Beyond Food Security: Transforming the Productive Safety Net Programme in Ethiopia for the Well-being of Children

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Young Lives
An International Study of Childhood Poverty

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Abbreviations and acronyms

CCT	Conditional cash transfer
DS	Direct Support
IV	Instrumental variable
OLS	Ordinary least square
KFSTFM	*Kebele* Food Security Task Force Member
PSNP	Productive Safety Net Programme
PSNP-PIM	PSNP – Programme Implementation Manual
PW	Public Work

Abstract

Using Young Lives survey and qualitative data collected in 2006 and 2009 among rural households and children, this paper investigates the possible impacts of the Productive Safety Net Programme (PSNP) on children's well-being and recommends child-focused social protection that goes beyond the PSNP. The paper draws on data from a survey of 569 rural households and qualitative case studies of 32 households and children living in four rural communities. The quantitative analysis finds that despite an increase in the incidence of economic shocks (such as drought and food-price inflation) and idiosyncratic family-related events such as the illness or death of family members, the value of cash and food transfers in real terms from the PSNP did not improve from 2006 to 2009, and even declined. Therefore the contribution of the PSNP to risk reduction is limited because transfers did not increase in the face of shocks. Moreover, the substitution effect of the Public Work component of the PSNP dominates the income effect and this has caused children to spend more time on paid and unpaid work. The survey data also show that the Public Work component did not increase the time children spent on schooling and studying at home, while the qualitative data suggested that it had a negative impact on their learning. Insufficiency of PSNP transfers may encourage households to send their children to work for wages. The schooling of children engaged in Public Work and wage labour has been affected and in some cases they have dropped out of school altogether. The existing PSNP could be improved in such a way that it provides Direct Support for schoolchildren so that their schooling may not be hampered. But we argue that the PNSP on its own cannot ensure children's overall well-being. Though it protects many children from hunger, the PSNP fails to ensure food security, contributes little to poverty reduction and does not guarantee that children attend school. Ensuring children's well-being and reducing their poverty require thinking beyond the PNSP. The paper concludes that, amid limited resources and contexts of vulnerability to protracted shocks, there is a need for child-focused social protection.

Acknowledgements

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1. Introduction

Social protection programmes such as safety nets and school feeding programmes are the most widely used economic interventions that, directly or indirectly, aim at reducing child labour, and improving the nutritional intake and school attendance of children in poor communities. In many Latin American countries cash transfers are given to poor households on condition that their children attend school for a specified minimum number of days. In these countries, some studies on the effectiveness of conditional cash transfers (CCTs) and school feeding programmes regarding school attendance have been undertaken, and results in this respect are mixed and sensitive to age and gender categories (see Woldehanna 2009 for a detailed review of CCT impact on children's school attendance).

In Ethiopia, the Productive Safety Net Programme (PSNP) was introduced in 2005. It was aimed at ensuring food security and covered about 8 million people in 262 chronically food-insecure *woredas* (districts). Unlike the safety net programmes of Latin American countries, the Ethiopian PSNP does not directly target children, but poor people generally. This, coupled with the possibility of income and substitution effects of the programme, makes the effect of the PSNP on child welfare unclear.[1]

Various impact assessments have been done to establish the effect of the PSNP on household income and children's education (Hoddinnot et al. 2009; Woldehanna 2009). Many of the studies are done at household level and try to investigate the impacts of the PSNP on household income. The available evidence on the impact of the PSNP is meagre. The study conducted by Hoddinnot et al. (2009) did not provide conclusive evidence on the impact of the PSNP on child welfare. The other impact assessment study that directly dealt with child well-being is the one done by the Young Lives study using Round 2 survey data collected in 2006 (Woldehanna 2009).[2] As the evaluation was done after only one year of implementation of the scheme, and time-use data was available for just one survey round, the study did not provide a definitive picture of the impact of the PSNP on child well-being. Given that the PSNP is a long-term programme that targets households, with potentially strong repercussions for children's welfare, there seems to be a need to look at children's experience of the PSNP and its impact on their well-being using a mixed-method approach where qualitative and quantitative evidence are combined.

The objectives of this study are, therefore, to assess how far the PSNP protects vulnerable households and children from shocks, to investigate children's experiences of the PSNP, to establish the impact of the PSNP on child well-being as measured through child labour and education, and to evaluate the impacts of the scheme on school grade progression and drop-out. Based on empirical qualitative and quantitative data, the paper calls for child-focused social protection that goes beyond the PSNP.

The paper is organised in the following way. Section 2 briefly provides a literature review on children's well-being, social protection and the PSNP. Section 3 introduces the sources of

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1 Income effect: when households have more income, their demand for education for their children increases because they do not need children to work. Substitution effect: when households have to supply labour in return for benefits, the households may have to make children substitute for parents' time at home, in their own business or in the PSNP.

2 Young Lives is a 15-year study of the changing nature of childhood poverty, taking place in four developing countries including Ethiopia. For further details, see www.younglives.org.uk. Section 3 gives more details of the Young Lives data used for this paper.

data and methods used in producing this paper. Section 4 provides a description of the sample in terms of the economic status and vulnerability of households, PSNP participation and child well-being, focusing mainly on work and schooling. Results are analysed and discussed in Section 5. The final section provides concluding remarks and makes some tentative suggestions for policy and/or further research.

2. Review of literature

2.1 Child well-being and social protection

According to International Labour Organization estimates (ILO 2002), there are over 200 million children who are working around the world, and over 100 million of them work in situations considered highly hazardous, where their basic rights are violated and their dignity is offended. Sub-Saharan Africa has the greatest incidence of child labour – 26.4 per cent of all 5–14-year-olds do some form of paid work, compared to 18.8 per cent for Asia and the Pacific and 5.1 per cent for Latin America. Studies show high rates of child labour in Ethiopia. For example, the 2001 survey of child labour shows that about 49.7 per cent of children aged 5–14 were working (CSA 2001).

Poverty is the most frequently argued cause of child labour. Parents raise the income of the family by sending their children into the labour market and by doing so they trade off between the current high family income and a lower future income for the children, since this harms their human capital development (Basu and Van 1998). This also seems true for Ethiopia as we can understand from the 2001 child labour survey that about 90 per cent of the children working in wage labour replied that they were doing so either to supplement family income (23.8 per cent) or to improve it (66.0 per cent) (CSA 2001). The other factors associated with child labour include drought and resettlement, family illness or incapacity, low parental education, family disintegration, orphanhood due to HIV/AIDS, and cultural values.

Given these understandings and this consensus, a number of steps have been taken to reduce child labour by both international organisations and national governments as well as non-governmental organisations. Legal protection for children is one of these steps. For instance, many countries, including Ethiopia, have ratified the UN Convention on the Rights of the Child, the ILO Convention on the Minimum Age for Admission to Employment and Work (No.138) and the ILO Convention on the Worst Forms of Child Labour (No. 182). However, these rules are not able to reduce child labour to the desired level. This is perhaps either because countries think that it is unaffordable to implement the rules effectively given their chronic poverty or because such laws can only be implemented in the formal sector while many children are engaged in domestic work and the informal sector. In view of this, it seems that economic interventions should be complemented by legal ones, if not replaced by them. Social protection is one option.

The main aim of social protection is to reduce extreme poverty, in particular by protecting the minimum acceptable consumption level of absolutely poor people (Ellis et al. 2009; Guhan 1994). Social protection emerged as a crucial response to 'safety net' discourse, opening the way for its broader purpose of contributing to longer-term poverty reduction (Devereux and Sabates-Wheeler 2004). According to Devereux and Sabates-Wheeler, a comprehensive social protection scheme should involve the following four components: *protective* measures to provide relief that would address deprivation (e.g. a narrowly targeted safety net for

'chronically poor' people); *preventive* measures to avert deprivation with 'social safety nets' (e.g. through insurance to 'economically vulnerable' groups); *promotive* measures aimed at enhancing real income and earning capacity through a range of livelihood programmes (e.g. micro-finance and school feeding for children); and finally, *transformative* measures to ensure 'social equity' by addressing the exclusion of 'socially vulnerable groups' (e.g. through a regulatory framework). Whereas the protective and preventive components can be covered through 'safety nets'; the promotive and transformative elements require moving beyond them. Transformative social protection 'extends beyond safety nets and welfare hand-outs, towards supporting citizens to claim social protection from the state as a basic right by prioritising moving people from dependence into productive livelihoods' (Devereux and Sabates-Wheeler 2007).

Different definitions of 'social protection' have been given by various organisations and authors. For example, UNICEF (2009) views it as a basic human right, stating that governments have an obligation to provide both economic and social support to the most vulnerable segments of their populations. The most comprehensive definition of social protection is provided by Devereux and Sabates-Wheeler (2004):

> Social protection describes all public and private initiatives that provide income or consumption transfers to the poor, protect the vulnerable against livelihood risks, and enhance the social status and rights of the marginalised; with the overall objective of reducing the economic and social vulnerability of poor, vulnerable and marginalised groups.

Such conceptualisation suggests that the targets of broad social protection are chronically poor, economically vulnerable and socially marginalised groups.

A conceptualisation of social protection for children could be drawn from the general conceptualisation of social protection but with more emphasis on the multidimensional nature of children's vulnerability. Economic vulnerability is very visible among both adults and children, who are assumed to be equally affected. But children are more 'socially vulnerable' than adults. Economic shocks and hunger would directly affect children, for example during a food shortage, but children might also experience indirect effects and drop out of school to engage in wage labour. Childhood poverty and vulnerability are characterised by multidimensionality (monetary and non-monetary), life cycle vulnerabilities, dependence (on adults), and voicelessness within their society (UNICEF 2009). The peculiarities of child vulnerabilities are evident when we look at the concepts of 'child-specific' and 'child-intensified' vulnerabilities (Sabates-Wheeler et al. 2009). 'Child-specific' vulnerability emerges from power relationships and inequalities within the household, where children are in a subordinate position; whereas 'child-intensified' suggests wider sources of vulnerabilities, such as drought or under-nutrition, which may affect the whole population but are more damaging to children than to adults (Sabates-Wheeler et al. 2009). Children's membership of households and economic vulnerability are generally acknowledged by policymakers, but more is needed. It is necessary to introduce social protection that takes into account child-specific vulnerabilities, which calls for a new, child-focused approach. Social protection for children should address both 'income poverty and social vulnerability' (Blank et al. 2010). Sabates-Wheeler and her co-authors call for a 'long view' of child vulnerability, arguing that 'social protection needs to adopt a life-course and intergenerational perspective in order to promote sustainable improvements in well-being as well as breaking intergenerational transmission of poverty' (Sabates-Wheeler et al. 2009: 110). The World Bank social protection strategy aims at promoting child-focused social protection in order to ensure economic development. Part of the strategy focuses on protection from destitution and catastrophic

losses of human capital and promotes children's development by adopting social assistance programmes such as cash transfers, school feeding and targeted food assistance for poor children so that they can pursue their schooling properly (World Bank 2011).

Social protection for children should ensure their overall well-being, addressing a range of needs, from economic, social, psychological and developmental to personal needs, as well as taking account of their vulnerability. In a Young Lives qualitative study carried out in Ethiopia in 2007, children were asked to discuss and establish common indicators of 'well-being' and 'ill-being' (Camfield and Tafere 2009). A comprehensive list of child well-being indicators established by children themselves included access to education (attending school, having sufficient school materials, getting a good education), having basic necessities such as food (sufficient, nutritious), clothing (e.g. shoes and school uniforms) and housing (clean, with sufficient rooms, with facilities such as electricity and tap water, and a corrugated-iron roof). In addition, rural children considered having land and livestock a sign of a good life. On the contrary, not being able to attend school or having insufficient school materials, ill-health and an inability to get healthcare; lack of sufficient food (hunger, poor diet), lack of or insufficient clothing, bad housing (overcrowded housing, insufficient facilities), being an orphan, experiencing family conflict, or exhibiting bad personal behaviour suggested that the child was living a bad life – indicators of ill-being. For rural children, lack of sufficient farmland and livestock were indicative of a bad life. Indicators of ill-being clearly represent further causes of children's multidimensional vulnerabilities (Camfield and Tafere 2009).

Achievement of well-being for poor children is a challenge as it is both a matter of living a good life at their young age and trying to grow into non-poor adults. Well-being for children, unlike adults, represents more of their human development. It matters not only for their present but also for their future well-being, signifying both 'well-being' and 'well-becoming'. For example, a hungry child cannot attend school properly and there is the possibility they will drop out of school and end up in harmful wage labour. The poor child will probably grow up into a poor adult.

Consequently, any intervention that would ensure children's present and future well-being would be akin to contributing to poverty reduction and breaking intergenerational poverty. Hence, child-sensitive social protection needs to consider 'breaking the intergenerational transmission of poverty' and require investments from the human capital perspective (Devereux and Sabates-Wheeler 2010). Social protection narrowly defined as focusing exclusively on risk and vulnerability may be ineffective in addressing chronic poverty (Barrientos et al. 2005). Social protection for children needs to be comprehensive and there should be few boundaries between its components. Social protection for children makes a series of interventions over the life course. For example, school feeding links both protective and promotive social protection because the school meals serve two purposes: 'providing an immediate consumption transfer to children who are often malnourished, and encouraging children from poor households to attend school even during difficult times' (Devereux and Sabates-Wheeler 2004). It plays the role both of 'safety net' and 'development' because food in school may help children to deal with immediate hunger while at the same time contributing to human development by improving cognitive development of children, which impacts longer-term poverty reduction.

Synergy between child protection and social protection is crucial because it ensures both child protection (e.g. from harmful child labour) and social protection (cash transfers, school feeding, free healthcare, etc) so that children's human development can be addressed. Child-focused social protection would transform 'economic protection' into wider 'social protection'.

Failure to understand the social dimension of child vulnerability leads to a tendency to focus on the economic side of it (household economic poverty) and consequently to deal with it through economic transfers (e.g. food aid or cash transfer). While food aid could ensure food security and contribute to poverty reduction, addressing all aspects of child vulnerability needs to go beyond this – taking 'the long view'.

The ultimate objective of child-sensitive social protection goes beyond ensuring adequate food consumption and encompasses breaking intergenerational poverty. As poverty and deprivation are transferred across generations, social protection needs to 'take the long view, tackling multiple deprivations through protective as well as transformative agendas' (Sabates-Wheeler et al. 2009: 109).

