non-farm businesses (5.5 percent).

Figure 6: Comparison households, by sources of cash income



Note: Own elaboration from survey data.

The evaluation survey included a detailed consumption module that captured the value of the basket of food and non-food items consumed by the households in the previous 7 days and 3

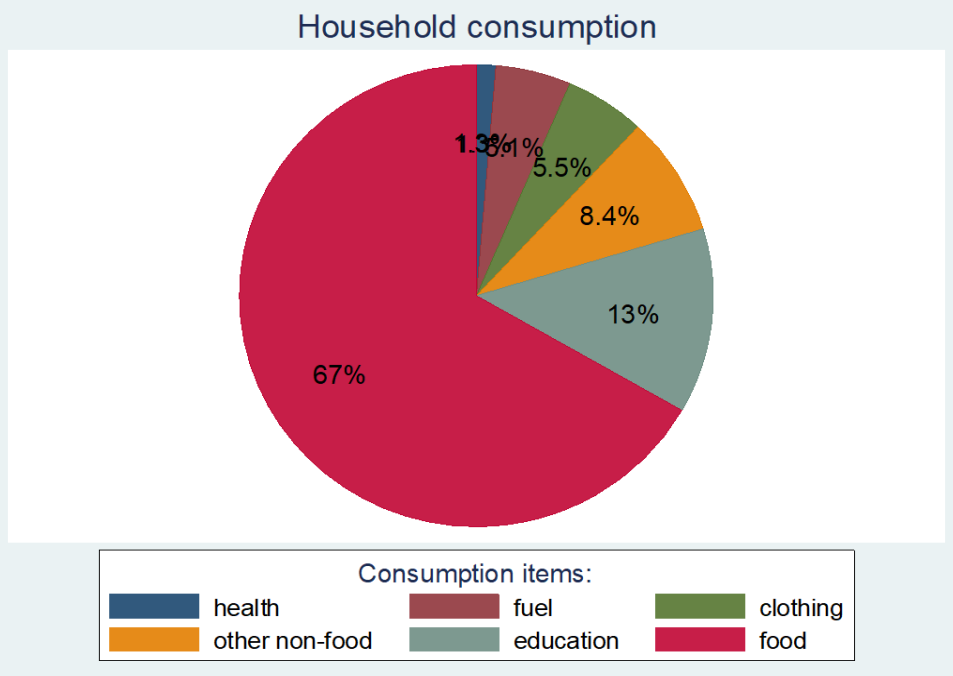
[15] For the purposes of this impact evaluation, it is not relevant whether comparison households received the CGP and households in CGP/CGP-plus-SPRINGS groups did not actually receive it. The impact assessment carried out in section 4 is an intention-to-treat analysis, which is based on the initial treatment assignment and not on the treatment eventually received.

months, converted into a monthly value.[16] This information is collected independently of the source of consumption, whether the household purchased, produced at home or received the items consumed as a gift or in-kind payment.

Figure 7 describes in detail the patterns of consumption in comparison households. Unsurprisingly, food consumption represents the largest share of total consumption (67 percent), while education represents the second largest (13 percent). Since primary education is free, this item captures expenditures for uniforms, school clothing, and the full cost of secondary education. Expenditure on health represents a small component of total consumption (1.3 percent), partly due to fact that basic health care services are provided freely by the Government, and partly because of a low rate of health care services uptake.

[16] Food consumption was recorded in the seven days prior to the survey, while non-food consumption was differentiated into frequent and non-frequent consumption (7 days and 3 months recall period respectively).

Figure 7: Comparison households, by budget shares

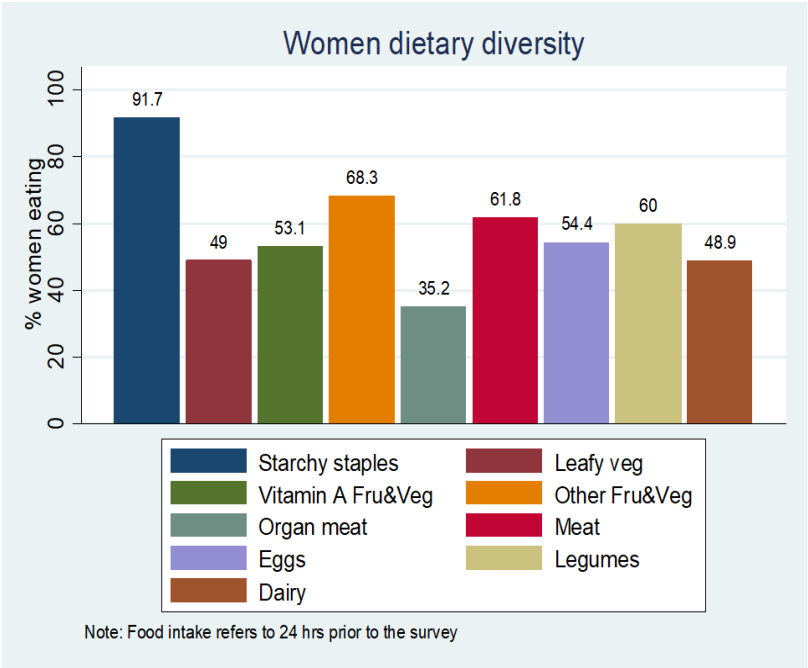


Note: Own elaboration from survey data.

The food diet of the study population is analysed in more detail by looking at the dietary diversity among women, whose measurement follows international guidelines (Kennedy et al., 2011; FAO and FHI 360, 2016). The focus on women, rather than on the household as a whole, is justified by the interest to capture the micronutrient adequacy of the diet rather than a more generic household economic access to food. Pregnant and lactating women are often nutritionally vulnerable because of the physiological demands of pregnancy and lactation; their requirements for most nutrients are typically higher than for adult men (National Research Council, 2006). Outside of pregnancy and lactation, other than for iron, requirements for women of reproductive age may be similar to or lower than those of adult men, but women still require a more nutrient-dense diet because they tend to be smaller and eat less (fewer calories) than men (Torheim and Arimond, 2013). Women may also be disadvantaged in the intra-household distribution of nutrient-dense foods (for example, animal-source foods), which emphasizes the importance of measuring women's dietary diversity as opposed to that of the household.

The survey instrument was designed to recreate a women dietary diversity score (nine food groups), including all foods consumed inside or outside the home, irrespective of where they were prepared. Two female respondents were interviewed per household, giving priority to women aged 15-49 years. Figure 8 describes the dietary diversity of women living in comparison households, showing the percentage of women eating different food items in the twenty-four hours prior to the survey. Almost all the women interviewed in the survey consumed starchy staples and, to a smaller extent, a variety of meat, other fruits and vegetables and legumes (all food items above or about 60 percent). Organ meat, green leafy vegetables and dairy products represent the least consumed food items.

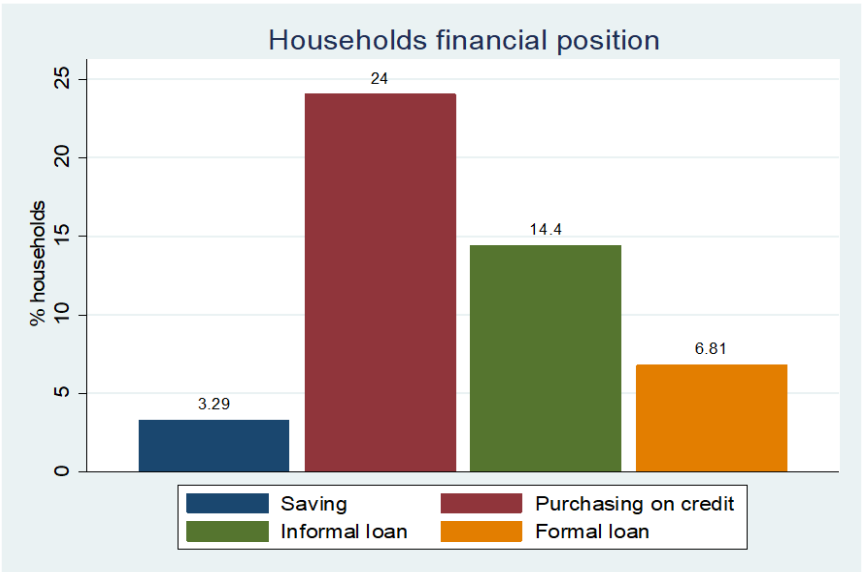
Figure 8: Comparison households, by women's dietary diversity



Note: Own elaboration from survey data.

Given SPRINGS's focus on improving financial inclusion, one section of the household survey was specifically dedicated to assess the financial position of the interviewed households. Figure 9 shows that saving money is uncommon, as only 3 percent of the comparison households responded that they saved money or added money to existing saving groups (SILC, stockvel, formal banks, etc.) in the past twelve months. Access to loans is low too: about 7 and 15 percent of households have access to formal or informal loans, respectively. Moreover, one over four households interviewed bought on credit from local shops in the past twelve months.

Figure 9: Comparison households, by financial position



Note: Own elaboration from survey data.

4. Impact evaluation analysis

The analysis looks at several groups of indicators that refer to the theory of change of both the CGP and SPRINGS. These outcomes and outputs can be measured either at individual or household level. To facilitate the interpretation of results and keep the number of reported outcomes low, the evaluators constructed indices for each "family" of outcomes. This procedure is quite common in the state-of-the-art impact evaluation literature (Banerjee et al., 2015; Haushofer and Shapiro, 2016). Indices for each family of outcomes are weighted averages of the single variables, standardized with respect to the comparison group.[17] While this implies that there is no direct interpretation of the estimated effect on the index, it has the advantage of putting indices on the same scale, helping to identify in which area the programmes were most or least effective.

Figure 10 reports a quick summary of all the findings, by looking at the impact estimates on 11 families of outcomes: consumption, food security, dietary diversity, income, assets, investment in agricultural inputs and assets, child education, child labour, child anthropometrics, financial inclusion and gardening. These estimates are given for both the CGP-only and the CGP-plus-SPRINGS group, represented by a square for the former and a diamond for the latter. Researchers also report 95% confidence intervals, which give a measure of the statistical significance of the estimates. When these intervals cross the vertical line at 0, it means that the estimates are not statistically significant. Said differently, it means the statistical error is such that it is not possible to rule out that the impact estimates are significantly different from zero.

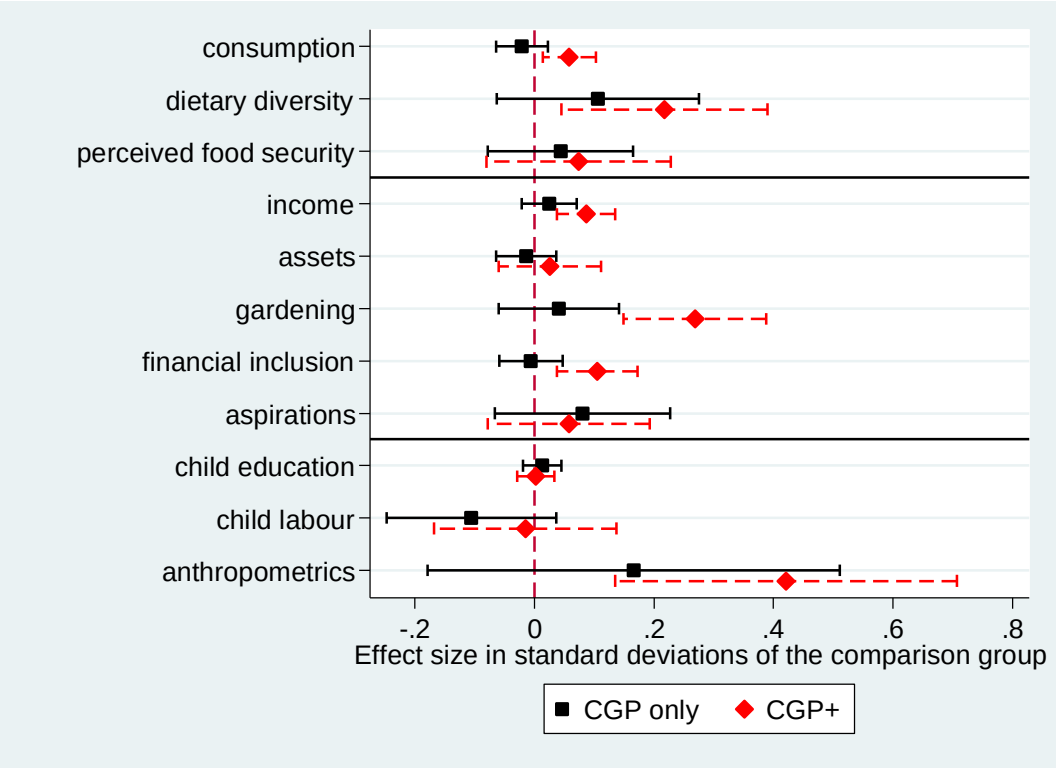
Figure 10 shows that CGP-plus-SPRINGS beneficiary households seem to have been positively affected in all domains, and results are significant for consumption, dietary diversity, child anthropometrics, income, financial inclusion and gardening. The impacts with the largest magnitude are observed on gardening activities, which can be easily explained by the support provided by SPRINGS to homestead gardening, which includes techniques for vegetables production and preservation and seeds distribution. Unsurprisingly, there is also a positive impact of CGP plus SPRINGS on dietary diversity and financial inclusion. While the results on the former are likely to be driven by both homestead gardening and the CCFLS training sessions, the impacts on financial inclusion are linked to the development of the SILC groups, which fostered savings and positive behaviors towards borrowing for investment in income generating activities. Overall, the group of households benefitting only from CGP seems to have improved in most outcomes, but magnitudes are smaller and the only statistically significant result is a reduction in child labour, which is one of the programme's key objectives.

