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Report on Increased Agency and Decision-making by Women in the context of the Integrated Basic Social Services with Social Cash Transfer (IN-SCT) Pilot Program



Do productive safety nets increase women's agency and decision-making power within the household? Evidence from Ethiopia

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Abbreviations and acronyms

BCC	Behaviour change communication
CCT	Conditional cash transfers
CSA	Central Statistical Agency
FAO	Food and Agriculture Organization of the United Nations
FHH	Female-headed households
HEW	Health Extension Worker
HH	Household
IDS	Institute of Development Studies
IFPRI	International Food Policy Research Institute
IN-SCT	Integrated Nutrition and Social Cash Transfer
LOC	Locus of Control
MHH	Male-Headed Households
MoARD	Ministry of Agriculture and Natural Resources
MoLSA	Ministry of Labor and Social Affairs
PDS	Permanent Direct Support
PLW	Pregnant and lactating women
PSNP	Productive Safety Net Programme
PSNP4	Productive Safety Net Programme Phase 4
PW	Public Works
SDG	Sustainable Development Goals
SNNP	Southern Nations, Nationalities, and Peoples
SW	Social Worker
UNICEF	United Nations Children’s Fund
WEAI	Women’s Empowerment in Agriculture Index

Executive summary

Empowerment of women is a critical step towards poverty reduction. In addition, empowering women is part of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (specifically SDG5). Social protection programmes such as cash transfers or public works are policy instruments that help rural food-insecure households to cope and gradually transition out of poverty. These programmes also have the potential to empower women in several ways. In this report, we analyse women's agency and decision-making power, which are a specific sub-domain of women's empowerment, in the context of the Integrated Nutrition Social Cash Transfer (IN-SCT) pilot in Ethiopia.

The IN-SCT pilot was implemented in 2015 and embedded within Ethiopia's Productive Safety Net Programme phase 4 (PSNP4). It consists of a) cash payments that require able-bodied members of targeted households to work in public works programmes, and b) a livelihood support component. Households with no able-bodied adults are put on Permanent Direct Support (PDS), and those with pregnant and lactating women or with caregivers of children aged under 5 who are malnourished, are transitioned to a **temporary direct support** scheme. The IN-SCT pilot strengthened specific innovative components of the PSNP4, which included: linking client households to health and nutrition services; community mobilization of the behaviour change communication sessions for male and female clients; testing of PSNP4 nutrition and gender sensitive provisions to develop tools for further scale up; strengthening linkages across multiple sectors such as schools, child protection services, and agriculture; and building the capacity of Ministry of Labour and Social Affairs to better manage PDS and temporary direct support clients of PSNP.

We use data that was collected to evaluate the IN-SCT. The second wave of the evaluation data, collected in 2018, included a set of questions that measure agency and decision-making. While both 'empowerment' and 'agency' have been defined as the ability of an individual to make strategic life choices, the former is a broader concept that also takes into consideration the social, political and economic context within which these choices are made. Likewise, it is difficult to disentangle agency from an individual's assets. Agency is related to a person's essence (e.g. aspirations and characteristics) and having the same asset does not necessarily translate into having the same agency (Alkire, 2008). Donald *et al.* (2017) delineated three dimensions to capture individual agency: 1. Individuals need to define goals that are in line with their values; 2. Individuals need to perceive a sense of control and ability; 3. Individuals need to act on their goals.

For this report, we have data that allows us to measure the second and third dimensions as provided by the Donald *et al.* (2017) framework. The second dimension is measured through the "locus of control" (LOC) scale that measures the degree to which people believe that they, rather than external forces, have control over the outcome of events in their lives. The third dimension, the ability and need of the individual to act and make decisions toward reaching their goals, is measured through decision-making indicators.

Our analysis has two objectives: 1. to provide a snapshot of women’s agency and decision-making indicators in the study area (Southern Nations, Nationalities, and Peoples [SNNP]) and 2. to investigate whether the IN-SCT has impacted these key indicators for women. To estimate impacts of the PSNP/IN-SCT, we employ a single difference approach using inverse probability weighting, as we have a non-randomized sample with data for outcomes available only at endline. We estimate impact for only the primary female respondent, who is either the head of the household or the spouse of the household head.

For the Locus of Control analysis, we utilize Levenson’s (1981) Internality, Powerful Others and Chance scale, which consists of three subscales: 1. ‘Internality’ subscale that measures the extent to which a person believes her own actions influence her life; 2. ‘Powerful Others’ subscale, which measures the extent to which an individual feels others influence her life; and 3. ‘Chance’ subscale, which measures how much the individual feels luck or chance is driving her life. We find that no one subscale dominates the other, as all three score between 10–12, across treatment and comparison groups. As per conventional wisdom, we find a slightly higher score on the Internality subscale (slightly above 12) for male respondents compared to female (slightly below 12), indicating that men are able to exert greater control over their lives through their own individual actions. Results are similar across the Treatment group (INSCT/PSNP clients) and the Comparison group. In the impact analysis for locus of control outcomes for women, we find a small but statistically significant negative impact estimate for ‘Powerful Others’ subscale and Chance subscale. This indicates that women in the Treatment group may feel that external forces (such as chance or powerful others) may exert slightly less influence over their lives. This may be due to the PSNP payments they receive and/or the IN-SCT pilot, which included behavioural change communication sessions. However, this movement away from external forces does not get mirrored by a corresponding increase in the score of Internality subscale, for which we do not find a statistically significant impact estimate.

The decision-making questions in the survey ask who within the household normally makes decisions across eight specific areas: getting inputs for agricultural production, types of crops to grow for agricultural production, taking crops to the market, livestock raising, your own wage employment or non-agricultural business, major household expenditures, minor household expenditures, and finally the PSNP transfers are used. The instrument further probes the extent to which the respondent feels they could take the decision if they wanted to. Results show that male respondents, on average, have slightly higher decision-making power within the household. Similarly, they *feel* empowered to make decisions to a greater extent. When we look at each domain separately, we find that men seem to have a little less decision power with respect to minor household expenditure.

Following the Women’s Empowerment in Agriculture Index (WEAI) methodology, we establish an adequacy threshold to evaluate whether the respondent has decision-making power in each domain. For each of the eight types of decision, the respondent’s decision-making power is considered adequate if she/he makes the decisions by herself or if the respondent feels that she could make her own personal

decisions regarding this aspect of her life if she wanted to. The indicator is equal to one if the individual achieves the adequate threshold, zero otherwise.

Our results show that men achieve the adequacy threshold significantly more frequently than women. Around 89 percent of male respondents in the Treatment group have adequate decision-making power in the first four types of decision, which focus on agricultural production activities. This is slightly higher than the Comparison group, where this percentage stands at between 84–87 percent. In contrast, only 60 percent of women in the Treatment group and around 52–58 percent of women in the Comparison group achieve this adequacy threshold. The survey also specifically asked about decisions regarding usage of PSNP transfers. Here too, around 75 percent of the men in the Treatment group reached the adequacy threshold, compared to only 60 percent of women. In terms of impact analysis, we find that women in the Treatment group are three to four percentage points more likely to make decisions alone or feel they have the ability to make the decision regarding agricultural inputs (but not in the area of deciding which crops to grow, taking produce to the market, or livestock) compared to the Control group. Decision-making on the three domains within non-agricultural income (major and minor household expenditure, and own wage or non-farm business), though not independently significant, is statistically significant in the aggregate.

Finally, we investigate how comfortable the respondent is in speaking in public about issues that concern their life. Four key areas were probed: infrastructure (to help to decide if any has to be built in the community), payment of wages for public work, if some aspect of PSNP is not implemented correctly and if some aspect of PSNP is not implemented fairly. We find that only about a third of women across study arms feel comfortable in speaking up in public about these issues. This doubles to about 65–70 percent for male respondents. We did not find statistically significant impact estimates for this set of outcomes.

1. Introduction

Ethiopia has a population of more than 100 million, making it the second most populous country in Africa. The sex ratio, on average, is close to one across most age groups, leading to an almost equal percentage of women and men. It is estimated that 25 percent of households are female-headed households (FHH) and 75 percent are male-headed. Ethiopia's economy is largely based on agriculture, which employs 73 percent of the population (FAO, 2019). Most of the agricultural sector in Ethiopia is based on smallholder farmers.

Although Ethiopia is taking legal action and enacting policies to reduce gender inequalities, the social and economic indicators for women, including literacy, health, livelihoods, food security and nutrition, lag behind those of men. The literacy rate for men is 59 percent compared to 44 percent for women (UNESCO Institute for Statistics, 2017). Cultural norms and gender customs restrict women's access to productive resources, leading to lower agricultural production and paid employment. Only 19.5 percent of FHHs have land titles, compared to 80.5 percent for male-headed households. Women are less involved in farm production and are usually employed in the 'informal' sector or do unpaid work such as performing care, reproductive and support work. Supporting farming work activities include preparing storage containers, managing home gardens, transporting farm inputs to the field and bringing water to the household.

About 56 percent of women working in agriculture are not paid, mostly because they are employed as a household member, and 44 percent declare themselves as self-employed. When women work in a non-agricultural sector, they are more likely to be paid (CSA, 2011). However, on average they earn less than 40–45 percent of the income of a man in paid employment (FAO, 2019). Having jobs that are 'informal', such as family and self-employment, prevents women from accessing social security schemes such as maternity leave, sickness, health, and occupation safety. Further, FHHs have less access to agricultural extension programmes. This implies that they have less knowledge about new farming techniques and practices (Buehren *et al.*, 2019).

The law gives sons and daughters the same inheritance rights and both mothers and fathers the same parental authority, but gender norms have yet to catch up to the law. Domestic violence is a criminal offense but gender-based violence is widely prevalent, as it is in many other countries. As per the Ethiopia Demographic and Health survey, 63 percent of women agree that the husband is justified in beating his wife if she burns the food, goes out without telling him, fails to take care of the children or refuses to have sex (Buehren *et al.*, 2019). Access to credit is limited for women, partially because most cannot provide sufficient collateral, and partially because there is a general mistrust of women. If a woman needs a loan, she must usually ask her husband or relatives to sign for her, and typically will have less control over the loan (FAO, 2019). Representation of women in rural institutions is low. Women are rarely in leadership roles. It is not common for women to speak up in public, mainly because the society is male-dominated and women are not considered as decision-makers (Cohen & Lemma, 2011).

