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Securing food, building livelihoods?

A 15-year appraisal of Ethiopia's Productive Safety Net Programme

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Abstract: We assess the impact of a large-scale social protection intervention, Ethiopia’s Productive Safety Net Programme (PSNP), over a 15-year period. We find that the PSNP had a positive impact on food security but inconsistent impacts on assets. There were positive impacts on fertilizer use, investments in terracing, and cereal yields but only when the program was twinned with complementary programming. The PSNP enabled households to be more resilient to covariate shocks. There were no adverse incentive effects on labour supply or fertility. There is some evidence that it improved schooling outcomes and reduced child labour but not child nutrition outcomes. Payment levels, uncertainty about when payments would take place, and processes associated with making payments all played a role in generating these mixed impacts. These also illustrate that while complementary programming can enhance the impact of transfers, adding complementary programming at scale is challenging when resources are limited.

Key words: Ethiopia, social protection, public works, PSNP, food security, assets

JEL classification: O1, I38

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Note: Figures and tables are found at the end of the document.

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1 Introduction

In the last 20 years, social protection programs have moved from a niche intervention to a core component of efforts to reduce global poverty. There is a large and growing evidence base showing that across low- and middle-income country settings, cash and food transfer programs are effective in the short term at increasing household consumption (Bastagli et al. 2016; Crosta et al. 2024; Leight et al. 2024), improving food security (Hidrobo et al. 2018), and reducing poverty (Ravallion 2016). Social protection programs are now widespread in Latin America and the Caribbean and in many countries of south and east Asia. But, apart from South Africa, coverage is much lower in most of sub-Saharan Africa and the evidence base smaller (World Bank 2018; Gentilini 2022). Further, many of the programs that exist in sub-Saharan Africa are pilot interventions, but few of these operate at scale for significant periods of time. Most evaluations of social protection programs in Africa, and elsewhere, focus on the short-term effects observed in their initial years of implementation (work on Mexico's PROGRESA and its subsequent iterations as Oportunidades and Prospera being a notable exception; see Parker and Todd 2017). And while the global evidence base on impacts is large, much less is known about why some programs have limited impacts.

One exception is Ethiopia. Starting in 2005, the Government of Ethiopia, with support from its development partners, has implemented the Productive Safety Net Programme (PSNP). Unusually for social protection interventions, the PSNP has been the subject of *repeated* evaluations between 2006 and 2021, covering both implementation performance ('Is it implemented as designed?') and outcomes ('Is it achieving its objectives?'). Drawing on these evaluations, together with other studies, makes it possible to assess how well the PSNP has met its goals and the lessons it holds for the design, implementation, and assessment of countries of large-scale social protection interventions in sub-Saharan Africa and elsewhere, thus contributing to filling the knowledge gaps described above.

We begin by describing the PSNP. We assess it along six dimensions that formed key objectives of the program: food security; assets and resilience; increasing agricultural productivity and household incomes; improving child-related outcomes; disincentive effects; and the constructive of productive community assets. We assess how outcomes along these different dimensions were shaped by specific design and implementation features of the PSNP. We draw out broader lessons from this work before summarizing.

2 The Productive Safety Net Programme: a brief history

Ethiopia has a long history of drought shocks with those occurring in 1974 and 1982–84 leading to hundreds of thousands of famine-related deaths. Annual emergency requests for food aid throughout the 1990s prevented further deaths from starvation, but, as time passed, it became increasingly clear that these ad hoc responses were inadequate (Raisin 2001). The number of persons requiring assistance rose steadily from 1996 onwards, from 2.1 million people to approximately 7.5 million by 2002. A severe drought shock in 2003 increased the numbers needing assistance to 13 million (Wiseman et al. 2010). While famine was averted, the magnitude of the shock caused the Government of Ethiopia and its development partners to begin a dialogue over a better way of addressing food security in drought-prone regions of rural Ethiopia (Lavers 2016; Wiseman et al. 2010).

One outcome of this dialogue was the PSNP, a safety net intervention funded by a consortium of donors who pooled their resources but managed and implemented by the Government of Ethiopia (GFDRE 2004).¹ Core donors who have provided significant financial resources to the PSNP since its inception include the European Commission, the United Kingdom’s Department for International Development (now the Foreign and Commonwealth Development Office), the United States Agency for International Development (USAID), and the World Bank.² Over time, the Government of Ethiopia has provided increasing amounts of funding for the PSNP, rising to 36 per cent of program costs by 2020–21 (Lind et al. 2024). There were fluctuations in coverage and budget from year to year; as a reasonable approximation, over the period covered in this paper (2006–21), the PSNP reached approximately seven million beneficiaries annually with a budget of around US\$500 million per year. Uniquely, there was an unusually high degree of cooperation and coordination among donors. Funds provided to the PSNP were—with the exception of USAID—pooled, and interactions with the Government of Ethiopia’s Food Security Coordination Directorate were harmonized through the functioning of a Donor Coordination Team.

Rather than annual appeals for assistance and ad hoc distribution programs, the PSNP was designed and implemented as a multi-year program, implemented in phases, with review of program performance and outcomes feeding into subsequent changes in design and implementation: Phase 1, 2005–06; Phase 2, 2007–09; Phase 3, 2010–14; and Phase 4, 2015–20.³ Details on the implementation of each phase were put in Program Implementation Manuals. Certain key program features remained largely unchanged over this entire period 2005–20.

First, the objective of the PSNP was ‘... to provide transfers to the food insecure population in chronically food insecure woredas in a way that prevents asset depletion at the household level and creates assets at the community level’ as well as bridging the food gap that arises when, for these households, food production and other sources of income are insufficient given food needs (GFDRE 2004).

Second, the PSNP was a targeted intervention, operating in chronically food-insecure rural localities.⁴ In 2005, it began operations in four regions: Amhara, Oromia, Southern Nations and Nationalities (SNNP), and Tigray. Within these regions, administrative targeting was used to identify woredas (districts) and kebeles (sub-districts). Community-based targeting was used to identify chronically food-insecure households at the local level. While communities were provided with guidelines about who was eligible for inclusion, they had discretion in applying these, and there were opportunities for all community members to comment on who was included (and excluded). Access was not randomized at either the locality or household level.

Third, once selected, beneficiaries were to receive program benefits for three continuous years, with the possibility that these could be extended.

¹ This dialogue was held under the aegis of the New Coalition for Food Security, chaired by then Prime Minister Meles. The dialogue led to several other policy initiatives, including a program of voluntary resettlement (Lavers 2016); these are beyond the scope of this paper.

² Other donors have included the Department of Foreign Affairs and International Trade - Canada, the Government of Ireland, the Danish International Development Agency, the Royal Netherlands Embassy, Swedish International Development Cooperation (SIDA), and the World Food Programme.

³ A fifth phase was scheduled to begin in 2021; however, implementation was delayed because of the COVID-19 pandemic and civil conflict. It has not been subject to detailed impact analysis.

⁴ Defined as having been a recipient of food aid for a significant period, generally for at least each of the last three years prior to 2004 (GFDRE 2004).

Fourth, most participants (~85%) undertook labour-intensive public works, such as road rehabilitation, re-forestation, and small-scale water retention. This reflected a government desire that the safety net be ‘productive’ (Lavers 2016). In the Highlands, this work took place between January and June (the period beginning 2–3 months after the harvest in October and ending before the planting season that begins in late June and early July).

Fifth, beneficiaries doing public works were paid per day worked. For much of the period covered in this retrospective, the amount of work that a household could do was a multiple of the number of people in the household; for example, a four-person household was eligible for 20 days employment per month (five days per person \times four people), a six-person household was eligible for 30 days employment per month (five days per person \times six people), and so on.⁵ This was referred to as full family targeting (FFT). Employment could be undertaken by any household member aged 15 years or older but with a cap (of 20 days) placed on the total number of days any one person could work.

Sixth, a small number of beneficiaries (~15%) received transfers, called Direct Support, without having to meet a work requirement. Several donors to the PSNP were keen to see this included in the PSNP to ensure that impoverished households with no capacity to provide labour (such as elderly widows and the physically disabled) received assistance. The Government of Ethiopia was less keen on this, concerned that unconditional transfers would encourage dependency (Wiseman et al. 2010). In fact, the Program Implementation Manual (PIM) for the first phase of the PSNP stated, ‘The Direct Support component is guided by strict and narrow selection criteria’ (GFDRE 2004).

Seventh, depending on where they lived, beneficiaries received either cash or an equivalent payment in food, primarily wheat or maize. This mix reflected two considerations: (i) concerns that in remote localities where food markets were inaccessible, participants would not be physically able to purchase foods; and (ii) several contributors to the PSNP, most notably USAID, were only able to contribute food. Initially, public works participants received ETB6 per day (approximately US\$0.75), with this amount adjusted over time to account for inflation. Over time, efforts were made to phase out in-kind payments, partly because food transfers were perceived to be more costly to implement and partly because the provision of cash was seen as a means of stimulating local markets.

Eighth, unlike the past provision of ad hoc food aid, payments were intended to be timely, predictable, and complete. Under the principle of the ‘primacy of transfers’, if it was not possible to organize public works activities, beneficiaries were still entitled to receive assistance (Wiseman et al. 2010).

Lastly, bi-annual assessments by independent evaluators (including the authors of this paper) were conducted that provided feedback on program implementation and impacts. Results of these evaluations were shared through workshops with Ethiopian government officials at the federal and regional level and with the donors supporting the PSNP, ensuring that all stakeholders had access to a common set of information on how well the PSNP was operating.

Other important features of the PSNP were introduced or amended over time. At the outset, it was widely understood that the Lowland regions of Afar and Somale, where agro-pastoral or pastoral livelihoods predominated, were characterized by high levels of food insecurity; however,

⁵ Children born in the previous two years were not included in this calculation out of concern that their inclusion might encourage PSNP households to have additional children.

there were concerns about whether the PSNP could be successfully implemented in those localities given limited administrative capacity and uncertainty as to whether the PSNP design was suitable given the livelihood strategies followed by most food-insecure households. After several years of study and piloting, it was decided to extend the PSNP to Afar and Somale starting in 2010 (GFDRE 2009a). While initially no changes were made to key programmatic features (objectives, targeting, the use of public works employment), some adjustments were made to implementation in recognition of these differences in livelihoods, most notably that local authorities were given greater discretion as to when public works activities could take place and targeting was adapted to permit greater input from traditional leaders.

The PSNP was nested into broader efforts aimed at increasing household incomes. Initially, it was complemented by the inelegantly named ‘Other Food Security Programme’ (OFSP) through which communities could choose among a suite of transfers or services including agricultural extension, bee keeping, seeds, fertilizer packages, and soil and water conservation activities such as stone terracing of communal and private fields. In 2010, this was replaced by the Household Assets Building Program (HABP). The HABP was designed to complement the PSNP by promoting diversification of income sources and asset accumulation through a mix of on- and off-farm livelihood options, facilitated in part through increased resources for, and improved coordination with, extension services as well as other government bodies such as the Small and Medium Enterprise Development Agency (GFDRE 2009b). As part of the fourth phase of the PSNP (2016–20), the complementary activities envisaged under the HABP were replaced by the Livelihoods Component, designed to tailor new or enhanced income-generation activities (crops and livestock, off-farm income generation, wage employment, household circumstances). This support comprised a series of sequenced activities: group formation, financial literacy training and savings promotion, livelihood selection, training (tailored to livelihood pathways), business plan preparation, and follow-up support (GFDRE 2014). PSNP clients were given a Livelihood Checklist in order to help them track participation in the livelihood component. A livelihood transfer, inspired in part by the findings of Banerjee et al. (2015), of US\$200 was piloted across selected localities starting in 2018 (GFDRE 2015).

While it was envisaged from the beginning of the PSNP that beneficiaries would not remain in the program indefinitely, efforts to move participants off the program began in earnest during the third phase. This was referred to as graduation, the process whereby beneficiaries exited the program either voluntarily or because they were considered to have acquired enough assets to benefit from other types of food security support. The program definition of graduation emphasizes food self-sufficiency without support: ‘A household can be deemed food sufficient when, in the absence of receiving emergency transfers, it can meet its food needs for 12 months and is able to withstand modest shocks’ (GFDRE 2009a, p. 13).

Nutrition and nutrition-related outcomes were explicitly excluded from evaluation of the PSNP. However, growing recognition within the country of the importance of addressing forms of malnutrition resulted in a re-think of this. The fourth phase of the PSNP included improving nutrition outcomes as a program objective (specifically, the program objective was defined as: Resilience to shocks and livelihoods enhanced, and food security and nutrition improved, for rural households vulnerable to food insecurity; GFDRE 2014.) Several changes in implementation were made in support of this. A new category of support, Temporary Direct Support, was introduced—this category included pregnant and lactating mothers who were entitled to receive PSNP transfers without having to undertake work on public works projects. Participation in community health days, or community conversations about nutrition, were counted as a public works day, and local health staff (Health Extension Workers) were included in the community committees that oversaw targeting. Nutritional indicators, such as the percentage of children aged 6–23 months who

received a minimum acceptable diet and anthropometric outcomes, were incorporated into program evaluation (GFDRE 2014).

The PSNP was intended to address chronic food insecurity. However, recurrent droughts and other shocks (such as the 2008 food price crisis) meant that there were nearly always some rural households in need of assistance to address transitory food insecurity. As a result, for much of its existence, emergency food assistance (called Humanitarian Food Assistance, HFA) operated alongside the PSNP. Starting in 2017, the Government of Ethiopia committed itself to begin consolidating both the PSNP and HFA delivery systems and procedures into a single framework led by the government, the idea being that in addition to the provision of predictable transfers to core PSNP clients, it would be possible to scale up support in times of shock through a harmonized set of procedures and the use of a common set of institutional arrangements (Sabates-Wheeler et al. 2022).

3 Data and methods

Much of what is known about the impact of the PSNP comes from a series of bi-annual process and impact evaluations. These are described here. As there are differences in the way the impact evaluations were undertaken in the Highland and Lowland regions, we discuss the data and methods used for each in separate sub-sections.

3.1 Highlands

Data

Although the PSNP began operation in 2005, it was not until early 2006 that a joint government–donor decision was made to fund quantitative data collection in the four Highland regions—Tigray, Amhara, Oromia, and SNNP—where the PSNP was operating. The core of this data collection effort was a quantitative household survey and a complementary community questionnaire implemented by the Government of Ethiopia’s Central Statistical Agency (CSA). The sample size was based on identifying an effect size equivalent to a 10-percentage-point reduction in chronic household food insecurity. A total of 68 woredas (clusters) were sampled with the goal of interviewing 3,700 PSNP and non-PSNP beneficiaries. In July–August 2006, the first round of data collection took place, with subsequent rounds of data collection occurring in 2008, 2010, 2012, and 2014, thus yielding five rounds of woreda, kebele, and household panel data. The household survey was administered at the same time of year in each round, with the questionnaire elements used in the 2006 round (basic household characteristics, assets, agricultural production, non-farm incomes, food security, and consumption and participation in the PSNP) remaining largely unchanged over time. Additional households and survey components were added over time.⁶ Attrition in this sample was remarkably low, especially considering the physical inaccessibility of many of these localities and the fact that this was the first longitudinal survey ever conducted by the Ethiopian CSA.⁷

⁶ For example, because of concerns regarding the implementation of the Direct Support component, and separate concerns regarding program graduation, additional Direct Support households were added to the 2012 survey and additional program graduates were added to both the 2012 and 2014 surveys.

⁷ Of the 3,680 households interviewed in 2006, 3,120 were interviewed in 2014, which was an attrition rate of 15.2% or 1.9% per year. Following each survey, we assessed whether potential differences in attrition rates could be attributed

In 2010, two significant changes were made (Berhane et al. 2011a). First, in response to concerns regarding program implementation, more extensive questions regarding program participation were added to the household survey instrument; the community questionnaire was revised to capture more information on how local officials were implementing the PSNP; and a new instrument, the *woreda* (district) quantitative survey, was added. *Woreda* officials were interviewed regarding the resources they had available to implement the PSNP, their understanding of how implementation was supposed to take place, and quantitative data on implementation itself, such as how long it took to process and make payments to beneficiaries. Second, a suite of qualitative survey techniques was added, including focus groups and key informant interviews. Key informant interviews were carried out at regional, *woreda*, and *kebele* (sub-district) levels. Focus groups were held at the *kebele* level. These included program implementers, men and women, the elderly, the young, and different types of program beneficiaries as well as non-beneficiaries. These, together with the changes to the quantitative survey instruments described above, meant that from 2010 onwards, the data collection consisted of a ‘cascade’ of information collected at all levels of implementation: regional, *woreda*, *kebele*, household, and individual.