2.2   Empirical evidence on social protection for children

Barrientos and DeJong (2006) undertook case studies to provide a comparative examination of the effectiveness of cash transfer programmes targeting children on poverty reduction, focusing on three types of such programmes: the Child Support Grant in South Africa, family allowances in transition countries, and targeted CCT programmes in Latin America and the Caribbean. They find that cash transfers are an effective tool in reducing child poverty. They further emphasise that transfers require a significant investment in the provision of basic services – water, education, housing, healthcare and transport – to ensure that the supply is able to respond to the increased demand supported by cash transfers. This means that cash transfers and the provision of basic services to poor people are complementary. Their case studies also show that, to improve school attendance, the transfer ought to be set at a level sufficient to compensate households for the additional costs (direct and indirect) of sending children to school. As far as reducing child labour is concerned, the transfer level should be sufficient to compensate households for the income forgone. The key message from their result is transfers can be an effective means to reduce child poverty so long as they are large enough and basic services are in place.

A World Bank report reviewing the impacts of CCTs in Latin America and Caribbean countries indicate outcomes that are positive for children. It concludes that CCTs 'generally have been successful in reducing poverty and encouraging parents to invest in the health and education of their children' (Fiszbein and Schady 2009).

Cardoso and Souza (2004) used household-level data in Brazil to estimate the impact of income transfers on child labour and school attendance. Their propensity score estimation result finds that income transfer programmes had no significant effect on child labour but a positive and significant impact on school attendance. In addition, Cardoso and Souza documented that the school attendance coefficients of transfers made to mothers are much bigger and more significant than the coefficients of transfers made to fathers, though in this respect, there are no statistically significant differences for child labour outcomes.

Schady and Araujo (2006) used different estimating techniques including two-stage least squares, instrumental variables (IV), ordinary least square (OLS), bias-corrected matching estimators, and the difference-in-difference methods to analyse the impact of the *Bono de Desarrollo Humano* (BDH), a cash transfer programme in Ecuador, on school enrolment among poor children. Two main conclusions were reached. First, the BDH programme had a large, positive impact on school enrolment. Second, programme effects were significantly larger among the minority of households who believed that there was a school enrolment requirement attached to transfers. In this regard, their estimates suggest that the impact of the BDH on enrolment was approximately four times as large when households believed

there was a schooling requirement associated with transfers, showing the effectiveness of conditional transfers in achieving the target.

Dubois et al. (2004) evaluated the effect of the Mexican CCT programme, *PROGRESA,* on the educational behaviour of children by using the programme data. To be able to successfully evaluate the issue empirically, they developed a dynamic model of education demand incorporating incentive effects of the educational system on the behaviour of students. The model incorporates the grants system introduced by *PROGRESA* and shows that such a programme does not only affect enrolment decisions but also behaviour at school in terms of incentives to pass to higher grades. Their result shows that *PROGRESA* had a positive impact on school continuation. However, the programme seems to have a positive impact on performance at primary school but a negative one at secondary school. They argued that this phenomenon is a possible consequence of the disincentives provided by the programme termination after the third year of secondary school.

De Janvry et al. (2006) similarly investigated the role of shocks and conditional transfers on school and child labour choices using the Arellano-Bond dynamic panel-data estimator. Their finding highlighted that making transfers conditional on school attendance largely or fully mitigates the tendency of parents to take their children out of school as a result of shocks. By contrast, a conditional transfer does not reduce the rise in child work induced by a shock. This shows that the income effect of the conditional transfer is not sufficient to reduce the use of child work as a strategy to cope with risk.

Attanasio et al. (2008) analysed the effects of *Familias en Acción*, a CCT programme operating in rural areas of Colombia since 2002, on the time spent by children in school and on work activities. By using the difference-in-difference framework, they showed that the programme had a larger positive impact on school enrolment of older children than younger ones. However, the programme had no discernible impacts on children's work in more rural areas. They document that the effects of the programme on work were generally largest for younger children, whose participation in domestic work decreased by 10 to 13 percentage points after the programme but whose participation in income-generating work remained largely unaffected by it. Furthermore, they found evidence of school and work time not being fully substitutable, suggesting that some, but not all, of the increased time at school may be drawn from children's leisure time.

Edmonds (2006) investigated the child labour and schooling responses to anticipated change in income among households in South Africa who were due to receive a pension. In his finding, Edmonds concluded that anticipated large cash transfers to the elderly in South Africa appeared to be associated with increases in schooling and decreases in the number of hours worked. These changes were also associated with increasing schooling attainment and primary-school completion rates, especially for boys, while the child lived with a male eligible for a pension, showing perhaps that men are more credit-constrained than women. The South African government introduced Child Support Grant in 1998, which provided cash transfers for children and families with children. In 2002, the programme was extended to children under the age of 13 but rolled out in phases until 2005 where it covered about 3.6 million children (Barrientos and DeJong 2004).

Child-sensitive social protection is an evidence-based approach that aims to maximise opportunities and developmental outcomes for children by considering different dimensions of their well-being. For example, comprehensive social protection in Ghana (UNICEF 2009) includes the National Health Care Scheme, the Education Capitation Grant, the School Feeding Programme, and the Livelihood Empowerment Against Poverty; these address

different aspects of child vulnerability and developmental needs: 'The multidimensional
nature of the vulnerability and risks affecting children implies the need for different types of
social protection programmes, including preventive and responsive social welfare services,
as well as a strong legal and regulatory framework' (UNICEF 2009: 4).

2.3   The PSNP in Ethiopia

The Ethiopian PSNP was launched in 2005 across 262 'chronically food-insecure' *woredas*.
These were selected from the rural areas of the regions of Amhara, Oromia, SNNP
(Southern Nations, Nationalities and People) and Tigray. The programme is one of the
largest social protection programmes in Africa, receiving substantial attention from not only
the Ethiopian government, but also from donors such as the World Bank, DFID, USAID, the
EU, SIDA and Irish-AID, and is currently providing support to 8 million persons per year.[3] The
programme aims to provide transfers to chronically food-insecure households, prevent asset
depletion and create community assets. It targets households that are deemed to be
chronically poor and is expected to enable vulnerable households to create assets for
themselves that protect them from the effects of shocks such as drought, death of household
members, inflation and death of livestock. It makes special provision for breastfeeding and
pregnant women, making it gender-sensitive, but remains mute on children.

The PSNP has two components, namely Public Work (PW) and Direct Support (DS). The
PW component requires 'adult able-bodied' people to do some community work in exchange
for transfers. Each person is expected to do public work for five days per month and gets 30
birr (US$1.70) in total (which increases to 50 birr – US$2.80 – later) or 15kg of grain. Direct
Support beneficiaries are those households 'without labour'. They include mainly the elderly
and disabled. They get the same rate of transfer as those involved in public work.

Households leave the programme through graduation and households involved in the
programme can get support through the Other Food Security Programme (OFSP)[4] to ensure
their graduation. While the PSNP aims at ensuring food security, the OFSP assists
households to build more assets that would protect them from dropping into food insecurity
again. When households accumulate a certain level of assets they may be eligible to
graduate from the PSNP.

Only a few empirical studies have been done so far regarding social security programmes
and child welfare in the Ethiopian context. For instance, Woldehanna (2009) used Young
Lives data collected in Rounds 1 and 2 to assess the impacts of the PSNP and the
Agricultural Extension Programme on children's time use between work and schooling, as
well as to ascertain the highest grade completed by 12-year-old children in rural and urban
Ethiopia. By applying the matching estimating technique, Woldehanna documented that the
PW component of the PSNP reduced the time children spent on caring for siblings and doing
household chores though it raised the time rural children spent on paid work. On a net basis,
the PW programme was effective in reducing the total time children spent on work and
increased the time girls allocated for study at home. On the other hand, the time spent on
paid and unpaid work by all children, and on child care and household chores by rural girls,
was found to fall for children whose households were entitled to direct support, because of
the income effect of direct support. Though the PSNP mainly focuses on asset building and

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3   This is equivalent to approximately 32 per cent of the Ethiopian people living under the nationally defined poverty line (see
    MOFED 2008 for definition of poverty line).

4   The OFSP includes provision of credit for farm and non-farm activities.

ensuring food security, there is some evidence that suggests that it has both intended and
unintended outcomes for children (Woldehanna et al. 2011).

Hoddinott et al. (2010) have investigated the impact of participation in the PW component of
the PSNP on schooling and child labour by taking data from the Food Security Programme
Survey, and using nearest neighbour matching and propensity score matching estimators on
it.[5] Their results provided encouraging evidence that a public works programme could
improve child schooling and reduce child labour provided that the transfers were large
enough. They found that participation in public works led to 'a moderate reduction in
agricultural labour' hours on average for boys aged 6 to 16 years and a reduction in domestic
labour hours for younger boys aged 6 to 10 years. For boys in households receiving higher
transfers (at least 90 birr per member) it resulted in a large increase in school attendance
rates, with older girls gaining from a 'reduction in labour hours on average and an increase in
school attendance' in households receiving larger transfers (Hoddinott et al. 2010: 73).

On the other hand, despite the central objective of the PNSP being to reduce the distress
sale of assets in order to ensure future well-being, the 2008 impact evaluation found that PW
participants reported distress sales of livestock 4.4 percentage points higher than control
groups (Hoddinott et al. 2010: 73). Coping by selling livestock was common, with about 22
per cent of households reported to have sold their livestock in 2005/6, and this increased to
29 per cent in 2007/8 as opposed to the matched non-PSNP households, whose livestock
sales increased from 27 to 33 per cent. The consequence for children is significant and
demonstrates why tackling household-level economic risk is important in addressing child-
specific outcomes. PNSP households mentioned various strategies to cope in critical times,
including sending children to work (5 per cent), sending them to stay with relatives (4 per
cent), or withdrawing them from school (2 per cent).

2.4. General observations

Generally, empirical evidence related to the impact of social protection programmes on child
outcomes such as schooling and child labour provides inconsistent results. Some of the
studies are based on data collected soon after the implementation of the programme. Results
from such studies cannot be taken as definitive since there will always be considerable lags
between the time when such programmes are started and the point when their impact can be
observed. Others tend to focus merely on statistical evaluation, with little focus on qualitative
investigations. More importantly, most of the empirical studies and evaluation reports have
focused on household-level investigation, only mentioning children in passing.

This paper tries to fill the gaps and contribute to our knowledge on the PSNP's impact on
child well-being. It is based on data generated in 2009, four years after the inception of the
programme, thus providing sufficient time for its impacts to be experienced. The data is
generated using both survey and sub-sampled qualitative research done in the same year
with the same respondents sharing related questions. Notably, it focuses on children. It tries
to answer the key question: can the Productive Safety Net Programme in Ethiopia be
extended in order to embrace children's well-being? The paper tries to investigate whether or
not the PSNP has contributed to the well-being of children and if it hasn't, to suggest how it
could be transformed to generate positive child outcomes. We argue that the
multidimensional nature of childhood poverty and vulnerability demands the adoption of

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5   These are mechanisms to create a similar comparison control group in which the quality of the evaluation framework is really
    determined by the closeness of the match in the control group.

integrated social protection programmes for children. In other words, although improving household food security is a critical foundation, delivering improved child well-being also involves looking beyond food security.

3. Data sources and methods

This paper makes use of Young Lives data generated using both quantitative surveys and a qualitative sub-study. The quantitative data is based mainly on the Round 3 survey of 2009 but with relevant reference to the other two survey rounds, carried out in 2002 and 2006. We examine data relating to Older Cohort children and their households.[6] Child questions focused on time use and schooling whereas household questionnaires centred on asset holdings, the amount of income obtained from different sources, shocks faced by households, and participation in and perception of the PSNP. The survey covered households and their children drawn from Young Lives study sites. The total number of observations of the 15-year-old children surveyed in Round 3 was 972, of which 497 (51.13 per cent) were males and the remaining 475 (48.87 per cent) were females. A total of 569 (58.54 per cent) were rural dwellers while the other 403 (41.46 per cent) lived in urban areas. We used data from the rural part of the sample, who live in 12 sites, because the PSNP is designed only for rural areas.

We used difference-in-difference regression on matched sample, propensity score matching techniques, and difference-in-difference matching to estimate the impact of the PW programme on the allocation of children's time to work and schooling/studying. In order to estimate impact of the PW programme using the difference-in-difference regression method, we tried to find (1) comparison (control) households that were not part of the PW programme in either 2006 or 2009 but which had other characteristics similar to the PW/PSNP (treatment) group; and (2) treatment households that only became participants in 2009 (that is, were not PW/PSNP beneficiaries in 2006). Out of the Young Lives Older Cohort rural sample (569 households), we were able to obtain 234 matched control/comparison households, and 30 treatment households, which is really a small sample. There are 195 households who participated in PW/PSNP in both 2006 and 2009, and excluding these households may result in inefficient estimates of PW/PSNP impacts. Therefore, in order to increase the sample size and improve the estimation efficiency, we used the 195 households that participated in both Round 2 and Round 3 and 30 households who have participated only in Round 3 (making 225 PW/PSNP participant households). Hoddinott et al. (2010) showed that transfers were delayed during the first year of implementation of the PSNP (2005/6), and the time was too short for the PSNP to have an impact (Woldehanna 2009). Therefore, including the 195 households as if they were not PSNP participants in 2006 was beneficial in terms of increasing the sample and efficiency of estimates.

In order to reduce the initial selection bias, we ran the difference-in-difference regression on the matched sample based on participation in PW in Round 3 (2009). We also used weights derived from predicted propensity score for the control group so as to increase the efficiency of estimation (Hirano et al. 2003). Hirano et al. (2003) show that the difference-in-difference regression with weights for the control observations according to their propensity score yields a fully efficient estimator. Therefore, after running a logit model of participating in the PSNP

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6   In the Young Lives study, Older Cohort children are those born in 1994/5; the Younger Cohort were born in 2001/2.

in Round 3, we computed a weight to be used in the difference-in-difference regression, where the weighted equals one for PSNP participants (treatment group) and predicted propensity score divided by one minus the predicted propensity score for matched non-PSNP households (comparison units).

As additional alternatives, we used simple propensity score matching and difference-in-difference matching techniques to estimate the impact of the PW on per capita and per adult household consumption expenditure and the wealth index, and on children's time use for work and education. First we estimated a logit model of propensity score of participation in the PW programme in 2009. The explanatory variables chosen were Round 1 household composition, wealth index and asset index, and dummy variables for a household affected by crop failure, death of cattle, and death and illness of family members within the five years prior to the survey, as well as the square and interaction of the variables. These variables are consistent with the selection criteria used by the communities to select beneficiaries of the PW programme. We tested the balancing property to check if the mean values of the explanatory variables for both the treated and untreated were similar. Then we computed the average of the difference in outcome between the treated and matched untreated groups in order to obtain the average treatment effect. We used Stata command of 'pscore' and 'psmatch2' command (Leuven and Sianesi 2003) and kernel smoothing and other matching methods such as nearest neighbour, radius, one-to-one and local linear regression to match treatment and comparison observations and to estimate the treatment effect on the treated group. To implement difference-in-difference matching techniques, we computed the difference of the difference in mean of the outcome before and after programme for the treated and matched untreated groups, which may have allowed us to get rid of unobserved characteristics affecting programme take-up if these unobserved traits do not vary over time (see Khandker et al. 2010).