Empowering women has the potential to reduce poverty, in addition to being critical to achieving gender equality (World Development Report, 2002; Sen, 1999). The 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs) recognize the importance of achieving gender equality as a fundamental human right and necessary to live in a sustainable and prosperous world (SDG 5). Social protection programmes, such as cash transfers or public works, have recently been used as an instrument to help households to cope with shocks and to create community assets. In addition, there are several pathways through which social protection can foster rural women's empowerment. The first immediate channel is through an increase in, or preservation of, economic assets of the household. Cash transfers may allow these households and the women in them to avoid or minimize risk detrimental coping strategies, such as distress sale of assets. Further, when the money from transfers is not fully consumed, it enables household members, including women, to save or make investments in productive activities, increasing their capacity to generate income.

A second pathway is through investment of part of the cash transfer in health or education of all household members, including women. Power and agency represent a third channel for women's empowerment. Greater control over resources when women are targeted to be the recipients (say through receipt of public works payments) can raise women's self-confidence and self-esteem. This can have positive indirect effects on their ability to engage in social networks of reciprocity and participate in decision-making, both within the household and in the public sphere. These additional effects are more likely to be obtained if the programmes are designed and delivered in a gender-sensitive way: for instance, by facilitating the participation of female beneficiaries in public works by providing transport to sites and childcare services at sites, and assigning relatively lighter physical work to women.

In this report, we analyse women's agency and decision-making power in the context of the Integrated Nutrition Social Cash Transfer (IN-SCT) project in Ethiopia. The IN-SCT pilot was embedded within Ethiopia's Productive Safety Net Programme phase 4 (PSNP4). The Government of Ethiopia set up the PSNP in 2005 as part of a strategy to address chronic and transitory food insecurity in the country. The Programme is now in its fourth phase and reaches eight million chronically food insecure people spread across eight regions of Ethiopia. The PSNP4 supports food insecure households through two components: a cash transfer component that requires the household to participate in public work activities and comply with soft conditionalities on access to social and health services; and a livelihood support component. The IN-SCT pilot was implemented in 2015 in two Woredas each of the Southern Nations, Nationalities, and Peoples (SNNP) Region and the Oromia region. The pilot activities were targeted at cash recipients of the PSNP, with a particular focus on PDS and temporary direct support clients. They were aimed at: a) increasing uptake of health and nutrition service access by strengthening existing soft conditionalities in PSNP4 and creating new ones; b) carrying out improved case management through increased human resources; c) emphasizing gender and social development provisions of the PSNP4, and d) improving the livelihood component of PSNP4 by adding new technical training activities related to nutrition-sensitive agriculture, as well as one-off transfer of crop inputs and livestock.

Using data that was collected for the evaluation of the IN-SCT, we conduct our analysis with two objectives: 1) provide a snapshot of women's agency and decision-making indicators in the study area (SNNP), and 2) investigate if the IN-SCT has impacted these key indicators. The next section provides a review of the various methodological approaches that have been used in the literature to measure agency and decision-making and a review of the current evidence on the ability of social protection programmes to positively impact these indicators. The third section describes the programme and is followed by a description of the data we use for this paper. Sections 5 and 6 fulfil the two objectives mentioned above. Section 7 concludes.

2. Literature review

Agency and decision-making are part of a broader concept of 'empowerment'. Literature on empowerment has focused on a few key elements that are central to the concept: options (possibilities), choice, control, and power (Malhotra *et al.*, 2002). A widely accepted definition of empowerment is provided by Kabeer (2001, p.19): 'Empowerment thus refers to the expansion in people's ability to make strategic life choices in a context where this ability was previously denied to them'. This concept considers three dimensions of empowerment: resources, agency, and achievements. Resources refers to the external conditions of the individual and can be material/economic, social or human. Agency indicates 'the ability to define one's goals and act upon them'. Achievements are the outcome of the first two dimensions (Kabeer, 2001, p. 21). Empowerment is difficult to analyse because it is a complex concept with many different components.

The measurement of agency and decision-making power is evolving and indicators have been developed as a proxy for the different dimensions of this power (Alkire *et al.*, 2013; Kabeer, 1999; Alsop *et al.*, 2006; Alkire, 2008; Malhotra *et al.*, 2002). Commonly used indicators of agency are an agent's assets, which can be typified as human (i.e. education, health status), material (i.e. land ownership), organizational (i.e. membership of organizations), psychological (i.e. self-perceived inclusion/exclusion from community activities), financial (i.e. sources of credits) or informational (i.e. access to information) assets (Alsop *et al.*, 2005). For example, a study in Mexico, on the Mexico Lifelong Learning Project, demonstrates how improving education can lead to gains in self-confidence and in the capability to express opinions (Heinsohn, 2004). A study in Ghana demonstrates that the quantity of assets owned by a woman influences her bargaining power within the household and affects the household decisions on expenditure (Doss, 1996). In Nepal, research suggests that women who own land are more likely to be an active member in the household decision-making process and participate in decisions regarding child nutrition and health (Allendorf, 2007).

The use of proxy measures related to assets or education can lead to several problems. Agency is related to a person's aspirations and characteristics; having the same asset or education does not necessarily translate into having the same agency. Secondly, it is difficult to determine the exact interconnection between expansion of agency and expansion of assets and the direction of causality between the two. Third, the same indicators are used to measure poverty, making it difficult to disentangle the complex relationship between assets, agency, and poverty and their separate impacts on other outcomes (Alkire, 2008).

Donald *et al.* (2017) defined three dimensions to capture individual agency: 1) individuals need to define goals that are in line with their values; 2) individuals need to perceive a sense of control and ability 3); individuals need to act on their goals. While these dimensions are interconnected, they define different concepts and must be measured with different indicators (Donald *et al.*, 2017). The first dimension considers the ability to set a goal without external or internal influence, given by the external context or internalized norms. The indicator most used is the Relative Autonomy Index, which assigns value to the reasons for the choice of goals (Ryan and Deci, 2000). The second dimension concerns the capability of

an individual to control the actions that lead towards her desired goal. Measures of this dimension, such as the “locus of control” (LOC), are mostly found in psychology literature.

Locus of control theory refers to the belief of an individual on how her actions are determined from an internal versus an external source, which could be chance or other people. Rotter (1966) implemented an Internal-External scale, where people with an ‘external locus of control’ see their fate as being outside of their control. Empirical evidence has shown that people living in poverty are more likely to have a higher external locus of control than those who are financially secure (Furnham, 1986). This concept was further developed by Levenson (1981), who elaborated on the Internality, Powerful Others and Chance scale, which captures these different aspects in three subscales: the Internality subscale, the Powerful Others subscale, and the Chance subscale. The Internality, Powerful Others and Chance scale measures the individual’s expectations regarding her ability to impact life outcomes by her own actions. The more she believes her own actions drive the outcomes, the more internal her LOC. In contrast, if she perceives that the events in her life are beyond her control and determined by chance or powerful others, the more external her LOC.

Recent theoretical and empirical studies acknowledge that personality traits, particularly LOC, significantly predict various economic and behavioural outcomes, including human capital investment decisions (Coleman and DeLeire, 2003), earnings and labour market outcomes (Andrisani, 1977; Goldsmith *et al.*, 1997; Heineck and Anger, 2010; Caliendo *et al.*, 2015; McGee and McGee, 2016), health related investments (Chiteji, 2010; Cobb-Clark *et al.*, 2014) and intertemporal decisions involving savings and wealth accumulation (Cobb-Clark *et al.*, 2016; Abay *et al.*, 2016).

Both the Rotter Internal-External scale and the Levenson Internality, Powerful Others and Chance scale have been used and validated in Sub-Saharan Africa for well-educated, professional sub-populations (Stocks *et al.*, 2012). Two applications of these scales in Ethiopia were conducted by Bernard *et al.* (2014) to low-literacy populations and by Abay *et al.* (2017) in two longitudinal surveys of farmers. With respect to gender differences in LOC measures, Sherman *et al.* (1997) showed that females tend to be more external than males on most of these constructs. Two areas in which males and females appear to differ are in their perception of control over interpersonal relationships and over essentially uncontrollable life events. Most of the studies reviewed by Sherman *et al.* essentially targeted students in the US, with the notable exception of the research carried out by Doherty and Baldwin (1985), which examined four cohorts of American adults participating in the National Longitudinal Survey of Labor Market Experience.

Following Levenson, other scales have been developed to capture the degree to which people have the agency to exercise control over their lives. These include the Furnham scale, which focuses on economic items (Furnham, 1986), and the self-efficacy scale, which measures how confident an individual is in accomplishing a goal (Bandura, 2006; Jerusalem and Schwarzer, 1995). More recently, there has been a focus on the capability of an individual to act and make decisions towards the goals they define for themselves (Donald *et al.*, 2017). Decision-making indicators have been implemented to capture this aspect of agency. One of the most important for women specifically is the Women’s Empowerment in

Agriculture Index (WEAI; Alkire *et al.*, 2013; IFPRI, 2012) that builds on previous research on indicators of agency and development on domain-specific measures of empowerment. The index is an aggregate measure that assesses decision-making across five domains: agricultural production (who is taking decisions on the agricultural production), resources (who controls the assets), income (who makes decisions on the various incomes of the household), leadership (possibility to participate in group or activities) and time (disposition of one's own time).

In addition to the WEAI, other measures have been proposed to capture particular aspects of a women's life, such as livestock with the Women's Empowerment in Livestock Index (Galiè *et al.*, 2019) and nutrition with the Women's Empowerment in Nutrition Index (Narayanan *et al.*, 2019). A new index, PRO-WEAI, was constructed by adding new indicators to achieve a more accurate measure of empowerment of women in the agricultural context. It includes the relative autonomy index, a general self-efficacy scale, attitudes about intimate partner violence and an indicator regarding women visiting different locations (Malapit, 2019). The applications of these indicators are still scarce, particularly in developing countries. However, the WEAI is being increasingly adopted and used (Alkire *et al.*, 2013; Sraboni *et al.*, 2014; Goldsmith 2018).