Coinciding with the start of the fourth phase of the PSNP in 2016, it was decided to construct a new household panel.⁸ Apart from minor adjustments to the household questionnaire (specifically, more questions on nutrition and nutrition-related health services), the same set of survey instruments was implemented. A midline survey took place in 2018, but the endline, scheduled for 2020 was delayed because of the COVID-19 pandemic. Instead, it took place in 2021, but because of civil conflict in Tigray, was only fielded in Amhara, Oromia, and SNNP.

Lastly, in 2017 and 2019, additional survey work was undertaken to assess the impact of nutrition-sensitive aspects of the fourth phase of the PSNP. Data were collected in March and August 2017 (baseline) and March and August 2019 (endline). These surveys focused on households with a child younger than 24 months of age (index child) and his/her mother (index mother). In 2017 and 2019, the survey teams visited 2,640 households in 88 PSNP *woredas* (264 *kebeles*) in Amhara, Oromia, SNNP, and Tigray.

Methods

Measuring the effect of the PSNP on beneficiary households requires addressing the problem of the counterfactual—that is, what outcomes for PSNP beneficiaries would have been had they not had access to the program. The methods used to address this problem were shaped by four factors: (i) what was politically feasible; (ii) what was technically feasible; (iii) deviations in program implementation relative to what had been designed; and (iv) the fact that the PSNP was implemented in phases with new phases introducing new features while retaining others.

As noted above, access to the PSNP was not randomized at either the locality or household level. This was a political decision made by Prime Minister Meles. The use of community targeting, together with the absence of binding criteria for program inclusion meant that regression

to differences in baseline characteristics. There was no evidence that participation status was correlated with the probability of attrition. The only household characteristics that had an association with attrition were the age of the household head (households with older heads were more likely to attrit) and household composition; the magnitudes of these associations were small.

⁸ This decision was driven by a number of considerations: (i) some *woredas* had been sub-divided in two; (ii) a limitation of the existing sample was that it was not large enough to support estimating impacts for sub-groups, for example male- and female-headed households; (iii) the existing sample was becoming increasingly unsuitable for the purposes of impact evaluation; and (iv) after generously participating in five survey rounds, it was felt that it would be unreasonable to ask our study participants to continue being interviewed.

discontinuity methods were not feasible either. Given these political and technical constraints, nearly all evaluations used matching methods—either propensity score matching (PSM) or covariate matching such as nearest neighbour (NNM).⁹ Program beneficiaries were matched to a weighted subsample of similar non-beneficiaries (where the weights were a function of observables) based on their similarity in observable variables that were correlated with the probability of being in the program and with the outcome. Because longitudinal data were collected, it was possible to measure changes in outcomes over time, thus allowing construction of ‘difference-in-differences’ (DID) estimates of program impact, defined as the average change in the outcome in the treatment group, minus the average change in the outcome in the comparison group.

Applying these methods faced several challenges. First, as will be discussed further in Section 5, payments received by Direct Support beneficiaries were often only a fraction of what had been envisaged. This, together with the fact that relatively few households received Direct Support, meant that this group of beneficiaries were (usually) excluded from efforts to estimate impact. Second, payments received for participation in public works were often well below what had been envisaged, with the result that the average treatment effects estimated by the matching models were biased towards null results. Coverage of the OFSP, HABP, and the Livelihoods Component were also well below what was intended. Across multiple evaluations, this was addressed by constructing several definitions of program participation (essentially constructing a treatment on the treated estimator).

Third, during the early years of program implementation, there was much greater churn in program participation than had been intended—a consequence of a series of re-targeting exercises, the need to respond to several transitory shocks, and changes in resources available to the program, and towards the end of Phase 3, significant numbers of PSNP beneficiaries graduated. Thus, while matching methods worked well for the first two evaluation rounds, by 2010 there had been so much movement in and out of the PSNP that the number of households in the sample that have never received the PSNP had shrunk and those that remained were observably different from current and past beneficiaries (Berhane et al. 2011b). Consequently, the 2010 evaluation used an extension of PSM methods developed by Hirano and Imbens (2004) that assessed impact of the *duration* of program participation on outcomes of interest (Berhane et al. 2011b). This approach was based on the fact that there was a monotonic relationship between years of program duration and the total amount of transfers received by PSNP beneficiaries.

In the immediate years following the 2010 evaluation, payments particularly for public works participation increased markedly. There were significant improvements in the timeliness of payments, an increase in the frequency of payments, and reductions in paying in arrears (Kumar and Hoddinott 2013). An ironic consequence of this improvement in program implementation was that the monotonic relations between duration of participation and total transfers received broke down, so the dose-response method used in the 2010 evaluation no longer worked. However, because the program had been re-targeted, it was possible to construct two groups: a treatment group of households who received payments for public works in 2011 and 2012 (and who may, or may not, have been public works participants before that) and a comparison group,

⁹ For a discussion of matching estimators, see Heckman et al. (1997), Heckman et al. (1998), and Smith and Todd (2001, 2005) for propensity score matching; see Abadie and Imbens (2006) for covariate and nearest neighbour matching; and see Hirano et al. (2003) for regression weighted matching.

which consisted of households that received payments for public works for two or more years between 2007 and 2010 and who did not receive any payments in 2011 and 2012.¹⁰

The 2014 evaluation was designed to focus on the cumulative impacts of the PSNP over the first three phases of the program—from 2006 to 2014. This posed a challenge because multiple rounds of program re-targeting meant that there was no longer a viable comparison group of households that had never received program benefits (hence, ruling out matching methods using a binary treatment). Consequently, impact was assessed using a household fixed effects instrumental variables (IV) estimator. Program participation was measured by the total amount of payments received in the 10 months prior to each survey round. Household fixed effects swept out correlation between this measure and time invariant household characteristics. The IV strategy was based on community-level characteristics that were known to influence the level of payments received by the household but did not have any direct influence on households' food security status.¹¹

Two additional evaluation rounds were carried out in 2018 and 2021 as part of the assessment of Phase 4. These benefited from the drawing of a new and larger sample as well as the fact that from 2016 onwards, there was an increase in Direct Support payments. Consequently, both evaluations used matching methods similar to those used in the 2006 and 2008 evaluations, namely comparing changes in outcomes of households receiving public works payments or Direct Support transfers to households not enrolled in the PSNP. Originally, an evaluation had been scheduled for 2020, but because of the COVID-19 pandemic, this was postponed to 2021. This took place, but because of a deteriorating security situation, it was not fielded in Tigray, the region that—for much of the history of the PSNP—had displayed the best record of program implementation.

3.2 Lowlands

Data and methods

Data collection for the Lowland regions of Afar and Somale commenced in 2010. Some components of data collection and methods (such as the content of the household, community, and woreda quantitative surveys and the use of qualitative interview techniques) were similar to those used in the Highlands. However, the landscape and livelihoods of the Lowlands—sparsely populated, significant security concerns, a considerable fraction of the population living as pastoralists, and CSA capacity limitations—meant that several changes were necessary for both data collection and impact evaluation (Sabates-Wheeler et al. 2011).

First, while the sample design was representative of Afar, this was not the case for Somale. CSA capacity constraints and security considerations meant that it was only possible to collect data in a small number of localities with the result that the sample was biased towards agro-pastoral areas and with more purely pastoral areas excluded (Sabates-Wheeler et al. 2011).

¹⁰ Setting up the treatment and comparison groups in this way meant that both groups received similar average transfers during the period 2006 to 2010 (and met other criteria for matching methods, too).

¹¹ Three instruments were used to predict the level of public works payments: (i) the total number of months that public works employment had been provided; (ii) whether payments were received in cash or in kind (cash payment sites are typically located closer to the villages than the food payment sites; thus, the cash payment mode is likely to increase the likelihood of household receiving payments; however, in years of high inflation, food payments were more robust in maintaining the actual value of the payment); and (iii) an interaction term between the cash payment dummy and distance to the nearest town.

Second, in 2012 and 2014, the survey design was that of a longitudinal sample at the woreda level but a repeated cross-section at the kebele and household level, not a longitudinal sample. Keeping the same woredas across rounds made it possible to track changes in program implementation (such as the time it took to make payments). However, the strategy of constructing a panel was deemed too risky. In both Afar and Somale, there is considerable household mobility, households are more dispersed geographically, and it is often physically difficult to get from place to place, potentially leading to unacceptably high rates of sample attrition. Further, there was concern that because household names were so similar (many of these were clan based), it would be difficult to be sure that the same household was traced over time (Lind et al. 2013; Berhane et al. 2015b). A new set of woredas were surveyed as part of the evaluation of the fourth phase (Berhane et al. 2016a), and these formed the basis of the 2018 and 2021 evaluation rounds.

Impact estimates for 2010 were not undertaken for the Lowlands, as it transpired that program implementation had been limited. Matching methods, PSM and NNM, were used in the 2012 and 2014 rounds; as retrospective data were collected on key outcomes, these were DID estimates. The 2018 and 2021 evaluations used an improved approach building on Blundell and Dias (2009) and Blundell et al. (2004). Treatment households were defined as households receiving either public works or DS payments. These were matched separately to three comparison groups: treated group at the baseline (i.e. before treatment), control group at the baseline, and control group at follow up. A single propensity score model is estimated on a sample including all four of these groups in which the participation variable is defined as 1 for all treated endline observations and 0 for all treated baseline, comparison endline, and comparison baseline observations (Berhane et al. 2019b, 2021b).

4 Summarizing PSNP impacts

We begin by assessing whether the PSNP was successful in meeting its core objectives: reducing the size of the food gap; preventing asset depletion at the household level; and creating productive public assets. We also consider whether it had an impact on agricultural production, on children (particularly given the focus in phase four on nutrition), and whether, given government concerns when the program was first designed, it had adverse incentive effects. Results described here rely primarily on the impact assessments (data and methods) described in Section 3. Where available, we supplement this with results from studies using other sources and methods.

4.1 Household food security

Across all phases of the PSNP, a core objective was improving household food security (GFDRE 2004, 2009a, 2014). This was measured using households' self-reports on the number of months (in the last 12 months) they had problems with satisfying their food needs—what in Ethiopia is referred to as the food gap. In each round, respondents were asked, 'How many months in the last 12 (13 Ethiopian) months did you have problems satisfying the food needs of the household?' A month of food gap existed if a household reports that on at least five days during a month, it was unable to meet its food needs (Gilligan et al. 2007).

Figures 1 and 2 show trends in the food gap by region and PSNP status. (In looking at these figures, remember that in the Highlands there are two samples, one covering 2006–14 and one covering 2016–21.) Starting with the Highlands data, Figure 1 shows that, in 2006, PSNP

beneficiaries¹² reported a food gap of 3.09 months, and this remained largely unchanged between 2006 and 2010. In 2012, their food gap dropped to two months and fell further to 1.8 months in 2014. The higher mean food gap in 2016 reflects, in part, the fact that the new sample included food-insecure localities that had been added after the initial evaluation round in 2006. While the food gap fell in 2018, it subsequently rose in the aftermath of the COVID-19 pandemic. A similar pattern is seen in the Lowlands (Figure 2)—the food gap falling between 2012 and 2014, falling between 2016 and 2018, and rising between 2018 and 2021.¹³

Table 1 summarizes the impact of the PSNP on household food security, by region and by round. In the Highlands, impacts during the first years of the program were small in magnitude and not always statistically significant. Second, the 2010, 2012, and 2014 evaluations showed much larger impacts—increasing household food security by more than a month and reducing the size of the food gap by 35.5% to 48.7%. Third, positive impacts were seen in the fourth phase of the PSNP, but these were much smaller in magnitude. Fourth, in the 2006 and 2010 evaluations, there was some evidence that in the Highlands, combining the PSNP with complementary extension support (the OFSP and the HABP) increased impact relative to the PSNP alone. Table 1 also shows that in the Lowlands, impacts were smaller in magnitude and rarely statistically significant—the exception being impacts among poorer households in the Somale region.

A second measure of household food security, and one formally incorporated into the objectives of the fourth phase of the PSNP, was the household Dietary Diversity Score (HDDS)—the number of different food groups consumed over a given reference period. Household dietary diversity is both an important food security outcome and a compelling food security indicator because a more diversified diet is both highly correlated with caloric acquisition and associated with improved nutrition outcomes such as birth weight and some measures of the child anthropometric status (Hoddinott and Yohannes 2002; Swindale and Bilinsky 2006).¹⁴

HDDS is low; for example, in 2010, its mean value was 3.7 for PSNP households.¹⁵ Analysis of the 2010 survey round found no evidence of impact on the HDDS in the Highlands. The 2012 evaluation found that participation in the PSNP had a statistically significant impact, increasing the number of food groups consumed by 0.46, and the 2014 evaluation found that an ETB100 increase in public works payments led to a 0.13 food group increase in household dietary diversity. As an average PSNP payment received by households in 2014 was ETB549, this amount improved dietary diversity by 0.7 food groups for the average PSNP household. By contrast, in 2018, PSNP participation increased HDDS by only 0.10 food groups, and the 2021 evaluation found no evidence of impact. HDDS was not assessed in the Lowlands until 2018 where no statistically significant impact was found, and no effect was found in the 2021 round either.

¹² A beneficiary is a household that received either public works or direct support payments in the past nine months before the interview.

¹³ The 2012 and 2014 Lowland evaluations assessed Afar and Somale separately, which is why they appear separately in Figure 2.

¹⁴ We aggregated questions about households' consumption of different food items in the previous seven days into 12 food groups: cereals; root and tubers; vegetables; fruits; meat, poultry, and offal; eggs; fish and seafood; pulses, legumes, and nuts; milk and milk products; oil and fats; sugar and honey; and miscellaneous foods. We assigned a value of 1 if the household consumed from the food group and 0 if they did not, so the HDDS ranges from 0 to 12 except in the 2010 round, where for data limitation reasons, a 10 food group score was used.

¹⁵ By contrast, Mekonnen et al. (2020) report that mean DDS for Ethiopia in 2015 was 6.7.

4.2 Asset formation

In addition to improving household food security, as noted above, the PSNP sought to enhance resilience to shocks and to promote asset formation, both being necessary if PSNP clients were to successfully graduate from the program.

Every evaluation round included an assessment of whether PSNP participation increased household asset levels. These focused primarily on livestock, as livestock is the principle means by which households save and dissave. As livestock comprise different types of animals, holdings were calculated based on tropical livestock units (TLUs).¹⁶

Impacts on TLU, by round and region, are found in Table 2.¹⁷ In the Highlands, the most striking feature of these results is the extent to which they vary. There are (in percentage terms) large and statistically significant effects (a 27.8% increase in the 2010 evaluation where treatment is defined as receipt of payments for five years and access to the OFSP/HABP), small but statistically significant effects (the 2008 evaluation), and negative impacts, some of which (2018) are statistically significant. In the Lowlands, the only survey round that found positive effects was 2012 with other rounds finding either positive but small and insignificant impacts (2018 and 2021) or a mix of positive and negative but statistically insignificant impacts (2014).¹⁸

In addition to assessing impacts on livestock, most evaluation rounds considered whether the PSNP resulted in households increasing their holdings of agricultural tools and other forms of productive equipment. In every evaluation (2006, 2012, 2014, 2018, 2021) where this was assessed, no impact was found. However, the 2010 evaluation found that households receiving both public works payments and OFSP/HABP accumulated ETB133.6 more in tools than households that received neither. Several evaluations also considered impacts on consumer durables, finding no effects. Only in the 2014 evaluation round was a positive impact found on housing quality.

4.3 Impacts on input use and investments in agriculture and agricultural productivity

As noted in Section 2, the PSNP was nested into broader efforts aimed at increasing household incomes. Several evaluations considered the impact of program participation, with or without complementary programming (OFSP, HABP, the Livelihoods Component). Given the importance of agriculture for household livelihoods, these focused on whether there was an impact on input use, investments in agriculture, and agricultural productivity.

Table 3 summarizes impacts on the use of fertilizer, investments in terracing,¹⁹ and yields. A consistent finding across all rounds where these outcomes are considered is that PSNP

¹⁶ A TLU aggregates livestock types into a single measure. The standard measure of a TLU is one cattle with a body weight of 250 kg (Jahnke 1982). TLUs are expressed as ratios to this, the ratios being based on metabolic weights. So, for example, six sheep have the same energy requirements as one cattle, so six sheep are one TLU (or put another way, 1 sheep = 0.15 TLU).

¹⁷ Evaluations that assessed impact on the log value of livestock holdings show the same pattern of results but typically with less precision.