The qualitative component of the study was undertaken with 32 households and their Older Cohort children drawn from four rural sites sub-sampled from the survey households and children.[7] In total we conducted eight group discussions with children and their caregivers. Individual interviews involved the children, their caregivers and other key informants including *Kebele* Food Security Task Force members (KFSTFM), PW supervisors, teachers and local officials. The focus of the interviews was on local and household shocks, the implementation of the PSNP, children's participation in the PW programme, and possible impacts of the PSNP on children including schooling, work, health and food consumption.

During the analysis, we tried to put together the survey data and qualitative evidence in such a way that they presented integrated results. From the survey, we first estimated the impact of the PW programme on household welfare/income measured by a wealth index and consumption expenditure per capita and per adult. Then we estimated the impact of the PW programme on children's time use between work and schooling/studying using propensity score matching techniques, matching on the difference and difference-in-difference method.

In qualitative fieldwork, we recorded interviews using digital audio recorders and then transcribed them. *Atlas.ti* software was used to organise the clean qualitative dataset and analyse it thematically. As both the quantitative and qualitative data were collected in the same year from the same respondents and communities, we were able to integrate them

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7   We call these Zeytuni (in Tigray), Tach-Meret (Amhara), Leki (Oromia) and Buna (SNNP region). Pseudonyms are used in order to maintain the anonymity of the sites.

while analysing them.[8] While the quantitative figures highlight wider trends and statistical indicators, the qualitative data present illustrative evidence of real experiences of the PSNP and its impacts on children's well-being. We tried to apply the integrated Q-squared approach while analysing the data generated using both methods.[9]

4. Description of the sampled children and their households: economic status, vulnerability, experience of the PSNP and time use

In this section, we describe our sampled children and households, looking at the changes in their standards of living between 2006 and 2009, starting with their livelihoods and economic status. We then go on to examine their experiences of the PSNP and children's use of time between work, paid and unpaid, and schooling.

4.1. Poverty status and vulnerability

Agriculture remains the main source of the livelihood of the majority of our Older Cohort rural sample households, and poverty and vulnerability to shocks are the most overriding problems these households face. About 68 per cent of the households are absolutely poor, but absolute poverty declined by seven percentage points between 2006 and 2009 (Table 1).[10]

Table 1. *Percentage of households falling below consumption poverty line (headcount index) in Round 2 (2006) and Round 3 (2009) by region*

	2006	2009
Amhara	92	79
Oromia	56	55
SNNP	67	62
Tigray	85	77
Total	**75**	**68**

Source: Young Lives survey (2006 & 2009).

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8   We tried to adopt similar questions in both the surveys and qualitative studies in our attempt to make the study more integrated.

9   We call it the Q-squared approach to indicate that both the qualitative and quantitative surveys use the same set of questions and households/children and are followed by integrated analysis.

10 The poverty headcount index provides the proportion of households whose consumption falls below the consumption poverty line, which is set as the value of 2,200 kilo calories per day plus essential non-food expenditure.

A household wealth index was computed to measure the wealth status of the sampled households for Round 2 and Round 3.[11] In Table 2, we present this, as well as the per capita and per adult food and non-food expenditure and the changes in these between the two rounds.

Table 2.   *Wealth index and food and non-food expenditure in 2006 and 2009 (birr)*

	R2	R3	% change R2 to R3
Wealth index	0.20	0.27	35.0
Real monthly food expenditure per adult	78	86	10.3
Real monthly non-food expenditure per adult	33	41	24.2
Real monthly total expenditure per adult	**111**	**126**	**13.5**
Real monthly food expenditure per capita	66	75	13.6
Real monthly non-food expenditure per capita	28	36	28.6
Real monthly total expenditure per capita	**94**	**110**	**17.0**

Source: Young lives survey (2006 & 2009).

As the table shows, households' wealth and expenditure increased. The total real monthly expenditure per capita and per adult increased between survey rounds. For instance, if we look at the real monthly total expenditure per capita for the sampled households, it was calculated to be 94 birr (US$5.29) in Round 2 and 110 birr (US$6.19) in Round 3. Households were found to spend significantly more on food than on non-food items. Moreover, it can be observed that all types of expenditure computed in terms of per adult equivalent and per capita rise by more than 10 per cent between Round 2 and Round 3, as expected, since the per capita income of people in Ethiopia has been increasing in recent years. Between Round 2 and Round 3, the wealth index increased by 35 per cent, while per capita expenditure increased by 17 per cent (per capita food expenditure and non-food expenditure increased by 14 and 29 per cent, respectively).

We also looked at shocks experienced by these households. The common shocks affecting all sites are drought, snow storms, increases in food prices and death of livestock. Drought has been experienced by all communities, affecting their harvest and livestock. At individual household levels, death and illness of family members have been identified as shocks, while large family sizes, and, in some communities, polygamous marriages can contribute to household vulnerability. It is obvious that shocks or the occurrence of some negative events in a household affects its welfare. As shocks have occurred frequently, their impact on households' well-being has been more severe. The mean number of shocks reported by households was four and five in Round 2 and Round 3, respectively. Crop failure (72.4 per cent for Round 2 and 76.0 per cent for Round 3), natural disasters (65.2 per cent for Round 2 and 65.5 per cent for Round 3) and food price increases (76.9 per cent in Round 3) were reported to be the most significant shocks affecting many of the households. Because of the high inflation rate occurring in the country since 2005, households' welfare is affected both when they purchase productive inputs for their economic activity and when they buy for consumption (see Table 3).

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11 The wealth index is a simple average of the following three components: a) housing quality, which is the simple average of rooms per person, floor, roof and wall; b) consumer durables, being the scaled sum of consumer durable dummies; and c) services, being the simple average of drinking water, electricity, toilet and fuel, all of which are 0-1 variables.

Households try hard to get most out of farming to cope with the multiple shocks. But given the continued failure of rainfall, many looked for other means of survival. Working as daily labourers was the most common practice, and this largely involved children. Parents opted to send their children for wage labour when they needed resources to cope with food shortages. In the qualitative sub-study communities, children aged 12 and above have been engaged in wage-earning activities. Some programmes run by the Government and some NGOs provide food aid, credit and other support. Local institutions like *iddir* and *equib* also play significant roles.[12] In some communities, like Buna, many households resort to moneylenders for loans when they face food shortages but then have to pay them back at interest rates as high as 100 per cent.[13]

Table 3. *Proportion of sample households affected by shocks in Rounds 2 and 3 (%)*

Type of shock	Round 2	Round 3
Illness	37.1	43.6
Death or illness	45.9	47.4
Theft	14.0	11.7
Increase in input price	37.8	53.8
Increase in input price or decrease in output price	40.0	56.2
Increase in the price of the food I buy	n/a	76.9
Death of livestock	37.8	40.9
Place employment shutdown or job loss	5.3	5.7
Drought	47.1	52.8
Drought crop failure and pests and diseases	72.4	76.0
Divorce or separation in family	1.7	2.2
Any dispute	5.3	9.1
Having to pay for education of children	9.7	11.0
The birth of new household member	21.4	11.6
Natural disaster including drought	65.2	65.5

Source: Young Lives survey Round 2 and Round 3.

4.2. PSNP participation

4.2.1. Selection process

In those sites in the Young Lives study that are affected by protracted droughts and recurrent shocks, the government-run PSNP was a common coping strategy. It targets a relatively large number of the poor households. During Rounds 2 and 3 of the surveys, the participation of households in the programme was established using the household questionnaires.[14] As Table 4 shows, the participation rates in both the PW and DS programmes had decreased slightly by Round 3 as compared to Round 2.

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12 An *iddir* is a traditional burial association that helps grieving relatives with money and burial processes. An *equib* is a community-based saving association where people contribute some money periodically and take the accumulated saving in turn.

13 At the beginning of April, households got loans from local moneylenders, to be paid back usually in late September when their coffee beans were ready for market.

14 Available at www.younglives.org.uk.

Table 4. *Sample households participating in the PW and DS components of the PSNP in Rounds 2 and 3 (%)*

	Round 2	Round 3
Public Work programme (PW)	46.6	40.3
Direct Support programme (DS)	18.6	14.0

In the qualitative sub-study communities, on average half of the households we interviewed were included in the programme. Out of all 6,286 households in the communities where qualitative work was carried out, 3,020 (about 48 per cent) of them were covered by the programme (Table 5). The quotas depend on the severity of poverty and shocks and as a result there is a big disparity of coverage.

Table 5. *PSNP participation in the four communities from which the sub-sample was taken*

Community	No. of households in the community	% of PSNP participants	% of female-headed households participating in PW	% of participants in PW	% of participants in DS
Tach-Meret	1,861	48.7	41.3	85.4	14.6
Leki	512	82.6	4.9	85.6	14.4
Buna	1,013	41.6	11.9	75.5	24.5
Zeytuni	2,900	43.8	35.2	87.3	12.7
Total	**6,286**	**48.0**	**29.5**	**84.9**	**15.1**

Source: Young Lives qualitative fieldwork, 2009

For example, among the four communities, as many as 82.6 per cent of households in Leki were included but in Buna the figure was as low as 41.6 per cent. Overall, about 85 per cent were required to work to get support while the remaining 15 per cent secured assistance without labour contributions.

As the periods of our qualitative fieldwork and the selection process for the second round of the PSNP coincided, we were able to observe this process and the screening procedures as they happened.[15] In all communities a committee, set up at *kebele* (neighbourhood) level and overseen by the *Woreda* Food Security Task Force, was responsible for the selection of beneficiaries. It was made up of government officials, local elders and representatives of local associations (youth and women). The committee makes some assessment of the holdings of each household and keeps records. Then it ranks the households, beginning with the poorest. The number of beneficiary households was based on a 'quota' allocated by the *woreda* to the *kebele*. The list is presented to the *kebele* public gathering for discussion. Ideally, if some people have any complaints about the list they can present their case for possible discussion and consideration. Eventually, the final list gets approved in the meeting then passed on to the *woreda*.

The cut-off for eligibility varies from community to community. In Tach-Meret and Zeytuni, having two oxen automatically excluded households, whereas in Leki, in addition to possession of an ox, the size of irrigable land was taken into account and in Buna the number of coffee seedlings and sometimes *enset* (false banana) were considered. In Buna,

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15 The first round of the programme covered 2005–2009 while the second round runs from 2010 to 2015.

as people cultivate the land by hand using a hoe, having oxen is less important, and in Leki having irrigable land was significant as it could be rented out for good amount of money.

Irregularities in the screening processes were mentioned in all communities; for example, committee members often selected those who were related to them in some way. During the public gathering those who had wider networks got the necessary support. In some cases households with two oxen were included but those who had only one were excluded. We have a considerable number of reports from our respondents suggesting irregularities. Among them, a poor woman from a female-headed household with children said,

> I have five children and the oldest is 17 years old. My husband died ten years ago. Initially, I was included in the safety net [the PSNP] but excluded after a year. I do not know why I was excluded because I did not attend the general meeting that decided on my exclusion. I did not ask the officials, but I feel I was unfairly excluded. I am very poor. I work as a daily labourer, but the wage is not enough to feed my family. I depend on support from my relatives. None of my children is attending school. My son herds his uncle's cattle just for food.

> (Widow, female-headed household, Buna)

Officials said that they tried as much as they could to ensure fair selection – the limited quota provided by the *woreda* was to blame. There were more needy households than the quota could cover. While the beneficiaries recognised the inadequacy of the quota, they maintained that there were injustices anyway. They argued that the main problem started from the assessment of assets and the fact that the initial listings are done by a few committee members. In the meetings, very few have the courage to speak out about the irregularities, mainly for fear of officials. They also do not want to enter into conflict with those who were made beneficiaries. Irregularities in targeting have obvious impacts on children. Those who live in excluded households are very much affected. Households have to resort to other means of gaining a livelihood, including requiring their children to do wage labour, which affects their schooling. Among the many cases we have documented, accounts from three children from different sites are presented in Box 1.[16]

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16 Pseudonyms are used in order to preserve children's anonymity.

Box 1.   *Exclusion from the PSNP and its impact on children*

We were excluded from the safety net [PSNP] after two years of support. They gave us a cart without a donkey. We hired a donkey but it was killed in a car accident. We had to beg for community contributions to pay [for a new donkey]. When we were excluded from the safety net, I started to engage in donkey cart [work] for wages. I do it every day except on Sundays as that is a holy day. My father is too ill to do this. I get 3 or 4 birr [US$0.17 or US$0.23] per day. I usually buy biscuits when I get hungry. I also use [the money] to buy school materials and soap as well as for school registration. I save the rest for some time and give money to my parents when the family is short of food. I also do other family activities including fetching water and firewood from distant areas. I dropped out [of school] last year but this year I am in school attending Grade 6, though I miss some days to work on the donkey cart. I want to finish and be a civil servant. But I am very worried because my father is too ill and I may not continue in my school.

(Ermi, 15, boy, Buna)

Both my parents died seven years ago, and I live with my siblings. We participate in the safety net [PSNP]. Though we are five siblings, they only allowed us [transfers] for two [household] members, claiming a shortage of budget. My older brother does the public work. He combines both public work and other wage labour. [He] sometimes does other wage labour as the amount we get from the PSNP is not enough for us. The officials are warning us that they may exclude us if we continue to fail to do our public work regularly. I am also engaged in wage labour. I usually try to combine wage labour and schooling. But last year, as there was a severe food shortage, I had to drop out at Grade 3 and fully engage in daily labour. I get about 4 birr per day and 70 birr [US$3.94] per month. I buy grain and clothing for my siblings and myself.

(Shashe, 15, girl, Leki)

I live with my three siblings and my mother. I do not know the whereabouts of my father. My mother is usually bed-ridden because of a heart attack. My family is a beneficiary of the PSNP, but only three [of us] are included. I am not included because they said they had 'forgotten' me. My sister does the public work for the three beneficiaries. The amount from the PSNP is too small for our food and comes very late. When my mother's illness reached the level that she could not feed us, I decided to drop out of school to work at a private stone-crusher plant. I transport stones using a handcart. I get about 280–300 birr [US$15.76–US$16.88] per month at a wage rate of 14 birr [US$0.79] per day. I work for eight hours. I save about 30 birr [US$1.70] per month while we use the rest for buying food grains, clothes and school materials for my siblings. I am saving some money to continue my education next year. I hope I will succeed and my mother will recover.