Literature is scarce on the impact of social protection programmes, such as cash transfers, on these measures. One study (Maclay and Marsden, 2013) utilized the LOC theory to understand how cash transfers, implemented by the Improving Markets and Poverty Alleviation through Cash Transfer project in Bangladesh, affected investment decisions in the context of extreme poverty. The study shows that a transfer with soft conditionality helps people to realize their agency. The evidence is mixed for the impact of cash transfer programs on women's decision-making power. Results that enhance decision-making power may depend on the objectives of a programme, as well as its design and implementation. Of particular importance is whether the programme deliberately endeavours to reduce gender differences in employment opportunities, control over income and assets, and social norms and mores in the household and the community, and whether its design and implementation support the achievement of these objectives.

Studies of cash transfer programmes in Mexico, Brazil, Ecuador, and Uganda have shown a statistically significant impact on increasing the possibility for women to take decisions alone or jointly with the head of the household in different domains (for a review see Bastagli *et al.*, 2016). In Zambia, an unconditional cash transfer programme targeting female primary caregivers of children aged between zero and five, over a four-year period, had an impact on women's decision-making power. Evidence shows a significant change in the decision-making power for women over different domains, such as children's health and school, own and partner income, major and daily purchases, own health and saving, with a six percent increase on average over baseline values (Bonilla *et al.*, 2017). In Brazil, the Bolsa Familia programme, a conditional cash transfer programme, shows a significant increase of women's decision-making over the use of contraception, the expenditure of durable goods and children's health and expenses. However, the results suggest a heterogeneous effect between urban and rural areas: while the programme had an impact in urban areas, it did not have an impact in rural settings (De Brauw *et al.*, 2014).

The South Africa Child Support Grant, an unconditional cash transfer programme targeting children under 18, the elderly and the disabled, has shown a significant increase in women's ability to take decisions over financial assets and the household's wellbeing (Patel *et al.*, 2015). The Zomba cash transfer programme in Malawi was evaluated in two versions, one with a cash transfer conditional on regular school attendance and another with unconditional targeting of some adolescents. The unconditional cash transfer had an impact on postponing marriage and increasing pregnancy for baseline schoolgirls (girls who were already enrolled in school at the start of the programme); the conditional cash transfer had no impact on these outcomes for baseline schoolgirls. However, the conditional cash transfer was effective in delaying pregnancy and early marriage among baseline dropouts, i.e. girls who were not enrolled in school at the start of the programme (Baird *et al.*, 2014).

As mentioned earlier, the evidence is mixed and cash transfer programmes do not always have a positive impact on women's decision-making. It is a function of how the programme is designed and implemented, such as who within the household receives the transfer, as well as the gender of the household head. Where the woman is not the designated recipient, and the transfer is given to the 'household head', it is observed that in a female-headed household it is more likely for women to manage the transfer (Bastagli *et al.*, 2016). Further, the impact can be heterogeneous across different aspect of a woman's life: for instance, participation in making decisions in a specific domain could increase while there is a decline in decision-making power in another domain. A study of the PROGRESA conditional cash transfer programme in Mexico shows that while the woman gains power over the decision on how to use the transfer money, her power over the use of the household general income reduces (Handa *et al.*, 2009). Moreover, an increase in women's decision-making power may increase episodes of domestic violence: increasing bargaining power of the woman, in particular where the head of the household has a low level of education, could lead to episodes of abuse by the head to impose his preferences (Bastagli *et al.*, 2016; Molyneux, 2008).

Less evidence is available on the impact of cash transfers on an individual's perception of his/her agency and on the impact of public works programmes with a cash component on agency and decision-making. In Rwanda, the Vision 2020 Umurenge Programme, which is a social protection programme with a public works component, has shown very limited results on women's empowerment: access to the cash transfer did not shift the overall decision making power in the household (Pavanello *et al.*, 2016). In Ethiopia, a study on the conditional cash transfer component of the PSNP programme in the Tigray region assessed the impact of the programme on women's empowerment (Desalegne Gelagay *et al.*, 2019). Results on women's decision-making power are ambiguous: among female-headed households, there is a positive impact on women's decisions on credit, but there is also a negative impact on agricultural production decisions and assets. The authors posit that this could be because these households are receiving help in agricultural production as part of the programme. Among male-headed households, there is a negative effect on women's leisure time, which the authors suggest is due to the increased work burden placed by the conditionalities. However, this impact is among married women only.

Lumbasi (2018) carried out a qualitative study among 21 households, 10 key informant interviews and two focus group discussions in the SNNP region (Halaba and Shashago) to analyse the effect of the IN-SCT on intrahousehold decision-making and nutrition of women and children. The study found limited effects on nutrition and that the 'burden' of observing 'soft' conditionalities mainly fell on women, reinforcing existing gender norms that women are responsible for performing 'care' work within the household. It also found that while both spouses are eligible for receiving the cash transfer, it was mainly the husbands who collected the payments. This paper builds on this work by providing a quantitative analysis conducted over a much larger group of households.

3. Programme description

The IN-SCT pilot was embedded within the fourth wave of Ethiopia's PSNP4. In 2005, the Government of Ethiopia set up the PSNP as part of a strategy to address chronic and transitory food insecurity in the country. From the beginning, the PSNP has been Ethiopia's main rural safety net for food insecure households and is now the largest social net programme in Africa. The fourth phase of the Programme was launched in 2015 and reaches eight million chronically food insecure people spread across eight regions of Ethiopia. People are included in the programme through a community-based targeting process, following an initial selection of targeted districts (woredas) and wards (kebeles) based on their food security status.

The PSNP4 supports food insecure households through two components: a cash transfer component that requires the recipient to participate in public works activities or to comply with soft conditionalities on access to social and health services, and a livelihood support component. The cash transfers are provided through two schemes: a Public Works (PW) scheme, which consists of 6-months-per-year transfers to members of food insecure households with sufficient labour capacity; and a Permanent Direct Support (PDS) scheme, which consists of a 12-months-per-year transfer to members of food insecure households with no able-bodied adults. Finally, households with pregnant and lactating women (PLW) or with caregivers of children under five years old who are malnourished, that are usually part of the PW scheme, have that PLW or caregiver member transition to the Temporary Direct Support scheme, while the rest of the members of the household remain under PW. The temporary direct support consists of six months of cash per year to the female household member, without the obligation to participate in public works, from first ante-natal care visit to 12 months after delivery. The work requirement for a member of a household under PW is five days per month, and the maximum number of household members allowed to engage in PW is five. Work requirement is determined at the household level. An able-bodied member of the household can take on the work requirement of another member as long as a single individual does not exceed 15 days a month.

Public Works focus on integrated community-based watershed development, covering activities such as soil and water conservation measures and the development of community assets like roads, water infrastructure, schools and health posts. The objective of these works is to contribute to livelihoods, disaster risk management and climate resilience, and nutrition (MoARD, 2014). The nature of soft-conditionalities under the PSNP varies depending on whether a household is under temporary direct support or PDS. For instance, PLW under temporary direct support are supposed to visit health facilities to receive the necessary pre-/post-natal care and attend community-based nutrition activities.

Meanwhile, both temporary direct support and PDS should attend behaviour change communication (BCC) sessions organized by the health extension workers in their villages. The livelihood component comprises mostly technical training intended to support households along three different growth pathways: farm, off-farm business and formal employment. Each pathway may include other types of livelihood support such as credit facilitation and one-off transfers. While the cash component follows a geographical and community-based targeting process, the participation in the livelihood component is completely voluntary for those who are eligible for PW/ temporary direct support /PDS.

The IN-SCT pilot was implemented in 2015 in two woredas each in the Oromia Region and in the SNNP Region with funding from UNICEF and Irish Aid. The pilot activities were targeted at new and existing cash recipients of the PSNP and were aimed at: a) increasing uptake of health and nutrition services by strengthening existing soft conditionalities in PSNP4, and introducing new conditionalities such as encouraging those receiving temporary direct support to participate in nutrition sensitive agriculture, and encouraging those receiving PDS to send their children to school, b) carrying out improved case management through increased human resources; c) emphasizing gender and social development provisions of the PSNP4, and d) improving the livelihood component of PSNP4 by adding new technical training activities related to nutrition-sensitive agriculture, as well as one-off transfer of crop inputs and livestock.

The pilot strengthened specific innovative components of the PSNP4, which included: linking client households to health and nutrition services; community mobilization of the BCC sessions for male and female clients; testing of PSNP4 nutrition- and gender-sensitive provisions to develop tools for further scale up; strengthened linkages across multiple sectors such as schools, child protection services, and agriculture; and building the capacity of MoLSA to better manage PDS and temporary direct support clients of PSNP. In SNNP, particular emphasis was given to nutrition-sensitive interventions. The objective of the programme was to increase uptake of social and health services by cash transfer recipients of the PSNP4 and improve their knowledge and practices regarding nutrition, health, child protection and nutrition-sensitive agriculture. The IN-SCT targeted 9 750 children under one year of age in food insecure households, 30 000 adolescent girls and 12 000 pregnant and lactating women (Ouedraogo, 2018).

It is worth highlighting some of the gender-sensitive provisions across key processes of the PSNP4 and the IN-SCT (MoARD, 2016). In targeting, special consideration was given to female-headed households, i.e. all things being equal, female-headed households are prioritized for inclusion, and polygamous households, headed by second and subsequent wives, are considered as separate female-headed households. In implementation of PW, guidelines were given for a 50 percent workload reduction for women, i.e. women have 50 percent fewer working hours and loads than men. In planning eligible public works, person-days of work were estimated for construction of childcare centres at PW sites and provision of childcare services. Lighter work was to be allocated to older people and women, especially PLW, and this work could take the form of caring for children in childcare centres. PW activities could be undertaken on private land belonging to female-headed households with severe labour shortages. It was envisaged that women would be represented and participate in PW planning teams and processes, with 50 percent representation in both the Kebele Watershed taskforce and the Kebele Appeals Committees. As per guidelines, PW team composition should be balanced between men and women, with targets for women in team leader/co-team leader/forewoman positions to increase women's representation in PW leadership and supervisory roles on PW sites. Guidelines also included equal access to and control over use of transfer by husband and wife. However, specific action points for achieving this were not clearly delineated. It was hoped that issuance of a Client Card with name and photograph of both spouses, details regarding entitlements and space to record receipt of transfers, would help in this regard.