¹⁸ Consistent with these results, Andersson et al. (2011) find no PSNP impacts on livestock holdings between 2005 and 2007.

¹⁹ Terracing is the building of small stone walls that follow the contour of the slope of a hill; it slows rainwater from rushing down the hillside and thus prevents soil erosion. Numerous studies in Ethiopia indicate that this practice is effective both in terms of improving soil fertility and cereal yields (Alemayehu et al. 2006; Vancampenhout et al. 2006).

participation on its own had no impact on fertilizer use, investment in terracing, or on yields.²⁰ By contrast, access to the PSNP and the complementary services (such as the HABP) increased the likelihood that PSNP households used fertilizer by 10–20 percentage points, were 6–36 percentage points more likely to construct stone bunds (terracing), and had increases in cereals yields of 236–347 kg/ha. Note that, after 2012, it became difficult to assess the joint effects of the PSNP and these complementary programs because the coverage of the latter was so low; the reasons for this are discussed in Section 5.4.

4.4 Impacts on children: nutrition, schooling, and child labour

Assessing impacts of the PSNP on children was not a focus of the initial evaluations of the PSNP. However, this changed over time reflecting: (i) the supposition that increases in income associated with receipt of PSNP payments might lead to investments in children’s human capital; (ii) increased interest in interventions that had the potential to reduce the high prevalences of stunting and wasting among Ethiopian children; and (iii) concern that the labour demands of the public works component of the PSNP might be leading to increased child labour.

Using matching methods similar to those described in Section 3 and data from three survey rounds—2008, 2010, and 2012—Berhane et al. (2016c) found no evidence that the household participation in the PSNP led to improvements in height for age z scores (HAZ), weight for height z scores (WHZ), stunting, or wasting. The 2012 survey round contained clues as to why no impact had been observed. It showed that only 33% of mothers had been visited by a health extension worker in the previous month, just over 15% had been visited by someone from the Women’s Development Army, and only a quarter had been given information about foods to feed young children. Few children consumed animal-source proteins through the consumption of eggs, meat, poultry, or fish; protein or iron through the consumption of pulses; or vitamin A or C through the consumption of dark leafy vegetables or fruit (Berhane et al. 2016c).

As discussed in Section 2, these ‘non-results’ encouraged the Government of Ethiopia and its development partners to add components to the program that made the PSNP more nutrition sensitive. As noted in Section 3, as part of work assessing the fourth phase of the PSNP, an additional sample of households were surveyed in 2017 and 2019 to assess whether these changes led to positive impacts on the nutritional status of children 6–23 months. Again, using matching methods, Berhane et al. (2019c) find no evidence of impacts on HAZ, WHZ, stunting, or wasting. Further, they find no evidence of impact on factors that affect a child’s nutrition status including meal frequency, diet diversity, consumption of animal-source foods, time spent caring for the child, or household hygiene practices (handwashing, disposal of faecal matter).²¹

²⁰ A limitation of the analysis using the household-level data is that it cannot capture the impact of the community assets created by the PSNP on agriculture. Gazeaud and Stephane (2023) address this by combining Normalized Difference Vegetation Index (NDVI) data with information on land use, crop types, crop calendars, and the location of woredas where the PSNP was active. They show that over the period 2000–13, the PSNP had limited impacts on agricultural productivity, increasing yields at most by 2.2%.

²¹ Three other studies, using different data sources, also looked at the impact of the PSNP on child anthropometric outcomes. Bahru et al. (2020) find no evidence of PSNP impact on children’s nutritional status nor on any of the factors that affect children’s nutrition. Debela et al. (2015) find positive effects on WHZ but do not appear to account for non-random selection into the PSNP. Porter and Goyal (2016), using data from the Young Lives study, find that older children living in households receiving PSNP transfers in 2009, those aged 3–5 years, 5–8 years, and 12–15 years, had higher HAZ. Their results are robust to alternative model specification; however, it is unclear what mechanisms underlie their results.

Income from the PSNP should reduce demand for child labour and increase schooling. However, public works labour requirements may induce a substitution of child labour for adult labour at home and in income-generating activities, possibly reducing schooling. Further, because returns to schooling may differ by gender and the opportunity cost of schooling varies by gender and age of the child, it is necessary to disaggregate by child sex and by age cohort.

Using matching estimators to identify program impacts in the 2006 data set, Hoddinott et al. (2010) find evidence of both processes at work. Participation in public works leads to a moderate reduction in agricultural labour hours on average for boys aged 6–16 years and a reduction in domestic labour hours for younger boys aged 6–10 years. Boys in households receiving more regular transfers (at least ETB90 per member) show large increases in school attendance rates and, at the younger age, a significant reduction in total hours worked. For girls, measured effects are weaker, but differences emerge between younger (ages 6–10) and older (ages 11–16) girls. Younger girls experience worse outcomes, with lower school attendance on average and increases in child labour. Older girls benefit, with a reduction in labour hours on average and an increase in school attendance in households receiving larger transfers.

Berhane et al. (2016b) extend this analysis to the data collected in 2008, 2010, and 2012. They find that, in 2008 when PSNP payments were low, participation in the PSNP lowered boys' and girls' grade attainments. It caused increased child labour on the family farm, although in the case of boys this was offset by reductions in domestic labour. As PSNP payments increased—especially in 2012—these adverse outcomes were reversed. In 2012, the PSNP increased girls' grade attainment between 6% and 14% (depending on the age of the child), improved schooling efficiency by 10% to 20%, and reduced boys' labour.²²

4.5 Potential adverse incentive effects

The Government of Ethiopia was concerned that the PSNP might create adverse incentive or dependency effects. This is why the Direct Support component of the program was so limited (Wiseman et al. 2010) and why children born in the previous two years were not included in the calculation to labour entitlements out of concern that their inclusion might encourage PSNP clients to have additional children. For this reason, assessments of disincentive effects on labour supply and whether the PSNP crowded out private transfers were included in several evaluations.

Crowding out was assessed in 2006, 2008, and 2010. The 2006 evaluation found no evidence that PSNP transfers crowded out private transfers (Gilligan et al. 2009a). The 2008 evaluation found some evidence of crowding out, but the magnitude of this effect was small, equivalent to two days' work at prevailing PSNP wage rates (Gilligan et al. 2009b). The 2010 assessment found no evidence that the PSNP crowded out private transfers. If anything, there was a small—but not statistically significant—crowding in of private transfers (Berhane et al. 2014). A recurrent theme in these assessments was that the level of private transfers received or given by these very poor households was low; thus, there was little scope for crowding out or in.

Effects on labour supply were assessed in the 2006, 2008, 2010, and 2021 evaluation rounds. In 2006, any receipt of PSNP payments for undertaking public works increased the likelihood that households undertook their own business activities but slightly reduced the likelihood that males

²² We note that children were not supposed to provide labour to PSNP public works activities. Although several performance evaluations found scattered evidence of this, it does not appear to have been systematic. For example, Berhane et al. (2011a) found that only 10 out of more than 2,500 individuals who undertook public works employment in the first five months of 2010 were children under the age of 15.

entered wage employment. Receipt of public works payments and access to the OFSP increased the likelihood that households operated their own businesses by 6.7 percentage points while having no impact on wage employment (Gilligan et al. 2009a). The 2008 evaluation found no effect as measured in terms of changes in supply of wage labour, no impact on changes in the number of females engaged in non-farm own business activities, and no impact on changes in the number of males engaged in work on the family farm. There is an increase in the growth of the mean number of males engaged in non-farm own business activities in the months of July and August and a decrease in the growth of the mean number of females engaged in work on the family farm in July, August, September, and October, but in all these cases, the magnitudes were tiny (Gilligan et al. 2009b). The 2010 evaluation found no impact on the likelihood of starting a new non-farm own business (Berhane et al. 2011b).

The 2021 evaluation focused on labour supply in the week prior to the survey. This showed that PSNP participation had no effect on wage labour, farming, or own business activities at the extensive margin. PSNP participation reduced the number of hours spent on agricultural activities in the last week by 18%, but this was during a time of year when households were spending relatively little time during agricultural work—less than three hours per day (Berhane et al. 2021a).

Impacts on fertility and on household size were not included in the formal impact evaluations but were examined by Hoddinott and Mekasha (2020) who used data from the first four evaluation surveys (2006, 2008, 2010, and 2012). Using a household fixed effects (HHFE) DID model, they find that PSNP participation led to an increase in household size. However, this was not because of an increase in fertility but rather a consequence of increased numbers of females. This increase is driven entirely by an increase in the number of adolescent girls. This reflects the fact that PSNP participation reduced the likelihood that an adolescent girl out-migrated largely because it reduced, by 3.5 to 4.7 percentage points, the likelihood that an adolescent girl was married out.

4.6 Impacts of infrastructure created by public works

Evaluations of public works programs have primarily focused on the impact of transfers on participants, while the extent to which these projects generate environmental and other benefits remains less well understood (Beierl and Grimm 2018; Gehrke and Hartwig 2018; Ravallion 2019). Despite the extensive nature of the household surveys in the PSNP evaluations, these studies did not address the benefits of public works, as they lacked a counterfactual by excluding non-PSNP areas. Consequently, a recurring theme in the qualitative research was to evaluate these broader impacts. The qualitative evidence suggests the PSNP public works have contributed to rehabilitating degraded lands with positive impacts on communities and livelihoods across all regions:

At the community level, the safety net has changed the environment due to tree plantation and terracing works. The water retention capacity of the land has increased. Thus, people who have been fetching water by travelling more than 5 km are now able to access it in the nearby villages (Berhane et al. 2013, p. 189).

The public works have improved the livelihoods of our community in various ways. First of all, public works helped rehabilitate degraded catchments and reduce soil fertility depletion of our arable and grazing lands. Gully formation has totally stopped and flood hazards highly reduced. Now farmers collect grass three times a year from the hillsides and grazing lands, vegetation cover highly improved, and beekeeping practices increased. Now about 60% of the kebele community have access to irrigation because of the improved water recharges (Berhane et al. 2015a, p. 223).

There is a very rocky hillside nearby, which was once highly degraded but then rehabilitated through terracing built by public works. If you visit that area now, the land is covered with green vegetation and looks attractive. That is because of the remarkable contribution made by the public works. Due to advanced forest development practices, we have also recently started seeing wild animals returning. These had been forced to leave the area because of human-induced destruction of the natural resource base and deforestation (Berhane et al. 2019a, p. 118).

Quantitative studies using non-PSNP evaluation data provide support to these qualitative findings. Woolf et al. (2018) analysed data from 24 PSNP public works sites focused on sustainable land management practices. Using an IPCC-based modelling approach, they estimated that these practices could reduce carbon-dioxide-equivalent emissions by 3.4 million metric tons annually on a national scale. Similarly, Hirvonen et al. (2022) applied DID methods on administrative data linked with geospatial data on tree cover to estimate that the PSNP increased tree cover by 3.8% between 2005 and 2019 in the Highland regions, resulting in a 4.16 million metric ton reduction in carbon dioxide emissions—a reduction that represented 1.5% of Ethiopia’s annual emissions reduction pledged in its Nationally Determined Contribution for the Paris Agreement by 2030.

4.7 Impacts on resilience

Lastly, we note that several studies—not part of the formal evaluation of the PSNP—assessed whether the program enhanced household resilience. Abay et al. (2022) find that PSNP payments increased resilience (using a ‘resilience as normative capacity measure’; see Barrett et al. 2021) but that this relationship was dose-dependent. Continuous and persistent participation in the PSNP was associated with higher resilience as was participation in both the PSNP and the HAP. Knippenberg and Hodinott (2017) use a ‘resilience as return to equilibrium’ (Barrett et al. 2021) approach. They find that drought shocks reduce the number of months a household considers itself food secure and that these impacts persist for up to four years after the drought has ended. Using a Hausman instrumental variable estimator, they show that receipt of PSNP payments reduced the initial impact of drought shocks by 57% and eliminated their adverse impact on food security within two years.

In related work, Abay et al. (2023) assess whether participation in the PSNP was protective of household food security during the COVID-19 pandemic. They find that, at the height of the first wave of the pandemic (June 2020), the percentage of households reporting a food gap has increased by 11.7 percentage points among program non-beneficiaries, and the size of the food gap increased by 0.47 months. Participation in the PSNP offsets virtually all of this adverse change; the likelihood of becoming food insecure increased by only 2.4 percentage points for PSNP households, and the duration of the food gap increased by only 0.13 months.

5 Understanding these results

Section 4 provides evidence of positive impacts of the PSNP in some dimensions but not all. In this section, we consider four explanations: targeting, payment levels, processes (providing work and making payments), and the challenges of providing complementary programming.

5.1 Targeting

One explanation for the somewhat limited impacts on household food security could lie in targeting performance. If more food-secure households were the recipients of program benefits,

then we would not expect to see impacts on the food gap. Put differently, limited impact could simply reflect mistargeting of the PSNP.

Assessing this possibility, however, is not straightforward because local officials responsible for selecting PSNP clients were provided with guidelines, not rules, about who could be included and had discretion in how these could be applied.²³ For example, the PIM for phase one (GFDRE 2004) indicated that beneficiary households should be members of the community who had been chronically food insecure in the last three years. Having identified households who met these criteria, local officials then considered a second set of characteristics to verify and refine the selection of eligible households: household assets (e.g., landholdings, quality of land, food stocks on hand); income from non-agricultural activities and from alternative sources of employment; and support or remittances from relatives or other community members. After determining PSNP eligibility based on these criteria, households were assigned to public works if they contained able-bodied adults while those households that could not provide labour (such as elderly widows with no adult children) received Direct Support (Coll-Black et al. 2012).

These criteria, however, suggest that a reasonable way of assessing the targeting performance of the PSNP is to assess how the likelihood of selection into the program varied across a bundle of household characteristics. For example, the 2016 evaluation included the results of a probit regression where the dependent variable equalled 1 if the household was selected for the PSNP, 0 otherwise, and the following household characteristics were used as regressors: grades of schooling of the household head; age of head; a dummy variable equaling 1 if the head is a widow; livestock holdings expressed in TLUs; land holdings (in hectares); a dummy variable equaling 1 if the dwelling has a metal roof; a dummy variable equaling 1 if the dwelling is in poor or very poor condition; a dummy variable equaling 1 if the head holds an official position in the kebele; and a dummy variable equaling 1 if the household had lived in the community for five or fewer years. Predicted probabilities of being selected into the program were then generated for five household types:

- Destitute households. Relative to other households in their region, destitute households have: land and livestock holdings at the 10th percentile (i.e. the lowest decile); education of the head at the 10th percentile; and housing quality (metal roof; state of disrepair) at the 10th percentile.
- Poor households. Relative to other households in their region, poor households have: land and livestock holdings at the 25th percentile (i.e. the lowest quartile); education of the head at the 25th percentile; and housing quality (metal roof; state of disrepair) at the 25th percentile.
- Median households. Relative to other households in their region, median households have: land and livestock holdings at the 50th percentile (i.e. the median); education of the head at the 50th percentile; and housing quality (metal roof; state of disrepair) at the 50th percentile.
- Better off households. Relative to other households in their region, better off households have: land and livestock holdings at the 75th percentile (i.e. the top quartile); education of the head at the 75th percentile; and housing quality (metal roof; state of disrepair) at the 75th percentile.

²³ For example, the guidelines for inclusion during the first phase of the PSNP were: ‘Has been assessed by a mix of administrative guidelines and community knowledge to have faced continuous food shortages (usually three months of food gap or more) in the last three years and received food assistance. This also includes households that suddenly become more vulnerable as a result of a severe loss of assets and are unable to support themselves (last 1–2 years); and any household without family support and other means of social protection and support’ (GFDRE 2004, p 4).

- Rich households. Relative to other households in their region, rich households have: land and livestock holdings at the 90th percentile (i.e. the highest decile); education of the head at the 90th percentile; and housing quality (metal roof; state of disrepair) at the 90th percentile (Berhane et al. 2016a).

Predicted probabilities are shown in Figure 3. Consider the results for Tigray and Afar. Figure 3 tells us that the predicted probability that a destitute Tigrayan household was selected into the PSNP was 79%, but a rich Tigrayan household has only a 15% probability of being selected into the PSNP. The sharp decline in predicted probabilities, particularly as we move from the median to better off and from better off to rich households in Tigray, indicates that the PSNP in Tigray is well targeted. By contrast, a poor household in Afar has a 63% predicted probability of being selected into the PSNP. But this probability barely changes as household wealth increases. In Afar, a destitute household has no livestock, a rich household has 14.4 TLU of livestock; yet, in 2016, the likelihood that they are selected into the PSNP is basically the same. If we look at other Highland regions, we see a pattern similar to Tigray, relatively high probabilities of selection for destitute and poor households with these falling for median, better off, and rich households. The pattern for Somale looks very similar to Afar.