To understand how impacts have occurred and why, for each family of outcomes the analysis looks at the variables comprising the indices that were statistically significant. All the tables below have four columns, reporting the comparison-group mean of each specific variable (column 1), the impact of the CGP-only group (column 2), the impact of the CGP-plus-SPRINGS treatment (column 3) and the sample size (column 4). Comparing the estimated

[17] All weighted standardized averages were computed using the approach described in Anderson (2008). Basically outcomes that are highly correlated with each other receive less weight, while outcomes that are uncorrelated and thus represent new information receive more weight.

coefficient with the comparison-group mean provides an estimate of the percentage change on single outcome variables induced by the programme(s).

Figure 10: Programme effects by main outcome areas



Consumption

This domain consists of four indicators: per capita food and non-food consumption, poverty head count ratio and the poverty gap index. The poverty headcount ratio is calculated by the percentage of households for which the per capita total consumption is lower than the national poverty line in 2017. The poverty gap index is calculated as the difference between the national poverty line and the household per capita total consumption, divided by the national poverty line. This index is calculated only for households with per capita total consumption lower than the national poverty line. While the programmes do not seem to significantly affect total consumption or the poverty head count rate, the impact of CGP plus SPRINGS is positive and significant on non-food consumption (at 10% level) and is negative and significant (at 5% level) on the poverty gap index (Table 7).

The size of the impacts is also substantial. Per capita non-food consumption increased by 21.5 maloti (LSL), corresponding to a 24 percent increase with respect to the comparison mean, while the poverty gap index decreases by 12 percent. The estimate for the CGP-only group is not statistically significant, and is negative and significant (at 10% level) on per capita food consumption. This is an unexpected result that need further investigation. For most of the households interviewed in the survey, the last CGP payment occurred in October 2017. Probably, like in Pellerano et al. (2014), the lag between this payment and the survey was too

long and the money from the transfer devoted to consumption had already run out at the time of the interview. As the recall period for the food consumption module in the survey was the last seven days, it is not surprising to see a lack of positive impacts on this indicator. This problem was probably exacerbated by the irregularity of payments, which seems to be a persistent operational problem, as pointed out by Nesbitt-Ahmed and Pozarny (2018). The presence of few extreme values for consumption recorded in the survey might also help explain the unexpected result. Indeed, Table B1, in Appendix B, shows that the impact on food consumption for the CGP only group becomes statistically insignificant after the exclusion of extreme values of consumption.

Table 7: Impact of CGP and SPRINGS on consumption

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
total per capita consumption	327.007	-50.705	-1.815	1440
	[295.392]	[34.483]	[37.191]	
per capita food consumption	235.527	-51.241 *	-23.434	1440
	[235.618]	[28.023]	[30.143]	
per capita non food consumption	88.601	-0.128	21.457 *	1550
	[122.148]	[10.966]	[11.543]	
per capita consumption of tobacco	1.141	-0.412	-0.091	1550
	[6.991]	[0.408]	[0.456]	
per capita consumption of fuel	17.483	-3.702	-0.172	1550
	[54.537]	[4.598]	[4.966]	
per capita consumption of clothing	15.484	3.933	4.343	1550
	[38.353]	[3.412]	[3.248]	
per capita consumption of education	29.863	-1.737	9.53 *	1550
	[58.892]	[4.743]	[5.484]	
per capita consumption of health	3.959	0.27	1.426	1550
	[19.940]	[0.945]	[1.051]	
per capita consumption of other non food items	20.671	1.52	6.42	1550
	[57.765]	[3.061]	[4.232]	
Poverty headcount ratio at national poverty line	0.688	0.038	-0.053	1440
	[0.463]	[0.045]	[0.047]	
Poverty gap index at national poverty line	0.474	0.032	-0.057 **	943
	[0.240]	[0.026]	[0.027]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Dietary diversity

The study measures the diversity of diets using several indicators of women's consumption of different kinds of foods. The estimates in Table 8 show a strong positive and significant impact of both CGP and CGP plus SPRINGS on dark green leafy vegetables (13 and 27 percentage

points increase for CGP and CGP-plus-SPRINGS treatment arms, respectively, with respect to the comparison mean), vitamin A rich fruits and vegetables (12 and 24 percentage point increase), and organ meat (20 and 21 percentage point increase). The direction of these results is not surprising, given the focus of SPRINGS on consumption of nutritious vegetable and fruits. The impact on legumes, nuts and seeds, and on milk and dairy products, is positive but significant only for CGP-plus-SPRINGS group (12 and 13 percentage point increase with respect to the comparison mean). All of these positive impacts for the CGP-plus-SPRINGS group are reflected in the women dietary diversity score, which increases by 1.1 food groups (equivalent to a 20 percent increase over the comparison group mean).

Table 8: Impact of CGP and SPRINGS on dietary diversity

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
women's dietary diversity score	5.592	0.556	1.123 ***	2011
	[2.845]	[0.365]	[0.343]	
woman consumed starchy staples	0.902	-0.019	0.007	2011
	[0.298]	[0.035]	[0.043]	
woman consumed dark green leafy vegetables	0.586	0.134 **	0.273 ***	2011
	[0.493]	[0.059]	[0.063]	
woman consumed vitamin A rich fruits and vegetable	0.616	0.12 **	0.247 ***	2011
	[0.486]	[0.059]	[0.058]	
woman consumed other fruits and vegetables	0.722	0.028	0.041	2011
	[0.448]	[0.053]	[0.057]	
woman consumed organ meat	0.418	0.201 ***	0.197 ***	2011
	[0.493]	[0.057]	[0.056]	
woman consumed meat and fish	0.639	0.036	0.068	2011
	[0.480]	[0.064]	[0.058]	
woman consumed eggs	0.532	-0.035	0.031	2011
	[0.499]	[0.071]	[0.067]	
woman consumed legumes, nuts and seeds	0.644	0.064	0.124 **	2011
	[0.479]	[0.065]	[0.056]	
woman consumed milk and milk products	0.533	0.028	0.135 **	2011
	[0.499]	[0.071]	[0.065]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Food security

The study measures improvement in food security as the reduction in several indicators of perceived food insecurity, such as being worried about not having enough food to eat, being unable to eat healthy and nutritious food, etc. The study also includes the Food Insecurity Experience Score (FIES), calculated as the sum of all indicators of perceived low quantity or quality of food eaten (the score increases when food insecurity increases). The estimates for both the CGP and CGP plus SPRINGS have the expected negative sign, but they are never statistically significant (Table 9). This may be due to the large heterogeneity in the responses, which increases the standard errors and make the impact not statistically significant.

Table 9: Impact of CGP and SPRINGS on food security

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
worried about not having enough food to eat	0.807	-0.002	-0.025	1548
	[0.394]	[0.033]	[0.043]	
unable to eat health and nutritious food	0.837	-0.013	-0.019	1547
	[0.370]	[0.035]	[0.042]	
ate only a few kinds of foods	0.836	-0.047	-0.02	1547
	[0.370]	[0.035]	[0.037]	
had to skip a meal	0.621	-0.031	0.014	1547
	[0.485]	[0.039]	[0.050]	
ate less than you thought you should	0.776	-0.02	-0.015	1548
	[0.417]	[0.037]	[0.046]	
ran out of food	0.672	-0.032	-0.035	1547
	[0.470]	[0.051]	[0.061]	
were hungry but did not eat	0.562	-0.056	-0.039	1547
	[0.496]	[0.050]	[0.062]	
went without eating for a whole day	0.349	-0.013	-0.069	1545
	[0.477]	[0.038]	[0.047]	
raw fies score	5.457	-0.205	-0.209	1542
	[2.681]	[0.246]	[0.322]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

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Income

Table 10 depicts the impact on all different sources on income, as well as the gross sum of the sources, all expressed in Maloti. As expected, public transfers increase significantly in both CGP and CGP-plus-SPRINGS group as effect of the CGP transfers. For the CGP-plus-SPRINGS treatment arm, there is an increase of the value of sales of fruits and vegetables (21.5 LSL), corresponding to an increase of more than 100 percent with respect to the value of the comparison group. In the CGP treatment arm, income from sharecropped harvest decreased by 106 LSL, corresponding to a 76 percentage point decrease. This reduction in income is not compensated by an increase in other sources of income, with the exception of the transfer received through the CGP. This result seems to suggest that the transfers cause some crowding out effect in CGP treatment arm.

Table 10: Impact of CGP and SPRINGS on income

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
gross income, LSL	10523.113	42.904	2460.814	1550
	[22790.529]	[1764.347]	[1918.090]	
total value of harvest, LSL	795.959	165.563	201.464	1550
	[1896.787]	[134.743]	[126.255]	
total value of sharecropped harvest, LSL	138.752	-106.014 *	-10.382	1550
	[630.949]	[61.093]	[62.731]	
value of sales of fruits & vegetables, LSL	15.453	4.549	21.474 ***	1550
	[90.921]	[4.590]	[6.228]	
value of livestock sales, LSL	208.154	-95.47	-12.587	1550
	[1264.746]	[66.066]	[73.450]	
value of livestock by-products, LSL	831.846	-574.774	61.593	1550
	[10847.724]	[637.976]	[601.001]	
annual salary from any off-farm labor, LSL	5886.273	-707.542	182.659	1550
	[17705.909]	[1494.282]	[1834.486]	
non farm business revenues last month, LSL	62.143	19.75	62.882	1550
	[861.513]	[29.526]	[50.101]	
public transfers value, LSL	2062.997	1195.059 ***	1609.766 ***	1550
	[3590.055]	[259.966]	[332.380]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

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Household assets

The asset index is composed of several indicators of ownership of household equipment useful for communication and information (phone, television and radio), for mobility (bike and motor vehicle) and for generating energy for the household (solar panel). For the CGP-plus-SPRINGS treatment arm, the positive impact on the index seems to be driven by the increase in ownership of cell phones (11 percentage points with respect to the comparison group). This result is not surprising: compared to other household assets, cell phones are becoming relatively more affordable in the rural areas of many developing countries. They can be a useful tool of communication with relatives who migrated to other parts of the country or abroad, and can be used safely to receive electronic payments. No significant impacts are found for the CGP treatment arm (see Table 11).

Agricultural inputs and assets

With respect to investment in agricultural inputs, despite the fact that the change is not significant for the index, there were some interesting positive impacts in the CGP-plus-SPRINGS group for certain inputs. As shown in Table 12, seeds and chemical fertilizers expenses increased respectively by 32 and 37 LSL, which represent approximately a 70 and 85 percent increase from the comparison mean. Further, among expenses incurred for agricultural assets, rental expenses for tractors increased by 55 LSL. This result translates into an 8.3 percentage point increase in the use of tractors. On the other hand, there are no significant

results for the CGP-only treatment arm, apart from a decrease of 74 LSL for other crop input expenditures, which include hired labour, herbicides and rented land.