4. Study design and sampling data

For this report, we use endline data collected in 2018 for the IN-SCT programme evaluation. Study design and data collection was conducted and overseen by International Food Policy Research Institute, the Institute of Development Studies at University of Sussex and Cornell University. A quantitative baseline survey was carried out from April to May 2016, and, after 27 months, an endline survey from August to September 2018. However, questions on women’s decision-making were collected only at endline. Therefore, we use endline data available to carry out: i) a descriptive analysis of the key agency and decision making indicators at follow-up; and ii) an impact evaluation using a single difference approach at endline.

The survey was conducted across four woredas in SNNP Region. Using these woredas as sample strata, two-stage cluster sampling was conducted in which Enumeration Areas were randomly sampled from within each woreda. In the second stage, households were randomly sampled from the household listing according to the sample strata for that EA, based on PSNP beneficiary status and household demographic status (pregnant or lactating women, and child aged under five).

Two respondents from each sampled household, a primary male and a primary female respondent, were interviewed. If the household head was male, the primary male respondent was termed ‘household head’. If the household head was female, the primary male respondent was referred to as the spouse of the female household head. Similarly, the primary female respondent was either the household head or the spouse of the household head if the household head was male. In a few cases, the interviewed primary respondent was not the head of the household or their spouse, but their sibling, in-law, parent or other relative. For the purposes of the analyses in this report, we excluded responses that did not come from the head or the spouse of the head (about four percent of the female sample and two percent of the male sample). This was necessary due to the structure of the survey and definition of key outcome indicators. This led to a total sample size of 2 160 female respondents and 2 213 male respondents (see **Table 1**). The household head was defined as the individual who plays a leading role in household decision-making, particularly concerning farming, household economic activity and expenditures. The person who was identified by the household as the household head was accepted in this role for the survey.

Table 1. Sample size by gender of the respondent

Gender of the respondent	Treatment status (number of respondents)		
	Comparison	IN-SCT	Total
Female	996	1164	2160
Male	1022	1191	2213

Note: Authors’ elaboration from IN-SCT follow-up survey data.

One way the IN-SCT could potentially have an impact on women’s agency and decision-making is if the primary female respondent of the household collects the PSNP payments. While this question was not directly asked, we were able to infer if this was the case by matching the ID of the female respondent

with the ID of the person who collects PSNP payments. While almost half the sample had missing values for the latter, it is still informative to look at the proportion of female respondents who collect PSNP payments across both female and male-headed households (Table 2). Only 143 out of 1164 households in the Treatment group, i.e. 12 percent of the households are female headed in the Treatment group. We find that in 56 percent of female-headed households, the female head herself collects the payments. Similarly, in 54 percent of male-headed households, the male head collects the payments. In both male and female-headed households, the spouse of the head collects payments in about 6-8 percent of cases.

Table 2. Respondents who collect PSNP payments, by gender of the household head

Gender of household head	The female respondent collects PSNP payments			
	No	Yes	Missing	Total
Male-headed	54%	8%	38%	100%
in absolute #	552	83	386	1021
Female-headed	6%	56%	38%	100%
in absolute #	8	80	55	143
Total	48%	14%	38%	100%
in absolute #	560	163	441	1164

Note: Authors' elaboration from IN-SCT follow-up survey data.

The next two sections provide descriptive analyses of the women's agency and decision-making indicators in the SNNP study area and investigate whether the IN-SCT has impacted these key indicators. The analysis in this study is constrained by two data limitations: a lack of baseline data for the outcomes studied and missing values for some key variables that identify who, within the household, is performing the PW and receiving the PW/PDS/ temporary direct support transfers.

5. Descriptive statistics

This section provides the results for the primary female and primary male respondents across three key sets of outcomes: LOC, Decision-Making Power, and Public Speaking.

5.1. Locus of control

Locus of control ‘is the degree to which people believe that they have control over the outcome of events in their lives, as opposed to external forces beyond their control’. The theory was first developed by Julian Rotten (1966). Levenson’s Internality, Powerful Others and Chance scale consists of three subscales to measure the locus of control of an individual. The Internality subscale measures the extent to which a person believes her own actions influence her life. The Powerful Others subscale measures the extent to which an individual feels that others influence her life. Finally, the Chance subscale determines how much the individual feels luck or chance is driving her life. The original scale consisted of 24 questions, with eight questions in each of the three sub-scales. In this paper, we use a pared down version of the scale, with five questions in each subscale, and therefore a total of 15. We provide these questions in Annex A. Three questions were omitted from each category partly due to their irrelevance in an agrarian poor rural setting in Ethiopia (for example, questions regarding driving a car). While the original Internality, Powerful Others and Chance scale utilizes a six-point Likert scale, ranging from -3 (Strongly Disagree) to +3 (Strongly Agree), the IN-SCT survey utilizes only a 3-point Likert scale.

Table 3 shows the scores for the three subscales for female and male respondents. The Treatment group and the Comparison group have similar results in both cases. No one subscale dominates the other as all three are between 10–12. Interestingly, we find a slightly higher score on the Internality subscale (slightly above 12) for male respondents compared to females (slightly below 12), which aligns with conventional wisdom that men are able to exert greater control over their lives through their own individual actions.

Table 3. Descriptive statistics of Levenson Internality, Powerful Others and Chance scale, by gender of the respondents and treatment status

	Female respondents		Male respondents	
	Treatment	Comparison	Treatment	Comparison
Internality Subscale	11.71	11.84	12.28	12.61
Powerful Others Subscale	10.37	10.63	10.07	10.23
Chance Subscale	11.01	11.36	10.97	11.20
Observations	1152	991	987	880

Note: Units are scores based on a battery of 5 questions evaluated on a 3-point Likert scale. Authors’ elaboration from IN-SCT follow-up survey data.

5.2. Control over life indicator

In addition to the LOC subscales, the survey also included a question that is similar to the Cantrill Ladder question. The Cantrill ladder (Cantrill, 1965) captures the life satisfaction of an individual by asking

him/her to rate their quality of life from 0 to 10, with 0 indicating the worst conceivable and 10 the best conceivable life. The Cantril Ladder has been adapted in several ways to evaluate an individual’s well-being and happiness (Helliwell *et al.*, 2019, Veenhoven *et al.*, 2006). In our report, we have used an adapted version of the scale to measure an individual’s perception of their control of their own life. Respondents were asked to imagine a nine-step ladder and indicate where on the ladder they stood. The bottom of the ladder indicates that they are totally unable to change their lives and the highest step, Step 9, indicates they are in full control over their own life. The respondent is considered to have control over her life if she indicates that she is standing on step 6 or higher. Since the scale is from 1 to 9, 5 is equidistant between full control and no control over life. Therefore, we assumed that the minimum score from a person who has some form of control over life is at least 6.

Table 4 shows that only four to eight percent of respondents feel they have some control over their lives, across both men and women. The comparison group has a slightly higher percentage of people who feel they have control over their lives compared to the treatment group.

Table 4. Control over life by gender of the respondent and treatment status

	Female respondents		Male respondents	
	Treatment	Comparison	Treatment	Comparison
Control over life indicator (%)	0.04	0.06	0.05	0.07
Observations	1152	991	987	880

Note: Authors’ elaboration from IN-SCT follow-up survey data. Percentages are expressed in decimals, so for example, 25% is reported as 0.25.

5.3. Decision-making indices and indicators

The decision-making questions in the survey ask who within the household normally makes decisions across eight specific areas: getting inputs for agricultural production, types of crops to grow for agricultural production, taking crops to the market, livestock raising, own wage employment or non-agricultural business, major household expenditures, minor household expenditures, and how to use the PSNP transfers. The instrument further probes the extent to which the respondent feels they could take the decision if they wanted to.

Using these data, we created two indices: one that measures the respondent’s power to make the actual decision across these eight domains and another that measures the extent they feel they can make the decision, if they want to. The first index has a maximum score of 24, with a minimum of 8. Each respondent scores 1 if they do not take the decision, 2 if they take the decision jointly with another member of the family, and 3 if they take the decision alone. The higher the score, the higher their decision-making power within the household. The second index has a maximum score of 32, with a minimum of 8. In this case, the respondent scores anywhere from 1 (indicating no possibility of making a decision) to 4 (indicating the respondent feels that they can make their own decisions to a great extent).

Table 5 shows that male respondents, on average, have slightly higher decision-making power within the household (17 for men compared to around 15 for women). Similarly, male respondents *feel* empowered to a greater extent to make decisions (score of 26 compared to about 22 for women). For males, scores between the treatment group and the comparison group are almost identical; for women, the comparison group has slightly higher scores than the treatment group. We look at each domain separately and find that men seem to have a little less decision power with respect to minor household expenditure.

Table 5. Decision-making indices by gender of the respondent and treatment status

	Female respondents		Male respondents	
	Treatment	Comparison	Treatment	Comparison
Index: decision-making (score 8 to 24)	15.3	14.7	17.1	17.4
Index: To what extent respondent feels she/he can take decisions (score 8 to 32)	22.0	21.4	26.5	26.1
Observations	1152	990	987	880

Note: Authors' elaboration from IN-SCT follow-up survey data.

Following the WEAI methodology, we establish an adequacy threshold to evaluate whether the respondent has decision-making power in each domain. For each of the eight types of decision, the respondent's decision-making power is considered adequate if she/he makes the decisions by herself or if the respondent feels that she could, if she wanted to, make her own personal decisions about these aspects of her household life. The indicator is equal to one if the individual achieves the adequate threshold, zero otherwise. Table 6 shows that, yet again, as conventional wisdom would have it, men achieve the adequacy threshold significantly more frequently than women. Around 89 percent of male respondents in the Treatment group have adequate decision-making power in the first four types of decision that focus on agricultural production activities. This is slightly higher than the Comparison group, at between 84–87 percent. In contrast, only 60 percent of women in the Treatment group and around 52–58 percent of women in the Comparison group achieve this adequacy threshold. This rises to almost 80 percent for minor household expenditure decisions, again aligning with established gender norms.