This type of analysis was repeated during evaluations in other survey years. See, for example, Coll-Black et al. (2012) for an assessment of targeting in the Highlands in 2006 and 2008 and Lind et al. (2022) for an examination of targeting in the Lowlands in 2010, 2012, 2014, 2016, and 2018. Both produce similar results to those described here. Targeting performance was generally good in the Highlands but not in the Lowlands. This may explain, in part, why impacts in the Lowlands were so small.

5.2 Payments

A second explanation for the somewhat limited impacts could lie in payments. We consider both the level of payments received relative to what PSNP clients were entitled to receive and the predictability of these payments, and stability of participation.

Payment entitlements were initially set based on providing each client household with 20 days of work. Daily wages were either 3 kg of cereals or a cash wage intended to be equivalent in value to 3 kg of cereals.²⁴ Starting in 2009, entitlements were based on FFT. Under FFT, a client household's entitlement was based on an allocation of five days' work per adult member per month for households with one to five members; households with more than five members were allocated 25 workdays per month.

Where available, enumerators took information on PSNP payments from client cards held by PSNP beneficiaries. When this was not available, respondents were asked to recollect the payments they had received, by month, from the PSNP over the previous 18 months. Comparisons of data from client cards and from respondent recollections showed that levels and patterns of payments were similar, giving us confidence in the data generated through recall. Using these data, together with information on household demographics, Figure 4 shows the extent to which households selected into the public works²⁵ component of the PSNP received their full entitlement for selected

²⁴ The wage rate was adjusted over time to account for inflation and eventually was varied by region to account for differences in food prices within Ethiopia.

²⁵ For space reasons, we do not report payments to Direct Support clients, as these accounted for a relatively small share of PSNP caseloads. In general, Direct Support clients received a small fraction of their entitlements when compared to households undertaking public works.

years, 2009, 2011, 2013, and 2018.²⁶ Looking across these figures, three trends become apparent. First, the extent to which households received their full payment entitlement varies by year. Especially noteworthy is the concordance between the years (2011 and 2013) where payments were most closely matched to entitlements and the years where we see the largest impact of the PSNP on food security (Table 1). Second, payments relative to entitlements vary by region. They are nearly always lowest in the Lowland regions, a result consistent with the results also seen in Table 1 that showed that the PSNP had the smallest impact on food security in the Lowlands. Third, they vary by household size. Across all regions, typically payments as a percentage of entitlements were highest in small households but decline as household size increases. We return to this in the next section.

Next, we consider whether payments are predictable. We can think of this in two ways: predictability across years (i.e. do clients stay in the program for at least three years, as envisaged in the program design) and predictability when the program is operating; that is, do clients know when (and how much) they will be paid.

Figure 5 provides evidence on the first notion of predictability for the Highlands. It shows the percentage of households receiving payments for public works in three consecutive years.²⁷ Among households who received payments in 2006, only 69% continued to do so in 2007 and 2008, a consequence in part of several re-targeting exercises that took place in the first years of implementation. From 2009 onwards to the end of the third phase of the PSNP, once in the program, more than 90% of PSNP clients received payments for at least three consecutive years. This falls off slightly with the start of PSNP4, a consequence of re-targeting in the first year of that phase of the program.

What about predictability about payment timings. Three quotations from focus group discussions with PSNP participants in 2010 provide a prelude to this.

No clue [when we will receive next payment]. We are not informed when the next payment will be.

We do not know when the payment is coming. We only know the arrival when it is announced. We prefer to be paid monthly. If the payment could have been paid without delay each month, this would have been the basis for our growth.

We get our payments accidentally, in an unpredictable way (Berhane et al. 2011a).

Figure 6 quantifies this. PSNP payments were not made on a fixed date; rather, local officials would communicate with clients when payments would be made. In the 2010, 2012, 2014, and 2018 survey rounds, respondents were asked how many days' notice they received regarding the date of their last payment. Not until the 2018 round did more than 50% of PSNP clients in both the Highlands and Lowlands receive two or more days' notice that they would be receiving a payment.

This uncertainty surrounding payment timings had adverse consequences. PSNP clients were asked whether they can plan ahead because they are confident when they will receive PSNP

²⁶ Results for 2007 are not available by household size. At the household level, between 46% and 71% of households received their full entitlement. Results for 2021 are confounded by the pandemic and civil conflict; those data show that households received approximately 50%–60% of their entitlement.

²⁷ We omit 2013 and 2016 because, as part of the implementation of PSNP4, the entire program was re-targeted, and we omit 2018 onwards because of the confounding effect of the COVID-19 pandemic and civil conflict.

payments. While the percentage of respondents either strongly agreeing or agreeing with this statement varied by region and year, in only one region and year (SNNP 2012) did this percentage exceed 50%. As part of focus group discussions in 2014, we asked both men and women what the consequences of uncertainty surrounding payments were. The following quotations give a flavour of their responses (Berhane et al. 2015a).

This payment frequency exposes us to severe food shortage towards the end of the second month. We prefer to be paid after the end each month. We have pressing problems, and it is very hard for us to get by to the next month.

When the payment delays, those people who have plants like (false banana, sweet potato) at the backyard use that to feed their families and themselves. Those of us who have no plots of land, backyard, and plantations are forced to lend money from informal moneylenders with 50% interest that would be paid back when the safety net payment is paid to us. It is in this way we live when our payment delays, which severely affected us.

For those months when payment is delayed, most households sell small animals like poultry and goats. Some of us also take or borrow from neighbours (Berhane et al. 2015a).

Across all focus groups, the most frequent response to payment delays and payment uncertainty was the selling of assets. Borrowing money or food and relying on friends and relatives were the next most frequent responses followed by adjusting household food consumption.

5.3 Processes: providing work and making payments

Section 5.2 documents that payments were frequently less than what was envisaged and that they were not provided on a predictable basis. Here, we explore several reasons for this.

As part of the survey instrument administered at the community (kebele) level, local officials involved in the running of the PSNP were asked if there was sufficient work available for all households who are eligible to participate in the public works component of the PSNP. If this was not the case, they were asked how they allocated employment. Specifically, did they: (i) restrict the number of households that could receive employment; (ii) reduce the number of days of employment allocated to beneficiaries so that more households could receive employment; and/or (iii) rotate households' access to employment across different years. We have data for four years in the Highlands and one year in the Lowlands; results are presented in Table 4.

Table 4 shows that, in all years, fewer than 50% of kebeles reported that they had sufficient work available for all households who are eligible to participate in the public works component of the PSNP. This reflected in large part a program budget that was not large enough to cover all those eligible to take part—a problem that has recurred on multiple occasions (Lind et al. 2024). One response to this was to limit access to the program; a second was to reduce the number of days of employment allocated to beneficiaries, with (depending on the year) between 27% and 56% of kebeles reporting that they did so. This finding is consistent with what kebele officials in focus group interviews told us as exemplified by quotations found in Berhane et al. (2011a, p. 91).

We know about FFT and have practiced it since last year. In the previous round of the PSNP, the tendency was to reach more households than reach all the members within a household. By trying to reach many households, we stretch the program and help as many people as possible to survive hard times. But this holds

back the main purpose of the program. It delays households from graduating. Some might not graduate. On the other hand, full family targeting will quicken graduation, even though many poorer households that are eligible for support are left out.

Although many officials supported the principle of FFT, there were tensions. In one *woreda*, officials acknowledged that they target fewer members of client households, even though this runs against the principle of FFT. In another, in Ahferom *woreda*, Tigray state, they recounted:

In some places (*kebeles*), even the selection committees swear to each other not to disclose the confidentiality of breaking rules of full family targeting because they prefer to reach as many households as possible in the name of sharing what they have with the community (Berhane et al., 2011a, p. 91).

These results—(i) variations over time in whether there was sufficient work available to all households; (ii) the rationing of employment as a response to being unable to provide sufficient work to eligible households; and (iii) suggestive evidence that rationing of work focused on larger households—are all consistent with the patterns seen in Figure 4.

In addition to insufficient funds, there may have been a second factor at play. The labour intensity of public works varies by public work activity—brush clearing and tree planting, for example, are more labour intensive whereas road reconstruction and repairs to schools and clinics require more materials and skilled labour. If local leaders were sufficiently concerned about ensuring that enough work was available, they could have advocated for public works activities that required more unskilled labour and relatively less skilled labour, machinery, and materials. Mindful of this, we asked local officials two questions: (i) ‘Is hiring skilled labour to assist with public works projects sometimes justified even if it means that fewer people can be hired or that other lower skilled people must work fewer days?’; and (ii) ‘Which is more important for public works programs: transferring income to the poorest households or building productive community assets?’ In response to the first question, across all surveys and years, more than 80% of kebele officials said yes. Responses to the second question are shown in Figure 7. The striking feature of these results is that there is not a single year when more than 50% of kebele officials stated that either ‘Only transferring income to the poor is important’ or ‘Transferring income to the poor is more important than building productive assets’. Modal responses were either ‘Transferring income to the poor and building productive assets are equally important’ or ‘Building productive assets is more important than transferring income to the poor’. While we cannot causally link this to actual work allocations being less than work entitlements, it suggests that officials’ preferences for ‘productive public works’ may have reduced the labour intensity of the work that was undertaken.

To understand why payments were not predictable, it is necessary to understand how the payment process worked. At the end of every month, local (kebele) officials collated and checked handwritten public works attendance sheets before sending these to the Woreda Food Security Office (WFSO) for processing. The amount of time this took depended on resources at the kebele level, the caseload, and the distance (and ease of physical access) from the kebele to the woreda offices. The WFSO checked and processed the attendance sheets and entered the information into an electronic payroll system.²⁸ It would then be forwarded to the Woreda Office of Finance and Economic Development (WOFED) who would review this information and authorize payment. Where the WFSO is responsible for making payments, this is followed by arranging for cash to be withdrawn from the Commercial Bank of Ethiopia and for transport to the pay points. With this

²⁸ This system, called PASS, was used for cash payments in the Highlands and in the Somali region but not in Afar.

in place, the last step was to make payments. The amount of time this took was a function of the availability of transport, the number of cashiers, the caseload, the number of pay points to be visited, and the distance (and ease of access) from woreda offices to kebeles.

Table 5 gives a flavour as to how long these processes took, drawing on data from a 2018 survey of 56 woredas that were making cash payments. PSNP4 had a performance standard for timeliness, cash payments were to be made no more than 20 days after month end (GFDRE 2015). Across the sample of 56 woredas where the WFSOs were responsible for making cash payments, on average it took 35.4 days from month end to make these payments (and only 9% of woredas met the performance benchmark). On average, it took 14.4 days before woredas received their first attendance sheets. It took an average of 16.3 days to process attendance data, obtain WOFED authorization, obtain cash, and arrange transport. Once this step was completed, payments were made relatively quickly. On average, it took only 4.8 days to travel to pay points where payments were made. Put another way, 41% of the time PSNP clients wait for payments is a consequence of woredas waiting to receive attendance sheets from kebeles; 46% of the wait time is due to processing at the woreda level; and 13% is accounted for by travel time to pay points.

The many steps needed before PSNP public works clients could be paid meant that there were many ways in which problems could arise. In 2010, 2012, 2014, and 2018, we asked woreda staff to describe what they perceive to be the problems that cause cash payments to be delayed. With the caveat that these are self-reports, in Table 6, we divide these woreda-reported problems into three categories: (i) those that arise at the kebele level. This includes delays in receipt of attendance sheets, difficulties in physical access to kebeles (e.g., where rains have washed out roads or made tracks impassible), and difficulties in getting beneficiaries to payment sites; (ii) those that reflect problems associated with the system of creating a payroll and obtaining funds (e.g., delays in getting funds from BOFED (the regional bureau of finance and economic development); problems with transport or the payroll system called PASS); and (iii) those outside the control of the program (problems with electricity or the mobile phone network and difficulties in getting the Commercial Bank of Ethiopia to release funds). All these problems could slow payment processes and make them less predictable. An unreliable electricity supply could delay entering payments data into the payroll system. Withdrawing money from a bank required both that money had been transferred to the woreda bank account and that the bank was willing to allow woreda officials to withdraw a large sum of cash in one go (if the bank branch had limited cash in its tills and vaults, sometimes they would limit how much cash woreda officials could withdraw). Travelling to a kebele to make a payment meant that there had to be a trained cashier available, transport, and that it was possible (via the mobile phone network) to tell local officials that a payment would be made.

We end by noting several other aspects of payment processes. First, the vast majority of respondents walked to the payment site and returned home the same day. Consequently, transport and accommodation costs associated with obtaining payments were minimal. Second, reports of money or food being stolen after payment were rare, by less than 1% of clients. PSNP clients told us that there were few cases where individuals in a position of authority asked for some of the payment to be given to them.

5.4 Limited coverage of complementary programming

Complementary income-generating programming

As noted in Section 2, the PSNP was never intended to be the sole mechanism by which households would be permanently lifted out of food insecurity. Instead, it was to be complemented by other programs that would speed up the process of graduating households (GFDRE 2009b). These were the OFSP (2005–09), the HABP (2010–15), and the Livelihoods Component (2016–

21). Initial evaluations showed limited coverage of the OFSP. Gilligan et al. (2007) noted that outside Tigray, access to the OFSP was low. While this improved between 2006 and 2008, access to the OFSP remained limited (Gilligan et al. 2009b) with only 26% and 36% of households having access to any OFSP component in 2006 and 2008, respectively, and most of this assistance coming in the form of facilitating access to credit (Gilligan et al. 2007; Gilligan et al. 2009b). This limited coverage reflected several implementation challenges. One was that the agricultural extension system was under-resourced and there were too few development agents (DAs) with sufficient skills to play their role effectively (Wiseman et al. 2010). There were no clear guidelines on OFSP implementation, particularly who should be targeted for assistance and limited coordination across the programs with the result that government DAs (responsible for delivering the OFSP) did not always know who was, or was not, a PSNP client. The provision of credit was also problematic. There was confusion as to whether beneficiaries were receiving a grant, a loan, or participating in a revolving funds scheme with the result that, in 2008, only 72% of loans that had fallen due had been repaid. Because the credit was supposed to have been operating as part of a revolving fund, only 36% of loans that had been repaid were refinanced. The loans that were made were often insufficient to finance major purchases (such as livestock), and requirements that loans be repaid rapidly meant that they had to be paid back before the assets, or activities financed (such as cattle fattening), generated a profit (Berhane et al. 2011a).

These problems led to a redesign, the HABP. Access to DAs increased, with about 50% of PSNP households reporting at least one contact, in part because the number of DAs in each kebele increased. Implementing the HABP proved to be labour intensive with the result that even though there were more DAs, only 4% of PSNP beneficiaries (or recent graduates) reported that they had prepared a business plan in the two years prior to the 2014 survey. Most of these plans focused on crop or livestock production. Although a component of the HABP, capacity constraints meant that PSNP clients did not receive assistance with accessing markets through formation of marketing groups, increasing producer prices/share, improving the quality of produce, expanding access to inputs, and improving processing technologies. Nor was there much in the way of development or expansion of non-farm income-generating activities. Further, although many branches of financial institutions were established [Rural Savings and Credit Cooperatives (RUSACCOs), Village Savings and Loans Associations (VSLAs), and Micro-Finance Credit (MFIs)], few PSNP households joined these (only 15.8% had joined RUSACCOs by 2014) and even fewer, 12.5%, had borrowed money from a RUSACCO, VSLA, or MFI.

Concerns regarding the ability of PSNP clients to graduate from the program, together with the poor performance of the HABP led to the Livelihoods Component (LC) being incorporated into the fourth phase of the PSNP. According to the LCs Theory of Change, to graduate, households require a carefully sequenced combination of technical and financial support, beginning with receipt of safety net transfers and followed by savings participation, financial literacy, livelihoods training, and access to finance. But this too foundered. By 2018, only 20% of PSNP clients had joined a livelihoods group and only 8% had completed any technical or financial training. Again, much of the training that did occur focused on crops and livestock, in large part because the organizations that were supposed to provide training on non-farm income-generating activities simply did not, regarding it as being of secondary importance. Credit take-up was again low. This partly reflected a reluctance on the part of PSNP clients to take out loans for fear that they could not repay them. Coordination with financial institutions remained weak and because of poor loan repayment, many had become undercapitalized under HABP, which limited ability and willingness to lend to PSNP clients. As one MFI staff member stated:

Currently, we are not engaging in the livelihood component of PSNP. This is because of ineffective repayment of the previous loans that hindered us to further access required capital. Since the loans were provided to the poorest of the poor,

people wrongly considered the loan as aid money, which they did not need to repay. This was because awareness creation had not been done correctly to all concerned. When the loans were distributed to chronically poor households, most people were careless, as they had not been told to work hard to repay the loan.²⁹ As a result, a very small number of borrowers have repaid the loan. This has created a great challenge to our performance with PSNP (Berhane et al., 2019a, p. 295).