Table 11: Impact of CGP and SPRINGS on household assets

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
household own cell phone	0.822	-0.006	0.089 ***	1550
	[0.383]	[0.036]	[0.030]	
household own television	0.122	0.023	0.043	1550
	[0.327]	[0.038]	[0.038]	
household own radio equipment	0.411	0.068	0.056	1550
	[0.492]	[0.055]	[0.052]	
household own motor vehicle	0.005	-0.003	-0.002	1550
	[0.072]	[0.004]	[0.005]	
household own bike	0.001	-0.001	-0.006	1550
	[0.028]	[0.002]	[0.005]	
household own solar panel	0.109	-0.033	0.039	1550
	[0.312]	[0.024]	[0.025]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Table 12: Impact of CGP and SPRINGS on investment in agricultural inputs and assets

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
variable crop input expenses, LSL	132.634	-26.852	62.249	1550
	[474.072]	[56.485]	[53.664]	
seeds expenses, LSL	46.886	20.169	32.616 **	1550
	[151.730]	[13.477]	[14.302]	
chemical fertilizers expenses, LSL	43.916	24.6	37.248 **	1550
	[180.154]	[15.125]	[14.737]	
organic fertilizers wexpenses, LSL	3.806	1.318	7.315	1550
	[80.221]	[3.844]	[6.040]	
pesticides expenses, LSL	4.564	1.05	3.104	1550
	[33.915]	[2.299]	[2.747]	
other crop input expenses, LSL	33.462	-73.989 *	-18.033	1550
	[288.594]	[43.930]	[39.550]	
asset expenses, LSL	102.46	5.765	62.092 **	1550
	[345.947]	[27.898]	[29.603]	
rental expenses for tractor, LSL	75.454	2.781	55.525 **	1550
	[278.096]	[20.897]	[24.177]	
rental expenses for planter, LSL	12.887	8.707	6.252	1550
	[76.004]	[7.243]	[5.467]	
hh used tractor	0.124	-0.021	0.083 ***	1550
	[0.330]	[0.030]	[0.032]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

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Gardening

Production of vegetables via keyhole gardens for both dietary diversity and income generation is another relevant component of SPRINGS. The impacts on this domain are the largest found in this study, as most of the indicators are statistically significant and positive (

Table **13**). Given the focus of SPRINGS on keyhole gardens, it is not surprising that output indicators have increased dramatically, such as the share of households building and using keyhole gardens and the number of keyhole gardens used (by 67 and 2.6 percentage points, respectively). As a consequence, CGP-plus-SPRINGS households not only are much more involved in homestead gardening production (17 percentage points), but also produce more vegetables (2.2), have more harvests during the course of the year (7.7) and are more likely to process these harvested vegetables (9.8 percentage point). The latter result can also be explained by the training offered on processing techniques such as drying and canning.

The results on fruits production are also positive and statistically significant, though the magnitudes are smaller, probably due to the larger investment needed in growing orchards, compared to vegetables. Finally, results on the CGP-only group are mostly positive but not significant, with the exception of the indicators related to keyhole gardens. This may be due to CGP beneficiaries investing a small amount of their cash transfer in vegetables production, considering that keyhole gardening is a technique not uncommon in rural Lesotho. However, this does not fully translate into improved vegetable production, most likely because of the lack

of proper training on keyhole building and maintenance and the lack of vegetable seeds, which are offered by SPRINGS.

Table 13: Programme impacts on homestead gardening

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
hh in homestead garden production	0.763	-0.037	0.169 ***	1550
	[0.426]	[0.046]	[0.034]	
# vegetables planted in last 12 months	2.539	0.131	2.235 ***	1550
	[2.480]	[0.242]	[0.213]	
hh planting keyhole gardens	0.426	0.114 **	0.672 ***	1550
	[0.495]	[0.050]	[0.045]	
hh planting trench gardens	0.431	0.005	-0.029	1550
	[0.495]	[0.059]	[0.058]	
# keyhole gardens	1.391	0.236 *	2.647 ***	1550
	[1.934]	[0.140]	[0.163]	
# trench gardens	1.333	0.004	0.039	1550
	[1.978]	[0.200]	[0.201]	
total # vegetable harvests	8.144	1.554	7.768 ***	1550
	[10.751]	[1.048]	[1.006]	
hh processed any harvested vegetable	0.061	0.022	0.098 ***	1550
	[0.240]	[0.017]	[0.026]	
# fruits grown/fetched in last 12 months	0.997	-0.063	0.345 ***	1550
	[0.978]	[0.108]	[0.116]	
hh processed any fetched/grown fruits	0.25	-0.031	0.11 **	1550
	[0.433]	[0.040]	[0.047]	
hh drying fruits	0.09	0	0.042	1550
	[0.286]	[0.027]	[0.034]	
hh canning fruits	0.223	-0.018	0.116 **	1550
	[0.416]	[0.038]	[0.046]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Financial inclusion

SILC groups represent one of the main components of SPRINGS. They are based on a microfinance approach that aims to increase financial inclusion by improving household access to savings and lending services through the formation of groups in the community, both to allow for the smoothening of consumption when income is irregular and improve access to start-up capital. The idea of providing financial services to households benefitting from social assistance originates from the results of the 2014 CGP evaluation, which found no impacts on savings and borrowing.

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The positive impact on the financial inclusion index for CGP-plus-SPRINGS beneficiaries shown in Figure 10 can be explained by the large significant increase in the number of households saving and borrowing in the year prior to the survey (

Table **14**). The impacts on these two indicators are large, 12.5 and 23 percentage points respectively, especially in relation to the comparison group mean (almost 130 and 90 percent). The analysis also shows an increase in the amount of money saved and borrowed, though significant at only 10%.

These results are likely to be underestimated, given the general reluctance of survey participants to provide this kind of information to enumerators, especially programme beneficiaries who may fear the loss of their benefits. Greater financial inclusion however does not translate into greater investment, as the money saved and borrowed is mainly used to buy food, independently of the treatment group. Of those households that reported to have borrowed money in the 12 months prior to the survey, 57 percent used the loan to buy food, while 21 percent declared to have invested in either health or education and only 6 percent used the loans to invest in income generating activities. This finding highlights the state of extreme poverty of the population targeted by the interventions, which had to resort to borrowing even to meet their basic needs.

Financial literacy, which is integral to the SPRINGS SILC support, increased among CGP-plus-SPRINGS households too, but the increase is not statistically significant. However, this result must be taken with care, since survey respondents may not have participated in financial management skills training offered by SILC, which might have been instead been attended to by other household members. The table confirms results from the previous impact evaluation,

which showed that the CGP alone did not significantly cause any changes in financial behaviour.

Table 14: Impact of CGP and SPRINGS on financial inclusion

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS		(4) N
hh saved last 12 months	0.071	0.019	0.125	***	1550
	[0.256]	[0.018]	[0.025]		
amount saved last 12 months	245.718	75.196	380.564	*	1550
	[3994.182]	[183.893]	[215.394]		
hh borrowed money last 12 months	0.281	-0.01	0.23	***	1550
	[0.450]	[0.037]	[0.037]		
amount borrowed last 12 months	161.243	18.849	113.009	*	1550
	[786.182]	[59.185]	[62.095]		
financial literacy index	-0.004	-0.059	0.055		1550
	[0.585]	[0.056]	[0.068]		

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Aspirations and expectations

This section is dedicated to the analysis of aspirations and expectations potentially affected by the CGP and SPRINGS through greater income security and more active participation in productive activities. Aspirations are defined as income or wealth reference points that individuals aim at (Genicot and Ray, 2017). The concept of aspirations is related to hope, but the latter includes both "wishful hope" – a condition of high optimism with low agency - and "aspirational hope" – a condition of high optimism and high agency to achieve what individuals aspire to. This report defines "aspirations" as "wishful hope" and "expectations" as "aspirational hope", i.e. what can realistically be reached, given the prevailing circumstances despite or thanks to the aspirations.

The evaluation team analyzed five indicators of aspirations and expectations (Table 15). Interviewed individuals were asked to define their position in a hypothetical scale from 1 to 10, wherein 1 denotes members of the community who are worse off and 10 represents members of the community with the highest standard of living and fully able to meet their needs. Respondents were then asked to define on which step they would like their own household to be in 5 and in 2 years (aspirations), and on which step they thought their own household would be in 5 and in 2 years (expectations). Finally, respondents were asked to define how much they thought their household income would be in the next 2 years compared to the previous year (half of the income of last year, slightly less, same income, a little more, twice the income of last year, more than double the income of last year). A binary variable was generated, taking the value of 1 if the respondent thought that the household income would increase, 0 otherwise. The results show that households in the CGP-only group aspire to improve their own wellbeing,

but these aspirations are not reflected in their expectations. Surprisingly, no significant impacts are detected for the group of households in the CGP-plus-SPRINGS group.

Table 15: Programme impacts on expectations and aspirations

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
aspiration in 5 years time	4.356	0.615 **	0.342	1550
	[2.424]	[0.269]	[0.240]	
expectation in 5 years time	2.544	-0.248	-0.125	1550
	[2.021]	[0.250]	[0.209]	
aspiration in 2 years time	2.607	0.48 **	-0.013	1550
	[1.986]	[0.217]	[0.217]	
expectation in 2 years time	1.542	-0.308	-0.044	1550
	[1.452]	[0.206]	[0.207]	
dummy more income in 2 year time	0.638	0.013	0.046	1550
	[0.481]	[0.046]	[0.044]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Child education

Increased child education and reduction of child labour are stated objectives of the CGP. For households benefitting from SPRINGS, the potential positive impacts of the programme on education and child labour can be offset by an increase in the engagement of children in income generating activities and a concomitant reduction in school enrollment and attendance. For both groups the child education index is basically equal to zero, meaning that the programmes did not significantly affect children's engagement in schooling, neither positively nor negatively. Several indicators compose the index: the share of children currently attending school, the number of completed years of school, the share of children who are illiterate (no formal schooling), and the share of children who have completed primary and secondary school.

As shown in

Table **16**, only a few indicators show a positive impact of the programmes. Estimates suggest that the CGP increased the share of children completing secondary school by 1.3 percentage points. Though small in absolute terms, this impact is not trivial in relative terms, given that only 0.3 percent of children in the comparison group had completed secondary school. Children in the CGP-plus-SPRINGS group report a larger number of completed years of schooling (0.27) and a 4 percentage point reduction of the illiteracy rate. The results on child education refer to the full sample of children in schooling age. However, Pellerano et al. (2014) and Sebastian et al. (2018) found heterogeneous impacts of the CGP on children's schooling, depending on the

age and gender of the children and their household structure. Further analysis is needed to understand the heterogeneous impacts of the two combined programmes.

Table 16: Impact of CGP and SPRINGS on child education

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
hh member currently attending school	0.852	-0.009	0.041	3007
	[0.355]	[0.031]	[0.025]	
hh member years of schooling	4.274	0.054	0.27 *	3007
	[2.907]	[0.187]	[0.155]	
hh member is illiterate (no formal schooling)	0.134	0.011	-0.04 **	3007
	[0.341]	[0.028]	[0.020]	
hh member at least completed primary school	0.243	0.008	0.041	3007
	[0.429]	[0.031]	[0.026]	
hh member at least completed secondary school	0.003	0.013 **	0.003	3007
	[0.052]	[0.007]	[0.006]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

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Child labour

Researchers considered a set of indicators of child labour that are in line with international standards, specifically the number of hours worked in domestic chores and economic activities per week, following the thresholds set by UNICEF for the identification of excessive number of hours that can lower children's participation in school.[18] Engagement in work activities can be considered as child labour when it exposes children to physical hazards. The survey considered the following dimensions: carrying heavy loads, working with dangerous tools, being exposed to gas, dust or fumes, being exposed to extreme heat, cold or humidity, being exposed to loud noise/vibration. Table 17 shows that the reduction observed in the index for the CGP treatment group seems to be driven mostly by the significant reduction in the number of hours worked by children (-2.5 hours per week), which translates into a 10 percentage point reduction of children working an excessive amount of time. There is also a reduction in the share of children exposed to work related hazards, two of them being statistically significant (working with dangerous tools and being exposed to extreme heat/cold/humidity). With respect to the CGP-plus-SPRINGS group, the absence of any significant effect is a positive result, because it entails that the greater engagement in income generating activities foreseen by SPRINGS did not come at the detriment of children's wellbeing.

Table 17: Impact of CGP and SPRINGS on child labour

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
Child labor	0.442	-0.066	0.032	2799
	[0.497]	[0.047]	[0.048]	
# hrs/week in domestic chores	6.251	-0.159	-0.662	2799
	[11.542]	[1.132]	[1.179]	
# hrs/week in economic activities	7.247	-2.469 **	0.607	2799
	[14.019]	[1.215]	[1.258]	
Child/young adult working excessive hours	0.269	-0.101 **	0.016	2799
	[0.444]	[0.042]	[0.041]	
Child/young adult carrying heavy load	0.337	-0.045	-0.022	2799
	[0.473]	[0.043]	[0.042]	
Child/young adult working with dangerous tools	0.309	-0.071 *	-0.034	2799
	[0.462]	[0.042]	[0.042]	
Child/young adult exposed to gas, dust, fumes	0.227	-0.04	-0.008	2799
	[0.419]	[0.041]	[0.049]	
Child/young adult exposed to extreme heat or cold	0.299	-0.093 **	0.015	2799
	[0.458]	[0.043]	[0.048]	
Child/young adult exposed to loud noise/vibration	0.131	-0.052	-0.017	2799
	[0.337]	[0.044]	[0.047]	
Child/young adult exposed to work related hazards	0.402	-0.074	0.009	2799
	[0.490]	[0.047]	[0.047]	

[18] Excessive number of hours worked are age specific. We used the following thresholds: 1) Age 5 to 11 years: at least one hour of economic work or 28 hours of unpaid household chores per week. 2) Age 12 to 14 years: 14 hours or more in economic activities or 28 hours or more of unpaid household chores per week. 3) Ages 15-17: 43 hours or more in economic activities or 28 hours or more of unpaid household chores per week.