(Haymanot, girl, 15, Zeytuni)

These examples illustrate that in some cases, vulnerable households affected by idiosyncratic shocks like illness and death were not seriously considered for the programme. The parents of the children quoted in Box 1 were either ill or dead. Full or partial exclusion from the programme directly affected these young people. They had to engage in wage labour as they did not obtain the necessary support from the PSNP. Ideally, people who are ill should be DS beneficiaries but in practice they were expected to work for the limited quota allocated. What they did was just send their children to work as they could not work themselves.

4.2.2. Transfers

During Rounds 2 and 3 of the Young Lives survey, households were asked whether any family members had earned any income in the last 12 months from a list of activities, of which the PSNP was one. From this, both the proportion of households of the 569 children participating in either of the components of the PSNP and the amount of average income earned from them were computed. In contrast to the participation rate, which has fallen (see Table 4), the amount of mean income that beneficiary households received from the PSNP has increased, but by less than the rate of inflation. As Table 6 shows, the mean 12-month income that households generated from the PW component increased from 801 birr (US$45) in Round 2 to 2,198 birr (US$123.62) in Round 3, which is higher by 174 per cent but slightly lower than the inflation rate between these two periods, which was 178 per cent, indicating there is no increase in the PW cash transfer value in real terms. The same level of increase was computed in per capita terms. However the income from the DS component declined by 27 per cent per household and 10 per cent per capita apparently partly because, as the qualitative data indicate, *kebele* officials have become very strict in the provision of DS and excluded from it people within the household who were regarded as being able to work. In general then, the amount of resources provided to households did not increase while the incidence and severity of shocks did increase.

Table 6. *Mean annual nominal net income obtained from the PSNP in Rounds 2 and 3, per household and per capita (birr)*

PNSP component	Round 2	Round 3	% change
Per household			
Public Work	801	2,198	174
Direct Support	842	612	−27
Per capita			
Public Work	128	350	173
Direct Support	154	139	−10

Number of observations = 569

Similarly during the qualitative interviews almost all respondents confirmed that the transfer was still too small to ensure food security. Though household members were expected to do certain work, the amount they got in return was widely reported to be insufficient. The situation becomes correspondingly worse if not all household members are registered for benefits. Though the daily rate of pay has grown from 6 birr (US$0.34) to 10 birr (US$0.56) since 2008, it is much less than the market wage rate; in some cases less than 30 per cent of the average daily wage rate. Continued food price increases have made the amount worth less in the market.

4.3. The PSNP and children

Most of the respondents, including children, in the qualitative study confirmed that they needed the money or grain they got from the PSNP. Any money they got from the programme was used for food and sometimes clothing. Many people have reported that they could not have survived without such transfers, especially during economic shocks and rainy seasons when food is scarce. As members of households, children are in practice beneficiaries of these transfers. In some cases, both caregivers and children verified that some transfers were used to purchase school materials. A father from a PNSP household states,

> In the months of July and August, we collected our PSNP grain and money for [the time] we had worked from March to July. It saved the lives of the family. With the remaining amount, we bought school materials for our children and sent them to school in September.
>
> (PW participant, household head, Tach-Meret)

> The PSNP benefits children very much. It is because of it that they eat enough and attend school. Otherwise they would have been hungry and couldn't have gone to school.
>
> (DS beneficiary woman, Tach-Meret).

For those who have little or are affected by severe shocks, the transfers from the programme seem to remain essential. It is not unusual to hear household members claiming there are families that cannot survive or live in the area without the PSNP. Many children reported that the transfers have protected them from hunger.

4.3.1. Public work and children's time use

From the data we collected regarding the time children spent on different activities, we computed their rate of participation in work and other activities, which is expressed as the percentage of surveyed children who reported positive hour(s) of participation in a given activity on a typical day. Table 7 depicts the participation rate of children in a given activity while in Table 8 we present the average hours that all children (regardless of their participation status in the respective activity) spent on different activities on a typical day in both survey rounds (Round 2 and Round 3).[17] The data are disaggregated by gender and location for Round 2 and Round 3.

Here, activities in which children are involved are classified as follows: caring for others like young siblings and household members who are ill; domestic tasks such as fetching water, collecting firewood, cleaning, cooking and washing; family business tasks, which include work on family farmland, herding sheep or cattle, other work for the family business, and piecework or handicrafts done at home; paid work done outside the household; child care and domestic activities, which consist of involvement in the first two types of work; and work in any of the above activities. This kind of disaggregation is important to identify the areas of work where children spend much of their time.

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17 Note that when the participation rate is low, calculation of the average time spent on a given task performed by considering all children together may not be very informative about the extent of that work for those who really participate in that task.

Table 7. *Participation rate of Older Cohort children in various work activities on a typical day (%)*

Type of work	Round 2			Round 3		
	Girls	Boys	Total	Girls	Boys	Total
Caring for others	44.8	29.4	36.9	58.7	36.1	47.1
Domestic tasks	96.4	76.6	86.2	99.3	79.9	89.2
Family business	47.3	81.9	65.2	26.7	79.3	53.8
Paid work	5.0	5.4	5.2	9.3	7.0	8.1
Child care and domestic activities	96.8	80.3	88.3	99.3	83.3	91.0
All kinds of work	**100.0**	**99.7**	**99.8**	**100.0**	**99.7**	**99.8**

Number of observations = 569

Table 8. *Average hours spent per typical day on various activities by Older Cohort children*

Type of activity	Round 2			Round 3		
	Girls	Boys	Total	Girls	Boys	Total
Caring for others	0.79	0.46	0.62	1.02	0.54	0.77
Domestic tasks	2.98	1.63	2.28	3.85	1.76	2.77
Family business	1.36	2.95	2.18	0.60	3.14	1.91
Paid work	0.16	0.15	0.16	0.52	0.38	0.45
Child care and domestic activities	3.77	2.09	2.90	4.88	2.30	3.55
All kinds of work	**5.29**	**5.20**	**5.25**	**5.99**	**5.82**	**5.91**
School	5.20	5.03	5.11	5.25	4.87	5.05
Study at home	1.60	1.58	1.59	1.63	1.64	1.64

Number of observations = 569

As can be seen in Tables 7 and 8, most of the children participate in different types of work and spend a considerable number of hours per day on those activities, while they should be spending less or no time on such activities if they are to have adequate time for schooling or leisure. In most of these activities, the mean hours children spend has increased between Rounds 2 and 3. This indicates that the responsibility children take in the family increases along with their age. If we look at the mean time consumed by all kind of work, it increased to 5.91 hours per day in Round 3 from its level of 5.25 in Round 2, with a participation rate of almost all children. Considering the whole sample of children for Round 3, of the different types of work in which children are involved, domestic tasks was found to be the most time-consuming activity, amounting 2.77 hours per day. If we look at this figure by gender, girls are in a more disadvantageous position than boys since they spend, on average, as many as 3.85 hours a day on it. Here, one can note that the burden of the girls is roughly double of that of the boys.

Likewise, the participation rate of and time spent by children on family business tasks such as agricultural work and herding was found to be significant. About 65 per cent and 54 per cent of the children reported their participation in one or more components of the family business in Rounds 2 and 3, respectively (Table 7). Children were found to devote 2.18 hours (in Round 2) and 1.91 hours (in Round 3) per day in working in the family business, although the difference is not statistically significant (Table 8). One special feature in this type of work is that the role of girls, in terms of participation rate and time allocated, was found to be minimal in Round 3 as compared to boys. For instance, the rate of participation for girls in the family business dropped from 47.3 per cent in Round 2 to 26.7 per cent in Round 3 and

similarly the 1.36 hours per day of average time that girls used to spend on this activity in
Round 2 was eroded to 0.6 hours per day in Round 3. One possible reason for this decrease
is that in Round 3 the children were 15 years old and almost all family business activities in
rural areas are performed far from home, including in jungle areas. Thus, it is more risky for
the household to send a 15-year-old girl to such an area for work since it degrades not only
the status of the girl herself but also that of the family if she gets abducted. Fear of such risks
makes households prefer their daughters to stay at home and get involved in domestic tasks
while sons are sent to do farming and other family business tasks to increase the family
income. The boys are therefore more involved in family business tasks than girls, with their
participation rate at about 80 per cent and their average hours per day at 2.95 and 3.14 per
day in Round 2 and Round 3 respectively.

As far as paid work is concerned, participation has increased slightly over time, from 5.2 per
cent in Round 2 to 8.1 per cent in Round 3. The data suggest some gender variations since
the involvement of girls in paid work increased from 5.0 per cent to 9.3 per cent whereas for
boys it rose only from 5.4 per cent to 7.0 per cent from Round 2 to Round 3. The qualitative
data indicate that opportunities for wage labour are available within the communities (e.g.
stone-crusher plants, haricot bean picking, work on irrigated farms, etc.) and it was easy to
send girls to be involved. Though the overall workload of children is significant, the survey
data seem to show relatively low levels of participation in paid labour.

However, the data from the qualitative study obtained from the same children from the same
communities in the same year suggest a different picture (Table 9). Direct fieldwork
observation and in-depth interview with officials, parents and children themselves revealed
that most of the Older Cohort children included in our study did participate both in the PSNP
PW programme and other wage labour.

As shown in Table 9 below, among the 32 households selected for the qualitative sub-study,
22 were beneficiaries of the PSNP and another four households were excluded for different
reasons after they were initially incorporated in the programme. All households except one
were required to do public work to get the support. Half of the children included in the
programme reported that they were involved in public work, but others reportedly only helped
or substituted for their parents occasionally.

Table 9.   *Children's participation in public work and wage labour at the age of 15*

Children	Tach-Meret	Leki	Buna	Zeytuni	Total
From PSNP households	4	6	4	8	22
From non-PSNP households	4	2	4	0	10
Doing Public Work	3	3	2	3	11
Doing wage labour (all households)	2	8	4	1	15
Doing wage labour (from PSNP households)	0	6	2	1	9

Source: Qualitative fieldwork, 2009.

As our child respondents, during the fieldwork, were all below the age of 16, it is quite easy to
conclude that children below the age stipulated in the PSNP Programme Implementation
Manual (PSNP-PIM) were involved in public work.[18] This was confirmed by a range of

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18 As discussed in Section 4 of the PSNP Programme Implementation Manual of 2010, children can only be involved in public
     work if they are aged 16 and above.

respondents including the PW officials, parents, children themselves and teachers as well as by researcher fieldwork observation. Box 2 indicates how PNSP officials from each community allowed children as young as 13 to 15 years old to be involved in the PW programme.

Box 2. *Children's participation in public work*

Parents with children are expected to cover the Public Work requirements of their entire family members including their children. But usually the parents were not able to cover. They send their children on their own or to assist them to finish their work quotas. Parents send their children in some instances as young as 7 to 8 years. But we only accept children who are 13 years old or older for the public work though the law stipulates that only children above 15 years old should participate.

(KFSTFM, Tach-Meret)

Children aged 14 and above participate in public work by replacing parents who may go to other activities. We do not care whether [parents] send their children or [whether they] come themselves because what we need is the job done. [Children] work better than the adults because they have the capability. But we want to combine them with other adults as the latter give advice and share experiences on how to do the job.

(PW supervisor, Leki)

Children of 14 years old and above do public work because there is no regulation that prohibits them from working. Moreover, if parents face any problem, children substitute for them. Children who don't attend their school or [school] drop-outs are more involved than those attending their school.

(KFSTFM, Buna)

Children participate in public work by replacing their parents who go to other activities or attend funerals. They also do the public work together with their parents. Those aged 15 or above do the work equally as adults. But if parents send children younger than 15, I send them back home; I do not allow them to work.

(PW supervisor, Zeytuni)

These comments drawn from the officials of all four sites show that children were participating in the PSNP PW component. On the other hand, parents try to underplay children's participation but most acknowledge it. For example, in Zeytuni community, in group discussions among seven caregivers, three of them admitted that they sent their children (aged 15) to do public work. Despite the officials threatening to exclude them from the PSNP, parents continued to send the children and the foremen tolerated them for different reasons. Parents said the work children did was simple and not harmful. They felt that it was good for children to help them finish their work share as the work usually overlapped with farming activities and adults had to do other things.

The data also indicate that children are not only involved in the PW programme but do wage labour as well. Out of the 32 sub-sampled children, 15 reported having been engaged in labour to earn wages. Interestingly, nine of these 15 (see Table 9) are from households participating in the PSNP. Some of them combine both public work and wage labour. Wage labour involved haricot bean and coffee-seed picking, pulling a horse cart to transport goods, working on irrigated farms, on flower farms and at stone-crusher plants.

The main reason children are under such pressure to work has to do with the insufficiency of PW transfers. Insufficient transfers mean that household members including children have to resort to other means to generate additional income. The most obvious thing to do is to utilise children's labour. When transfers from the PNSP fail to meet their food needs, parents and their children are obliged to do wage labour. A girl who undertook wage labour in addition to the PW tells her story as follows:

> I work at safety net [PSNP PW] for three days a week. The rest is done by my mother and brother. The amount we get from the safety net is not enough to buy food grain. So we are usually short of food. To support this I work on the private irrigated farm, which involves hoeing, planting and weeding. I get 6 or 7 birr per day [US$0.34 or US$0.39]. I don't work only to support my family. I have to pay my healthcare and school fees. In 2008, my neck swelled up and I had to go to the clinic for treatment. I spent about 250 birr [US$14] including transportation. My family borrowed the money from my aunt. I paid [it back] little by little by working in wage labour. Last year I also paid 30 birr [US$1.70] for school fees. It was from my saving from daily labour. I am in Grade 4 now. I repeatedly dropped out of school because of illness and workload [from wage labour]. I am trying to combine work and schooling. But I do not have time for study. I usually study during the evening, after work.
>
> (Asnakech, 14, girl, Leki)

The above example suggests that children have far greater needs than just food. Healthcare, school materials and other expenses are also very important. Asnakech's story explains how a poor child is affected by different consumption and developmental needs. To satisfy these, the child undertook paid work, which in turn affected her education.

The timing of transfers also has an impact on households and their children. Though households do the public work from February to June, transfers are made months later than they are due. In all sites, officials and beneficiaries report that delay is common. Those poor households who badly need grains or cash have had to resort to loans with exorbitant interest rates (see footnote 13 and the text it refers to) or borrow from neighbours and relatives. But they also usually sent their children to do wage labour. Some children reported that they sometimes put off their schooling and domestic or family business work for days in order to assist their family with cash from the wage labour. The impacts of the PW programme on schooling are discussed below.