Table 6. Descriptive statistics of decision-making variables by gender of respondent and treatment status

	Female respondents		Male respondents	
	Treatment	Comparison	Treatment	Comparison
% respondents who make the decision alone or feels they can:				
1. Inputs for agricultural production (%)	0.58	0.52	0.88	0.84
2. Types of crops to grow (%)	0.60	0.57	0.89	0.87
3. Taking crops to the market (%)	0.60	0.56	0.89	0.85
4. Livestock raising (%)	0.60	0.58	0.89	0.86
5. Own wage or salary employment (%)	0.51	0.49	0.76	0.76
6. Major household expenditures (%)	0.65	0.62	0.89	0.88
7. Minor household expenditures (%)	0.79	0.77	0.72	0.72
8. Usage of PSNP transfers (%)	0.58	-	0.75	-
Makes the decision alone or feels she can in AT LEAST TWO productive domains (%)	0.63	0.59	0.90	0.88
Makes non-agricultural income decision alone (not only minor household expenditure) or feels she can (%)	0.74	0.70	0.93	0.92
No. of agricultural domains she makes the decision alone or feels she can (0-4)	2.38	2.23	3.55	3.43
No. of non-agricultural income domains she makes the decision alone or feels she can (0-4)	2.53	2.36	3.12	3.04
Observations	1152	991	987	880

Note: Authors' elaboration from IN-SCT follow-up survey data. Female respondents include both female head and wives of male head, while male respondents include both male head and husband of female head. Percentages are expressed in decimals, so for example, 25% is reported as 0.25.

The survey also specifically asked about decisions regarding usage of PSNP transfers. Here too, as we see in Table 6, 75 percent of the men reached the adequacy threshold, compared to only 58 percent of women. We further parsed this decision area to isolate how many respondents made this decision solely or jointly with their families. Among male respondents, 26 percent made the decision independently, compared to only 18 percent of women. Most respondents made the decision jointly across both men and women (Table 7).

Table 7. Descriptive statistics of PSNP transfer use by gender of the respondent

	Female	Male
Respondent alone takes the decision regarding PSNP transfers	0.18	0.26
Sole decision or family jointly takes the decision regarding PSNP transfers	0.67	0.76
Observations	1152	987

Note: Authors' elaboration from IN-SCT follow-up survey data. Responses shown only for the Treatment group as only Treatment group receives PSNP transfers. Percentages are expressed in decimals, so for example, 25% is reported as 0.25.

5.4. Speaking in public

The last set of outcomes concern how comfortable the respondent is in speaking in public about issues that concern their life. Four key areas were probed: infrastructure (help to decide if any infrastructure has to be built in the community), payment of wages for public work, if some aspect of PSNP is not implemented correctly and if some aspect of PSNP is not implemented fairly. Available responses were from 1 to 5: "no, not comfortable at all", "yes, but with great difficulty", "yes, but with a little difficulty", "yes, fairly comfortable", "yes, comfortable". Those who score 3 or above were considered to have the ability to speak comfortably in public. Table 8 shows that only about a third of women across study arms have this ability. This doubles to about 65 percent for male respondents. It is interesting, though not surprising, that those in the treatment group feel slightly less comfortable to speak up or vent any grievances concerning the programme.

Table 8. Descriptive statistics of speaking in public variables by gender of the respondent and treatment status

	Female respondents		Male respondents	
	Treatment	Comparison	Treatment	Comparison
<i>% respondents who are comfortable speaking in public on:</i>				
1. Community infrastructure	0.32	0.33	0.63	0.68
2. Proper payment of wages for PW and other programmes	0.33	0.34	0.65	0.70
3. Fair implementation of PSNP or other programme	0.33	0.35	0.65	0.66
4. Proper implementation of PSNP or other programme	0.34	0.35	0.66	0.67
Any of the previous four	0.40	0.41	0.73	0.78
Fairness and proper implementation of PSNP or other	0.36	0.38	0.69	0.70
Observations	1152	990	987	880

Note: Authors' elaboration from IN-SCT follow-up survey data. Percentages are expressed in decimals, so for example, 25% is reported as 0.25.

5.5. Gender-sensitive aspects of the IN-SCT

Here, we provide descriptive information about the implementation of the PSNP/INSCT that informs us about the gender-sensitive aspects of the programme. Unfortunately, this part of the survey has several missing responses, so the data presented here must be interpreted with caution. Table 9 shows who, within the household, takes a decision on which household members will work on PW. In male-headed households, the decision is usually made jointly with the spouse, or the head alone decides. However, in households with a female head, in most cases, the woman alone takes the decision. We checked to see if this maybe because female-headed households do not have a male spouse, i.e. they are widowers or separated. However, the percentage of married household heads was the same across both men and women. These averages need to be considered in the context of the high number of missing values. Overall, 40 percent of the households in our sample were missing a response to this question.

Table 9. Decision-maker within the household about who works on Public Works, by gender of household head

	Male-headed household	Female-headed household	Total
Who in the household made the decision about who would work on PSNP Public Works (%)			
Head	16.7	39.6	19.8
Spouse	10.9	4.7	10.0
Head and spouse jointly	27.3	5.3	24.2
Adult children	0.1	0.6	0.2
Head and adult children	0.3	4.1	0.8
Spouse and adult children	0.3	0.0	0.3
Head and parent	1.1	0.6	1.0
Head and brothers	0.1	0.0	0.1
Other	3.2	5.9	3.6
Missing Values	40.1	39.1	40.1
Total	100.0	100.0	100.0

Note: Authors' elaboration from IN-SCT follow-up survey data.

Table 10 describes whether men think women are typically allowed to do lighter work. Again, there were a high number of missing values, but of those men who answered this question, more than half agreed that women were allowed work that is lighter, i.e. not as physically demanding as that undertaken by men.

Table 10. Are women allowed to do lighter work?

Typically, are women allowed to do work that is lighter?	Frequency	Percent
Yes	442	36.3
No	290	23.8
Missing values	487	40.0
Total	1219	100.0

Note: Authors' elaboration from IN-SCT follow-up survey data.

The IN-SCT programme not only provided cash transfers, but also strengthened the delivery of training and courses for the household on multiple areas such as nutrition, agriculture, gender sensitivity, health and finance. However, as shown in Table 11, the results suggest that only a few primary male and female respondents received this training. As one would expect, a greater percentage of female respondents (15 percent compared to 7 percent for men) attended cooking demonstrations. This trend was reversed for agricultural work. Questions 6 and 8 of this table need to be interpreted with caution. These questions are difficult to communicate as the terminology of 'gender and social development considerations' is technical and not used in everyday parlance or easy to communicate accurately. It should be noted, however, that there were no missing values for this part of the survey.

Table 11. IN-SCT training and support

	(1) Male respondents (%)	(2) Female respondents (%)
1. Did you attend any monthly cooking demonstrations conducted by the HEW?	0.07	0.15
2. Did you attend any training for model farmers on nutrition sensitive agriculture?	0.07	0.03
3. Were you provided with any tools or inputs to support your vegetable gardening?	0.07	0.05
4. Did you attend any sessions which encouraged women to exercise savings and engage in income-generating activities?	0.15	0.17
5. Did you attend any BCC sessions that called for better-balanced gender roles?	0.11	0.10
6. Have you seen any posters with messages related to Gender and Social Development?	0.12	0.10
7. Have you been referred by your HEW/SW for any child health or Growth Monitoring services?	0.07	0.08
8. Do you believe that Public Works are implemented following Gender and Social Development considerations?	0.22	0.19
Observations	1191	1164

Note: Authors' elaboration from IN-SCT follow-up survey data. HEW: Health Extension Worker. Percentages are expressed in decimals, so for example, 25% is reported as 0.25.

One of the most important features of the IN-SCT programme is the temporary direct support, which allows pregnant women to stop working to improve their own health and that of their child. The temporary direct support helps the household to cope with loss of income due to pregnancy and helps the woman to manage her workload of PW, which could comprise her health. Pregnant women can stop working and receive temporary direct support when they receive a letter from a health worker. Health and social workers advise women to stop working on PW after the first trimester. Table 12 provides results for key temporary direct support indicators for the female treatment group. Among pregnant women, 71 percent stopped working while pregnant, and about 40 percent were advised to do so by health workers. When receiving direct support, only 11 percent of the women stated that the household reduced the days worked because of temporary direct support.

Table 12. PSNP during pregnancy and lactation

	(1) Treatment (%)	(2) N
1. Did you stop working on public works at any time during your pregnancy?	0.71	284
2. Were you advised by a health worker to stop work?	0.40	284
3. Were you advised by a Development Agent to stop work?	0.37	284
4. Were you advised by a social worker to stop work?	0.28	284
5. Did other household members work more days to make up for you no longer working?	0.30	284
6. Was your household able to reduce days worked because you began to receive Direct Support?	0.11	284

Note: Authors' elaboration from IN-SCT follow-up survey data. Percentages are expressed in decimals, so for example 25% is reported as 0.25.

6. Impact evaluation analysis

In this section, the Treatment (T) and Control (C1) arms are used to estimate the average impact of the PSNP and IN-SCT programmes on recipients of the PSNP4 programme, relative to a counterfactual in which similarly poor and food-insecure households receive neither the PSNP4 benefits nor the IN-SCT package.

6.1. Methodology

When households or communities are randomly assigned to a given treatment, their observed and unobserved characteristics are perfectly balanced across treatment groups. When treatment randomization is not feasible, the comparison group is selected through non-experimental means, as is the case here. Under such circumstances it is important to utilize a methodology that accounts for differences between treatment and comparison arms.

As can be seen from Table 13, there are several statistically significant differences between the T and C1 groups. Average household size across the study arms is 6.5. Households in the C1 group are less likely to have a female head (9 percent of households in C1 have a female head compared to 14 percent in T), likely to have a relatively younger head, a head who is married and less likely to have a household member living with a disability (6 percent compared to 10 percent for T). Their dwelling condition is less likely to be in a poorer state, compared to the T group. There are also significant differences across the characteristics of the female respondent. Women in the C1 group are relatively younger (31 years versus 33 years for T group), more likely to be married and have achieved a higher grade. They are less likely to be unable to work for the last six months due to disability or an injury. In general, the C1 group appears to be better off compared to the T group. This is unsurprising as the latter is comprised of households that are eligible for the PSNP and the IN-SCT, and therefore, by definition, are vulnerable households with severe food insecurity.