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Child anthropometrics

Good nutrition is essential for children's growth and development, and can substantially reduce their risk of premature death. Anthropometry—the measurement of the human body—is used to determine and monitor nutritional status. Anthropometric measurements commonly used for children include height, weight, mid-upper arm circumference (MUAC). Some measurements are presented as indices, including length/height-for-age (HFA), weight-for-length/height (WFH), weight-for-age (WFA). Each index is recorded as a z-score, which describes how far and in what direction an individual's measurement is from the median of the World Health Organization Child Growth Standards. A z-score that falls outside of the "normal" range indicates a nutritional issue. The evaluation team looked at various anthropometric measurements for children below 60 months of age to assess programme impact on nutritional status. Among those found in the literature researchers considered: a) moderate and severe underweight, defined as percent of children falling below -2 and -3 standard deviations for WFA; b) moderate and severe wasting, defined as percent of children falling below -2 and -3 standard deviations for WFH; and c) moderate and severe acute malnutrition, when the MUAC z-score is below -2 and -3. Stunting was not considered, since it represents a longer-term indicator, reflecting maternal nutritional and health status before, during and after pregnancy, typically observed in children below 2 years of age for whom there was inadequate sample size, hence statistical power, for meaningful impact estimates. Table 18 shows that nutrition improved among children living in CGP-plus-SPRINGS households, especially in relation to moderate and severe wasting and, to a lesser extent, moderate and severe underweight. This confirms the positive overall impact on nutrition expressed by the general index reported earlier. While the MUAC z-score increased, researchers did not observe a corresponding reduction in acute malnutrition. For the CGP treatment arm, there was a significant reduction in the weight-for-age z-score, though this did not translate into increased underweight, probably because it affected children already under this condition.

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Table 18: Impact of CGP and SPRINGS on child anthropometrics

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
child weight-for-age z-score	-0.471	-0.642 ***	0.048	527
	[1.778]	[0.248]	[0.270]	
moderate underweight, z<-2SD	0.218	0.011	-0.119 *	527
	[0.413]	[0.072]	[0.065]	
severe underweight, z<-3SD	0.039	0.011	-0.039 *	527
	[0.194]	[0.030]	[0.023]	
child weight-for-length z-score	0.605	-0.301	0.398	467
	[1.992]	[0.299]	[0.284]	
moderate wasting (acute malnutrition), z<-2SD	0.112	-0.077	-0.179 ***	467
	[0.315]	[0.064]	[0.053]	
severe wasting (acute malnutrition), z<-3SD	0.03	0.042	-0.065 **	467
	[0.172]	[0.031]	[0.027]	
child mid-upper circumference arm z-score	-0.205	0.056	0.293 *	523
	[1.114]	[0.183]	[0.170]	
moderate acute malnutrition, MUAC z<-2SD	0.059	-0.052	-0.077	523
	[0.237]	[0.048]	[0.049]	
severe acute malnutrition, MUAC z<-3SD	0.009	0.012	0.007	523
	[0.095]	[0.012]	[0.009]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

5. Heteroegeneity analysis

The results obtained for the whole sample could mask heterogeneity linked to the characteristics of the households and the agroecological areas in which beneficiary households live. For this reason, the researchers perform two sets of heterogeneity analysis. First, they look at the

household head's gender-differentiated impact on consumption, income, financial inclusion, and child anthropometrics. Second, since households living in different agroecological areas are likely to have different income sources, the researchers look at the impact of CGP and SPRINGS on income and its sources, distinguishing households living in lowlands versus other agroecological areas (i.e. foothills, mountains, Senqu River valley).

Female and male headed households

Female headed households (FHH) represent 35, 48 and 50 percent of the sample in the comparison, CGP and CGP-plus-SPRINGS groups, respectively. It is a category of households structurally different from those headed by men (MHH). Women heading households are older than their male counterparts, and are *de jure* or *de facto* single-parent households taking care of their grandchildren. These features of FHH represent important factors that could either weaken the impacts of the programmes or make these households more responsive to them.

Table 19 shows the estimated impact of CGP and SPRINGS on consumption and poverty for FHH (Table 19) and MHH (

Table **20**) separately. While CGP and SPRINGS cause a significant reduction in the poverty gap index (measured at the national poverty line) for both samples, the overall impact of the programmes on consumption and poverty seems to be stronger for FHH. In this sub-sample, per capita non-food consumption increases significantly (36 percent increase with respect to the comparison mean), while the poverty headcount ratio decreases significantly (21 percent decrease). In MHH, a large increase is observed in per capita consumption of clothing (50 percent increase), but a significant reduction of per capita food consumption, probably driven by the presence of outliers as shown in Table B.1.

Table 19: Impact of CGP and SPRINGS on consumption and poverty – female-headed households

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
total per capita consumption	344.579	-59.674	28.592	611
	[321.619]	[57.605]	[56.930]	
per capita food consumption	251.563	-60.6	-7.922	611
	[263.676]	[49.922]	[48.669]	
per capita non food consumption	90.341	-2.248	33.093**	656
	[130.064]	[15.024]	[16.695]	
per capita consumption of tobacco	0.347	0.353	0.507	656
	[3.070]	[0.266]	[0.359]	
per capita consumption of fuel	21.015	-12.808 **	-0.718	656
	[65.380]	[6.377]	[6.147]	
per capita consumption of clothing	12.206	1.343	1.29	656
	[29.048]	[3.615]	[3.490]	
per capita consumption of education	30.755	1.022	12.017	656
	[70.096]	[7.561]	[8.603]	
per capita consumption of health	3.621	-0.236	0.872	656
	[13.266]	[1.120]	[1.348]	
per capita consumption of other non food items	22.397	8.079	19.126 ***	656
	[62.640]	[6.252]	[7.357]	
Poverty headcount ratio at national poverty line	0.678	0.01	-0.145 **	611
	[0.468]	[0.071]	[0.067]	
Poverty gap index at national poverty line	0.459	-0.008	-0.067 *	397
	[0.231]	[0.037]	[0.039]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Table 20: Impact of CGP and SPRINGS on consumption and poverty – male-headed households

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
total per capita consumption	313.328	-39.415	-4.958	829
	[272.664]	[29.179]	[27.224]	
per capita food consumption	223.045	-42.31 *	-20.924	829
	[210.543]	[22.394]	[20.580]	
per capita non food consumption	87.245	5.272	17.914	894
	[115.665]	[12.298]	[12.138]	
per capita consumption of tobacco	1.76	-0.894	-0.572	894
	[8.875]	[0.664]	[0.807]	
per capita consumption of fuel	14.732	2.378	0.343	894
	[44.134]	[3.909]	[4.270]	
per capita consumption of clothing	18.037	7.3	9.064 *	894
	[44.116]	[5.434]	[5.370]	
per capita consumption of education	29.168	-4.922	6.299	894
	[48.433]	[4.843]	[5.935]	
per capita consumption of health	4.222	0.163	2.37	894
	[23.885]	[1.393]	[1.656]	
per capita consumption of other non food items	19.326	1.247	0.41	894
	[53.660]	[3.464]	[3.880]	
Poverty headcount ratio at national poverty	0.697	0.07	0.003	829
	[0.460]	[0.053]	[0.059]	
Poverty gap index at national poverty line	0.486	0.047	-0.064 *	546
	[0.246]	[0.032]	[0.037]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Table 21 and Table 22 show the estimated impact of CGP and SPRINGS on gross income and its sources for FHH and MHH respectively. The impact on the total value of harvest in the CGP-plus-SPRINGS group is stronger for FHH (59 percent increase with respect to the comparison mean) and it is statistically significant at 5 percent level. In the CGP treatment arm, the impact on the value of livestock sales is completely different between FHH and MHH. It is positive and significant for the former group, negative and significant for the latter. In both cases, these significant changes do not translate into any significant impact on gross income, for which the impact is positive but not statistically significant in both samples.

The impact estimates of CGP and SPRINGS on financial inclusion are more homogeneous (see Table 23 for FHH and Table 24 for MHH). The impacts are almost identical for most of the indicators of financial inclusion, with the exception of the respondents' borrowing behaviour for which the impact, both on the share of households borrowing (extensive margin) and the amount of money borrowed (intensive margin), are stronger for FHH.

Table 21: Impact of CGP and SPRINGS on income – female-headed households

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
gross income, LSL	9735.835	2375.469	4324.166	656
	[21091.165]	[2377.959]	[3244.620]	
total value of harvest, LSL	702.37	30.214	417.075 **	656
	[1510.720]	157.757]	[167.661]	
total value of sharecropped harvest	118.238	-181.075 **	8.518	656
	[490.849]	[83.544]	[76.172]	
value of sales of fruits & vegetables, LSL	12.069	0.889	24.604 **	656
	[73.730]	[6.275]	[9.621]	
value of livestock sales	152.527	255.582 **	181.432	656
	[1107.137]	[113.827]	[114.801]	
value of livestock by-products, LSL	415.15	489.495	218.945	656
	[4108.953]	[341.736]	[325.879]	
annual salary from any off-farm labor, LSL	5001.157	-18.508	488.623	656
	[18535.778]	[2188.612]	[2912.445]	
non farm business revenues last month, LSL	88.959	92.961	174.097	656
	[1131.419]	[94.316]	[160.484]	
public transfers value, LSL	2550.372	1154.644 **	1913.711 **	656
	[4301.321]	[487.219]	[830.766]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Table 22: Impact of CGP and SPRINGS on income – male-headed households

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
gross income, LSL	11136.472	1019.169	2103.084	894
	[24025.494]	[2199.353]	[2723.940]	
total value of harvest, LSL	868.874	287.918	31.36	894
	[2148.095]	221.745]	[197.470]	
total value of sharecropped harvest	154.734	-29.738	-3.899	894
	[721.367]	[97.083]	[94.542]	
value of sales of fruits & vegetables, LSL	18.089	7.628	18.86 **	894
	[102.298]	[8.204]	[9.526]	
value of livestock sales	251.493	-251.148 ***	-211.328	894
	[1374.144]	[83.730]	[131.361]	
value of livestock by-products, LSL	1156.488	-1004.45	-752.543	894
	[14002.172]	835.108]	[1279.478]	
annual salary from any off-farm labor, LSL	6575.856	974.393	1611.662	894
	[17010.392]	[1836.912]	[2195.400]	
non farm business revenues last month, LSL	41.252	5.8	25.745	894
	[568.474]	[43.871]	[49.954]	
public transfers value, LSL	1683.288	885.086 ***	1219.858 ***	894
	[2864.034]	[306.714]	[369.549]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Table 23: Impact of CGP and SPRINGS on financial inclusions – female-headed households

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS		(4) N
hh saved last 12 months	0.059	0.001	0.144	***	656
	[0.236]	[0.022]	[0.030]		
amount saved last 12 months	193.374	34.399	865.727		656
	[2823.306]	[210.552]	[572.948]		
hh borrowed money last 12 months	0.285	-0.023	0.255	***	656
	[0.452]	[0.055]	[0.054]		
amount borrowed last 12 months	154.826	-19.512	153.316	**	656
	[534.080]	[64.661]	[76.183]		
financial literacy index	-0.02	-0.04	0.061		656
	[0.611]	[0.086]	[0.099]		

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Table 24: Impact of CGP and SPRINGS on financial inclusion – male-headed households

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS		(4) N
hh saved last 12 months	0.079	0.033	0.126	***	894
	[0.270]	[0.028]	[0.033]		
amount saved last 12 months	286.498	362.863	376.115		894
	[4710.063]	[339.862]	[281.968]		
hh borrowed money last 12 months	0.278	-0.032	0.207	***	894
	[0.448]	[0.046]	[0.057]		
amount borrowed last 12 months	166.242	12.154	60.02		894
	[936.989]	[82.826]	[96.986]		
financial literacy index	0.008	-0.06	0.039		894
	[0.563]	[0.070]	[0.080]		

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Table 25 and Table 26 presents the estimates for child anthropometrics for FHH and MHH respectively. Most of the positive results found for the whole sample, i.e. reduction of moderate and severe wasting and, to a lesser extent, reduction of moderate and severe underweight, seem to be driven by the subsample of MHH. The estimates for FHH maintain the same sign as the ones for the whole sample, but the statistical significance is lost. This might be due to the small sample size of FHH.