In summary, the PSNP was never intended to be a single stand-alone program that could sustainably lift households out of food insecurity. It was understood that complementary programming would be needed, and when this was provided (as shown in Table 1), it enhanced program impact on food security. But efforts to improve the design of complementary programming made them more challenging to implement. This, together with multiple difficulties with the credit component (loan size and repayment schedules, misunderstandings of whether money provided was a grant or loan, difficulties in repayment, reluctance of financial institutions to lend) limited the coverage and impact of these complementary activities, which in turn limited the impact of the PSNP.

Complementary nutrition programming

A key part of the nutrition-sensitive component of the fourth phase of the PSNP was the inclusion of local health staff, Health Extension Workers (HEWs), in program implementation. They were included in bodies charged with oversight of implementation (such as food security task forces); liaison with other individuals responsible for aspects of the PSNP (such as DAs); and implementation of activities directly related to the nutrition objectives of the program such as disseminating information on optimal care practices for infant and young child nutrition (IYCN).

The surveys undertaken in 2017 and 2019 provide information on the success of these initiatives. Here, we summarize the results found in Berhane et al. (2019c). In households receiving the PSNP, relatively few (34%) pregnant women, lactating women, or mothers of children less than two years of age had contact with a HEW in the three months prior to the survey. Across four survey rounds, only 18% to 24% of mothers received nutrition information from a HEW, and at most, only 20% of mothers had attended a food demonstration³⁰ held by a HEW. Further, after two years of implementation of these nutrition-sensitive components, 10% of children aged 0–24 months had had their height measured, only a quarter of these children had any anthropometric measure (weight, height, or mid-upper arm circumference) measured, and of those children who were measured, fewer than 50% received any guidance on IYCN. It is not surprising, therefore, that the PSNP had no impact on maternal knowledge of optimal IYCN.

To understand why this occurred, we note the following. First, implementation of these nutrition-sensitive components varied substantially across regions, with 85% and 70% of HEWs in Tigray and Oromia reporting having received training on nutrition-sensitive aspects of the PSNP in the August 2019 survey, compared to 46% and 45% of HEWs in Amhara and SNNP. Second, the health posts where HEWs worked were characterized by strikingly rudimentary physical infrastructure. Just over 20% of health posts had electricity and only 40% had piped water. Fewer than half (42%) have the height boards needed to measure children's heights. Third, the caseloads

²⁹ Other financial organization staff noted that weather shocks meant that some borrowers could simply not repay their loans.

³⁰ During community food demonstrations, HEWs would discuss aspects of optimal IYCN, such as the importance of diet diversity.

of HEWs were high, with a HEW being responsible for 74 to 167 children aged 0–24 months and 23 to 49 pregnant women (these numbers varying by region and survey round).

Further, HEWs had heavy workloads. In 2019, the average health post had 2.2 HEWs who worked 21–26 days per month and 8.0–9.2 hours per day. They were responsible for 25 different activities.³¹ In 2019, nearly two-thirds of HEWs reported that their workload was ‘too much’. We wondered if the time pressures faced by HEWs were leading to adverse effects on their mental health. For this reason, in both 2017 and 2019, we administered the 22-item Maslach Burnout Inventory.³² In 2019, 34% of HEWs showed signs of medium or high levels of emotional exhaustion and 54% showed signs of medium or high levels of depersonalization. Consistent with this latter finding, in 2019, only 27% of HEWs agreed with the statement ‘Mothers in our communities are capable of feeding their young children adequately with a variety of foods’.

In summary, implementation of several of the nutrition-sensitive aspects of PSNP4 relied on work to be undertaken by HEWs. These HEWs were already responsible for a wide range of other activities and thus had limited time to devote to these. This problem was exacerbated by high caseloads, limited training, and poor physical infrastructure at many health posts. Consequently, there was limited contact between HEWs and mothers of young children and thus no programmatic effects on mothers’ knowledge of optimal IYCN.

6 What is learned from these evaluations

Here we draw back from the details of the evaluation of the PSNP to look at the broader picture. Was the PSNP a success on its own terms? And are there broader lessons for impact evaluations of large government-run social protection interventions in other low-income countries?

In brief, the PSNP had a positive impact on the food security and well-being of its participants. But these impacts were modest. Further, impacts were not consistent over time, rising or falling with changes in the effectiveness of program participation. That said, there were also important impacts in other areas, though these were not always easily quantifiable. We highlight two. First, we perceive that a by-product of the PSNP was the strengthening of local (woreda and kebele) capacity to plan and implement interventions at a local level; a ‘learning-by-doing’ effect. Second, a feature of the PSNP was the creation of Community Food Security Task Forces (CFSTF) and Kebele Appeals Committees (KAC). The CFSTFs were responsible for informing targeting decisions through carrying out needs assessments, verifying the beneficiary list that is prepared by local officials, and publicly posting lists of beneficiaries. The KAC was the body that non-beneficiaries could appeal the decision to if they had been excluded from the PSNP, and

³¹ These were: Pregnant and lactating mothers (Antenatal care, Delivery care, Postnatal care, Breastfeeding counselling); Children’s nutrition (Neonatal care, Vitamin A and iron supplementation, Growth monitoring, Complementary feeding, Diarrhoea treatment, Management of severe acute malnutrition); Health and illness (Family planning, Immunization, Deworming, Referral of sick child, HIV/AIDS counselling, Pneumonia treatment, Malaria treatment, Providing/selling bed nets, Health education; Water, sanitation and hygiene); Community outreach (Food demonstrations); and Administration (Registering and recording, Preparing reports, Attending meetings, Training, Supervision).

³² This questionnaire assesses burnout in health professionals by asking them to identify the frequency with which the various feelings occur over a 12-month period. These are grouped into three dimensions/subscales: emotional exhaustion (‘emotional over-extension, exhaustion, and depletion’ in one’s work, nine items); depersonalization (‘impersonal, callous, negative, and detached’ feelings to the recipients of one’s services, five items); and reduced personal accomplishment (feelings of competence and successful achievement in one’s work with people, eight items).

beneficiaries could raise concerns regarding the level and timeliness of payments that they had received. Both the CFSTFs and the KACs were mechanisms designed to enhance accountability for decisions made by government officials, something not seen in much of rural Ethiopia prior to the introduction of the PSNP.

Beyond the results of these evaluations (and those of other researchers), we note several other lessons we have learned from our 15-year engagement with the PSNP.

First, economists and other social scientists see randomization as purely a technical issue—an approach with considerable potential to plausibly identify causal impacts. But in the context of the development of the PSNP, it became clear to us that this was also a political decision. Randomization implied that benefits would be withheld from severe food-insecure households solely for the purpose of strengthening the plausibility of the impact estimates, and the Government of Ethiopia was not persuaded that the marginal benefit of doing so was worth the very real cost of withholding a benefit that participants really needed. With the benefit of hindsight, the discussions around whether to randomize or not had an ‘all or nothing’ flavour to them. Even if it were not possible to randomize access to the program, it might have been possible to experimentally vary the way in which benefits were provided. Doing so would have provided valuable information that could have improved program implementation. For example, it is not possible to tell whether payments made in cash were more (or less) effective than food payments. There were systematic differences between households that received only food, only cash, or a combination of food and cash.³³ These differences confounded attempts to ascertain whether food outcomes differ across households who received their payments in cash, as food, or as a combination of food and cash.

Second, the PSNP was ambitious in terms of scale and timing. While the Government of Ethiopia had experience with the delivery of ad hoc drought relief, it did not have any experience delivering a somewhat complex intervention to more than one million households all at once and with no preliminary or pilot interventions to inform implementation. This ‘ambition to deliver’ had benefits. It meant that there was a high level of political and technical engagement around implementation and impact—it was not uncommon for our regional workshops where we disseminated results to have more than 100 government officials in attendance—with a concomitant interest in improving program performance. This was aided, in part, by the evaluation team’s use of comparative statistics when describing program implementation (e.g., comparing across regions the amount of time that elapsed between the completion of a month’s worth of public works and the delivery of payments to beneficiaries). But this ambition to deliver created pressures to pre-maturely graduate participants from the PSNP (see Sabates-Wheeler et al. 2021). Further, ambition was not always matched by adequate program resources for interventions designed to enhance the impact of the PSNP, as the limited reach of the HABP and the nutrition-sensitive aspects of PSNP4 demonstrate. Relatedly, government officials at regional or national levels did not always have a correct understanding of whether human and financial resources required for the operation of the PSNP were actually available. For example, the process of making cash payments required government officials to physically withdraw cash from local banks. But in the early phases of the PSNP, banks in more remote localities had only limited amounts of cash that could be withdrawn, and this led to delays in cash payments to beneficiaries.

³³ Households with a larger fraction of their transfers received as cash tended to receive lower total transfers and received these transfers with less frequency. Further, there are regional differences in the share of transfers received as cash.

Third, the decision to link payment to participation in public works activities had both significant drawbacks and benefits. Implementing these meant that some program funds were spent on materials and equipment instead of as transfers to beneficiary households. Implementing public works made the PSNP managerially and logistically more complex, something particularly problematic in localities where managerial capacity was limited. Finally, local officials were caught between two program imperatives: (i) the ‘primacy of payments’ principle that stated that ‘a safety net delayed is a safety net denied’ (GFDRE 2004, p. 4); and (ii) their fiduciary responsibility for ensuring that participants only received payments for work that they had undertaken. The latter meant that considerable efforts were made to record and audit who worked and how many days they worked, all of which resulted in delays in paying participants. That said, the PSNP did create public goods that were of value to the rural communities where the PSNP was active, and the work requirement provided political cover for government officials concerned about creating dependency effects.

Fourth, the initial evaluations (2006 and 2008) of the PSNP focused largely on causally identifying impacts. While this was informative, they could not explain what aspects of program implementation were leading to limited effects. We perceive that the more extensive process evaluations introduced in the 2010 evaluation round were helpful in identifying specific problems in implementation—such as why delays in receiving funds from BOFED, difficulties in arranging transport to pay sites, and problems using the electronic payroll system (PASS) (see Table 6)—and that subsequent efforts to rectify these problems coincided with larger program impacts.

Lastly, we note that the organization behind the data collection process had both significant strengths and weaknesses. One strength was the Government of Ethiopia’s insistence that evaluation data were collected by Ethiopia’s CSA. Because CSA operated as an independent agency within the government, it was seen as both a neutral and credible party. It was striking to us that, when results were questioned by some government officials, other government officials would respond by noting that because these were ‘government data’, they were credible. Further, CSA allocated the same senior staff to multiple survey rounds, thus ensuring continuity in survey implementation. This process also benefited CSA as they learned, for the first time, how to implement a longitudinal survey design. But there were three significant weaknesses. First, apart from selected parts of the Amhara region where the PSNP was funded by USAID, no baseline data were collected prior to the launch of the PSNP. Second, data were not collected in non-PSNP localities.

Consequently, it was not possible to assess quantitatively the impact of new community assets constructed by the PSNP program. Because they are *community* assets, they potentially provide a flow of benefits to PSNP and non-PSNP households alike within the same community. Assessing their impact required a sample of households in areas served and not served by the PSNP, and this was not collected. Lastly, property rights to the data are held by the Government of Ethiopia, and the government has been reluctant to make these data publicly available.

7 Summary

The PSNP had a positive impact on food security but one that varied over time. It had inconsistent impacts on asset holdings. There were positive impacts on the use of fertilizers, investments in terracing, and cereal yields but only when the program was twinned with complementary programming. It enabled households to be more resilient to shocks. There were no adverse incentive effects on labour supply or fertility; indeed, it may have contributed to reducing early marriage of girls. There is some evidence that it improved schooling outcomes and reduced child

labour, but these effects varied over time. The preponderance of evidence shows no impact of the PSNP on child nutrition outcomes. There is some evidence that it created community assets of value.

This evidence holds several lessons for the design of safety net interventions in Ethiopia and elsewhere. First, ‘dose matters’. Higher payments produce bigger impacts. Second, ‘certainty matters’. The fact that PSNP clients were uncertain as to when they would be paid may well have limited the impact of the program. Third, there is an inescapable tension between wider program coverage and higher payments to clients. Fourth, delivering social protection through a public works intervention is often seen as a ‘win-win’—poor people receive transfers while community values are constructed. But it also exacerbates the tension between coverage and payment levels because funds that could be used as payments to beneficiaries are spent on materials and skilled labour—a tension that is exacerbated when program funding is insufficient to cover all eligible households. Further, the process of verifying employment and making payments introduces delays and uncertainties as to when clients will receive what is owed to them. Fifth, complementary programming can enhance the impact of transfers, but adding complementary programming at scale is challenging when resources are limited.

Lastly, the design and implementation of a social safety net is not only a technical exercise but also a political one. Without considerable government (and donor) commitment to the program, it is doubtful that the PSNP would have operated for as long as it has. But this commitment came with requirements such as the decision to deliver most transfers as payments for employment public works, which contributed to limiting its impact.

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Tables and figures

Table 1: Impact of the PSNP on household food security, by region and round

Round	Outcome: change in months food secure	Definition of a treatment household	Definition of a comparison household	Impact estimator	Estimated impact	SE	Reduces food gap by (per cent)
HIGHLANDS							
2006	2004–06	Received any PW payments between June 2005 and May 2006 ⁽¹⁾	Household not selected for PSNP or was selected but received no payments, June 2005–May 2006	Matching, DID	0.164	0.116	-
		Receipt of >ETB90 of PW payments between June 2005 and May 2006 ⁽²⁾	Household not selected for PSNP or was selected but received no payments, June 2005–May 2006	Matching, DID	0.158	0.189	-
		Received any PW payments between June 2005 and May 2006 and access to OFSP services	Household not selected for PSNP or was selected but received no payments, June 2005–May 2006	Matching, DID	0.369**	0.157	11.9
2008	2006–08	Receipt of >ETB100 of PW payments in the first five months of 2006, 2007, or 2008 ⁽³⁾	Received no PW payments in this period	Matching, DID	0.402**	0.132	15.1
		Receipt of >ETB900 of PW payments in the first five months of 2006, 2007, or 2008 ⁽⁴⁾	Received no PW payments in this period	Matching, DID	0.288*	0.154	10.7
		Receipt of >ETB900 of PW payments in the first five months of 2006, 2007, or 2008 AND received OFSP prior to 2006 or 2008 surveys	Received no PW payments in this period	Matching, DID	0.453**	0.176	16.9
2010	2006–10	Received PW payments for five years (2006–10 inclusive) ⁽⁵⁾	Received PW payments in only one year between 2006 and 2010	Generalized propensity score – DID	1.288***	0.234	41.6
		Received PW payments for five years (2006–10 inclusive) and access to OFSP/HABP	Received PW payments in only one year between 2006 and 2010 and on access to OFSP/HABP	Generalized propensity score – DID	1.505***	0.410	48.7
2012	2010–12	Received PW payments in 2011 and 2012 ⁽⁶⁾	Received PW payments for two or more years between 2007 and 2010 but did not receive any PW payments in 2011 and 2012	Matching, DID	1.480***	0.280	48.7
2014	2006–14	-(⁷)	-(⁷)	Household fixed effects –	0.200*** per 100	0.07	35.5 (at mean PW payment levels)

				instrumental variables	ETB PW payment		
2018	2016–18	Received PSNP payments (PW or DS) in 2016, 2017, and 2018	Did not receive any PSNP payments in 2016, 2017, or 2018	Matching, DID	0.186***	0.081	6.6
2021	2016–21	Received PSNP payments for at least three years between 2016 and 2020	Never received PSNP payments	Matching, DID	0.177*	0.100	6.3

LOWLANDS							
2010	-	-(⁶)	-	-	-	-	-
2012	2010–12, Afar	Received any PW payments, 2012	Household not selected for PSNP	Matching, DID	0.073	0.263	-
	2010–12, Somale	Received any PW payments, 2012	Household not selected for PSNP	Matching, DID	-0.034	0.149	-
	2010–12	Received any PW payments, 2012, TLU below median ⁽⁹⁾	Household not selected for PSNP, TLU below median	Matching, DID	0.536	0.378	-
	2010–12, Somale	Received any PW payments, 2012, TLU below median	Household not selected for PSNP, TLU below median	Matching, DID	0.526**	0.231	
2014	2012–14, Afar	Received any PW payments, 2014	Household not selected for PSNP	Matching, DID	0.040	0.21	-
	2012–14, Afar ⁽¹⁰⁾	-	-		-	-	-
	2012–14, Somale	Received any PW payments, 2014	Household not selected for PSNP	Matching, DID	-0.196	0.196	-
	2012–14, Somale	Received any PW payments, 2014, TLU below median	Household not selected for PSNP, TLU below median	Matching, DID	0.703***	0.198	66.3
2018	2016–18	Received PSNP payments in 2018	Household not selected for PSNP	Matching, DID	0.413*	0.223	31.6
2021	2016–21	Received PSNP payments in 2021	Household not selected for PSNP	Matching, DID	0.254	0.241	-

Note: (1) PSNP payment data pre-June 2005 not available. (2) ETB90 was equivalent to 50% of intended transfers over this period. (3) The ETB100 minimum was used to eliminate from the treatment group households that mistakenly report small quantities of public works transfers or who had received temporary work. (4) ETB900 was the approximate mean of PW transfers received by PW participants. (5) Movement in and out of the PSNP meant that it was no longer possible to construct a viable comparison group from households that had never received PSNP payments. There was a monotonic relationship between years of program participation and total PW payments. Households that received PW payments in only one year between 2006 and 2010 received very low payments (median payment was ETB186 over five years) compared to households that had received PW payments in five years (median payment was ETB3,370 over five years). (6) Households that never received PW payments were no longer a viable comparison group. Increases in PW payments in 2011 and 2012 meant that there was no longer a monotonic relationship between total payments and duration of program participation. (7) It was no longer possible to create a plausible comparison group. (8) Limited program participation implementation meant that it was not possible to construct a treatment group. (9) TLU – tropical livestock units. (10) There were not enough treatment households to estimate model.