4.3.2. Schooling

Schooling is the other measure of child well-being used in this paper. In Section 2 (literature review), we have shown that many empirical findings show that children who are well fed and educated at right age (i.e. in childhood) are believed to earn better as adults and are most likely break the vicious circle of poverty in their family. But the problem is that most children, especially in developing countries like Ethiopia, spend considerable time on work, and thus less on schooling. As the previous sections show, the more children were involved in work, the less time they spent on schooling and study at home.

In Table 10, we present the percentage of children enrolled in school and the mean of the highest grade they had completed by 2009. The general enrolment rate looks high but it shows a decline between the survey rounds.

Table 10. *Enrolment rate and mean grade/class of Older Cohort children in Rounds 2 and 3*

	% enrolment		Average grade completed		Grade-for-age	
	Round 2	Round 3	Round 2	Round 3	Round 2	Round 3
Girls	94.3	87.2	3.57	5.12	0.80	0.68
Boys	91.3	83.6	3.30	4.71	0.73	0.63
Total	**92.8**	**85.3**	**3.43**	**4.91**	**0.76**	**0.65**

Notes: **Number of** observations = 569.
Grade for-for-age is computed as grade completed divided by age minus seven.

In the Rounds 2 and 3, the mean highest grade completed by all the children was found to be 3.43 and 4.91, respectively. In both rounds, girls were found to have slightly higher grade achievements in spite of the fact they had a heavier work burden. Even if the mean grade completed enables us to infer an average level of education, it is silent about its distribution. The grade-for-age of children in both Round 2 and Round 3 is less than one, indicating that students do not progress one grade per year.

The qualitative data confirm that most of the children are well behind the expected grade levels. Ideally, children who started school at the usual age (7) are expected to reach at least Grade 7 by the age of 15. However, only eight of the 32 sub-sampled children were able to reach Grade 7 or above. In terms of gender the situation seems worse for boys as 16 of the 24 who failed to achieve projected grade levels were boys.

A major cause of lower grade-for-age is drop-out from school. A number of reasons were given for children's drop-out, most of which are associated with socio-economic problems. The most common reason for children dropping out of school was reported to be that they were required for domestic and/or agricultural work or family business at home (including chores, farm work, helping with the family business and harvesting). More than 20 per cent of children dropped out for these reasons and this is consistent with the previous idea that children who are more involved in work (domestic/agricultural and paid work) are less likely to attend school. Truancy, that is, the preference of children not to go to school was found to be the second most common reason for dropping out, and accounts for nearly 14 per cent of the respondents. Other reasons reported by the children who had dropped out in Round 3 included the necessity to be involved in paid work to earn money (13.1 per cent), illness or disability (8.3 per cent), family issues like problems at home including parental disputes/marital conflict (6 per cent) and the high cost of educational material/supplies (5 per cent).

Moreover, the qualitative data provide empirical evidence on children's schooling and reasons for drop-out in the research sites. The evidence shows a negative association between the PSNP and schooling. Out of the 24 children who were below the expected grade level for their age, 17 were from PSNP households. Lower grade achievement was due to irregularities in attendance, failure in exams and, more importantly, dropping out of school altogether. Of the 32 children included in this study, seven were not attending school during the fieldwork. These comprised four girls and three boys. All were from households included in the PSNP throughout the programme or included initially and later excluded. None of the non-PSNP households let their children interrupt their schooling. Though these limited data may not suffice to offer strong conclusions, they suggest that the PSNP does not prevent poor children from interrupting their schooling. Perhaps this is because, while children from PSNP households had to adhere to the timetable and type of work the

programme organisers assigned to them, children from non-PSNP households could usually decide when to work and what to do, taking into account their school time.

In the qualitative study we tried to establish the views of children, teachers and others on how the PW programme affected their schooling. There was little relationship between public work and school enrolment. Construction of schools, strong initiatives from the Government and parents' willingness were already there to push enough children to get enrolled in school. However, children had to miss classes when they were required to undertake PSNP-related work. The widespread occurrence of absence was related to the design of the programme, which is designed to operate during the agricultural slack period but also falls during critical school time. Among the schoolteachers who reported their experiences, one primary school teacher from Tach-Meret shared what happens in school as follows:

> The PSNP public work usually starts in February. Beginning from that month, schoolchildren begin missing classes. When we investigated why it happened, we discovered that they were going to do public work and we found out that the high rate of missing classes started from February. Children from PSNP-participating households have a lower educational performance than those who do not participate. Children from PSNP households are forced by their parents to do public work by missing classes, with more boys than girls involved. By contrast, children from non-PSNP households attend school regularly and score better grades. The school doesn't formally permit students to participate in the Public Work programme because it wants them to focus on their schooling. There are some students who ask for permission when they want to participate in the Public Work programme, but they don't tell us they are going to work in PSNP. They will say that they feel sick or that a family member is ill. Permission is given once a week. However, many students miss classes without permission. Sometimes they leave school immediately after their teacher takes the roll call in the morning, in which case they are not considered as absentees.

> (Schoolteacher from Tach-Meret)

Moreover, the impacts of the PW programme on children's schooling were widely reported by the children themselves. One boy from Buna said, 'I miss class for some days when I have to work in the safety net [PSNP]. I sometimes ask for permission from my teacher but other times, I do not. The public work is affecting my education.'

Some teachers also confirmed that they gave permission to students to do public work. They stated that instead of trying to make them 'learn without food' they would allow them to work for a few days and get back to school when they could. They tried to help them to do both schooling and work. The same is true for the PW supervisors. Some of them tried to be flexible regarding timing so that poor children could do the public work as well as attend school. A PW supervisor said,

> We try to ensure that children do not miss school because of public work. If there are schoolchildren working in public work, we give them their own share so that they finish quickly and go to school. Sometimes they come to work early and finish early so that they can go to school. If their schooling is in the afternoon shifts, we let them leave work at 11 or 11.30am. If they are attending the morning shift, we let them work after school in the afternoon. They get tired when they go to school, nevertheless, they do not have any alternative because they are poor.

> (PW supervisor, Zeytuni)

In some cases, parents and schools negotiate and arrange shifts for children. One child attends school in the morning and the other in the afternoon. In the other shifts they do public work or other family work tasks. These are common practices in the communities, but only for households that have working children who can attend school in different shifts. Our evidence shows that working children try hard to balance school and work. They try to get permission from both the school and the supervisor as much as possible to attend either classes or public work.

5. Results and discussion

This section focuses on the analysis of results and on discussion. We explore the impact of the PSNP on children, first in terms of its possible effect on household economic status, expressed in terms of wealth index and consumption expenditure, and secondly with respect to children's time use mainly for work and schooling. Finally, based on the evidence, we suggest the adoption of a comprehensive child-focused social protection scheme that could overcome the limitations of the PSNP.

5.1. Impact on household wealth and consumption expenditure

We expected the participation of households in the PW programme to increase both the consumption expenditure per capita of households and the wealth level. With this expectation, we computed the impact of public work on household wealth (measured by the wealth index), and on per capita and per adult consumption expenditure for food, non-food items and in total, using the difference-in-difference regression method based on observations of PW/PSNP participants and matched non-participants (see Tables A5.5a and A5.5b in the Appendix for results from a propensity score matching on levels and changes). In the difference-indifference regression, we have controlled for shocks and household composition. First a logit model of participation in PW/PSNP in 2009 was estimated based on a set of Round 1and Round 2 covariates. After checking that balancing property was stratified, the region of common support was set at [0.0435, 0.9767] (see Table A5.1 for the logit model estimation). Then we ran the difference-in-difference regression estimation method, controlling for shocks and household composition on the matched sample, using the predicted propensity score as a weight (see Section 3 above). The results of the difference-in-difference regression estimations are summarised in Tables 11a, 11b and 11c. Table 11a presents the results of difference-in-difference regression estimates based on 225 PW/PSNP households and 234 matched non-PW/PSNP households (see details of the estimation in Table A5.3 in the Appendix). The results provided in Table 11b are based on propensity score kernel and radius matching. The results of difference-in-difference kernel and radius matching are presented in Table 11c (see also Tables A5.5a and A5.5b for the results of propensity score matching and difference-in-difference matching using nearest neighbour and local linear and one-to-one matching techniques).

Though the results of both the difference-in-difference regression and the propensity score kernel matching show more or less the same pattern (except for the wealth index), the estimates from propensity scores look smaller. Similarly, results from the nearest neighbour matching, radius matching, local linear regression and one-to-one matching have the same patterns as the difference-in-difference regression results except that the estimates for the wealth index are only statistically significant in the difference-in-difference regression results. Using the difference-in-difference regression results, as shown in Table 11a, we found the

impact of PW participation on the wealth index was negative and statistically significant, indicating that the PW programme was not able to build the assets of the households. We also found that PW programme participation had negative and significant impact on per capita (and also per adult equivalent) food and non-food consumption expenditure, which was contrary to our expectations.

On average, participation of households in the PW programme reduces per capita consumption expenditure per month by 33 birr (US$1.86), per capita food consumption per month by 21 birr (US$1.18) and per capita non-food expenditure per month by 12 birr (US$0.67). The results from propensity score matching show a similar pattern though with slightly lower magnitude. The results seem to support the general public opinion that the PSNP is making some people dependent on aid and is not lifting households permanently out of poverty. First, the real value of the transfers people obtained from the PSNP (cash or in-kind) did not increase. Second, people who were not included in the PSNP worked hard to increase the amount of payment they obtained from off-farm employment (wage labour and non-farm business), while many PSNP beneficiaries waited for low-paying public work, which they saw as less risky. Using our Older Cohort Young Lives data, excluding income from PW/PSNP, the non-PSNP beneficiaries obtained 45 per cent and 41 per cent higher per capita off-farm income than did the PSNP beneficiaries in Round 2 and Round 3, respectively. Two other possibilities are that the observed negative impact of the PW/PSNP on per capita consumption and wealth index could be due to a failure of matching techniques and hence the existence of unobserved systematic differences between the PSNP beneficiaries and non-beneficiaries or that the two groups may have different macroeconomic trends and the difference-in-difference estimation does not account for this.

Table 11a. *Impact of public work on household wealth and consumption (difference-in-difference regression on matched sample)*

	Coef.	T-value	R^2	Adjusted R^2	N
Wealth index	−0.039***	(−3.446)	0.417	0.391	459
Food consumption per adult	−25.437***	(−5.903)	0.218	0.184	459
Non-food consumption per adult	−14.424***	(−5.115)	0.308	0.279	459
Total consumption per adult	**−39.153*****	**(−6.677)**	**0.252**	**0.219**	**459**
Food consumption per capita	−21.137***	(−5.816)	0.258	0.226	459
Non-food consumption per capita	−11.876***	(−4.874)	0.288	0.257	459
Total consumption per capita	**−32.463*****	**(−6.543)**	**0.274**	**0.243**	**459**

Notes: Number of observations = 459 (225 PSNP participants and 234 matched non-PSNP).
*** p<0.01, ** p<0.05, * p<0.1.

Table 11b. *Impact of public work on household wealth and consumption (average treatment effect on the treated – propensity score kernel matching)*

	Kernel matching			Radius matching		
	ATT	S.E.	T-stat	ATT	S.E.	T-stat
Wealth index OC – Round 3	−0.003	0.011	−0.230	−0.001	0.011	−0.070
Real per adult consumption in food	−10.795***	3.768	−2.860	−10.664***	3.789	−2.810
Real per adult consumption in non-food	−12.363***	2.700	−4.580	−12.173***	2.579	−4.720
Total real per adult consumption	**−21.406***	**5.383**	**−3.980**	**−21.108***	**5.406**	**−3.900**
Real food expenditure per capita	−10.358***	3.320	−3.120	−10.208***	3.353	−3.040
Real non-food expenditure per capita	−11.013***	2.379	−4.630	−10.837***	2.229	−4.860
Total real expenditure per capita	**−19.849***	**4.730**	**−4.200**	**−19.542***	**4.728**	**−4.130**

Notes: Number of observations = 459 (225 PSNP participants and 234 matched non-PSNP).
ATT= Average treatment effect on the treated
*** p<0.01, ** p<0.05, * p<0.1

Table 11c. *Impact of public work on household wealth and consumption (average treatment effect on the treated – difference-in-difference kernel matching)*

	Kernel matching			Radius matching		
Change	ATT	S.E.	T-stat	ATT	S.E.	T-stat
Change in wealth index between R2 and R3	−0.007	0.010	−0.720	−0.006	0.010	−0.670
Change in real food consumption per adult	−8.555*	4.846	−1.770	−8.449*	4.903	−1.720
Change in real non-food consumption per adult	−8.576**	3.135	−2.740	−8.490***	2.910	−2.920
Change in total real consumption per adult	**−15.707***	**6.537**	**−2.400**	**−15.544***	**6.463**	**−2.400**
Change in real food expenditure per capita	−7.212**	4.200	−1.720	−7.103*	4.262	−1.670
Change in real non-food expenditure per capita	−7.245**	2.754	−2.630	−7.155***	2.493	−2.870
Change in real total expenditure per capita	**−13.213***	**5.682**	**−2.330**	**−13.037***	**5.575**	**−2.340**

Notes: Number of observations = 459 (225 PSNP participants and 234 matched non-PSNP).
ATT= Average treatment effect on the treated.
*** p<0.01, ** p<0.05, * p<0.1

Similarly, we asked PSNP households in a group discussion forming part of the qualitative study if those households that were poor and consequently eligible for the PNSP in 2005, at the beginning of the programme, were still poor in 2009 and therefore included in the programme. They all reported that they were still beneficiaries and also eligible for the second round of the programme (2010–2015).[19] An extract from one of the interviews states,[20]

> The majority of the households whom we know in our neighbourhood were poor when they joined the programme and are poor now too. This is because the money that they get from the programme is too small to cover expenses beyond a small portion of consumption. Sometimes the amount cannot cover even households' food consumption. It cannot help a family to move out of poverty. There are a very few people who were poor when they joined the programme and now who became better off. But this is not the

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19 PSNP officials reported that from each community, no more than five households have graduated after staying in the programme for five years. From our study six households were told by officials that they had 'graduated' after they were given credit or asset transfer. But the beneficiaries considered themselves rather as 'excluded' and aimed to rejoin the PSNP, arguing that they were not able to ensure food security.

20 Focus group discussion involving PSNP households, Leki, 2009.

outcome of the PSNP; rather it is because of hard work, farming more farmland through renting from others and working more hours than others.

Among the most common views that emerge from PSNP beneficiaries were: 'the food we receive from the programme hasn't helped to change our lives at all except to cover a part of daily food consumption' (PSNP beneficiary, household head, Tach-Meret).