Table 25: Impact of CGP and SPRINGS on child anthropometrics – female-headed households

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
child weight-for-age z-score	-0.661	-1.072	0.638	195
	[1.750]	[0.681]	[0.457]	
moderate underweight, z<-2SD	0.259	0.219	-0.119	195
	[0.439]	[0.161]	[0.109]	
severe underweight, z<-3SD	0.044	0.023	-0.085	195
	[0.205]	[0.075]	[0.058]	
child weight-for-length z-score	0.456	-1.165*	-0.188	175
	[1.996]	[0.687]	[0.479]	
moderate wasting (acute malnutrition), z<-2SD	0.117	0.065	-0.069	175
	[0.322]	[0.116]	[0.077]	
severe wasting (acute malnutrition), z<-3SD	0.028	0.097	-0.058	175
	[0.167]	[0.064]	[0.051]	
child mid-upper circumference arm z-score	-0.205	-0.294	-0.073	193
	[1.130]	[0.375]	[0.279]	
moderate acute malnutrition, MUAC z<-2SD	0.061	0.008	0.005	193
	[0.240]	[0.092]	[0.056]	
severe acute malnutrition, MUAC z<-3SD	0	0	0	193
	[0.000]	[.]	[.]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Agro-ecological areas

The heterogeneity analysis distinguishes between households living in lowlands versus other agroecological areas (i.e. foothills, mountains, Senqu River valley). Lowlands are mainly in the west of the country and are characterized by relatively high rainfall compared to the other agroecological areas. They allow the cultivation of maize, sorghum, beans, winter wheat and vegetables, which is a more diversified crop production than in the other agroecological areas.[19] Households living in lowlands represent 75 percent of the whole sample (68, 73 and 88 percent, respectively, in the comparison, CGP and CGP-plus-SPRINGS groups).

Table 27 reports the results for Lesotho's lowlands. It shows that after the exclusion of other agroecological areas, the total value of the harvest increases significantly for both the CGP and

[19] Foothills allow the cultivation of maize, sorghum and peas, the Senqu River valley the cultivation of winter wheat and maize, and the mountains only what and peas.

the CGP-plus-SPRINGS group. Moreover, the impact on the value of sharecropped harvest is no longer statistically significant. The impact on the value of sales of fruits and vegetables remains positive and highly statistically significant for the CGP-plus-SPRINGS group and the impact on the value of public transfers remains positive and statistically significant for both CGP and CGP plus SPRINGS.

Table 26: Impact of CGP and SPRINGS on child anthropometrics – male-headed households

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
child weight-for-age z-score	-0.351	-0.585	-0.189	332
	[1.788]	[0.371]	[0.369]	
moderate underweight, z<-2SD	0.192	-0.114	-0.184 **	332
	[0.395]	[0.080]	[0.090]	
severe underweight, z<-3SD	0.036	0.006	-0.041	332
	[0.187]	[0.049]	[0.033]	
child weight-for-length z-score	0.699	-0.125	0.521	292
	[1.987]	[0.493]	[0.462]	
moderate wasting (acute malnutrition), z<-2SD	0.109	-0.076	-0.199 **	292
	[0.312]	[0.095]	[0.079]	
severe wasting (acute malnutrition), z<-3SD	0.032	0.021	-0.073 *	292
	[0.175]	[0.048]	[0.041]	
child mid-upper circumference arm z-score	-0.205	-0.023	0.396	330
	[1.105]	[0.252]	[0.295]	
moderate acute malnutrition, MUAC z<-2SD	0.058	-0.023	-0.103	330
	[0.235]	[0.052]	[0.067]	
severe acute malnutrition, MUAC z<-3SD	0.015	0.01	0.007	330
	[0.122]	[0.019]	[0.016]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Table 27: Impact of CGP and SPRINGS on income – Lowlands

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
gross income, LSL	10365.965	680.491	3323.429	1165
	[21214.597]	[1974.293]	[2104.120]	
total value of harvest, LSL	741.266	423.286 **	352.717 ***	1165
	[1915.816]	[195.656]	[126.945]	
total value of sharecropped harvest	150.618	-44.705	-6.899	1165
	[683.347]	[88.060]	[65.266]	
value of sales of fruits & vegetables, LSL	14.281	9.004	20.085 ***	1165
	[90.879]	[6.012]	[6.167]	
value of livestock sales	199.247	-51.094	-7.105	1165
	[1196.673]	[68.039]	[78.370]	
value of livestock by-products, LSL	293.547	154.639	290.522	1165
	[3252.006]	[139.720]	[224.062]	
annual salary from any off-farm labor, LSL	6432.389	-720.336	1247.59	1165
	[19553.910]	[1874.533]	[2063.199]	
non farm business revenues last month, LSL	46.895	-12.405	0.812	1165
	[415.934]	[22.573]	[30.453]	
public transfers value, LSL	2036.906	1026.617 ***	1464.982 ***	1165
	[3670.017]	[267.100]	[350.046]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP-plus-SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

6. Programme operations

This section explores how the implementation of the CGP and SPRINGS programmes may have affected the impacts reported in previous sections. The findings are based on the data collected during the survey, in which the beneficiaries of CGP and SPRINGS were administered an extra module on the programmes' operations.

6.1. Size of CGP payment and beneficiaries' experience with the transfer

This presentation starts with a simple descriptive analysis concerning the adequacy of the CGP transfer, the main characteristics of the recipients and how well beneficiaries are informed about the programme design.

Originally the transfer value for the CGP was set at a flat rate of 120 LSL per month per household and was disbursed every quarter. Effective from April 2013 the cash transfer has been indexed to the number of children as follows: (1) households with 1–2 children receive 360 LSL quarterly; (2) households with 3–4 children receive 600 LSL quarterly; and (3) households with 5 and more children receive 750 LSL quarterly. The impact evaluation of the CGP by Pellerano et al. (2014) showed that at follow-up and across all households, the CGP payment was equivalent to 21 percent of total monthly consumption. Compared to the previous impact evaluation, the relative size of the transfer has declined slightly, to 20.4 percent of total household consumption (Table 28). Households with up to 4 children are receiving proportionally less, while households with five or more children seem to be receiving more than four years ago.[20] However, given the current structure of the payments, children in larger households continue to receive less in per-capita terms than children in smaller households.

Table 28: CGP transfer size

	1-2 children	3-4 children	5+ children	Total
CGP nominal monthly value (Maloti)				
- Per household	120	200	250	163.5
- Per household member	31.4	33.1	28.6	31.8
- Per child (0-17)	85.6	61.2	45.6	72.3
Average household size (# members)	4.3	6.4	9.2	5.6
Transfer as % of total monthly consumption	16.8	24	24.5	20.4

Note: Own elaboration from survey data. Households with no children aged 0-17 are excluded from the calculations. Figures are calculated based on our sample of eligible households in CGP only and CGP-plus-SPRINGS areas.

[20] In Pellerano et al. (2014), the transfer as share of total monthly consumption expenditure at follow up was 17.6, 25.4 and 19.7 percent for households with 1-2 children, 3-4 children and 5+ children respectively.

Overall 855 CGP beneficiaries responded to the CGP survey module, 833 of them being correctly identified as eligible and included in the CGP-only or CGP-plus-SPRINGS groups.[21] This translates into a 92.5 percent response rate, since the survey interviewed 900 eligible households enrolled in the CGP. In the majority of household interviews, the respondent to the extra module on the CGP programme was the cash transfer recipient i.e. the individual nominated to receive the payment from the programme (68.3 percent).

Characteristics of the CGP recipient

The characteristics of the household member who has the responsibility to collect the CGP money (CGP recipient) are important, as these may affect the way in which the grant resources are spent. According to the data collected in the survey (Table 29), a high proportion of CGP recipients are female, approximately 71 percent, and this share is more or less even across treatment arms. In most cases (95 percent) the recipient is a household member and in 51 and 20 percent of the cases the recipient is either the household head or his/her spouse, respectively.

Table 29: CGP recipients' characteristics

indicator	comparison	CGP only	CGP + SPRINGS	Total
% CGP recipients who are members	100	91.73	98.14	95.09
% CGP recipients who are female	76.92	68.86	73.32	71.23
% CGP recipients who are head of household	30.77	50.12	53.13	51.35
% CGP recipients who are spouse of the head	30.77	18.00	22.97	20.70

Note: Own elaboration from survey data.

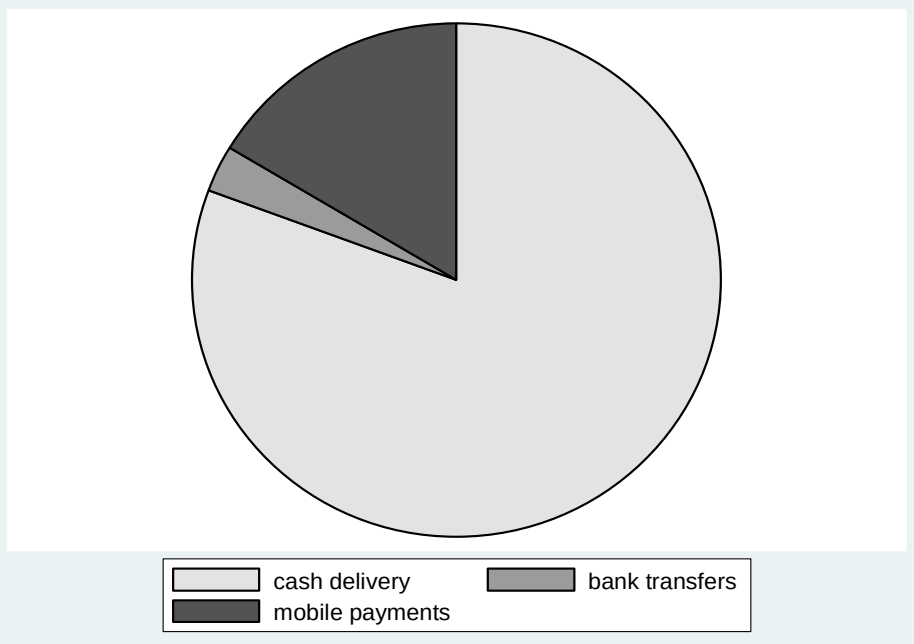
Beneficiaries' experience with the payment system

The choice of payment system affects the costs and barriers faced by those receiving cash and the costs and risks of successful programme implementation (Barca et al., 2013). Originally CGP payments were made through a cash-in-transit firm at one or two paypoints per Community Council, with specific payment dates determined by the Ministry of Social Development and announced a few weeks in advance to the District Offices which, in turn, informed the communities (OPM, 2014: Pellerano et al., 2014). In the 12 months prior to the survey, 94.5 percent of the respondents did not miss any payment. Of those that were not able to receive the payment, only 20 percent of them declared they were not able to recover it.

[21] As mentioned in footnote 15, it might occur that few households in the comparison group or even ineligible households have actually received the CGP. We include them in this descriptive analysis, as both their number is relatively low (22 observations) and they might still provide useful information from a programming perspective.

As shown in Figure 11, cash distribution at paypoint is still the main delivery mechanism for the CGP, as indicated by almost 81 percent of survey respondents, followed by 16 percent of mobile payments and 3 percent of bank transfers. Clearly, the small share of the latter form of cash delivery is related to the low access to formal financial services by the CGP beneficiary population, which stems from the lack of savings opportunities and the remoteness of the rural areas targeted by the programme. For those who normally receive the cash at paypoint, when asked about their experience during a normal payment day, 68 percent report having made expenditures in association to the collection of payment (return journey); the average cost incurred is 37 LSL, which is approximately 10 percent of the value of the grant for households with 1 and 2 children. However, 15 households reported spending exactly 360 LSL to collect the grant. If they are excluded, as they probably did not understand well the question posed by the enumerator, the average cost of CGP collection reduces to 26 LSL.

Figure 11: CGP delivery mechanism



Note: Own elaboration from survey data.

Beneficiaries' perception of the programme's objectives

To investigate the respondents' awareness of the programme's objectives, the household interview asked CGP recipients to state its targeting criteria. Respondents were also asked whether they received any instructions on how to spend the transfer. Most of the responses (67 percent) mentioned household poverty as a top criterion, followed by the presence of orphans in the household (16.6 percent). Surprisingly, 15.7 percent of respondents did not know why their household was selected to receive the grant, and very few (1.7 percent) linked the presence of the children in the household as a condition to receive the grant. Finally, a small proportion of respondents believed the process was the result of random selection and/or luck (3.7 percent).