*, **, and *** are significant at the 10%, 5%, and 1% level, respectively.

PW – public works.

Source: authors' calculations.

Table 2: Impact of the PSNP on TLUs, by region and round

Round	Outcome: change in months food secure	Definition of a treatment household	Definition of a comparison household	Impact estimator	Estimated impact	SE	Change in TLU
HIGHLANDS							
2006	2004–06	Received any PW payments between June 2005 and May 2006	Household not selected for PSNP or was selected but received no payments, June 2005–May 2006	Matching, DID	.. ⁽¹⁾	-	-
		Receipt of >ETB90 of PW payments between June 2005 and May 2006	Household not selected for PSNP or was selected but received no payments, June 2005–May 2006	Matching, DID	-	-	-
		Received any PW payments between June 2005 and May 2006 and access to OFSP services	Household not selected for PSNP or was selected but received no payments, June 2005–May 2006	Matching, DID	-	-	-
2008	2006–08	Receipt of >ETB100 of PW payments in the first five months of 2006, 2007, or 2008	Received no PW payments in this period	Matching, DID	0.281**	0.110	7.8%
		Receipt of >ETB900 of PW payments in the first five months of 2006, 2007, or 2008	Received no PW payments in this period	Matching, DID	0.190*	0.112	5.3
		Receipt of >ETB900 of PW payments in the first five months of 2006, 2007, or 2008 AND received OFSP prior to 2006 or 2008 surveys	Received no PW payments in this period	Matching, DID	0.334*	0.173	9.4
2010	2006–10	Received PW payments for five years (2006–10 inclusive)	Received PW payments in only one year between 2006 and 2010	Generalized propensity score – DID	0.397	0.238	11.0
		Received PW payments for five years (2006–10 inclusive) and access to OFSP/HABP	Received PW payments in only one year between 2006 and 2010 and on access to OFSP/HABP	Generalized propensity score – DID	0.999***	0.32	27.8
2012	2010–12	Received PW payments in 2011 and 2012	Received PW payments for two or more years between 2007 and 2010 but did not receive any PW payments in 2011 and 2012	Matching, DID	-0.214	0.191	-
2014	2006–14	-	-	Household fixed effects – instrumental variables	-0.144	0.219	-
2014	2006–14	- Poorest TLU quintile	- Poorest TLU quintile	Household fixed effects –	0.129***	0.057	23.4

				instrumental variables			
2018	2016–18	Received PSNP payments (PW or DS) in 2016, 2017, and 2018	Did not receive any PSNP payments in 2016, 2017, or 2018	Matching, DID	-0.118***	0.039	-6.2
2021	2016–21	Received PSNP payments for at least three years between 2016 and 2020	Never received PSNP payments	Matching, DID	0.252**	0.11	13.3

LOWLANDS							
2010	-	-(2)	-	-	-	-	-
2012	2010–12, Afar	Received any PW payments, 2012	Household not selected for PSNP	Matching, DID	6.641**	1.877	30.4
	2010–12, Somale	Received any PW payments, 2012	Household not selected for PSNP	Matching, DID	0.199	1.078	-
	2010–12, Afar	Received any PW payments, 2012, TLU below median ⁽⁹⁾	Household not selected for PSNP, TLU below median	Matching, DID	0.414**	0.203	9.5
	2010–12, Somale	Received any PW payments, 2012, TLU below median	Household not selected for PSNP, TLU below median	Matching, DID	0.512*	0.279	19.9
2014	2012–14, Afar	Received any PW payments, 2014	Household not selected for PSNP	Matching, DID	-1.073	1.589	-
	2012–14, Afar ⁽³⁾	-	-				-
	2012–14, Somale	Received any PW payments, 2014	Household not selected for PSNP	Matching, DID	-1.280	0.924	-
	2012–14, Somale	Received any PW payments, 2014, TLU below median	Household not selected for PSNP, TLU below median	Matching, DID	0.244	0.472	-
2018	2016–18	Received PSNP payments in 2018	Household not selected for PSNP	Matching, DID	0.062	0.059	-
2021	2016–21	Received PSNP payments in 2021	Household not selected for PSNP	Matching, DID	0.042	0.093	-

Note: (1) in the 2006 impact evaluation, livestock and other productive assets were pooled; no statistically significant impacts were found. (2) Limited program participation implementation meant that it was not possible to construct a treatment group. (3) There were not enough treatment households to estimate model. *, **, and *** are significant at the 10%, 5%, and 1% level, respectively. For additional notes, see Table 1. TLU – tropical livestock unit; PW – public works.

Source: authors' calculations.

Table 3: Impact of the PSNP on input use and agricultural productivity, by round

Outcome	Round	Period	Definition of a treatment household	Definition of a comparison household	Impact estimator	Estimated impact	SE
Used any fertilizer	2006	2004–08	Received any PW payments between June 2005 and May 2006 ⁽¹⁾	Household not selected for PSNP or was selected but received no payments, June 2005–May 2006	Matching, DID	-0.001	0.015
			Receipt of >ETB90 of PW payments between June 2005 and May 2006 ⁽²⁾	Household not selected for PSNP or was selected but received no payments, June 2005–May 2006	Matching, DID	-0.014	0.032
			Received any PW payments between June 2005 and May 2006 and access to OFSP services	Household not selected for PSNP or was selected but received no payments, June 2005–May 2006	Matching, DID	0.107***	0.035
Fertilizer use (kg/ha) on wheat	2008	2006–08	Receipt of >ETB100 of PW payments in the first five months of 2006, 2007, or 2008 ⁽³⁾	Received no PW payments in this period	Matching, DID	11.3	12.1
			Receipt of >ETB100 of PW payments in the first five months of 2006, 2007, or 2008 and OFSP support to improve irrigation	Received no PW payments in this period	Matching, DID	91.0***	18.0
Used any fertilizer	2010	2006–10	Received PW payments for five years (2006–10 inclusive) ⁽⁵⁾	Received PW payments in only one year between 2006 and 2010	Generalized propensity score – DID	-0.023	0.071
			Received PW payments for five years (2006–10 inclusive) and access to OFSP/HABP	Received PW payments in only one year between 2006 and 2010 and on access to OFSP/HABP	Generalized propensity score – DID	0.128***	0.044
Used any fertilizer	2012	2012	Received PW payments in 2011 and 2012 ⁽⁶⁾ and had contact with a DA	Received PW payments for two or more years between 2007 and 2010 but did not receive any PW payments in 2011 and 2012	Matching, DID	0.187***	0.040
Used any fertilizer	2014	-	-	-		-	-
Used any fertilizer	2018	-	-	-		-	-
Used any fertilizer	2021	-	-	-		-	-

Outcome	Round	Period	Definition of a treatment household	Definition of a comparison household	Impact estimator	Estimated impact	SE
Any stone terracing	2006	-					
Stone terracing, wheat fields	2008	2006–08	Receipt of >ETB100 of PW payments in the first five months of 2006, 2007, or 2008 ⁽³⁾	Received no PW payments in this period	Matching, DID	0.064	0.062

			Receipt of >ETB100 of PW payments in the first five months of 2006, 2007, or 2008 and OFSP support to improve irrigation	Received no PW payments in this period	Matching, DID	0.346***	0.062
Any stone terracing	2010	2006–10	Received PW payments for five years (2006–10 inclusive) ⁽⁵⁾	Received PW payments in only one year between 2006 and 2010	Generalized propensity score – DID	-0.126	0.089
			Received PW payments for five years (2006–10 inclusive) and access to OFSP/HABP	Received PW payments in only one year between 2006 and 2010 and on access to OFSP/HABP	Generalized propensity score – DID	0.099***	0.046
Any stone terracing	2012	2012	Received PW payments in 2011 and 2012 ⁽⁶⁾ and had contact with a DA	Received PW payments for two or more years between 2007 and 2010 but did not receive any PW payments in 2011 and 2012	Matching, DID	0.063*	0.040

Outcome	Round	Period	Definition of a treatment household	Definition of a comparison household	Impact estimator	Estimated impact	SE
	2006	-					
Yield, wheat (kg/ha)	2008	2006–08	Receipt of >ETB100 of PW payments in the first five months of 2006, 2007, or 2008 ⁽³⁾	Received no PW payments in this period	Matching, DID	-26.8	72.4
			Receipt of >ETB100 of PW payments in the first five months of 2006, 2007, or 2008 and OFSP support to improve irrigation	Received no PW payments in this period	Matching, DID	236.3***	76.2
Yield, all cereals (kg/ha)	2010	2006–10	Received PW payments for five years (2006–10 inclusive) ⁽⁵⁾	Received PW payments in only one year between 2006 and 2010	Generalized propensity score – DID	136.3	312.7
			Received PW payments for five years (2006–10 inclusive) and access to OFSP/HABP	Received PW payments in only one year between 2006 and 2010 and on access to OFSP/HABP	Generalized propensity score – DID	347.7***	141.2
-	2012	-	-	-		-	-
Log yield, all cereals (kg/ha)	2014	2006–14			Household fixed effects – instrumental variables	0.001	0.001

Note: (1) PSNP payment data pre-June 2005 not available. (2) ETB90 was equivalent to 50% of intended transfers over this period. (3) The ETB100 minimum was used to eliminate from the treatment group households that mistakenly report small quantities of public works transfers or who had received temporary work. (4) ETB900 was the approximate mean of PW transfers received by PW participants. (5) Movement in and out of the PSNP meant that it was no longer to construct a viable comparison group from households that had never received PSNP payments. There was a monotonic relationship between years of program participation and total PW payments. Households that

received PW payments in only one year between 2006 and 2010 received very low payments (median payment was ETB186 over five years) compared to households that had received PW payments in five years (median payment was ETB3,370 over five years). (6) Households that never received PW payments were no longer a viable comparison group. Increases in PW payments in 2011 and 2012 meant that there was no longer a monotonic relationship between total payments and duration of program participation. (7) It was no longer possible to create a plausible comparison group. (8) Limited program participation implementation meant that it was not possible to construct a treatment group. (9) TLU – tropical livestock unit. (10) There were not enough treatment households to estimate model.

*, **, and *** were significant at the 10%, 5%, and 1% level, respectively.

PW – public works.

Source: authors' calculations.

Table 4: Sufficiency of funds for public works employment, by year, Highlands and Lowlands

	2010	2012	2014	2018	2018
	% yes				
	Highlands				Lowlands
Was there sufficient work available for all households who are eligible to participate in the public works component of the PSNP?	29.8	12.0	47.4	22.1	28.8
If insufficient work was available, how was employment allocated?					
Restrict the number of households that could receive employment	58.3	39.2	67.8	62.1	57.1
Reduce the number of days of employment allocated to beneficiaries so that more households could receive employment	27.0	56.0	27.6	31.3	38.1
Rotate households' access to employment across different years	10.4	37.6	48.3	26.4	38.1

Source: authors' calculations.

Table 5: Mean days to complete activities associated with WFSO making cash payments, by region, 2018

Region	Mean number of days ...			Total
	... before first attendance sheet is received	... to process attendance data, obtain WOFED authorization, obtain cash, and arrange transport	... to travel to pay points and make payments	
Tigray	15.2	14.6	1.5	31.3
Amhara	14.4	19.4	7.7	41.5
Oromia	11.4	16.9	6.8	35.1
SNNP	14.2	16.1	3.2	33.4
Afar	20.5	6.5	1.5	28.5
Somale	17.0	13.3	6.0	36.3
All woredas	14.4	16.3	4.8	35.4

Source: authors' compilation based on data from the woreda quantitative questionnaire 2018.

Table 6: Woreda level reports of problems encountered when making cash payments, Highlands

	2010	2012	2014	2018
	Per cent			
Problems at the kebele level				
Delay in receiving attendance sheets	42.3	42.3	32.1	23.2
Kebeles are inaccessible	1.3	2.6	12.8	12.5
Difficulty getting beneficiaries to payment site	7.7	10.3	6.4	8.9
Problems at the BOFED, WOFED, or WFSO level				
Delay in getting funds from BOFED	53.8	25.6	33.3	17.9
Transport	38.5	29.5	32.1	35.7
PASS	23.1	5.1	0.0	0.0
Lack of cashiers or accountants; staff turnover	19.2	7.7	20.5	14.3
Lack of other resources	5.1	7.7	0.0	0.0
Too many beneficiaries to pay	6.4	12.8	3.8	1.8
Problems outside control of WOFED, WFSO				
Electricity, network problems	0.0	11.5	14.1	26.8
Bank	5.1	21.8	21.8	12.5
Other	2.6	0.0	12.8	0.0
Summary data				
Number of problems identified	160	138	148	86
Number of woredas reporting	78	78	78	56

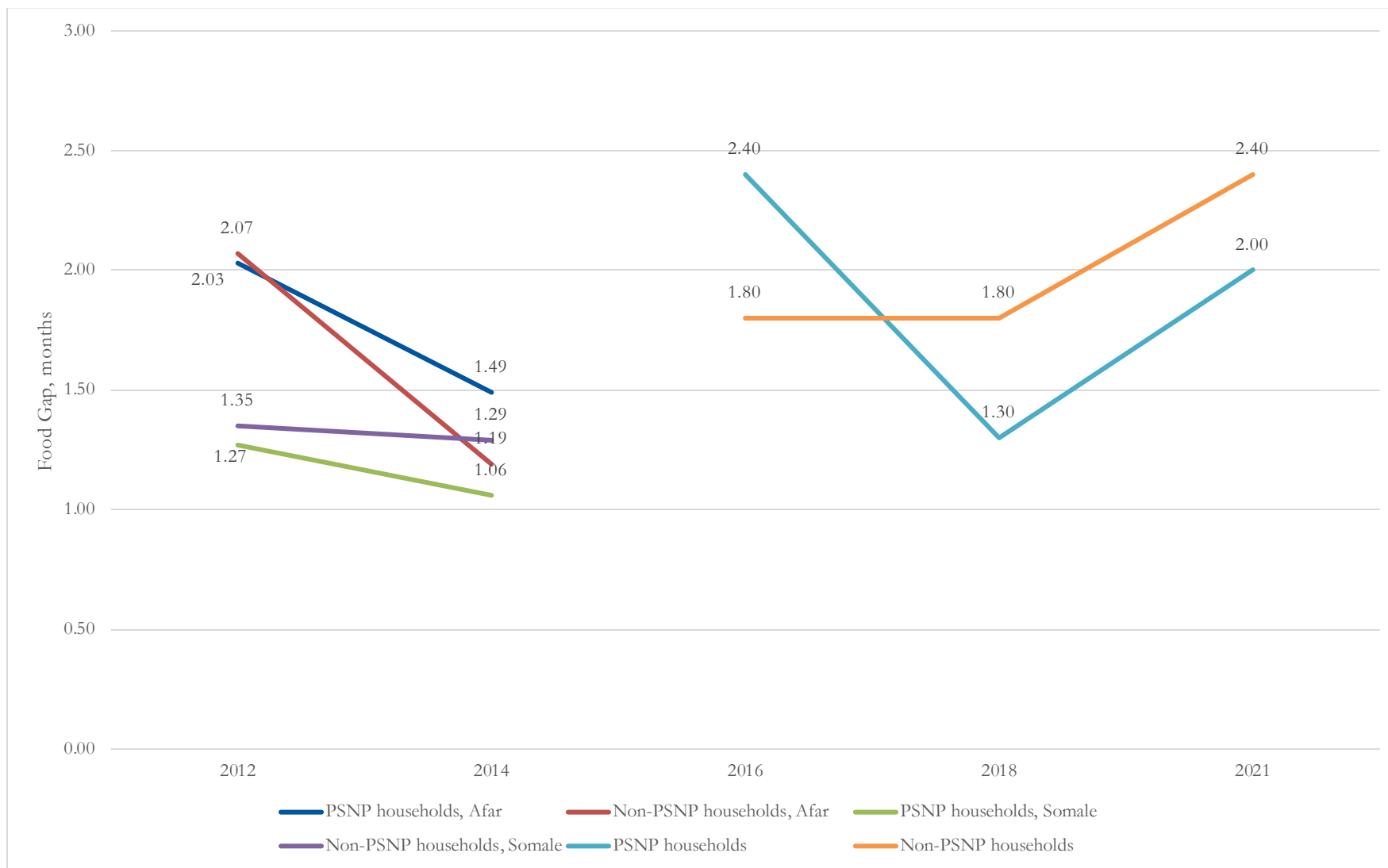
Source: authors' compilation based on data from the woreda quantitative questionnaire 2010, 2012, 2014, and 2018.