Table 13. Household and women's characteristics by treatment status – unweighted

	Comparison (1)	IN-SCT (2)	Difference (1-2) (3)
Household size	6.552 [0.067]	6.538 [0.068]	0.014
Household members between 5 to 15 years	2.430 [0.050]	2.434 [0.049]	-0.004
Household members between 15 to 65 years	2.693 [0.037]	2.765 [0.043]	-0.072
Household members over the age of 65 years	0.038 [0.006]	0.058 [0.007]	-0.020**
Household has a female head (0/1)	0.090 [0.011]	0.139 [0.012]	-0.048***
Head's age (years)	39.089 [0.327]	40.628 [0.436]	-1.539***
Head is married (0/1)	0.950 [0.007]	0.903 [0.012]	0.047***
Highest Grade achieved by household head	3.030 [0.151]	2.582 [0.148]	0.449***
Household has a disabled member (0/1)	0.057 [0.007]	0.103 [0.010]	-0.046***
Household sex-ratio	1.305 [0.036]	1.306 [0.031]	-0.001
Household Dependency ratio	1.617 [0.031]	1.566 [0.028]	0.051
Household operated land (ha)	1.881 [0.301]	2.701 [0.630]	-0.820
Household's dwelling is in poor condition (0/1)	0.269 [0.016]	0.305 [0.018]	-0.036*
Household has electricity (0/1)	0.209 [0.021]	0.212 [0.021]	-0.003
Household is Muslim (0/1)	0.685 [0.035]	0.701 [0.031]	-0.017
Household is protestant (0/1)	0.294 [0.034]	0.279 [0.030]	0.015
Female respondent: age (years)	31.294 [0.240]	32.874 [0.394]	-1.580***
Female respondent: married (0/1)	0.956 [0.006]	0.915 [0.011]	0.041***
Female respondent: highest Grade	2.080 [0.122]	1.787 [0.153]	0.293**
Female respondent: unable to work (0/1)	0.046 [0.007]	0.070 [0.008]	-0.024**
N	1040	1219	
Clusters	98	101	

Note: Authors' elaboration from IN-SCT follow-up survey data. Standard errors are clustered at kebele level and reported in brackets. ***, **, and * indicate statistically significant differences at the 1, 5, and 10 percent critical level.

To estimate the impact of the PSNP/IN-SCT, we employ a single difference approach using inverse probability weighting, as we have a non-randomized sample with data for outcomes available only at endline. Observed differences (as shown above) and unobserved differences across the Treatment and Comparison groups may bias our impact estimates, as these households may differ not only in their treatment status, but also in other characteristics that affect both participation in the programme and the outcome of interest. We therefore use the Inverse Probability Weighting technique (Soares, Ribas and Hirata, 2010; Imbens and Wooldridge, 2009; Wooldridge, 2007; Hirano *et al.*, 2003) which uses a propensity score for each household as a 'weight' in the statistical analysis to reflect how similar the comparison household is to the treatment household (the higher the score, the more similar, and the greater the weight). When we use the propensity scores as weights, we find no significant differences across the study arms as shown in Table 14. This implies that these households differ as little as possible in observed characteristics other than participation in the treatment arm.

Table 14. Household and women's characteristics by treatment status – weighted

	Comparison (1)	IN-SCT (2)	Difference (1-2) (3)
Household size (number of people)	6.546 [0.071]	6.542 [0.071]	0.004
Household members between 5 to 15 years	2.427 [0.051]	2.428 [0.051]	-0.002
Household members between 15 to 65 years	2.730 [0.040]	2.730 [0.041]	0.000
Household members over the age of 65 years	0.049 [0.008]	0.049 [0.006]	-0.000
Household has a female head (0/1)	0.113 [0.013]	0.115 [0.010]	-0.003
Head's age (years)	39.797 [0.383]	39.861 [0.395]	-0.064
Head is married (0/1)	0.928 [0.010]	0.926 [0.009]	0.002
Highest Grade achieved by household head	2.810 [0.145]	2.800 [0.158]	0.010
Household has a disabled member (0/1)	0.078 [0.010]	0.081 [0.008]	-0.003
Household sex-ratio	1.306 [0.038]	1.306 [0.030]	0.000
Household Dependency ratio	1.590 [0.032]	1.589 [0.028]	0.000
Household operated land (ha)	2.119 [0.443]	2.294 [0.425]	-0.175
Household's dwelling is in poor condition (0/1)	0.291 [0.017]	0.289 [0.018]	0.002
Household has electricity (0/1)	0.209 [0.021]	0.211 [0.021]	-0.001
Household is Muslim (0/1)	0.692 [0.034]	0.693 [0.033]	-0.000
Household is protestant (0/1)	0.287 [0.033]	0.287 [0.031]	0.000
Female respondent: age (years)	32.042 [0.333]	32.094 [0.338]	-0.053
Female respondent: married (0/1)	0.936 [0.009]	0.934 [0.009]	0.002
Female respondent: highest Grade	1.947 [0.116]	1.940 [0.168]	0.007
Female respondent: unable to work (0/1)	0.056 [0.009]	0.058 [0.007]	-0.002
N	1040	1219	
Clusters	98	101	

Note: Authors' elaboration from IN-SCT follow-up survey data. Standard errors are clustered at the kebele level and reported in brackets. ***, **, and * indicate statistically significant differences at the 1, 5, and 10 percent critical level.

The original study design involved three arms: the treatment arm (T), made up of the IN-SCT beneficiaries, i.e., new and existing PSNP clients who would also start benefiting from the IN-SCT package; the “pure control” group (C1) that included households in the same communities (Alabo and Shashago woredas) as the treated households but that were neither PSNP clients nor to be supported by the IN-SCT; the PSNP4-only group (C2) made of PSNP clients (new and existing) who would not benefit from IN-SCT. The C2 (PSNP-only) group consisted of households in two woredas other than Alabo and Shashao where the IN-SCT was not operating.

The ability of the reweighting method to level out observed differences depends largely on the underlying similarity of the sample across study arms. Based on our analysis, provided in Appendix B, we find that we have a similar distribution of the probability of belonging to T and C1 groups. However, this is not true for the C2 group (clients that received the PSNP only) compared with T or C1. Therefore, this report presents the estimates of the impacts of PSNP/IN-SCT vis-à-vis those households that were not recipients of the PSNP4 programme (T vs C1). We do not use the second comparison group as it was sampled in different woredas, leading to low comparability. This is explained in further detail in Appendix B.

As the outcomes we analyse for this report were collected only at follow-up in 2018, we estimate the impact of the programme using the following equation:

$$Y_{hj} = \beta_0 + \beta_1 \text{Program}_j + \beta_2 \text{HHCharacteristics}_h + \beta_3 \text{WomenCharacteristics}_h + \beta_7 \text{Strata}_j + \varepsilon_{hj}$$

Where:

- Y_{hj} is the outcome of interest for household h in Strata j .
- Program_j is an indicator that equals ‘1’ if the household is in a treatment Kebele.
- HHCharacteristics is a vector of baseline household demographic characteristics, which include household size, and the number of people between age 5–15, between age 15–65, and those over 65; and includes indicators for if the household has a disabled member, has poor living conditions, has electricity, is Muslim or protestant. The baseline religious category is Other.
- $\text{WomenCharacteristics}$ is a vector of characteristics of the woman respondent that includes indicators for if she is married and if she is unable to work, and linear variables for the highest grade attained and age.
- Strata are indicators of the woredas used in selecting Kebeles and Enumeration Areas. Since sampling was carried out in two woredas, Alabo and Shashago, we use an indicator for Alabo. The reference stratum is Shashago.

In this framework the variable of interest is β_1 , which represents the programme impact. Estimation is via Ordinary Least Squares (OLS) with standard errors clustered at the level of the kebeles. We estimate impact for only the primary female respondent, who is either the head of the household or the spouse of the household head. There is only one observation per household.

6.2. Impact estimates: Locus of control

We find a small but statistically significant impact estimate for the ‘Powerful Others’ and ‘Chance’ subscales. This indicates that women in the Treatment group may feel that external forces (such as chance or powerful others) exert slightly less influence over their lives. This may be due to the PSNP payments the households receive. However, this movement away from external forces is not mirrored by a corresponding increase in the score of the ‘Internality’ subscale, for which we do not find a statistically significant impact estimate. Meanwhile, the result on the ‘Control over life’ indicator is counterintuitive, in that women in the treatment group are 1.5 percentage points less likely to feel they have control over their lives, compared to the comparison group.

Table 15. Intention-to-treat effect on locus of control indicators

	ITT		TM	CM	N
(1) Internality Subscale	-0.070	(0.141)	11.71	11.78	2143
(2) Powerful Others Subscale	-0.277**	(0.124)	10.36	10.65	2143
(3) Chance Subscale	-0.344***	(0.111)	11.02	11.37	2143
(4) Control over life	-0.015*	(0.009)	0.04	0.06	2143

Note: Authors’ elaboration from IN-SCT follow-up survey data. Standard errors are clustered at variable kebele and reported in parentheses. ***, **, and * indicate statistically significant effect at the 1, 5, and 10 percent critical level. ITT: Intention-to-treat, TM: Treatment group, CM: Comparison group.

6.3. Impact estimates: Decision-making

We find statistically significant positive impact estimates for some of the decision-making outcomes. In the Treatment group, the overall decision-making index rises by 0.4 points, which is a very marginal increase (only three percent) over the comparison group. However, women in the Treatment group are three to four percentage points more likely to make decisions alone or feel they can make the decision regarding agricultural inputs and non-agricultural income, compared to the Control group.

Table 16. Intention-to-treat effect on decision-making indicators

		ITT		TM	CM	N
(1)	Index: Decision-making (8 to 24)	0.385**	(0.181)	15.18	14.83	2142
(2)	Index: To what extent the woman feels she can take decisions (8 to 32)	0.324	(0.240)	21.82	21.53	2142
(3)	Woman makes the decision alone or feels she can: inputs for agricultural product	0.042**	(0.019)	0.56	0.52	2143
(4)	Woman makes the decision alone or feels she can: types of crops to grow	0.012	(0.018)	0.59	0.58	2143
(5)	Woman makes the decision alone or feels she can: taking crops to the market	0.020	(0.020)	0.59	0.57	2142
(6)	Woman makes the decision alone or feels she can: livestock raising	0.002	(0.022)	0.59	0.59	2142
(7)	Woman makes the decision alone or feels she can: own wage or salary employment	0.007	(0.021)	0.51	0.50	2142
(8)	Woman makes the decision alone or feels she can: major household expenditures	0.022	(0.022)	0.64	0.62	2142
(9)	Woman makes the decision alone or feels she can: minor household expenditures	0.006	(0.017)	0.78	0.77	2142
(11)	Number of agriculture domains where she makes the decision alone or feels she can	0.076	(0.067)	2.33	2.26	2143
(12)	Makes the decision alone or feels she can in AT LEAST TWO productive domains	0.022	(0.020)	0.62	0.60	2143
(13)	Number of non-agriculture income domains she makes the decision alone or feels she can	0.117*	(0.061)	2.49	2.38	2142
(14)	Makes non-agriculture income decision alone or feels she can AND not only minor household expenditure	0.032*	(0.018)	0.73	0.70	2142

Note: Authors' elaboration from IN-SCT follow-up survey data. Standard errors are clustered at variable kebele and reported in parentheses. ***, **, and * indicate statistically significant effect at the 1, 5, and 10 percent critical level. ITT: Intention-to-treat, TM: Treatment group weighted mean, CM: Comparison group weighted mean.