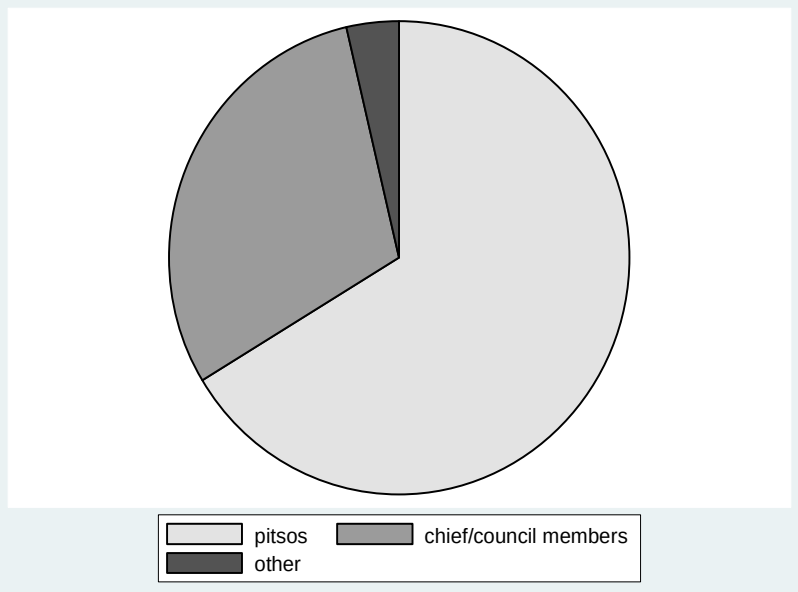
The CGP is an unconditional cash transfer: recipients receive a very effective messaging that the cash should be spent on children, something that the literature sometimes refers to as an

implicit conditionality (Pace et al., 2018). Confirming the findings from Pellerano et al. (2014), the overwhelming majority of the CGP recipients reported having received instructions on the use of the transfer (98 percent), and 99 percent confirmed that the money was meant to be spent to meet children needs.

6.2. Participants' experience with SPRINGS activities

The impact evaluation identified the CGP-plus-SPRINGS areas by matching the NISSA dataset with CRS's lists of participants. 622 households were interviewed in communities where SPRINGS was offered, 441 and 181 of them being eligible and ineligible for the CGP, respectively. While 458 SPRINGS beneficiaries responded to the SPRINGS survey module, only 383 households were aware of CRS activities (83.6 percent), 66 percent of them being informed through *pitsos* and 30 percent by the chief or local council members (Figure 12).

Figure 12: Source of information of SPRINGS activities by CRS

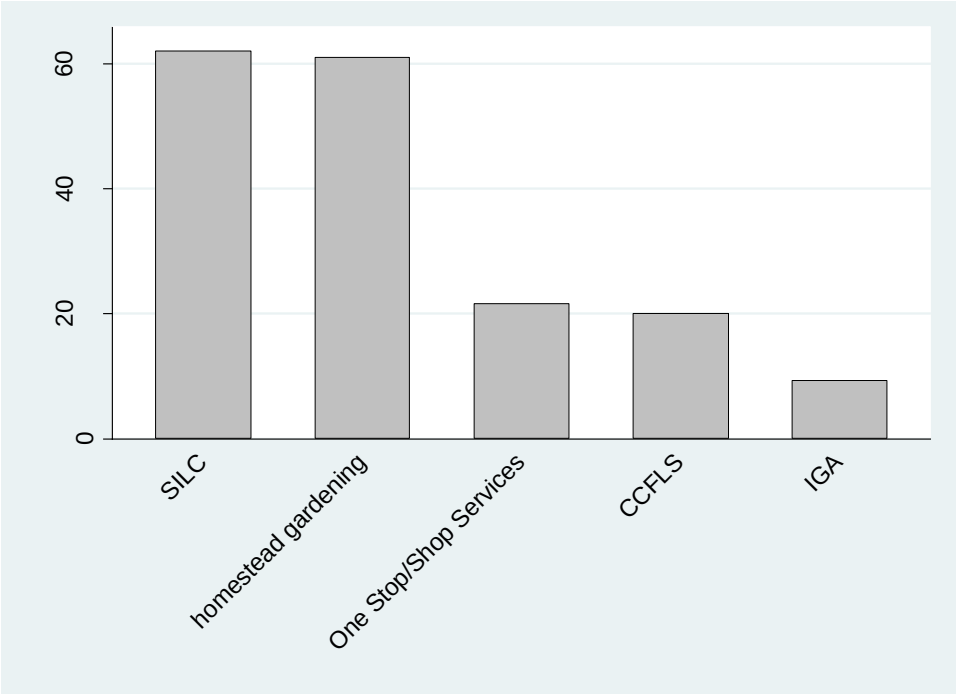


Note: Own elaboration from survey data.

According to the survey module respondents, 90 percent were participating in any of the SPRINGS components, for a total of 345 observations. Two earlier components of SPRINGS, the Savings and Internal Lending Community model and the homestead gardening, had the highest attendance rate (62 and 61 percent respectively). Much lower rates were reported for the three remaining components, the Community-Led Complementary Feeding and Learning Sessions, the Income Generating Activities or market clubs and the One Stop/Shop Citizen Services outreach days, which made up respectively a 20, 9 and 21.5 percent participation rate among the CGP-plus-SPRINGS group (Figure 13). These findings are not surprising, since the former two components had already started with the first pilot of SPRINGS in 2015, while the latter three are much newer and community mobilisation for them only began in mid-2016.[22]

[22] Given the low response rate for many questions related to the IGA and One Stop/Shop Services components, we are unable to provide meaningful descriptive statistics concerning these activities.

Figure 13: Share of households participating in each SPRINGS component



Note: Own elaboration from survey data.

Savings and Internal Lending Communities

SILC is a savings-led microfinance approach, which seeks to improve household access to savings and lending services that smoothen income and improve access to start-up capital. The SILC approach is designed to strengthen 2of 5 key skills: group organization and management, and savings and financial management. SILC groups aim to increase social capital within groups, strengthen joint decision-making, and address gender-based inequality and injustice by empowering women.

According to the survey, 214 respondents reported having at least one household member engaged in SILC groups. 84 percent of SILC group participants were female, 61 percent were the head of the household and 39 percent were the spouse of the head. The average age of the participant is 52.7 years of age. A majority of households reported meeting on a monthly basis (65 percent), while 20 percent engaged with the group once every other month. More frequent SILC gatherings (once weekly or more) occured only for about 10 percent of the respondents. One of the most relevant features of SILC groups is given by the opportunity to receive training on basic mathematical/financial skills, and this was confirmed by 67 percent of the respondents. Most of them received instructions on savings and lending policies (117 observations or 80 percent of those who received training), while 74, 55 and 41 households had a member who received training on record keeping, accountability and governance procedures, respectively. Households receiving training reported a high level of satisfaction: 80 and 20 percent had either a very good or a good perception/experience with these activities.

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Homestead gardening

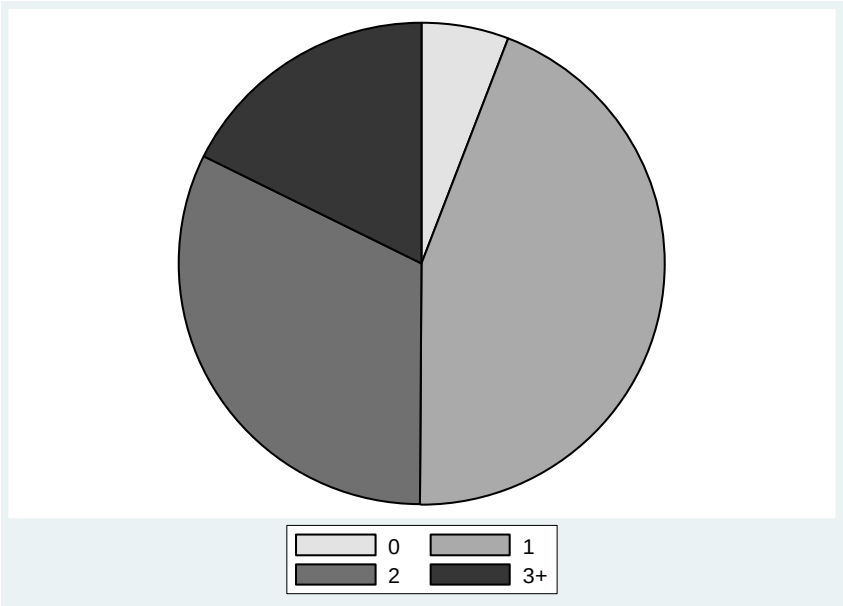
Garden plots have a potential to substantially contribute to the food security of poor households. Most interviewed households had a garden plot planted with vegetables or fruit, as shown in section 3.5. Most of SPRINGS participants were aware of the existence of either keyhole or trench gardens (96 percent) and almost everybody owned and cultivated at least one (took part in a demonstration session of keyhole/trench construction and planting given by a lead farmer. While 41 and 31 percent of them were engaged in 1 and 2 sessions only, the rest of the training participants got involved in 3 or more sessions. Individuals engaged in keyhole/trench garden construction were also invited to demonstration sessions on fruits and vegetables preservation techniques. However, only 36 percent of these households participated in such training. Of these 74 households, 59 attended at most two sessions. Almost 83 percent of training attendees were female, 62 percent were the head of the household and 35 percent were the spouse of the head. The average age of the participant was 52 years.

Figure 14).

The majority of households with a keyhole/trench garden used it only for consumption (65 percent), while the remaining part used it for both consumption and sales. 58 percent of

SPRINGS participants took part in a demonstration session of keyhole/trench construction and planting given by a lead farmer. While 41 and 31 percent of them were engaged in 1 and 2 sessions only, the rest of the training participants got involved in 3 or more sessions. Individuals engaged in keyhole/trench garden construction were also invited to demonstration sessions on fruits and vegetables preservation techniques. However, only 36 percent of these households participated in such training. Of these 74 households, 59 attended at most two sessions. Almost 83 percent of training attendees were female, 62 percent were the head of the household and 35 percent were the spouse of the head. The average age of the participant was 52 years.

Figure 14: Number of keyhole/trench gardens cultivated by SPRINGS participants

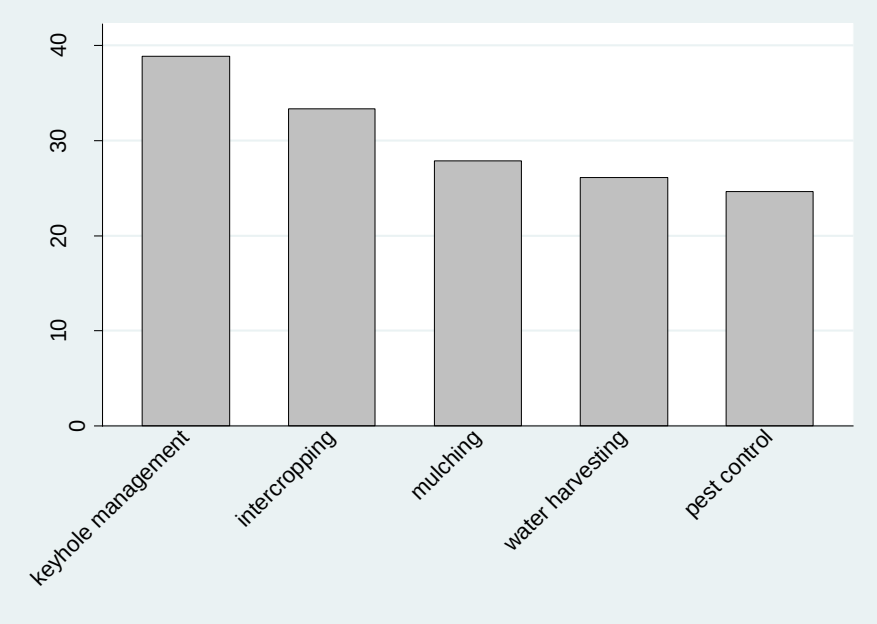


Note: Own elaboration from survey data.

Apart from keyhole/trench garden construction and fruits and vegetables preservation, SPRINGS offered training on other improved agricultural practices. Overall, 44.6 percent of SPRINGS beneficiary households participated in such training, which concerned, in descending order of attendance, keyhole garden management, intercropping, mulching, water harvesting and pest control and management (

Figure **15**). In terms of satisfaction with the knowledge acquired, participants viewed favourably these training activities and 80 and 20 percent of them reported a very good and a good experience, respectively. These results are similar to those observed for the respondents' satisfaction with SILC groups development.

Figure 15: Training on agricultural practices of SPRINGS participants



Note: Own elaboration from survey data. Shares calculated on total SPRINGS participants.