Figure 1: Trends in the food gap, by year and PSNP status, Highlands



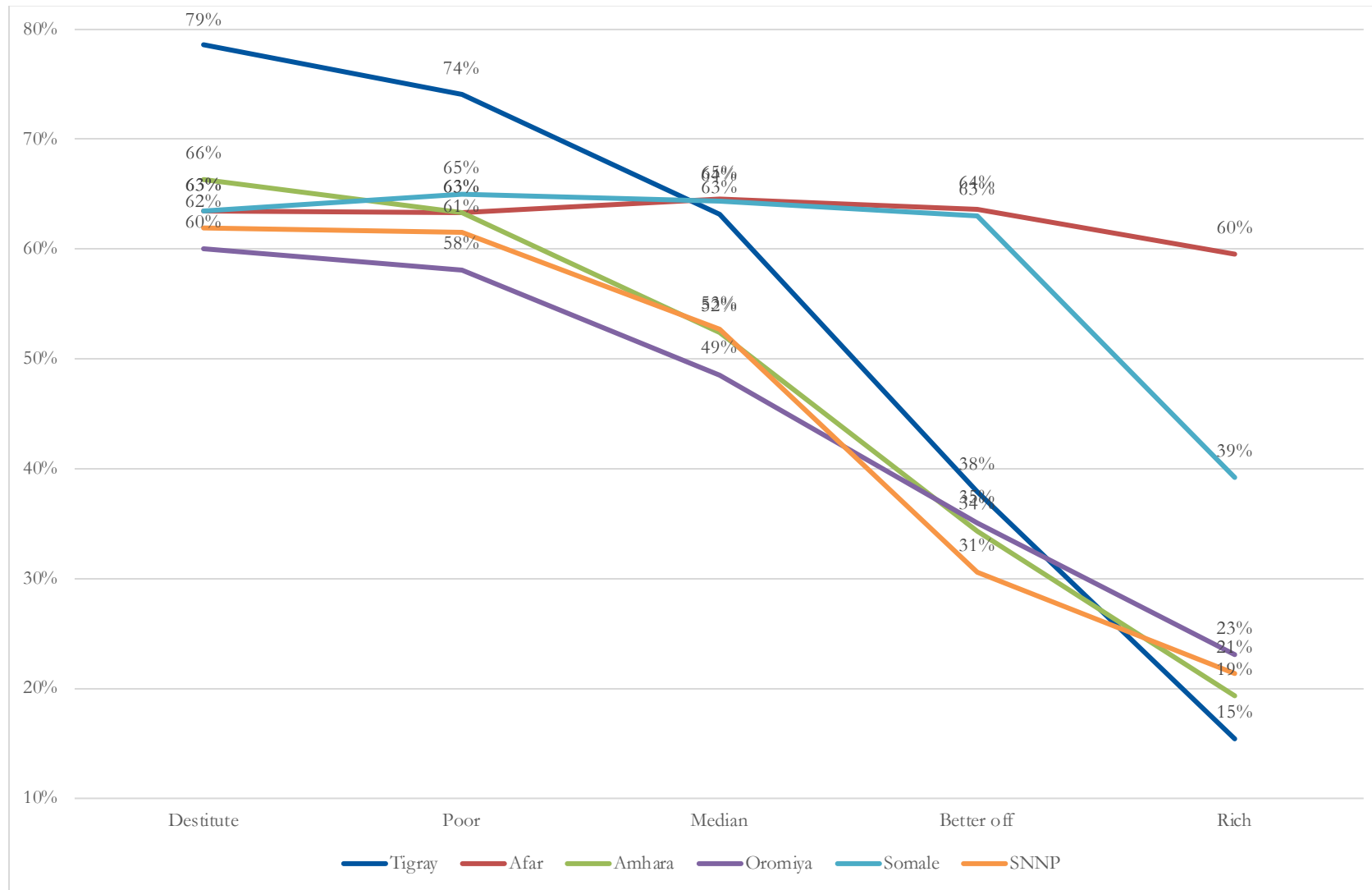
Source: authors' illustration.

Figure 2: Trends in the food gap, by year and PSNP status, Lowlands



Source: authors' illustration.

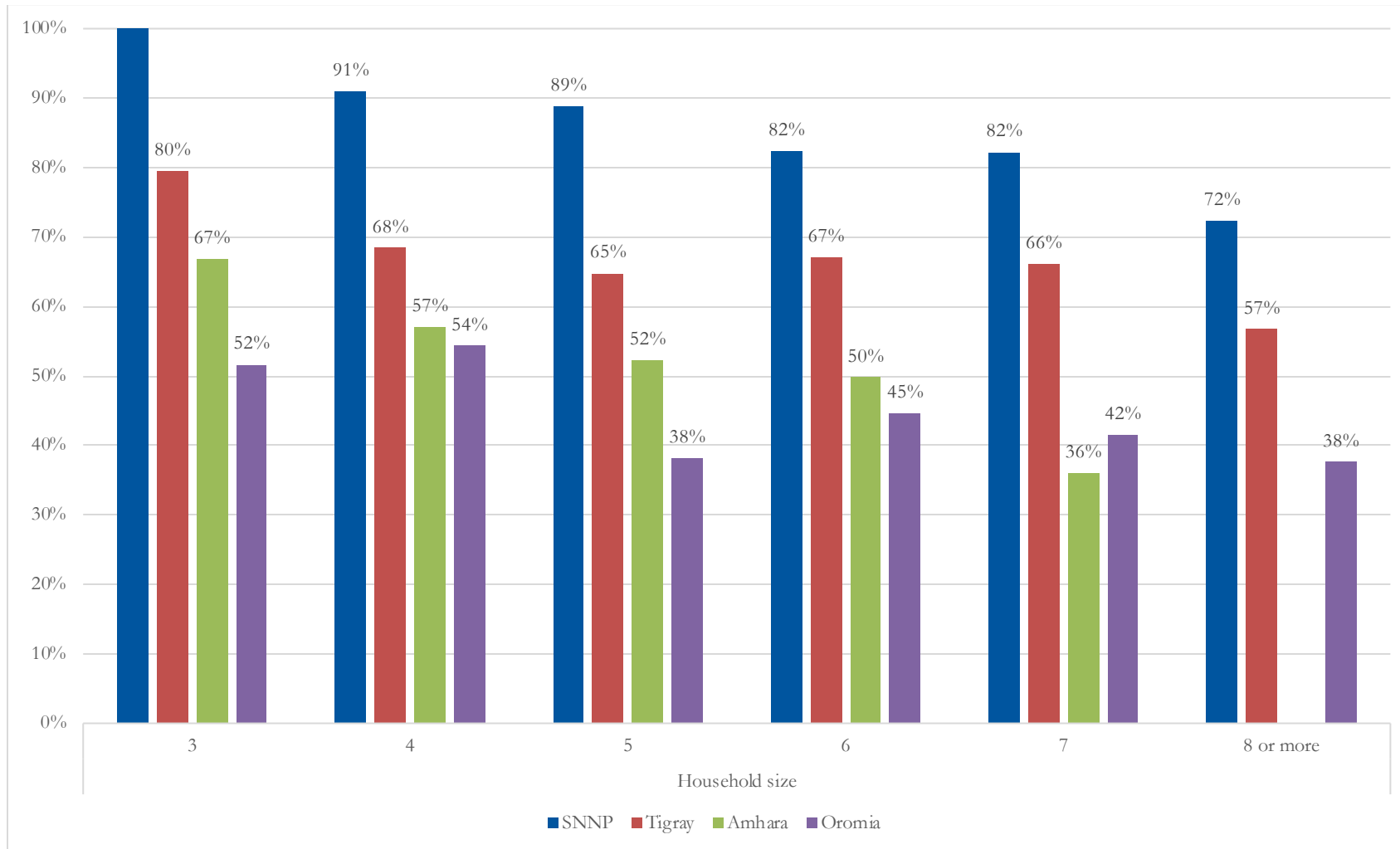
Figure 3: Predicted probability for selection into the PSNP by household wealth, 2016



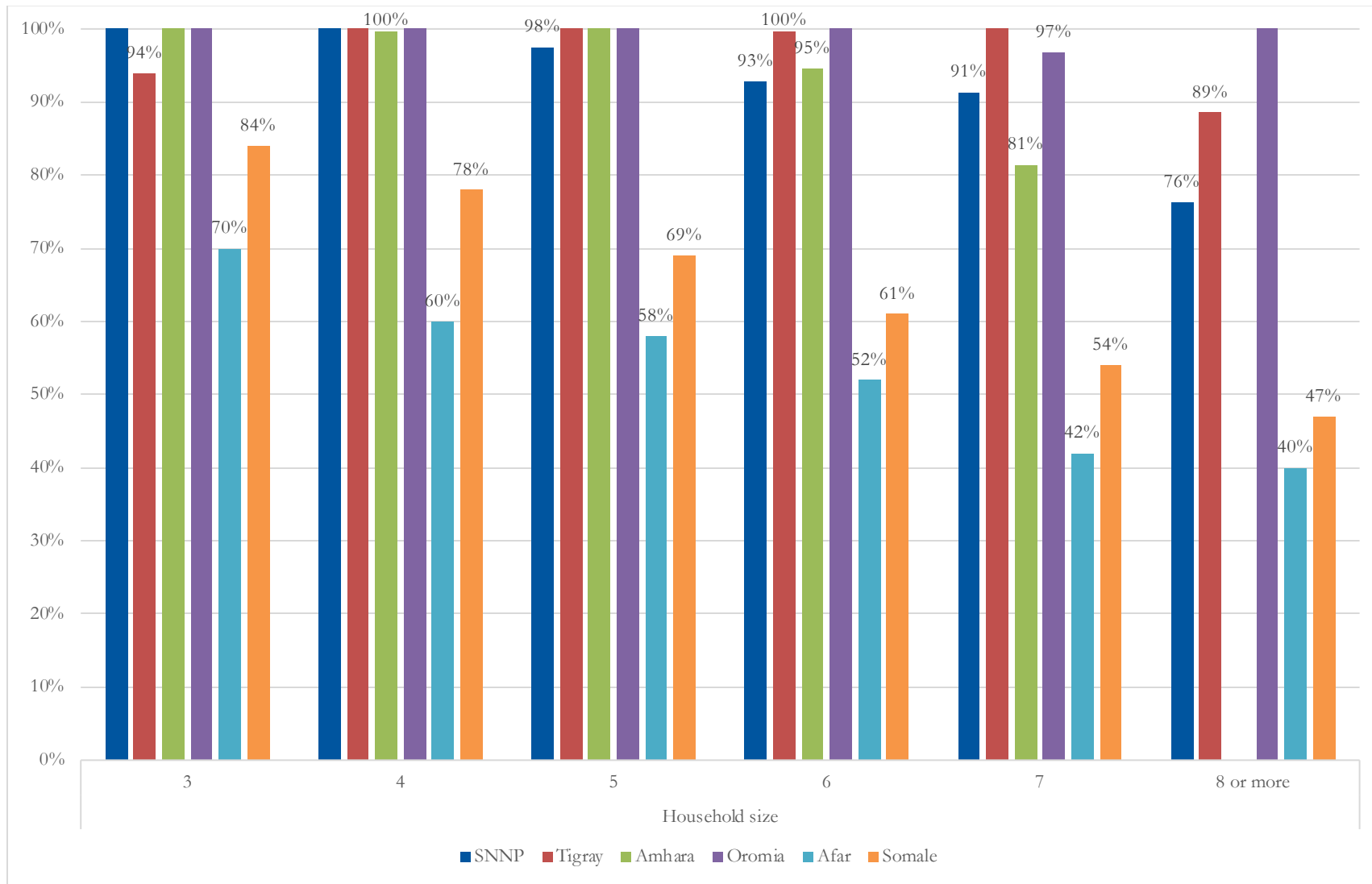
Source: Berhane et al. (2016a), Figure 3.9. Reused with permission.

Figure 4: Public works payments as a percentage of entitlement under full family targeting, by year, region, and household size