Impact estimates: Speaking in public

We do not find statistically significant impact estimates for this set of outcomes.

Table 17. Intention-to-treat effect on Speaking in public indicators

	ITT		TM	CM	N
(1) Comfortable speaking in public on community infrastructure	-0.015	(0.022)	0.32	0.33	2142
(2) Comfortable speaking in public on proper payment of wages for PW and other programmes	-0.012	(0.024)	0.33	0.34	2142
(3) Comfortable speaking in public on fair implementation of PSNP or other programme	-0.025	(0.022)	0.33	0.35	2142
(4) Comfortable speaking in public on proper implementation of PSNP or other programme	-0.011	(0.023)	0.34	0.35	2142
(5) Comfortable speaking in public on any of the four	-0.013	(0.024)	0.40	0.41	2142
(6) Comfortable speaking in public on fairness and proper implementation of PSNP or other programmes	-0.018	(0.023)	0.37	0.38	2142

Note: Authors' elaboration from IN-SCT follow-up survey data. Standard errors are clustered at variable kebele and reported in parentheses. ***, **, and * indicate statistically significant effect at the 1, 5, and 10 percent critical level. ITT: Intention-to-treat, TM: Treatment group weighted mean, CM: Comparison group weighted mean.

Impact estimates: other relevant economic and Access-to-Health indicators

In addition to the outcomes on agency and decision-making, we also investigated whether the programme has increased certain economic indicators for women. Specifically, we investigated whether the programme led to an increase in the proportion of women who own livestock, or generate income through livestock, have a homestead garden, operate their own business, or were able to take out a loan. However, we did not find statistically significant impact estimates.

Table 18. Intention-to-treat effect on economic indicators

	ITT		TM	CM	N
Proportion of women who:					
(1) Own livestock	0.013	(0.014)	0.12	0.11	2160
(2) Have livestock income	0.003	(0.015)	0.11	0.11	2160
(3) Operate a homestead garden	-0.002	(0.019)	0.26	0.26	2160
(4) Own a business	-0.007	(0.008)	0.03	0.03	2160
(5) Took out a loan	-0.003	(0.012)	0.08	0.09	2160

Note: Authors' elaboration from IN-SCT follow-up survey data. Standard errors are clustered at variable kebele and reported in parentheses. ***, **, and * indicate statistically significant effect at the 1, 5, and 10 percent critical level. ITT: Intention-to-treat, TM: Treatment group weighted mean, CM: Comparison group weighted mean.

In addition, improving access to health services was an important component of IN-SCT. The theory of change “predicts enhanced access to basic services through co-responsibilities and referrals, specifically increased uptake of primary health care services among pregnant and lactating women in IN-SCT households” (Gilligan *et al.*, 2019, p.101). As investment in health is important for enabling women’s agency, we analysed variables that asked the respondents about access to health services, restricted to the pregnant and lactating women sample only. The results are provided in Table 19.

. We find that, overall, there are no significant differences between treatment and comparison groups. In fact, there is a counterintuitive result in the case of two indicators, ‘received iron supplement during last pregnancy’ and ‘ever visited health post’, where we find a four percentage-point gap, in favour of the comparison group. We checked whether this might be due to the absence of a health post in the kebele in which the woman is residing. However, that was not the case. The lack of a significant difference for some indicators, such as the proportion of women who received antenatal care or who gave birth in a health facility, might be because these proportions are already high (94 and 92 percent, respectively) across both groups. Also, for several indicators, such as contact with a health extension worker, health development army personnel, and social worker, the treatment mean is higher than the comparison mean, though we do not detect a statistically significant impact.

Table 19. Intention-to-treat effect on Access-to-health indicators

		ITT		TM	CM	N
	Proportion of women who:					
(1)	Received antenatal care	-0.012	(0.012)	0.94	0.94	1241
(2)	Received postnatal care	-0.001	(0.021)	0.83	0.84	1164
(3)	Received iron supplement during last pregnancy	-0.042*	(0.021)	0.70	0.73	1164
(4)	Received nutrition counselling during last pregnancy	-0.011	(0.026)	0.70	0.70	1246
(5)	Birth registered	0.006	(0.028)	0.56	0.54	1259
(6)	Received Vitamin A at or soon after birth	-0.013	(0.028)	0.45	0.45	1259
(7)	Know Health Extension Worker in your area	0.006	(0.013)	0.94	0.93	1277
(8)	Contact with Health Extension Worker in last 3 months	0.029	(0.027)	0.43	0.39	1197
(9)	Visited by Health Extension Worker at home	0.001	(0.028)	0.35	0.34	1197
(10)	Ever visited Health Post	-0.041**	(0.020)	0.76	0.80	1277
(11)	Member of Health Development Army	0.018	(0.016)	0.12	0.09	1277
(12)	Contact with Health Development Army in last 3 months	0.052	(0.045)	0.26	0.21	446
(13)	Know Social Worker in your area	-0.021	(0.021)	0.11	0.13	1277
(14)	Contact with your Social Worker in last 3 months	0.056	(0.048)	0.18	0.11	152
(15)	Ever attended Food Demonstration	-0.012	(0.019)	0.19	0.19	1277
(16)	Woman gave birth in a health facility	0.002	(0.015)	0.92	0.92	1145
(17)	Listen to radio	0.001	(0.022)	0.22	0.21	1277

Note: Authors' elaboration from IN-SCT follow-up survey data. Standard errors are clustered at variable kebele and reported in parentheses. ***, **, and * indicate statistically significant effect at the 1, 5, and 10 percent critical level. ITT: Intention-to-treat, TM: Treatment group weighted mean, CM: Comparison group weighted mean.

7. Conclusion

This paper contributes to the literature on the role of social protection programmes in strengthening women's agency and decision-making power. We utilized available data on a Treatment and Comparison group that allowed us to analyse agency as measured through the "locus of control" subscales, decision-making indicators across eight specific areas, and comfort in being able to speak in public about key issues.

This study demonstrated that the IN-SCT pilot in the SNNP region of Ethiopia had a small but significant impact on the overall decision-making power of women. Further, women in the Treatment group are three to four percentage points more likely to make decisions alone or feel they can make the decision regarding agricultural inputs and non-agricultural income, compared to the Comparison group. There is a small but statistically significant negative impact estimate for the 'Powerful Others' and 'Chance' subscales. This indicates that women in the Treatment group feel that external forces (such as chance or powerful others) exert slightly less influence over their lives. This may be due to the PSNP payments the households receive.

The descriptive analyses contained in this paper align with conventional wisdom, in that men have a slightly higher score on the 'Internality' subscale compared to women, indicating that men are able to exert greater control over their lives through their own individual actions. Results show that male respondents, on average, have slightly higher decision-making power within the household and that almost all men (90 percent) in the sample achieve the adequacy threshold, indicating that they have adequate decision-making power in agricultural production activities. In decisions regarding usage of PSNP transfers, 75 percent of men achieve the adequacy threshold. Similarly, they *feel* empowered to a greater extent to make decisions. In contrast, only 60 percent of women achieve the adequacy threshold for both agricultural production activities and usage of PSNP transfers. Further, about 65 percent of male respondents felt comfortable speaking in public about issues that concern their life, in contrast to only about a third of women.

Lastly, the IN-SCT programme not only provided cash transfers, but also strengthened the delivery of training and courses for the household on multiple aspects, such as nutrition, agriculture, gender sensitivity, health and finance. However, the data suggests that only a few primary male and female respondents attended this training.

The results suggest that gender norms are difficult to change and that the impact on women's agency and decision-making will depend on the design and implementation of the programme. The design and implementation must ensure that the programme proactively tries to reduce gender differences within the household and in the community. Policy makers should take into consideration 'gender-sensitive' programmatic features. The PSNP4 and the IN-SCT had incorporated such gender-sensitive provisions in their design, across the key processes of targeting, planning, and implementation. These included, for example: prioritization of female-headed households for inclusion; reduced workload for women, especially PLW; facilitating female participation in public works by providing childcare services at sites;

deeming construction of childcare centres at PW sites and provision of childcare services PW-eligible work; and incorporating targets to enable representation of women in planning teams, and in leadership and supervisory roles on PW sites. These are all steps in the right direction. There was also a provision for equal access to and control over use of the cash transfer by husband and wife. However, specific action points for achieving this were not clearly delineated. The PSNP and the IN-SCT payment are allocated on a household basis, irrespective of who within the household does the work. Information on who collects the payments was missing for many households. However, the existing data suggest that it is typically the household head, which would imply that a woman collects the payment in only about 10 percent of the households. More research on identifying actionable programmatic elements for enhancing women's control over the use of transfers within the household is required.

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Appendices

A. Locus of control scale

Internal Locus of Control: Items 1, 4, 5, 9, 18, 19, 21, and 23 (Items 1, 4, and 9 were omitted).

Powerful Others: Items 3, 8, 11, 13, 15, 17, 20, and 22 (Items 8, 17, and 20 were omitted).

Chance: Items 2, 6, 7, 10, 12, 14, 16, and 24 (Items 12, 16, and 24 were omitted).