Community-led Complementary Feeding and Learning Sessions

To prevent malnutrition of children under two years of age, CRS held Community-Led Complementary Feeding and Learning Sessions with caregivers to improve their knowledge, confidence and adoption of recommended infant and young child feeding and care practices. CCFLS is a preventative approach against malnutrition that links dietary diversity with crop diversification. CCFLS promotes the notions of food processing, preparation and preservation techniques to increase food availability and smooth consumption especially during the lean season.

According to the survey data, only 20 percent of SPRINGS households took part in this component of the programme. Participants were trained or sensitized on a wide range of topics concerning nutrition, including home gardening and dietary diversification, preventing and managing illness, reviewing and planning a week of meals, good hygiene and feeding practice and support active feeding, food handling, processing, preparation and preservation, cooking demonstrations and infant complementary feeding. Participants were highly satisfied with the services provided by CCFLS and, similarly to the SILC and homestead gardening components, 75 and 25 percent reported their experience to be very good or good, respectively.

7. Conclusions and recommendations

The findings from the impact evaluation of the Lesotho Child Grants Programme (CGP) and the Sustainable Poverty Reduction through Income, Nutrition and access to Government Services (SPRINGS) project reveal a positive story from the added benefits that can be obtained by providing complementary services and support to poor and vulnerable rural households that are already benefiting from a cash transfer. By expanding their homestead gardening activities, attending nutrition sessions and being included into microfinance schemes offered by

SPRINGS, CGP beneficiary households were empowered to increase their consumption and diversify their diets. This resulted in improved nutritional status of young children.

These results substantially match the findings from qualitative fieldwork by Nesbit-Ahmed and Pozarny (2018). The positive impacts on gardening and financial inclusion do not seem to have translated into large income gains. This could be due either to a lack of access to markets, as the market clubs component of SPRINGS started much later than the SILC and homestead gardening components or to market saturation of gardening products. One additional hypothesis is that large increases in income can be expected only few years after new businesses have started and consolidated. This evaluation looks at programme impacts two years after the beginning of SPRINGS, a period of time sufficient to observe improvements in outcomes like dietary diversity, but less adequate for detecting large changes in income. The study confirms some of the strengths and weaknesses of the CGP that emerged from the impact evaluation by Pellerano et al. (2014). The study also highlights the important protective function of the CGP, which contributes to reduce the extent of child labour, allowing children to dedicate less time to economic activities. For some indicators, this study also detects improvements in the diets of beneficiaries. However, these improvements did not translate into greater consumption levels and a reduction of poverty for the group of households benefitting only from the CGP.

It is important to raise two caveats:

1) The results observed for the CGP-only group are likely to be underestimated. This study neither benefited from randomization nor was composed of several survey rounds (before and after type of analysis, with a baseline and an endline), like the past CGP impact evaluation. This may limit the validity of our comparison group, which was extracted in many instances from households in poverty classes 4 and 5 of the old NISSA targeting classification.

2) The results observed for the CGP-plus-SPRINGS group are likely to be overestimated. This group of households was selected from a combination of the NISSA registry and CRS monitoring data. Since participation in SPRINGS is based on self-selection, non-compliance, which is common in many agricultural/rural development interventions, was ruled out by interviewing households that were involved in the various components of SPRINGS. Self-selection into a programme can distort the impact estimates, because the study might be capturing not only the impacts of the programme(s), but also some unobserved characteristics of programme participants, such as natural ability, ambition, motivation, etc.

7.1 Programme recommendations

- **Adjust the transfer value.** While the real transfer value has been only partially eroded over time, households with 5 or more children are severely penalized and receive half the amount per child of households with only 1 or 2 children. It is therefore important to adjust the transfer periodically, both to mitigate the impact of inflation on household budgets and to account for the number of children included in the family.
- **Improve CGP delivery and switch to e-payments.** Hand delivery at paypoint is still overwhelmingly the main form of payment. This has an economic implicaton, since on average between 5 and 10 percent of the grant gets spent by the cash transfer beneficiaries

on transports to reach the paypoint, instead of being invested on children needs or on household income generating activities. Currently, only 16 percent of beneficiaries are reached by mobile payments such as M-Pesa. This form of delivery can be improved, since more than 80 percent of the sample households own a cell phone, despite the wide poverty levels. Moreover, switching to e-payments would also prevent beneficiary households from being exposed to physical threats that may occur during the return journey from the point of cash collection.

- **Clarify CGP inclusion criteria to avoid negative community dynamics.** While the programme has now been implemented for more than 8 years, a large minority of beneficiary households (around 20 percent) is not aware of the eligibility criteria that entitles them to being included in it. In fact, the vast majority of households almost never report to be a beneficiary due to the combination of being poor and having at least one child in the household. The lack of clarity around the inclusion criteria is very often one reason for negative community dynamics, which can also lead to significant tensions between programme beneficiaries and those who were not deemed to be eligible for the CGP. This could be avoided by improving messaging provided by district officials and local leaders (for instance during *pitsos*) not only about the programme's objectives, but also the reasons why some households are chosen, while others are excluded.
- **Encourage participation of CGP beneficiaries in SPRINGS activities.** Not all CGP beneficiaries were taking part in SPRINGS activities. This was largely due to unfounded fears that participation in SPRINGS could cause their removal from the CGP (Nesbitt-Ahmed and Pozarny, 2018). However, participation in SPRINGS can increase through clear messaging that CGP and SPRINGS are not competing but rather complementary programmes, which would also enhane their overall effectiveness.
- **Increase participation in all SPRINGS components over time.** Most of the positive results observed in this impact evaluation are likely driven by participation in SILC groups and homestead gardening activities, which were very positively rated by programme beneficiaries. These components were also relatively older compared to IGA market clubs and CCFLS nutrition sessions, hence it is not surprising they showed higher attendance rates too. Further, all SPRINGS components are designed to be complementary to help achieve the initiative's intended objectives. This evidence highlights the importance of both the length of engagement and the intensity of participation in programme activities as key factors for sustaining effects over time.

7.2 Policy recommendations

Despite its predominantly protective function and main focus on children, the CGP has gradually evolved into a more complex social protection scheme for poor and vulnerable households. Following the recommendations of the impact evaluation by Pellerano et al. (2014), over the last five years the CGP has been linked to other interventions, including in the context of emergencies, with the aim of sustaining household economic resilience. SPRINGS has represented the most relevant effort to generate linkages and synergies with complementary nutrition enhancing and income generating interventions, including access to financial markets.

In September 2018 the SPRINGS programme ended and the Government has envisaged a new Community Development Model (CDM) of social assistance. Based on the experience of the CGP-plus-SPRINGS impact evaluation, several recommendations can be drawn to help shape the roll-out and eventual scale up of the CDM and related programmes:

- **Strengthen engagement of social assistance beneficiaries in groups like SILC**, which allow them to buy food for basic household needs and invest in education and health, above and beyond what the transfer provided by the CGP makes possible. These groups also allow participants to get access to funds for investing in income generating activities. This is crucial in a context like rural Lesotho, where formal financial institutions are virtually absent.
- **Foster investments in farm and non-farm income generating activities to increase the probability of having medium and long term impacts.** While the combination of CGP plus SPRINGS resulted in better nutritional outcomes and greater financial inclusion, impacts on household income need to be sustained over time. Not all recipients of social assistance will be able to enhance their productive capacity and improve their livelihoods sustainably, but households with labour capacity and assets clearly need to be supported through complementary interventions to promote their long-term productive inclusion.
- **Establish and support greater linkages to markets.** One potential drawback from SPRINGS is the prospect for market saturation; surplus production of the same food staples from many farmers could, in the presence of limited market outlets, result in lower prices. To avoid saturation, it is advised to establish and support wider market access with accompanying support to farmers' marketing knowledge and skills.
- **Provide support for prolonged periods of time.** As shown by the results of this impact evaluation, greater impacts are obtained when households receive support for a longer period. Interventions running out after one or two years are unlikely to achieve the objective of sustainably graduating households from social assistance.

7.3. Lessons learnt for future evidence generation

Evaluating the combination of programmes is challenging, and the CGP-plus-SPRINGS study was no exception. The impossibility of randomizing the programme components and of using the most recent NISSA database complicated a great deal the identification of impacts, due to the unavoidable issue of selection bias. Several lessons can be learnt for future evidence generation in Lesotho and, more generally, for researchers willing to study complementarities across programmes:

- **The quality of the NISSA dataset has greatly improved from the oldest to the most recent version.** This will allow future researchers to continue exploiting this administrative registry as a source of information, especially for the design of additional impact evaluation studies. While the old version of NISSA only allowed to construct a propensity score matching design, the new version has a much more reliable poverty score, which could in principle allow for a more robust regression discontinuity approach. The expansion of

NISSA to most of the Community Councils can make future studies nationally representive. However, *the capacity of the NISSA to be used directly as a tool for economic research is quite limited,* unless some changes are made to the questionnaire.

- **The data collection with electronic platform has greatly improved the quality of the data.** Compared to previous exercises, the time spent on data entry was eliminated, while data cleaning reduced considerably, because of the presence of multiple skip patterns and in-built data checks. For instance, wrong codes in multiple choice questions and outliers for continuous variables were reduced to a minimum. It is worth mentioning that many remaining errors could have been removed, if SiQ had the chance to develop the application for the electronic data collection more in advance. Given the experience acquired by the principal investigators in other countries with similar impact evaluation questionnaires, it is suggested to give enough time to service providers (at least 4 weeks from the time of approving the survey instrument and training the enumerators), not only to develop the electronic application but also to test the device in the field.
- **The inception phase is the first and key moment to shape the impact evaluation.** For the CGP-plus-SPRINGS study, the principal investigators travelled to Lesotho twice to discuss objectives with the main actors in the country, proposed a plan in one final presentation and produced an inception report for agreement between the main parties to the evaluation. For future studies, the principal investigators suggest that *discussions with the main stakeholders in the country not be confined to bilateral meetings, but preferably include a 3/4 day workshop with all the key actors*. This would allow them to agree not only on the objectives of the evaluation, but also its design, theory of change and the indicators to which priority should be given. This should in turn promote greater ownership of the evaluation result, while contributing to developing the capacity of country stakeholders directly involved in the evaluation.
- **The length of the survey instrument was excessive, with an average time of 2 hours per household, with a decreasing quality of interviews.** Reducing the number of sections and/or questions proved difficult, as the survey instrument tried to accommodate various competing priorities: 1) documenting the impact of the CGP and SPRINGS programmes on a range of output and outcome indicators; 2) providing the required information for the local economy study; 3) including multiple indicators at the individual level to analyse the data from a gender/age perspective; 4) including additional sections to study novel topics, such as aspirations/expectations or intrahousehold decision making. If reducing the questionnaire proves impossible, the impact evaluation should plan for reimbursing respondents for the time spent in the interview, either in-kind or cash, to at least compensate them for the opportunity cost of not going to work.