Ambivalence towards the PSNP transfer was clearly articulated by beneficiaries from all communities. When there is drought and other shocks it is very necessary for the survival of households. But on the other hand, it develops, in the words of our respondents, dependency. A PSNP beneficiary from Leki said,

> The advantage of the safety net [PSNP] is that it helps when needed. But the disadvantage is that it is developing dependency and laziness among many people. At least half of the households in our community receive the cash and spend it on *areke* [a local alcoholic drink]. They give their land to sharecroppers and wait for safety net. They don't work on their land. The government officials usually tell them to work hard but they do not listen. I think safety net should stop. We need help only when there is severe drought.

> (PNSP beneficiary, household head, Leki)

Conversely, in some cases it could be suggested that the expansion of the PW programme is using up much of PSNP beneficiaries' time and hence making them dependent on aid to support their livelihood. Of course, in the circumstances of protracted droughts and economic shocks, food support remains an essential means of survival. But when it is measured in terms of its long-term impact, it brings other negative outcomes. It seems to overshadow other livelihood opportunities that would be better in dealing with people's economic difficulties. For example, households that are required to work on the PW programme have to allot a significant proportion of their time to it, leaving them with only a limited period for other work activities. Some consider public work as their main activity and source of their living. Such a misconception by beneficiaries could have a long-term impact on dependency and could be detrimental to the objective of the programme. Another problem highlighted was that in some communities, children and wives complained that husbands received the money and usually spent it without consulting their family members. If the transfer was in grain all members could easily benefit.

5.2.   The PSNP and child well-being

In order to assess the impact of public work on children's time use and schooling, we used the Round 2 and Round 3 data. Since households have to supply labour to get transfers; participation in public work increases the demand in a PSNP household for labour. This may encourage children to help parents with domestic and family business activities if the additional demand for labour does not come from additional family labour or hired labour. Hence participation in public work has a substitution effect in the sense that public work participation increases the time children spend on work and reduces the time they have available to spend in school and on home study. On the other hand, potentially, participation in the PW programme could bring additional income for households, which may help households hire labour to meet their labour demand at home and for business and thereby increase children's leisure time as well as the time they spend on schooling and studying. Therefore, participation in the PW programme may have both income and substitution effects on children's time use for work, schooling and studying, in which the net effect of participation in public work depends on the relative weight of the income and substitution effects. As an

effort to empirically estimate the net effect of the PW programme on children's time use between work and schooling, we estimated impact of PW participation on children time using difference-in-difference and propensity score matching techniques.

Table 12a shows the impact of public work on children's well-being measured by the time children spent on different kinds of work, schooling and studying employing difference-in-difference regression approach on the matched sample using the predicted propensity score as a weight (see Section 3 above) and also controlling for incidence of shocks and household composition (see details of regression results in Table A5.4).

The results provided in Table 12b are based on propensity score kernel matching and radius matching approaches. The results of difference-in-difference kernel and radius matching are presented in Table 12c (see also Tables A5.6a and A5.6b for the results of propensity score matching and difference-in-difference matching using nearest neighbour and local linear and one-to-one matching techniques).

There is a marked difference among the results of difference-in-difference regression approach and propensity score matching approaches. None of the coefficients were statistically significant in the propensity score matching except in the kernel matching for hours spent per day for on childcare activities and on child care and household chores combined.

When we look at the results of the difference-in-difference regression approach (Table 12a), we can see that households' participation in the PW programme reduces the hours children spend on child care and increases the hours they spend on household chores and on paid and unpaid work outside the home, and reduces time spent in school. This means that the substitution effect dominates the income effect. As the income effect is so low, households are not able to hire labour, so that their children substitute for their parents, or do work on their own. We can also observe that the PW programme does not have a significant effect on children's participation in unpaid work, hours spent studying and highest grade completed. However, participation in the PW programme increases children's grade-for-age.

The qualitative data indicate an apparent impact of the PSNP on children's time use. The public work requirements of the programme meant that they engage in work at the expense of their schooling and leisure. All children from PSNP households confirmed that they participated in the PW programme because their parents were not able to cover the labour demanded of their household. As the value of the transfer obtained from the PSNP is not enough to survive, parents and children opt to engage in other activities as well. As discussed in Section 4, more than half of the children from the PSNP households were engaged in the PW programme and most of them in wage labour.

KFSTFM and PW supervisors confirmed that children from the age of 13 participated in public work. Schoolteachers also reiterated that children from PSNP households usually missed classes and asked for permission, giving false reasons (for example, sickness of a family member or themselves) to work in the PSNP PW. The PSNP is neither able to fulfil households' needs nor leave children free to attend school. They had to do other activities as well as the PSNP and to ensure their survival. Overall, the PSNP failed to protect young people from working in its PW component and the insufficient transfer does not reduce the chances of them engaging in wage labour.

5.2.1. Impact on schooling

The PW component of the PSNP does not just impact on children's time use but, more importantly, it affects their learning. Table 12a presents the impact of participation in public work specifically on the amount of time children spend in school, the highest grade they have completed, and their grade-for-age (see Tables A5.3–A5.4 for details of difference-in-difference estimation and Table A5.6a and A5.6b for results from propensity score matching on levels and changes of outcomes). From the difference-in-difference regression method, we found a significant negative effect of PW participation on children's time use for schooling, and a positive effect on children's grade-for-age, but we could not find any significant impact on the highest grade completed. However, from alternative estimations (Tables 12b and 12c), the statistical significance is weak, indicating a very sensitive result with regard to the impact of the PW programme on children's time use and education.

Table 12a. *Impact of public work on children's time use for work and schooling (difference-in-difference regression on matched sample)*

Time use and schooling	Coef.	T-value	R2	Adj. R2	N
Hours spent per typical day					
on child care activities	−0.189**	(−1.966)	0.102	0.063	459
on household chores	0.500***	(2.876)	0.148	0.111	459
on child care and HH chores	0.311*	(1.648)	0.129	0.092	459
in unpaid family business work	0.046	(0.213)	0.122	0.084	459
on paid activities	0.314*	(1.786)	0.145	0.108	459
on paid & unpaid work outside home	0.359	(1.364)	0.145	0.108	459
on all kinds of work	0.671**	(2.551)	0.161	0.124	459
in school	−0.871***	(−3.362)	0.189	0.154	459
on studying at home	0.050	(0.371)	0.176	0.140	459
Highest grade child completed	−0.066	(−0.904)	0.062	0.021	459
Grade-for-age	0.043**	(2.267)	0.147	0.110	459

Notes: Number of observation = 459 (225 PSNP participants and 234 matched non-PSNP)
*** p<0.01, ** p<0.05, * p<0.1.

Table 12b. *Impact of public work on children's time use for work and schooling (propensity score kernel matching)*

Time use and schooling	Kernel matching			Radius matching		
	ATT	S.E.	T-stat	ATT	S.E.	T-stat
Hours spent per typical day						
on child care activities	−0.191**	0.091	−2.110	−0.184**	0.090	−2.050
on household chores	−0.157	0.163	−0.960	−0.155	0.159	−0.970
on child care and HH chores	−0.349*	0.193	−1.810	−0.339*	0.188	−1.800
in unpaid family business work	0.079	0.217	0.370	0.059	0.206	0.290
on paid activities	0.139	0.163	0.860	0.155	0.180	0.860
on paid & unpaid work outside home	0.219	0.251	0.870	0.214	0.250	0.860
on all kinds of work	−0.130	0.236	−0.550	−0.125	0.234	−0.530
in school	−0.044	0.210	−0.210	−0.061	0.203	−0.300
on studying at home	−0.022	0.101	−0.220	−0.007	0.098	−0.070
Highest grade child completed	0.242	0.190	1.270	0.224	0.194	1.150
Grade-for-age	0.029	0.026	1.110	0.026	0.026	0.980

Notes: Number of observations = 459 (225 PSNP participants and 234 matched non-PSNP)
ATT= Average treatment effect on the treated
*** p<0.01, ** p<0.05, * p<0.1

Table 12c. *Impact of public work on children's time use for work and schooling (average treatment effect on the treated – difference-in-difference kernel matching)*

Change	Kernel matching			Radius matching		
	ATT	S.E.	T−stat	ATT	S.E.	T−stat
Change in hours spent on						
child care	−0.034	0.108	−0.310	−0.008	0.111	−0.080
domestic task	0.120	0.177	0.680	0.080	0.177	0.450
child care and domestic tasks	0.086	0.202	0.420	0.071	0.199	0.360
unpaid work for outside home	0.185	0.219	0.850	0.137	0.198	0.690
paid work outside home	0.052	0.157	0.330	0.027	0.179	0.150
paid & unpaid work outside home	0.237	0.251	0.940	0.163	0.250	0.650
Change in total hours of work	0.323	0.272	1.190	0.235	0.255	0.920
Change in hours spent in school	−0.019	0.244	−0.080	0.007	0.234	0.030
Change in hours spent studying outside school hours	−0.019	0.118	−0.160	0.011	0.113	0.100
Change in grade completed	0.119	0.084	1.420	0.094	0.089	1.050
Change in grade-for-age	0.018	0.020	0.880	0.014	0.021	0.640

Notes: Number of observations = 459 (225 PSNP participants and 234 matched non-PSNP).
ATT= Average treatment effect on the treated
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

However, according to our qualitative evidence, PSNP officials, children and teachers explained the involvement of children in the PW programme in relation to its negative effect on their schooling. All agreed that children of this age could do any work but said that the difference is that the scheduling of the PW programme is not so flexible. As discussed in Section 4.2, from the qualitative study we found that children were either combining schooling with work or dropping out altogether and continuing with work. As a consequence, the grade levels achieved by children from PSNP PW households were lower than those whose household were not included in the programme. Such effects have to be put down to the labour demand of the programme for all households including those who have school-age children. Though not all the blame for the high prevalence of child labour could not be attributed to the PSNP, the programme is contributing to it, and it affects children's schooling and eventually their future.

Therefore, it seems reasonable to make suggestions about how the design of the PSNP could be improved in order to benefit children. In this regard, during fieldwork, children, parents, teachers and even PSNP officials have put forward their suggestions on possible improvement to the programme. The most common views included registering children as DS beneficiaries, making direct support for parents conditional on their sending their children to school, coordinating school-feeding programmes for needy children, and increasing the value of the transfer so that it would ensure that households' food demands trickled down to children. A headteacher from Zeytuni, interviewed in 2009, clearly puts this as follows:

> The PSNP should prioritise families that send their children to school, as a sort of motivation to send their children to school. PSNP should be redesigned to support children and students directly instead of requiring them to work so they can attend school regularly. A school-feeding programme for poor children in school can be organised in coordination with the PSNP coordinators. This could enhance the benefit of PSNP to children.

> (Headteacher from Zeytuni)

The views expressed and data presented above call for serious reconsideration of the PSNP if it is to address children's well-being.

5.3. Beyond food security: from safety net to child-sensitive social protection

As discussed in Sections 5.1 and 5.2, the PSNP remains an important support programme for food-insecure households and children by helping them avoid hunger. However, it has neither improved household wealth status nor met full food consumption needs. It has not protected children from dropping out of school and engaging in wage labour. Instead, the programme effectively means that many children to do public work, adding to their workload and correspondingly affecting their schooling. This suggests that the safety net falls short of addressing children's diverse needs.

Poor children normally fall into all three categories of vulnerability (Devereux and Sabates-Wheeler 2004), making them target groups of comprehensive social protection. As members of poor households, they could be both *chronically poor* and *economically vulnerable* to shocks. But more importantly they are *socially vulnerable* because of social marginalisation as a result of unequal power relations with adults.

Failure to understand the social dimension of child vulnerability leads to a simplistic focus on economic vulnerability (household economic poverty), to which the solution is thought to be economic transfers (e.g. food aid or cash transfers). While food aid may augment food security and contribute to poverty reduction, addressing the wider scope of child vulnerability needs to advance beyond this – taking 'the long view' by adopting transformative social protection for children. Furthermore, from the human capital perspective, investing on children is the core means to help them break out of chronic poverty (Sabates-Wheeler et al. 2009: 117).

A comprehensive child-sensitive social protection requires thinking far beyond safety nets; in this case the PSNP in Ethiopia. The PSNP seems to overlook the importance of addressing children's vulnerability by just targeting households, with the assumption that all members of the household will benefit equally. A different approach would undermine the power inequality that usually governs household resource distribution. We saw earlier how children participated in the PW programme to replace their adult parents, while the transfers their households acquired from the programme were used by adults, sometimes irresponsibly.

A range of components of social protection aimed at addressing the multidimensional vulnerability of children are required. For children 'an integrated approach is needed to exploit opportunities for complementarity and synergies between cash transfers, social welfare services, legislation and communication for development' (Devereux and Sabates-Wheeler 2009: 117). Safety nets still have a role to play in this as protective and preventive measures, but do not provide the more important promotive aspects of social protection (e.g. school feeding, school fee waivers, provision of school materials, etc.) and transformative (for example, the regulation of child labour). These have been effective in African countries like Ghana and South Africa (Barrientos and DeJong 2004). The Ghanaian experience provides us with two basic lessons: the need for comprehensive social protection for children, ranging from food, to schooling and health; and the benefits of transfers that put fewer conditions on the recipient, for example, no labour expected from schoolchildren (UNICEF 2009: 4).

We argue that child-sensitive social protection needs to address the dual needs of children by protecting them from risks and vulnerability and responding to their developmental needs. In short, child-focused social protection needs to aim at maximising opportunities and developmental outcomes for children by considering the diverse dimensions of their well-

being. Children whose present ranges of vulnerability are addressed, and in whose future investments are made, are more likely to grow up into non-poor adults. Such an approach would help break cycle of intergenerational poverty, and the ultimate goal of child-focused social protection – poverty reduction combined with human development – could be achieved. As poverty and deprivation are transferred across generations, social protection needs to adopt a longer-term perspective.

In general, given the multidimensional and intergenerational nature of child vulnerability, social protection for children needs to opt beyond the common household- or adult-centred protection system. This requires 'thinking outside the box' (Sabates-Wheeler and Devereux 2009: 109).

6. Conclusion

The results of the study, particularly from the survey, suggest that despite the increase in the incidence of economic shocks, such as drought and food-price inflation and idiosyncratic, family-related shocks, such as the illness or death of family members, the participation rate of households in PW and the mean real value of transfers from the PSNP declined from 2006 to 2009. The income our sampled households obtained from off-farm activities was much higher for the non-PSNP participants than for the PSNP participants. As a result, the PSNP had no effect on the wealth index. Moreover, the PSNP had a strong significant negative impact on per capita household food and non-food expenditure. In terms of food security and overall economic status, during the qualitative fieldwork of 2009, most households reported having the same status as when the programme started in 2005, or a lower one. On the other hand, there were positive and significant effects on the hours their children spent on unpaid work at home, indicating that the substitution effect dominates the income effect of the PW programme. Participation in public work also the increased time children spent on paid work and on the total time they spent on all kinds of work, probably because children substitute for parents while parents do the public work or wage labour. Moreover, the PW programme did not have a positive effect on the time children spent in school and studying at home though we found that it did have a positive effect on children's grade-for-age. However, half of our qualitative sub-sample were working for wages and for some of those children the PW programme did not help improve grade completed or grade-for-age, suggesting that the programme is not helping those children who drop out or repeat a grade for different reasons, mainly poverty or engagement in wage labour.