1. Whether or not I get to be a leader depends mostly on my ability.
2. To a great extent my life is controlled by accidental happenings.
3. I feel like what happens in my life is mostly determined by powerful people.
4. Whether or not I get into a car accident depends mostly on how good a driver I am.
5. When I make plans, I am almost certain to make them work.
6. Often there is no chance of protecting my personal interests from bad luck.
7. When I get what I want, it's usually because I'm lucky.
8. Although I might have good ability, I will not be given leadership responsibility without appealing to those in positions of power.
9. How many friends I have depends on how nice a person I am.
10. I have often found that what is going to happen will happen.
11. My life is chiefly controlled by powerful others.
12. Whether or not I get into a car accident is mostly a matter of luck.
13. People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.
14. It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.
15. Getting what I want requires pleasing those people above me.
16. Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.
17. If important people were to decide they didn't like me, I probably wouldn't make many friends.
18. I can pretty much determine what will happen in my life.
19. I am usually able to protect my personal interests.
20. Whether or not I get into a car accident depends mostly on the other driver.
21. When I get what I want, it's usually because I worked hard for it.
22. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.
23. My life is determined by my own actions.
24. It's chiefly a matter of fate whether or not I have a few friends or many friends.

B. Statistical methods

The propensity score is the probability that any given household would be in a specific treatment arm. It is calculated for each household in the sample using a probit model. The variables used to construct the propensity score should be related to treatment (but not predict treatment status perfectly), and it is important to not include variables that could be affected by the treatment itself. Given the eligibility criteria of different components of the IN-SCT/PSNP programmes, we utilize baseline household demographic characteristics, which include household size and the number of people between age 5–15, age 15–65 and over 65. We also include the household's sex ratio, its dependency ratio and an indicator of whether the household has a member living with a disability.

As the programme is targeted to food-insecure households, we also include variables that can determine the food-insecurity status of the household and might affect its response to the presence of economic constraints. These include age, gender, marital status and education of the household head, and indicators of whether the household has poor living conditions, electricity and the amount of operated land it uses. In addition, we include contextual variables such as the religion of the household and, in the case of the comparison between IN-SCT and C1, the woreda in which the household is located. However, we cannot include woreda to predict the probability of being in the treatment group in the comparisons between C2 and T or C1, because the C2 group (receipt of cash alone, without the IN-SCT add-on of complementary services) was sampled from different woredas, which would therefore predict treatment status perfectly. Finally, because we are interested in estimating the impact on women's agency and decision-making, we need to ensure that our sample is also balanced on female characteristics. We include female respondent age, marital status, highest grade achieved, and if she has not been able to conduct work for the last six months due to sickness or injury. None of these characteristics can be impacted by the programme, but they can influence the impact on the outcomes.

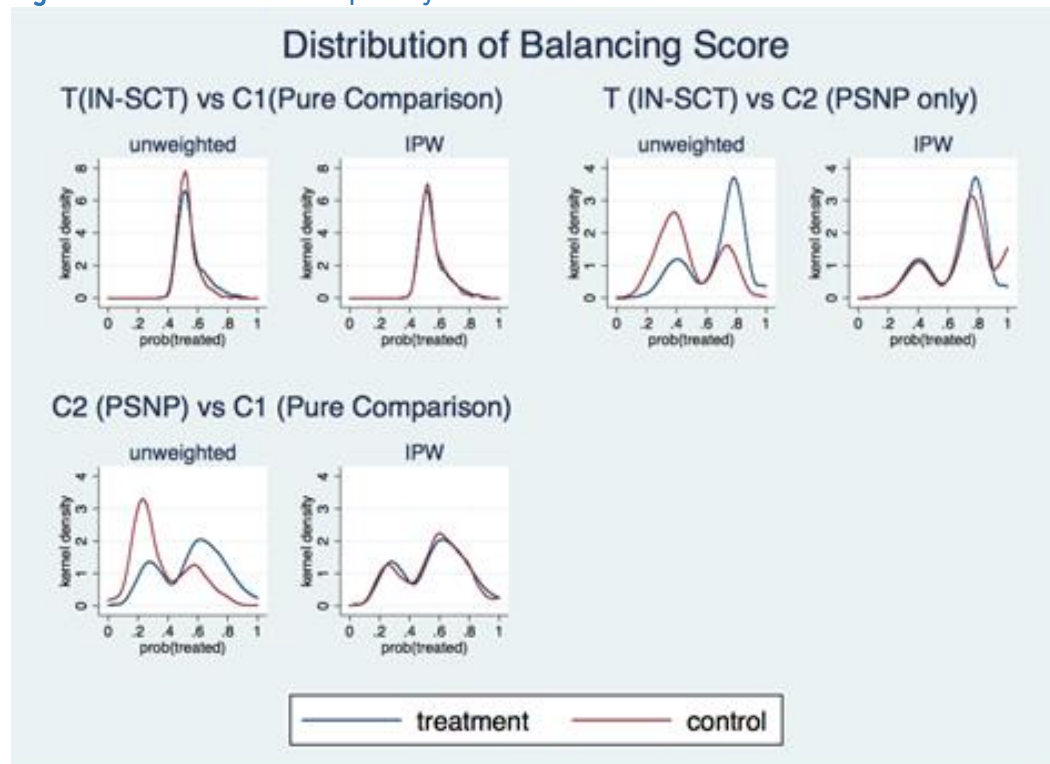
Figure 1 depicts the distribution of the resulting propensity scores. The graph on the left shows that the scores for treatment (T) households are clearly to the right of those for the control group, indicating a higher likelihood of participating in the IN-SCT pilot. The graph on the right shows the distribution of propensity scores after reweighting. The reweighting leads to a much more similar distribution of scores among comparison households to that of IN-SCT households. After reweighting, households have a similar distribution of the propensity score for the comparison between T and C1. However, significant differences in the shape of the propensity score distribution remain for the comparison between T and C2 and between C2 and C1, even after reweighting.

The ability of the reweighting method to level out observed differences depends largely on the underlying similarity of the sample across study arms. This is ascertained by examining the extent to which distributions of propensity scores in treatment and comparison groups overlap. Figure 1 shows the distribution, while Figure 2 provides a more visual depiction of the extent of overlap. The red bars show the distribution of the probability of belonging to the treatment and blue bars show the distribution of the probability of belonging to the comparison arm. If the two distributions are similar and overlap, it implies that for a household with given observed characteristics in a given arm, we can

find observationally similar households in the other arms, which in turn reassures the analyst that outcomes are being compared across similar groups and that effects can be attributed to the treatment.

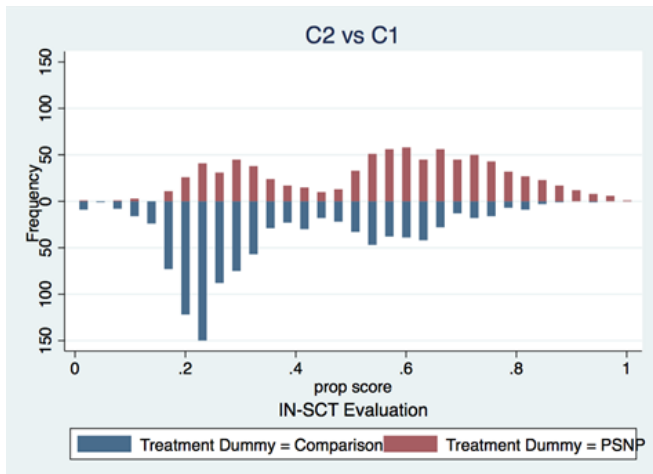
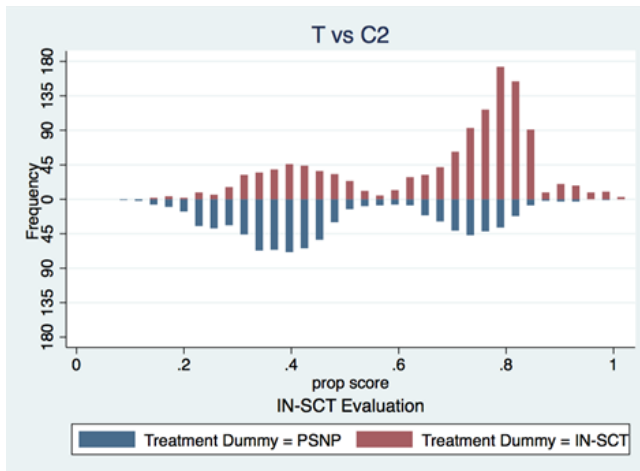
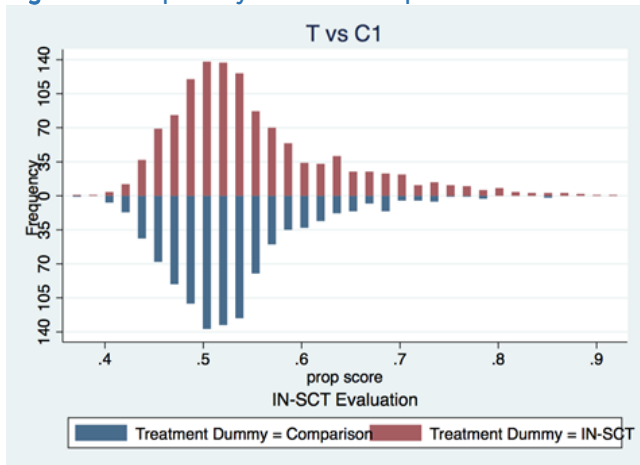
We find that for the comparison between T vs C1, we have a similar distribution of the probability of belonging to either of the two arms. However, the extent of the overlap is relatively less for the comparison between T and C2 and between C2 vs C1. In addition, we also perform Hotelling tests for each of the comparison-pairs to test if the vector of means of two groups are equal. We include all the characteristics used in Table 14 in this test. As expected, the unweighted test is rejected, thus we can infer that the baseline characteristics of the households are significantly different. However, when we use the propensity scores as weights, we find no significant differences for the T vs C1 comparison. Therefore, we are assured that these households differ as little as possible in observed characteristics other than participation in the treatment arm. For the T vs C2 and C2 vs C1 comparison groups, significant differences continue to exist, despite using weights. Based on these considerations, this report presents the estimates of impacts of the IN-SCT derived from the comparison between T (IN-SCT treatment) and C1 (pure control). We do not investigate the impacts of receiving PSNP4 programme alone (C2 vs C1) or of the incremental impact of the IN-SCT over and above the PSNP4 *vis a vis* those households that have been recipients of the PSNP4 programme (T vs C2).

Figure 1. Distribution of Propensity Scores



Note: **Top left:** T vs C1; **Top right:** T vs C2; **Bottom left:** C2 vs C1.

Figure 2. Propensity Score overlap





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.

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