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Appendix A

Table A1: Balance of NISSA variables before GPS adjustment

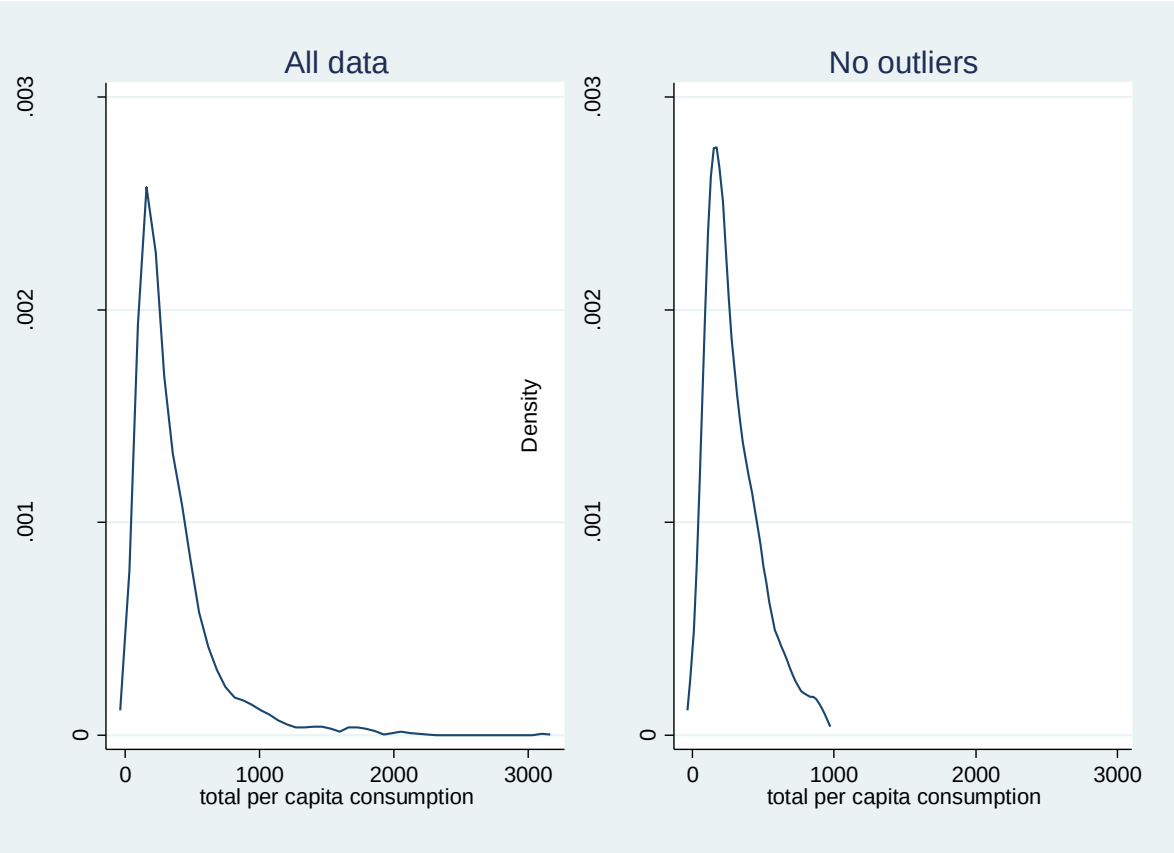
variables	comparison	CGP	CGP + SPRINGS	F	pvalue	rmsd
hh members <=5 yrs old	0.200	0.200	0.195	0.022	0.979	0.012
hh members between >=6 and <=12 yrs old	1.103	1.118	1.095	0.067	0.935	0.008
hh members between >=13 and <=17 yrs old	0.769	0.815	0.787	0.460	0.631	0.024
members in hh >=18 but <=59 years old	2.955	2.867	2.934	0.436	0.646	0.013
members in hh >=60 years old	0.528	0.484	0.587	2.623	0.073	0.080
household median age	24.592	22.854	24.262	6.151	0.002	0.032
hh share of dependents	0.478	0.484	0.482	0.140	0.870	0.005
hh doesn't have toilet	0.286	0.479	0.401	22.833	0.000	0.214
hh has own latrine	0.443	0.410	0.483	2.462	0.086	0.068
heating system: wood	0.460	0.789	0.651	68.634	0.000	0.223
heating system: gas & paraffin	0.314	0.085	0.111	62.714	0.000	0.552
heating system: electricity	0.051	0.017	0.034	4.349	0.013	0.381
no heating	0.026	0.017	0.034	1.233	0.292	0.262
roof material:	0.526	0.420	0.379	13.107	0.000	0.139
roof material: asbestos sheet	0.002	0.000	0.005	1.243	0.289	0.974
roof material: brick tiles	0.014	0.000	0.002	4.886	0.008	0.955
roof material: wood	0.155	0.037	0.039	34.216	0.000	0.647
# freezers owned	0.080	0.022	0.048	8.239	0.000	0.450
# stoves owned	1.077	0.412	0.599	68.114	0.000	0.382
# televisions owned	0.226	0.113	0.152	8.323	0.000	0.277
# cell phones owned	1.043	0.813	0.873	6.170	0.002	0.107
# landline phones owned	0.114	0.041	0.059	8.621	0.000	0.408
# sewing machines owned	0.382	0.124	0.170	22.152	0.000	0.464
Tropical Livestock Units	1.381	0.996	0.726	16.425	0.000	0.252
# horses owned	0.126	0.083	0.068	3.407	0.033	0.259
# cattle owned	1.280	1.118	0.866	5.181	0.006	0.155
# sheep owned	1.878	1.516	0.707	6.379	0.002	0.344
# goats owned	1.837	1.268	0.855	5.206	0.006	0.294
# chickens owned	2.311	1.743	1.574	3.559	0.029	0.166
at least one hh member receives pension	0.271	0.336	0.351	4.775	0.009	0.113
hh experience hunger often or always	0.205	0.307	0.227	8.156	0.000	0.184
altitude	1739.558	1819.244	1775.025	32.168	0.000	0.019
5 classes poverty level	2.520	1.163	1.177	250.605	0.000	0.373

Note: Own elaboration from survey data. In the last column, rmsd is the root mean squared deviation. Figures in white under grey field represent statistically significant differences at conventional 5% level.

Appendix B

This appendix provides robustness checks on selected outcomes, namely consumption and income. Both consumption and income are monetary measures that are very likely to be affected by measurement errors that could lead to the presence of outliers, i.e. extremely high values of consumption and/or income that make their distributions very skewed. Figure B1 shows the kernel distribution of total per capita consumption using, on the left, all survey data and, on the right, survey data with the exclusion of the observations with value of consumption greater than the 95th percentile of the whole consumption distribution. Both distributions, with and without outliers, are skewed toward zero but the distribution with all data has a much longer right tail due to a very limited number of observations with huge values for consumption.

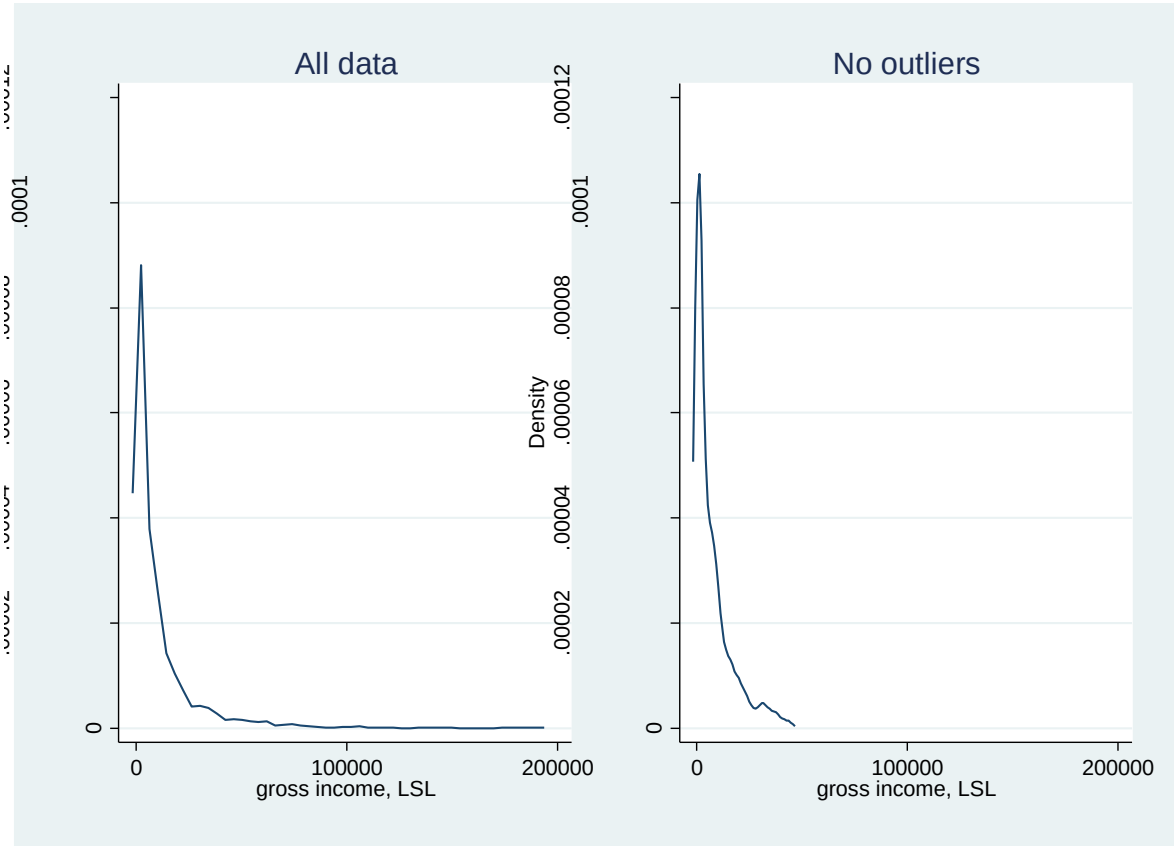
Figure B.1: Kernel density total consumption



Note: Own elaboration from survey data

Figure B2 shows the kernel distribution of gross income using, on the left, all survey data and, on the right, survey data with the exclusion of the observations with value of income greater than the 95th percentile of the whole income distribution. As for total consumption, both distributions are skewed toward zero but the distribution with all data has a much longer right tail.

Figure B.2: Kernel density gross income



Note: Own elaboration from survey data

Given the presence of outliers, the evaluation team replicated the impact of CGP and SPRINGS on consumption and income excluding those observations with values of consumption and income above the 95th percentile of their respective distribution.

Table B1 shows that, after the exclusion of the extreme values, CGP+SPRINGS have a positive and significant impact on per capita total consumption (15 percent increase with respect to the comparison mean), mainly driven by a significant increase of per capita non-food consumption (40 percent increase). The impact on food consumption is still negative but not statistically significant. Furthermore, after the exclusion of outliers, CGP+SPRINGS reduce not only the poverty gap index but also the poverty headcount ratio at national poverty line.

Table B1: Impact of CGP and SPRINGS on consumption – no outliers

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS		(4) N
per capita total consumption	262.676	-14.346	39.718	**	1297
	[165.538]	[15.945]	[16.658]		
per capita food consumption	192.603	-17.444	12.625		1297
	[133.779]	[12.168]	[12.714]		
per capita non food consumption	68.061	2.088	27.365	***	1405
	[65.092]	[6.583]	[7.028]		
per capita consumption of tobacco	0.93	-0.084	0.343		1405
	[4.208]	[0.280]	[0.353]		
per capita consumption of fuel	11.822	0.551	7.452	**	1405
	[25.964]	[2.125]	[3.060]		
per capita consumption of clothing	12.836	3.583	5.228	**	1405
	[27.646]	[2.458]	[2.623]		
per capita consumption of education	24.34	-3.073	4.92		1405
	[34.591]	[3.795]	[3.613]		
per capita consumption of health	2.716	0.093	1.709	***	1405
	[8.717]	[0.469]	[0.616]		
per capita consumption of other non food items	15.418	1.017	7.713	***	1405
	[28.612]	[2.205]	[2.635]		
Poverty headcount ratio at national poverty line	0.752	0.012	-0.083	*	1297
	[0.432]	[0.041]	[0.044]		
Poverty gap index at national poverty line	0.475	0.033	-0.056	**	942
	[0.240]	[0.026]	[0.028]		

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP+SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Table B.2 shows that, after the exclusion of the extreme values of the income distribution, CGP+SPRINGS had a positive impact on total value of harvest, non-farm business revenues and, already shown in Table 10, on the value of sales of fruits and vegetables.

Table B.2: Impact of CGP and SPRINGS on gross income – no outliers

	(1) comparison mean	(2) CGP only	(3) CGP+SPRINGS	(4) N
gross income, LSL	7261.179	834.723	1053.503	1473
	[8970.664]	[928.559]	[893.525]	
total value of harvest, LSL	744.419	65.232	228.275 **	1473
	[1685.953]	[109.420]	[111.162]	
total value of sharecropped harvest	113.705	-165.313 ***	-22.744	1473
	[492.650]	[47.905]	[54.364]	
value of sales of fruits & vegetables, LSL	13.942	0.096	22.037 ***	1473
	[79.823]	[3.892]	[6.179]	
value of livestock sales	182.03	-71.866	-9.936	1473
	[1145.299]	[57.412]	[62.596]	
value of livestock by-products, LSL	344.875	20.719	53.208	1473
	[2199.617]	[206.623]	[228.279]	
annual salary from any off-farm labor, LSL	3633.264	-219.82	-848.957	1473
	[7745.561]	[796.794]	[701.351]	
non farm business revenues last month, LSL	23.683	5.799	25.141 *	1473
	[198.365]	[11.896]	[12.877]	
public transfers value, LSL	1998.994	1109.312 ***	1375.018 ***	1473
	[3027.975]	[268.260]	[265.580]	

Note: Column 1 is the comparison mean. Column 2 and 3 are respectively the intention to treat effect of the CGP only and of the CGP+SPRINGS group. Column 4 is the number of observations used in the regression. Standard deviations (column 1) and standard errors (columns 2 and 3) in brackets. Significance level: * 10% ** 5% *** 1%. Robust standard errors clustered at the level of electoral division. All outcomes control for NISSA "baseline" characteristics, agroecological areas and a set of contemporary community variables.

Food and Agriculture Organization of the United Nations (FAO)

Viale delle Terme di Caracalla

00153 Rome, Italy

FAO, together with its partners, is generating evidence on the impacts of coordinated agricultural and social protection interventions and is using this to provide related policy, programming and capacity development support to governments and other actors.