The PSNP, though mainly designed for households, has brought unintended child outcomes. The best thing we noted about the programme is not the small positive results for children in terms of food provision, but rather some of the potential of the programme for the well-being of children. Its objectives of household asset protection and community asset building by ensuring food security have the ingredients for long-term poverty reduction. However, poverty reduction cannot be effected only by building up physical assets but also needs investment in human capital. The PSNP-PIM of 2010 gives a lower age limit of 16 for the PW programme. But this could be increased so that children under the age of 18 are excluded from public work. This is not only in adherence to UN Convention on the Rights of the Child, to which Ethiopia is a signatory, but also because it affects their schooling. As indicated in this paper, children are already overloaded by different activities and putting more pressure on them by adding public work makes their lives very difficult. We suggest it is not only the elderly and disabled but also children who should be direct support beneficiaries. This would mean that the programme would require public work only from the adult and able-bodied

household members, not just in theory but also in practice. Inclusion of schoolchildren in the
DS component of the programme would make it easier to monitor child labour. Parents would
not need to oblige their children to do public work if they received direct support. More
importantly, these transfers could be given to parents on condition that they send their
children to school regularly, a situation which would protect children from both public work
and possible wage labour.

The main objectives of the transfer were to protect households from selling their assets and
to enable them to use other income to build up on their holdings. However, even their
consumption needs were not properly met and so their real income declined. The data
suggest that the PSNP on its own is not generating the asset improvement needed to allow
graduation, and that therefore other measures (market development, etc.) may also be
needed. There is a disturbing trend among some beneficiaries of developing a dependency
on the PSNP and a reduced capacity to look for other livelihood options. So the contribution
of the PSNP to poverty reduction is questionable.

We therefore suggest that ensuring children's overall well-being would be a better way to
contribute to poverty reduction. At the same time, we understand that the PSNP as it stands
does not seem up to the task. For example, the assumption that PSNP transfers benefit 'all
household members' has been challenged in this paper. Parents, when involved in public
work, appear to quickly resort to having their children substitute for them, and sometimes
send them to do wage labour. It was widely reported that the amount rarely reaches children
because in many cases adults, mainly fathers, waste the money on unnecessary things while
their children drop out of school or do wage labour to subsidise the income of their
households. The age-based power relations in households were not taken into account while
the programme was designed.

Investing in human capital development, and adopting child-sensitive social protection, we
argue, require thinking beyond the PSNP. In this respect, the big contribution of the PNSP in
Ethiopia is that it provides an important lesson on the need to adopt a wider child-focused
social protection. While the PNSP aims at household and community asset building, it could
easily be extended into 'human capital building' – human development by investing in
children. This could be done by respecting children's vulnerabilities, protecting them from the
impacts of shocks, and adopting an integrated child-focused social protection. The specificity
of this child-sensitive social protection might require further working out, but more lessons
can be drawn from empirical experiences, particularly from developing countries, including
the African countries discussed in this paper. These could include school feeding, cash
transfers, healthcare, and other supporting programmes.

To create synergy between social protection and human capital development, it would be
important to consider the option of conditional transfers. The two basic conditions could be
that children attended school regularly and avoided wage labour or other activities harmful to
them but which could be undertaken by parents or caregivers. Amid limited resources and
contexts of vulnerability to protracted shocks, and a need for child-focused social protection
to contribute to poverty reduction and break intergenerational poverty transfer, conditional
transfers remain a plausible option. In poor countries like Ethiopia, social protection for
children is not just a matter of redistribution of the available resources but also creating
resources for children themselves so that they can be productive during their adulthood.
Though such a dual purpose of social protection makes it difficult to implement, it remains the
best way of both protecting and children and helping them develop properly – changing a
poor society into a better-off one, where social protection can have only one purpose – the
provision of resources to contribute to equity.

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Appendix

Table A5.1. *Logit model of participation in public work in Round 3*

Explanatory variable	coef/t
Wealth index OC– Round 2	−5.846***
	(−3.674)
Wealth Index OC– Round 1	−2.005
	(−1.033)
1 if absolutely poor in Round 2& 0 if non-poor	0.498
	(1.444)
Number of dependants in the household	−0.188
	(−1.333)
Number of children between 7 and 17	−0.261*
	(−1.744)
Number of male family members over17 and under 65 years	−0.073
	(−0.435)
Number of female family members over17 and under 65 years	−0.278
	(−1.114)
Shocks between Round 1 and Round 2	
Death or illness dummy	−0.208
	(−0.802)
Theft dummy	0.430
	(1.087)
Increase in input price dummy	−0.628
	(−0.738)
I	0.793
	(0.929)
Death of livestock dummy	−0.281
	(−1.036)
Dummy for drought crop failure and pests and diseases	0.640
	(1.312)
Dummy for new household members or birth	−0.169
	(−0.505)
Natural disaster including drought	−0.970**
	(−1.985)
Community dummies	
commid==ET2051	1.533**
	(2.134)
commid==ET2071	1.137*
	(1.900)
commid==ET3081	4.494***
	(5.863)
commid==ET3091	2.136***
	(3.339)
commid==ET4151	−0.817
	(−1.145)
commid==ET4161	−0.279
	(−0.427)
commid==ET5171	4.464***
	(6.288)
commid==ET5181	4.246***
	(6.191)
commid==ET5201	3.763***
	(4.961)
commid==ET9000	−0.779
	(−0.594)

Explanatory variable	coef/t
Shocks between Round 2 and Round 3	
Illness dummy	−0.446
	(−0.669)
Death or illness dummy	0.368
	(0.557)
Theft dummy	0.046
	(0.119)
Death of livestock dummy	0.222
	(0.841)
Dummy for place employment shutdown or job loss	0.750
	(1.324)
Dummy for drought crop failure and pests and diseases	−0.121
	(−0.307)
Dummy for divorce or separation in family	−0.739
	(−0.891)
Dummy for having to pay for education	0.419
	(0.990)
Dummy for the birth of new household member	1.055**
	(2.573)
Increase in input price dummy	0.798
	(0.987)
Increase in input price or decrease in output price dummy	−1.321
	(−1.630)
Increase in the price of the food I buy	0.513
	(1.509)
Drought dummy	−0.049
	(−0.136)
Any dispute	0.754*
	(1.782)
Constant	−0.090
	(−0.095)
Number of observations	493
Chi-square	233.014
D.F	39
Log-Likelihood	−224.58
PseudoR^2	0.342

Notes: *** p<0.01, ** p<0.05, * p<0.1; Commid = dummy for community
Frequency of participants and non-participants in PW/PSNP in the region of common support set between [0.0435, 0.9767]

Inferior bound of blocks propensity score (pscore)	non-PW/PSNP	PW/PSNP	Total
0.04352	92	12	104
0.20000	68	25	93
0.40000	35	32	67
0.60000	14	55	69
0.80000	16	110	126
Total	**225**	**234**	**459**

Note: The region of common support is [0.0435, 0.9767]

Table A5.2. *Characteristics of participants and matched non-participants in Round 2*

Explanatory variable	Non-PSNP	PSNP	Total
Wealth index OC– Round 2	0.198	0.199	0.198
Real monthly food expenditure per adult R2	82.602	71.658	76.283
Real monthly non-food expenditure per adult R2	30.647	26.257	28.112
Real monthly total expenditure per adult R2	113.140	97.873	104.325
Real monthly food expenditure per capita R2	69.746	60.273	64.276
Real monthly non-food expenditure per capita R2	25.935	22.124	23.735
Real monthly total expenditure per capita R2	95.593	82.358	87.952
Number of male family members less than or equal to 7 years old	0.644	0.611	0.625
Number of male family members between age 7 and 17	1.588	1.374	1.464
Number of male family members over17 and under 65 years	1.567	1.551	1.558
Number of male family members > =65 years	0.093	0.068	0.078
Number of female family members less than or equal to 7 years old	0.670	0.664	0.667
Number of female family members between age 7 and 17	1.366	1.487	1.436
Number of female family members over17 and less than 65 years	1.572	1.664	1.625
Number of female family members > =65 years	0.057	0.053	0.054
illness dummy	0.397	0.325	0.355
Death or illness dummy	0.479	0.426	0.449
Theft dummy	0.129	0.136	0.133
Death of livestock dummy	0.371	0.392	0.383
Dummy for place employment shutdown or job loss	0.093	0.030	0.057
Dummy for drought crop failure and pests and diseases	0.768	0.777	0.773
Dummy for divorce or separation of family	0.026	0.019	0.022
Having to pay for school dummy	0.149	0.083	0.111
New HH member or birth dummy	0.216	0.245	0.233
Natural disaster including drought	0.722	0.668	0.691
increase in input price dummy	0.443	0.283	0.351
increase in input price or decrease in output price dummy	0.474	0.302	0.375
Drought dummy	0.500	0.596	0.556
Any dispute	0.057	0.034	0.044
1.5 which grade/class are you in now?	3.242	3.494	3.388
02 care for others	0.867	0.486	0.647
03 domestic tasks	2.367	2.155	2.245
Hours in typical day child work for pay and non-pay outside home	2.138	2.496	2.345
04 tasks on family farm, cattle herding, other family business, shepherding	2.034	2.240	2.153
05 activities for pay outside of household or for someone not in the household	0.103	0.257	0.192
Hours child spend for child care and domestic activities in typical day	3.234	2.641	2.892
Hours child spend on child care, domestic activities, outside home for pay and	5.402	5.137	5.249
06 at school	4.845	4.987	4.927
07 studying outside of school	1.524	1.623	1.581

Table A5.3. *Impact of public work on household wealth and on consumption expenditure (difference-in-difference regression estimation)*

Explanatory variable	hhregar31 coef/t	hhregar32 coef/t	hhregar33 coef/t	hhregar34 coef/t	hhregar35 coef/t	hhregar36 coef/t	hhregar37 coef/t
Dummy for changes in participation in Public Work programme	-0.039***	-25.437***	-14.424***	-39.153***	-21.137***	-11.876***	-32.463***
	(-3.446)	(-5.903)	(-5.115)	(-6.677)	(-5.816)	(-4.874)	(-6.543)
Changes in shocks							
Death or illness dummy	0.029	-26.880***	-8.081	-35.067***	-21.861***	-6.040	-28.057***
	(1.468)	(-3.494)	(-1.605)	(-3.349)	(-3.369)	(-1.388)	(-3.167)
New HH member or birth dummy	-0.006	4.250	3.257	6.578	2.735	2.296	4.263
	(-0.520)	(0.983)	(1.151)	(1.118)	(0.750)	(0.939)	(0.856)
Having to pay for school dummy	-0.010	-19.540***	-8.115**	-26.019***	-16.525***	-6.459**	-21.654***
	(-0.729)	(-3.707)	(-2.353)	(-3.628)	(-3.718)	(-2.167)	(-3.569)
Dummy for divorce or separation of family	-0.001	17.905	3.038	21.748	15.997	1.332	18.258
	(-0.028)	(1.429)	(0.371)	(1.276)	(1.514)	(0.188)	(1.266)
Dummy for drought crop failure and pests and diseases	-0.039**	5.795	0.240	6.284	2.066	-0.611	1.628
	(-2.541)	(0.981)	(0.062)	(0.782)	(0.415)	(-0.183)	(0.239)
Drought dummy	-0.008	11.626*	3.845	15.849*	9.031*	2.840	12.214*
	(-0.503)	(1.815)	(0.918)	(1.819)	(1.672)	(0.784)	(1.657)
Death of livestock dummy	-0.030***	6.362*	-1.802	5.593	6.075**	-0.922	5.965
	(-3.204)	(1.756)	(-0.760)	(1.134)	(1.988)	(-0.450)	(1.430)
Increase in input price or decrease in output price dummy	0.053	-0.686	-4.249	-3.781	-0.586	-3.770	-3.334
	(1.521)	(-0.051)	(-0.483)	(-0.207)	(-0.052)	(-0.496)	(-0.215)
Increase in input price dummy	-0.072**	3.019	1.074	3.928	2.688	0.962	3.496
	(-2.032)	(0.222)	(0.121)	(0.213)	(0.235)	(0.125)	(0.224)
Theft dummy	0.014	-5.344	6.000	-0.022	-5.056	4.808	-0.798
	(0.860)	(-0.862)	(1.479)	(-0.003)	(-0.967)	(1.372)	(-0.112)
Changes in household composition							
Male family members less than or equal to 7 years old	0.042***	-5.864	0.341	-5.702	-6.410*	-0.351	-6.909
	(3.767)	(-1.375)	(0.122)	(-0.983)	(-1.783)	(-0.146)	(-1.408)
Male family members between age 7 and 17	0.035***	-11.878***	4.118	-9.163	-10.389***	3.366	-8.254*
	(3.280)	(-2.894)	(1.533)	(-1.641)	(-3.001)	(1.451)	(-1.747)
Male family members over17 and under 65 years	0.064***	0.955	16.510***	14.976***	2.119	14.170***	14.251***
	(6.780)	(0.262)	(6.931)	(3.023)	(0.690)	(6.884)	(3.401)
Male family members > =65 years	0.019	-21.080**	15.732***	-6.585	-17.394**	14.109***	-4.244
	(0.852)	(-2.467)	(2.814)	(-0.566)	(-2.414)	(2.920)	(-0.431)
Female family members less than or equal to 7 years old	0.062***	-2.689	3.671*	0.167	-5.014*	1.684	-3.992
	(7.122)	(-0.797)	(1.664)	(0.036)	(-1.763)	(0.883)	(-1.028)
Female family members between age 7 and 17	0.024**	-3.105	2.876	-1.559	-4.884	1.911	-4.205
	(2.271)	(-0.752)	(1.065)	(-0.278)	(-1.403)	(0.819)	(-0.885)
Female family members over17 and under 65 years	0.049***	-4.809	11.940***	4.514	-6.794*	9.392***	0.296
	(4.214)	(-1.071)	(4.063)	(0.739)	(-1.794)	(3.699)	(0.057)
Female family members > =65 years	-0.074**	13.909	5.855	21.171	21.936**	5.973	29.659**
	(-2.470)	(1.213)	(0.780)	(1.357)	(2.268)	(0.921)	(2.247)
Constant	0.068***	27.788***	8.728***	37.943***	24.836***	7.746***	33.839***
	(6.266)	(6.616)	(3.175)	(6.639)	(7.011)	(3.261)	(6.998)
Number of observations	459	459	459	459	459	459	459
R^2	0.417	0.218	0.308	0.252	0.258	0.288	0.274
Adjusted R^2	0.391	0.184	0.279	0.219	0.226	0.257	0.243

Notes: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

hhregar31 =Wealth index; **hhregar32**= Food consumption per adult ; **hhregar33 =** Non-food consumption per adult; **hhregar34 =** Total consumption per adult; **hhregar35 =** Food consumption per capita; **hhregar36 =** Non-food consumption per capita; **hhregar37 =** Total consumption per capita.