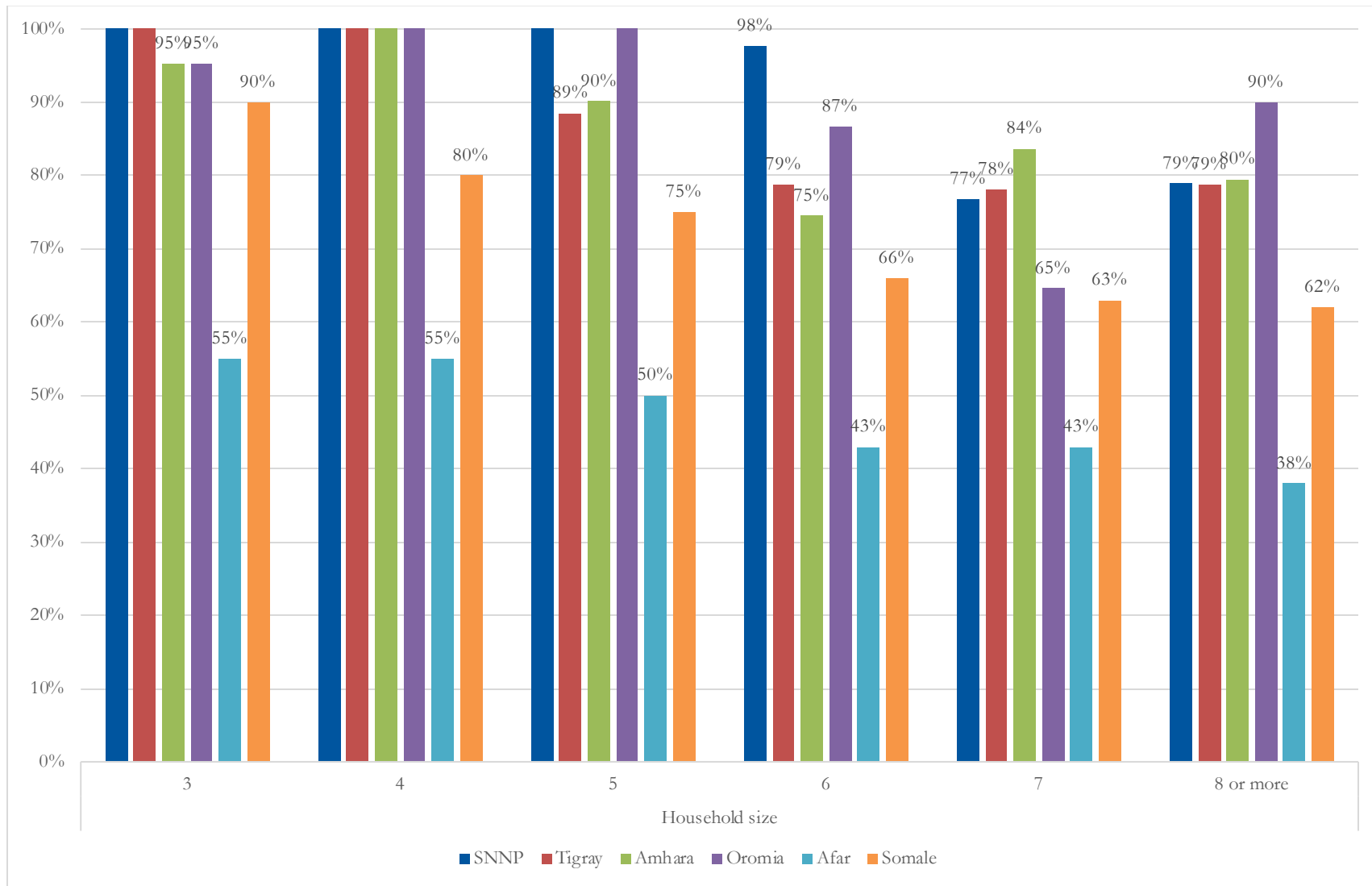
2009



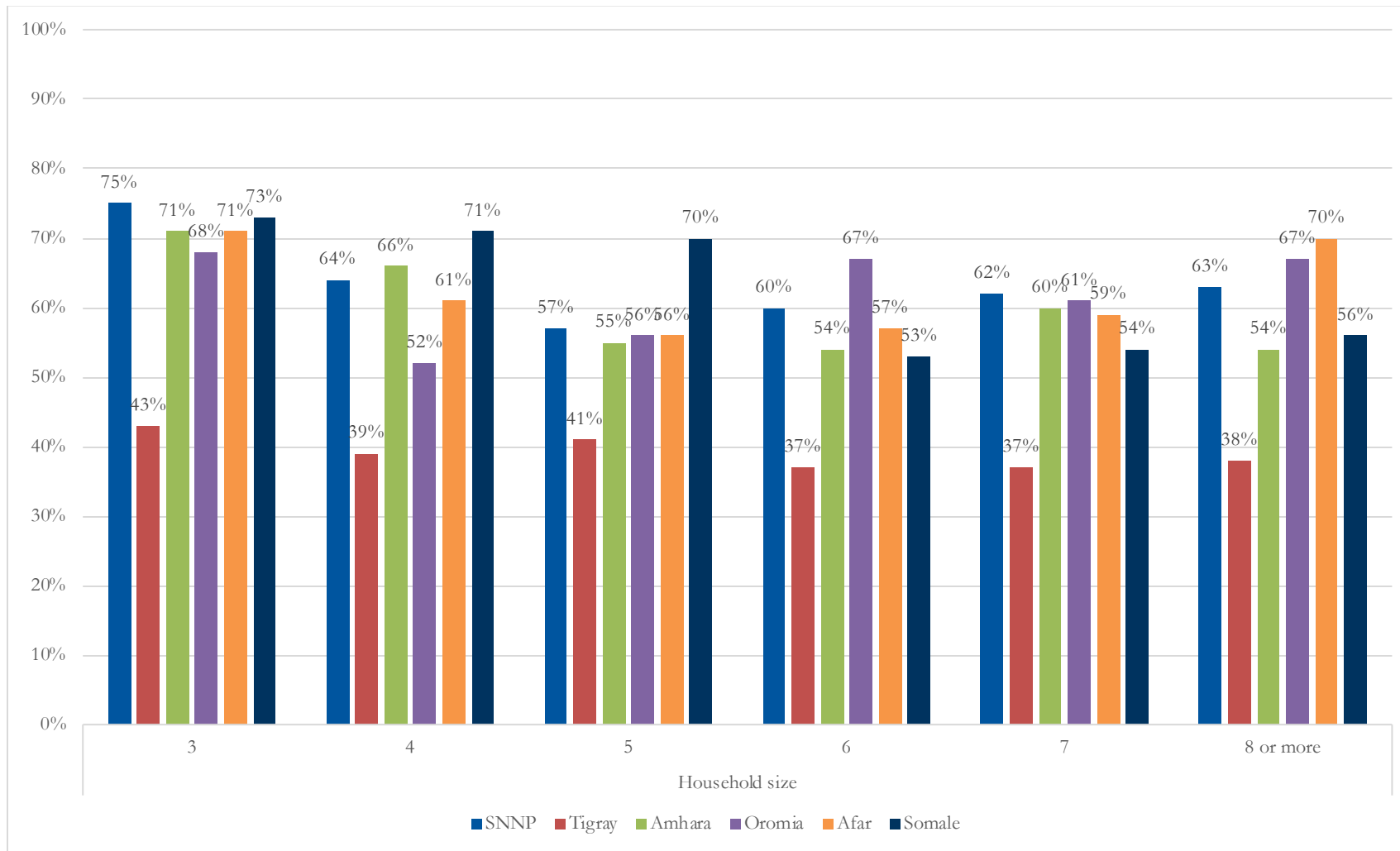
2011



2013

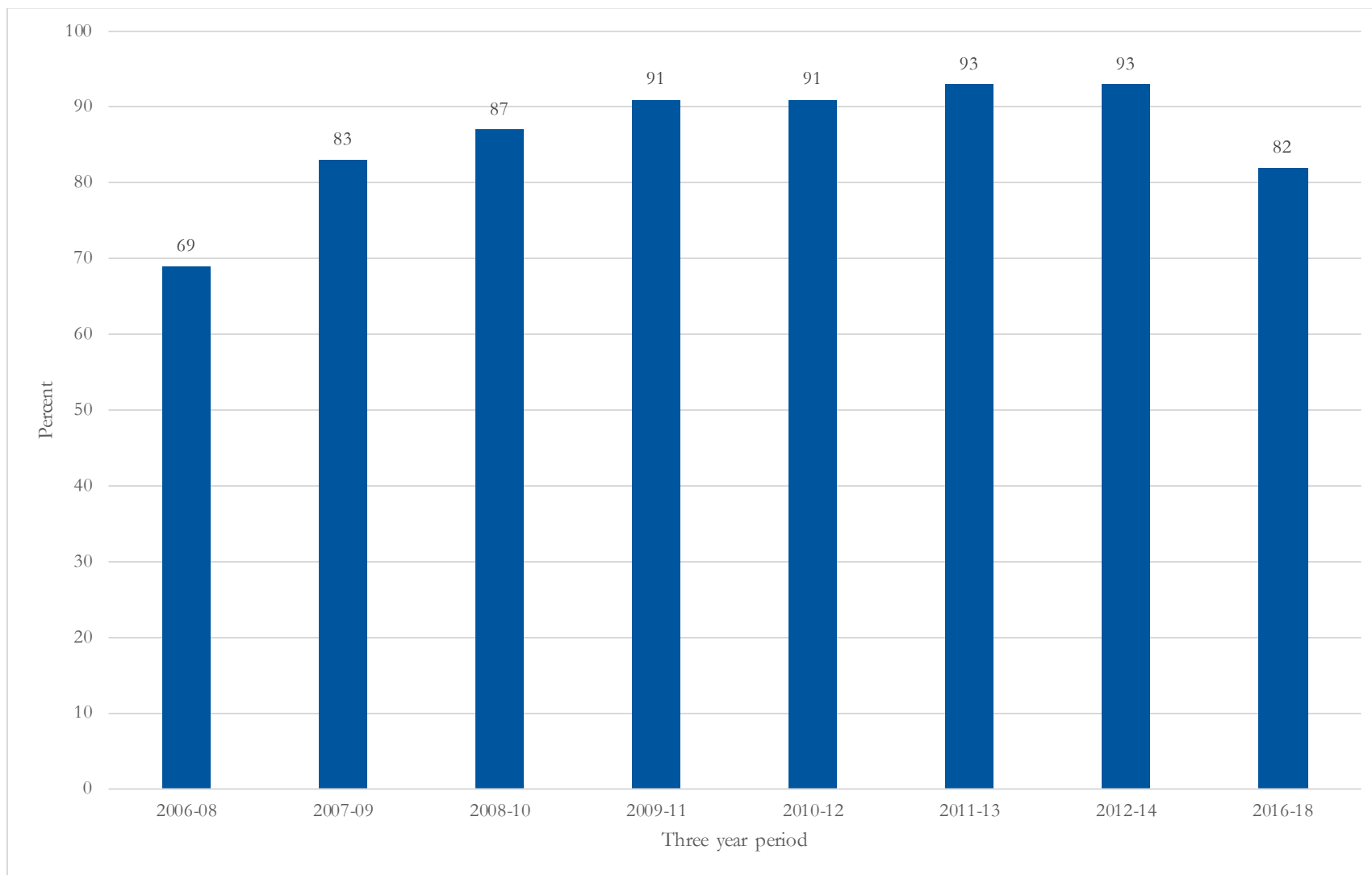


2018



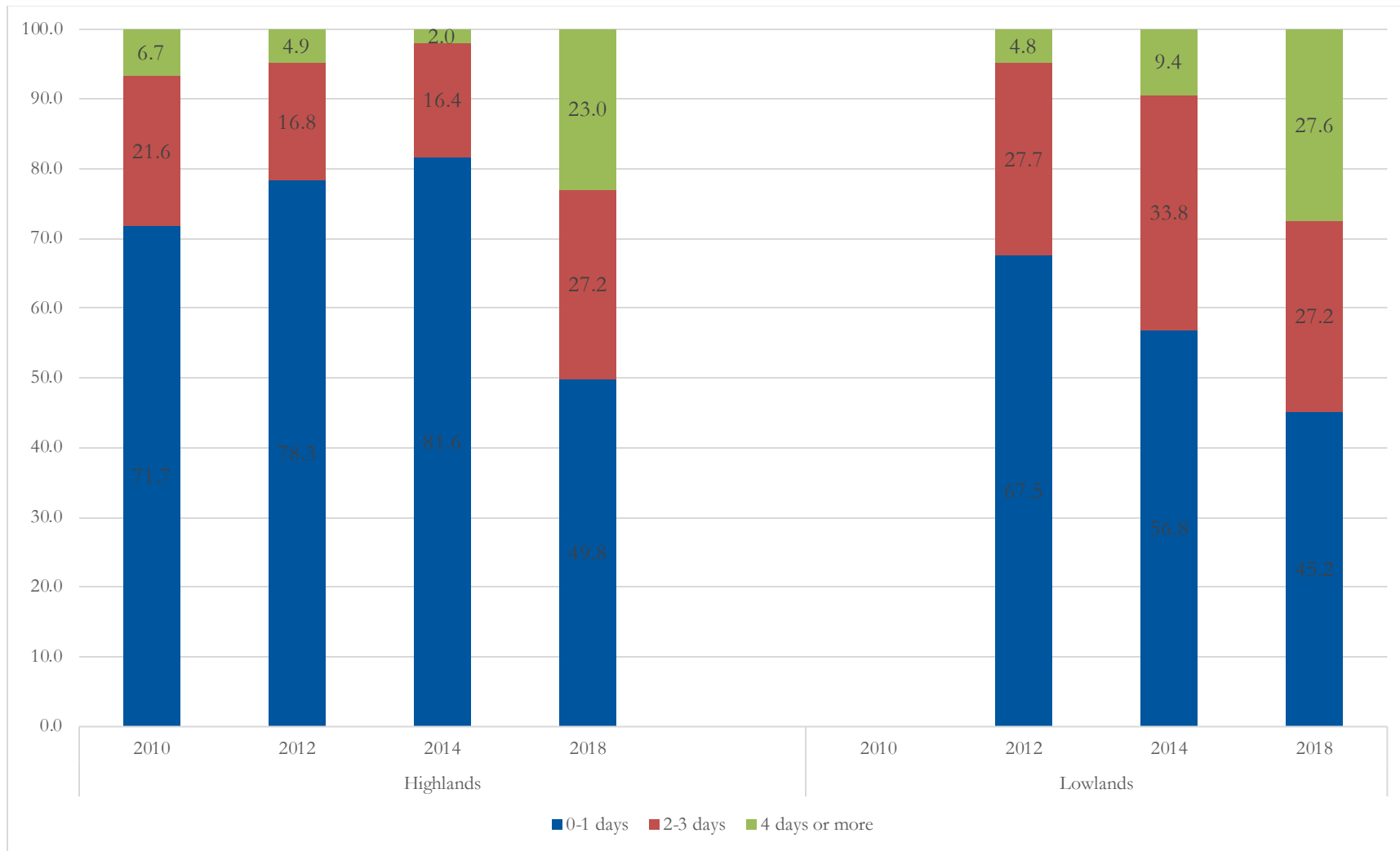
Source: authors' illustration.

Figure 5: Per cent of PSNP beneficiaries who receive payments for at least three continuous years, by year



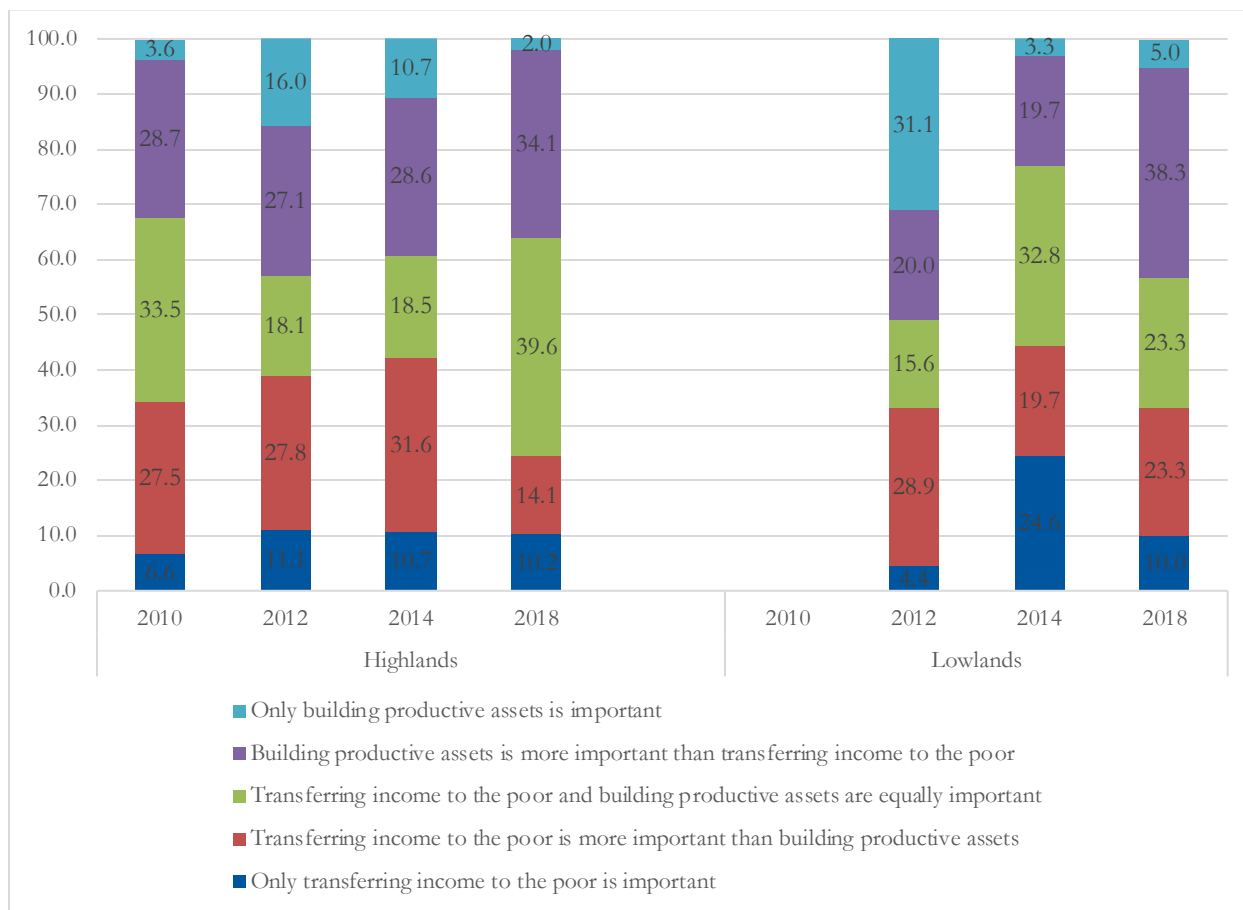
Source: authors' illustration based on data from the household quantitative survey 2006, 2008, 2010, 2012, 2014, and 2018.

Figure 6: Days' notice that payments would be made, by year



Source: authors' illustration based on data from the household quantitative survey 2010, 2012, 2014, and 2018.

Figure 7: Kebele officials' preferences for public works and income transfers



Source: authors' illustration.