Table A5.4. *Impact of public work on time use for work and schooling (difference-in-difference regression estimation)*

Explanatory variable	childregar 31 coef/t	childregar 32 coef/t	childregar 33 coef/t	childregar 34 coef/t	childregar 35 coef/t	childregar 36 coef/t	childregar 37 coef/t	childregar 38 coef/t	childregar 39 coef/t	childregar 310 coef/t	childregar 311 coef/t
Dummy for participation in public work programme	-0.189**	0.500***	0.311*	0.046	0.314*	0.359	0.671**	-0.871***	0.050	0.043**	-0.066
	(-1.966)	(2.876)	(1.648)	(0.213)	(1.786)	(1.364)	(2.551)	(-3.362)	(0.371)	(2.267)	(-0.904)
Changes in shocks											
Death or illness dummy	0.080	-0.490	-0.410	-0.110	-0.080	-0.190	-0.600	0.103	-0.666***	-0.032	0.030
	(0.466)	(-1.578)	(-1.217)	(-0.289)	(-0.254)	(-0.403)	(-1.278)	(0.223)	(-2.776)	(-0.945)	(0.235)
New HH member or birth dummy	0.195**	-0.087	0.108	-0.192	0.246	0.054	0.162	-0.238	0.159	0.020	-0.038
	(2.022)	(-0.500)	(0.569)	(-0.896)	(1.396)	(0.205)	(0.615)	(-0.916)	(1.181)	(1.038)	(-0.515)
Having to pay for school dummy	0.005	0.390*	0.395*	0.023	-0.123	-0.099	0.296	0.211	-0.172	0.081***	0.157*
	(0.045)	(1.832)	(1.711)	(0.090)	(-0.572)	(-0.308)	(0.920)	(0.665)	(-1.046)	(3.510)	(1.769)
Dummy for divorce or separation of family	-0.508*	0.772	0.264	0.019	0.309	0.328	0.592	-0.821	0.002	-0.075	-0.159
	(-1.817)	(1.526)	(0.481)	(0.030)	(0.605)	(0.428)	(0.774)	(-1.090)	(0.006)	(-1.372)	(-0.753)
Dummy for drought crop failure and pests and diseases	0.043	0.356	0.399	0.714**	-0.266	0.448	0.847**	-0.903**	0.554***	0.012	-0.223**
	(0.326)	(1.494)	(1.542)	(2.441)	(-1.103)	(1.241)	(2.352)	(-2.542)	(3.009)	(0.485)	(-2.238)
Drought dummy	-0.036	-0.003	-0.038	0.138	0.001	0.139	0.101	-0.266	-0.134	-0.006	0.027
	(-0.249)	(-0.010)	(-0.136)	(0.436)	(0.002)	(0.355)	(0.258)	(-0.691)	(-0.673)	(-0.226)	(0.251)
Death of livestock dummy	-0.186**	0.052	-0.134	0.063	-0.229	-0.166	-0.299	-0.079	0.212*	-0.025	-0.010
	(-2.299)	(0.358)	(-0.841)	(0.353)	(-1.552)	(-0.749)	(-1.355)	(-0.364)	(1.880)	(-1.581)	(-0.157)
Increase in input price or decrease in output price dummy	-0.132	1.403***	1.271**	-1.153*	0.762	-0.392	0.880	-0.914	-0.436	-0.047	-0.289
	(-0.440)	(2.584)	(2.156)	(-1.731)	(1.389)	(-0.476)	(1.072)	(-1.129)	(-1.039)	(-0.810)	(-1.276)
Increase in input price dummy	0.344	-0.943*	-0.600	0.779	-0.285	0.494	-0.106	0.692	0.394	-0.004	0.319
	(1.134)	(-1.721)	(-1.008)	(1.158)	(-0.514)	(0.595)	(-0.128)	(0.848)	(0.931)	(-0.063)	(1.397)
Theft dummy	0.051	0.065	0.116	-0.109	-0.112	-0.220	-0.105	0.297	-0.049	0.041	-0.080
	(0.367)	(0.259)	(0.425)	(-0.354)	(-0.441)	(-0.581)	(-0.276)	(0.798)	(-0.255)	(1.510)	(-0.768)
Changes in household composition											
Male family members less than or equal to 7 years old	-0.082	-0.009	-0.091	0.126	-0.368**	-0.242	-0.333	-0.256	0.270**	0.013	0.069
	(-0.858)	(-0.052)	(-0.485)	(0.595)	(-2.115)	(-0.929)	(-1.279)	(-1.000)	(2.032)	(0.694)	(0.965)
Male family members between age 7 and 17	0.180**	-0.433***	-0.253	0.279	0.011	0.291	0.038	0.114	0.304**	0.017	0.185***
	(1.965)	(-2.610)	(-1.404)	(1.374)	(0.068)	(1.158)	(0.152)	(0.460)	(2.376)	(0.957)	(2.673)
Male family members over17 and under 65 years	0.025	-0.420***	-0.396**	0.488***	-0.008	0.480**	0.085	0.088	0.153	-0.007	0.074
	(0.302)	(-2.859)	(-2.479)	(2.709)	(-0.055)	(2.157)	(0.381)	(0.402)	(1.347)	(-0.442)	(1.203)
Male family members > =65 years	-0.146	-0.065	-0.212	0.416	-0.561	-0.145	-0.357	2.351***	1.432***	0.033	0.101
	(-0.767)	(-0.189)	(-0.565)	(0.983)	(-1.610)	(-0.278)	(-0.684)	(4.575)	(5.375)	(0.890)	(0.704)
Female family members less than or equal to 7 years old	0.121	0.031	0.152	-0.513***	-0.030	-0.543***	-0.391*	0.044	0.085	0.017	0.028
	(1.608)	(0.225)	(1.026)	(-3.071)	(-0.215)	(-2.631)	(-1.900)	(0.215)	(0.813)	(1.176)	(0.487)
Female family members between age 7 and 17	0.285***	-0.037	0.248	-0.710***	-0.408**	-1.118***	-0.870***	0.920***	-0.021	-0.017	0.023
	(3.096)	(-0.222)	(1.372)	(-3.476)	(-2.423)	(-4.431)	(-3.456)	(3.706)	(-0.160)	(-0.933)	(0.335)
Female family members over 17 and less than 65 years	0.167*	0.348*	0.515***	-1.061***	-0.409**	-1.471***	-0.955***	0.993***	-0.094	-0.008	0.006
	(1.670)	(1.919)	(2.617)	(-4.773)	(-2.235)	(-5.355)	(-3.488)	(3.678)	(-0.669)	(-0.408)	(0.081)
Female family members > =65 years	-0.103	0.723	0.620	-0.024	1.477***	1.453**	2.073***	-2.185***	-0.768**	-0.104**	-0.278
	(-0.402)	(1.562)	(1.234)	(-0.042)	(3.158)	(2.072)	(2.964)	(-3.168)	(-2.148)	(-2.093)	(-1.441)
Constant	0.175*	0.055	0.230	0.142	0.171	0.313	0.542**	-0.098	-0.107	-0.117***	1.619***
	(1.866)	(0.322)	(1.247)	(0.681)	(0.999)	(1.218)	(2.117)	(-0.387)	(-0.816)	(-6.415)	(22.891)
Number of observations	459	459	459	459	459	459	459	459	459	459	459
R²	0.102	0.148	0.129	0.122	0.145	0.145	0.161	0.189	0.176	0.147	0.062
Adjusted R²	0.063	0.111	0.092	0.084	0.108	0.108	0.124	0.154	0.140	0.110	0.021

Notes: *** p<0.01, ** p<0.05, * p<0.1

childregar31 = Child care; **childregar32 =** Household chores; **childregar33 =** Domestic activities (child care + HH chores); **childregar34 =** unpaid work outside home; **childregar35 =** Paid work outside home; **childregar36 =** Hours spent on paid and unpaid work outside home; **childregar37 =** Hours spent per typical day on all kinds of work; **childregar38 =** Hours of time spent in school; **childregar39 =** Hours spent studying (extra curricula activities); **childregar310 =** Highest grade completed; **childregar311 =** Grade for age.

Table A5.5a. *Average treatment effect on the treated (propensity score various matching) on per adult and per capita consumption expenditure*

	Nearest neighbour matching			Local linear regression matching			One to-one (calliper) matching		
	ATT	S.E.	T-stat	ATT	S.E.	T-stat	ATT	S.E.	T-stat
Wealth Index OC– Round 3	0.026	0.016	1.590	0.009	0.017	0.530	-0.001	0.016	-0.070
Real per adult consumption in food	-20.539	5.756	-3.570	-15.117	5.993	-2.520	-8.896	4.696	-1.890
Real per adult consumption in non-food	-10.321	3.761	-2.740	-11.609	4.458	-2.600	-10.454	3.847	-2.720
Total real per adult consumption	**-30.651**	**8.113**	**-3.780**	**-26.089**	**8.757**	**-2.980**	**-18.334**	**7.276**	**-2.520**
Real food expenditure per capita	-17.558	4.903	-3.580	-13.328	5.319	-2.510	-8.191	4.079	-2.010
Real non-food expenditure per capita	-8.522	3.144	-2.710	-9.858	3.940	-2.500	-9.199	3.416	-2.690
Real total expenditure per capita	**-25.947**	**6.808**	**-3.810**	**-22.689**	**7.711**	**-2.940**	**-16.525**	**6.374**	**-2.590**

Table A5.5b. *Average treatment effect on the treated (difference-in-difference various matching) on changes in per adult and per capita consumption expenditure*

Change	Nearest neighbour matching			Local linear regression matching			One to-one (calliper) matching		
	ATT	S.E.	T-stat	ATT	S.E.	T-stat	ATT	S.E.	T-stat
Change in wealth index between R2 and R3	-0.008	0.016	-0.510	-0.016	0.015	-1.090	-0.014	0.014	-1.050
Change in real food consumption per adult	-14.295	7.053	-2.030	-15.038	7.720	-1.950	-5.792	5.927	-0.980
Change in real non-food consumption per adult	-11.559	4.341	-2.660	-15.415	5.247	-2.940	-9.579	4.352	-2.200
Change in total real consumption per adult	**-25.620**	**8.545**	**-3.000**	**-29.670**	**10.601**	**-2.800**	**-14.337**	**8.490**	**-1.690**
Change in real food expenditure per capita	-11.119	6.015	-1.850	-12.366	6.739	-1.830	-4.707	5.023	-0.940
Change in real non-food expenditure per capita	-9.346	3.664	-2.550	-13.078	4.626	-2.830	-8.242	3.819	-2.160
Change in real total expenditure per capita	**-20.311**	**7.169**	**-2.830**	**-24.819**	**9.261**	**-2.680**	**-12.069**	**7.306**	**-1.650**

Table A5.6a. *Impact of public work on children's time use for work and schooling (propensity score various matching)*

Time use and schooling	Nearest neighbour matching			Local linear regression matching			One to-one (calliper) matching		
	ATT	S.E.	T-stat	ATT	S.E.	T-stat	ATT	S.E.	T-stat
Hours spent per typical day									
on child care activities	-0.028	0.099	-0.280	0.009	0.139	0.070	-0.136	0.116	-1.180
on household chores	-0.546	0.211	-2.590	-0.186	0.235	-0.790	0.122	0.214	0.570
on child care and HH chores	-0.574	0.235	-2.440	-0.177	0.282	-0.630	-0.014	0.252	-0.050
in unpaid family business	0.344	0.413	0.830	0.191	0.316	0.600	-0.054	0.275	-0.200
on paid activities	-0.055	0.485	-0.110	0.017	0.228	0.080	0.068	0.200	0.340
on paid & unpaid work outside home	0.288	0.388	0.740	0.208	0.360	0.580	0.014	0.312	0.040
on all kinds of work	-0.286	0.366	-0.780	0.031	0.336	0.090	0.000	0.312	0.000
in school	-0.229	0.340	-0.670	-0.191	0.299	-0.640	-0.027	0.276	-0.100
in studying at home	-0.197	0.197	-1.000	-0.153	0.144	-1.070	0.014	0.142	0.100
Highest grade child completed	-0.442	0.268	-1.650	-0.547	0.286	-1.910	-0.129	0.251	-0.510
Grade-for-age	-0.060	0.036	-1.670	-0.078	0.039	-2.000	-0.027	0.034	-0.780

Table A5.6b. *Impact of public work on changes in children's time use for work and schooling (difference-in-difference various matching)*

Change	Nearest neighbour matching			Local linear regression matching			One to-one (calliper) matching		
	ATT	S.E.	T-stat	ATT	S.E.	T-stat	ATT	S.E.	T-stat
Change in hours spent on									
child care	-0.083	0.134	-0.620	-0.030	0.160	-0.190	-0.050	0.134	-0.380
domestic tasks	-0.293	0.301	-0.970	-0.056	0.267	-0.210	0.387	0.233	1.660
child care and domestic tasks	-0.375	0.303	-1.240	-0.086	0.297	-0.290	0.337	0.257	1.310
unpaid work for outside home	0.111	0.258	0.430	-0.111	0.314	-0.350	-0.290	0.256	-1.140
paid work outside home	-0.146	0.465	-0.320	-0.033	0.220	-0.150	-0.048	0.186	-0.260
paid & unpaid work outside home	-0.036	0.528	-0.070	-0.143	0.358	-0.400	-0.338	0.292	-1.150
Change in total hours of work	-0.411	0.451	-0.910	-0.229	0.388	-0.590	-0.001	0.315	0.000
Change in hours spent in school	0.190	0.462	0.410	0.209	0.342	0.610	0.243	0.303	0.800
Change in hours spent in studying outside school hours	0.028	0.216	0.130	0.126	0.168	0.750	0.163	0.155	1.050
Change in grade completed	-0.031	0.117	-0.270	0.037	0.129	0.280	0.068	0.095	0.720
Change in grade-for-age	0.031	0.034	0.900	0.056	0.031	1.800	0.041	0.024	1.710

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The Institute of Education, University of London, UK

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