

A note on the 2011 Lesotho Child Grants Program (CGP) Baseline Data

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Introduction

The household and community data for the 2011 CGP impact evaluation baseline survey were released in February, 2012. The data were accompanied with a thorough baseline report (Pellerano, et al, 2012) prepared by Oxford Policy Management (OPM). This note builds upon the initial analysis in pursuit of three additional objectives:

1. to expand evaluation of the success of the randomized control design in achieving “balance” among observable traits and characteristics between treatment and control groups, to those variables of relevance to the Protection to Production (PtoP) project;
2. to identify and better understand the productive activities, income and livelihood strategies that distinguish eligible from ineligible households included in the survey.
3. to document data quality issues that will inform follow-up analysis and ‘improved practices’ in the next round of data collection.

Overall, the randomization was successful in achieving balance among the evaluation sample: out of 200 variables of likely interest to the impact evaluation, less than 10 percent of the mean differences are significantly different. This falls within the statistical plausibility of random chance. However, a small number of key PtoP variables are significantly different at baseline, which will warrant further attention during the analysis phase. Reassuringly, differences between eligible and ineligible households abound. There is evidence that “better-off” households in the sample benefit from higher levels of public and private transfers, greater access to agricultural input markets, larger livestock holdings, and capture higher earnings in output markets.

Nonetheless, some care may be needed in follow up with respect to land ownership and livestock holdings. In particular, serious quality issues were found with the size of land ownership variable. Consequently, this baseline report highlights two issues for future consideration—1) improved strategy for collecting land area data and 2) an improved mechanism for ensuring consistent capture and inclusion of relevant households as they progress through the survey. Additional detail and explanation for these occurrences are found in the final section of this report.

1. Did randomization achieve balance in observable baseline characteristics?

The Lesotho program was randomized to treatment and control at the level of 96 electoral districts (Details can be found in Pellerano, 2011). In theory randomization with this number of observations should balance observable and unobservable characteristics. But it is possible that this does not happen--there could be small sample bias or simply by chance differences can emerge between treatment and household groups. Following Duflo, Dupas, and Kremer (2011) we assess whether the sample design satisfies the pre-conditions for valid causal inference by comparing mean values for

variables of interest to the impact evaluation. Specifically, we conduct mean comparisons and test for equality using a two-sided t-test¹.

Each module likely relevant for the PtoP team’s eventual impact analysis was examined by creating both the outcome and control variables that will be used. Specifically this comprises information on: non-farm enterprise and self-employment, land use and ownership, crop and livestock production, agricultural assets and inputs, labor demand/supply agricultural shocks and adaptation and social support networks.

Besides looking at treatment and control households, we compare households eligible for the program (combining treatment and control households) with households ineligible for the program. An analysis of the targeting process, including the criteria for program eligibility, can be found in Pellerano, et al (2011), who find that in general, the CGP was successful in separating poorer from better off households. Thus we expect ineligible households in this sample to have characteristics of wealthier households, in comparison with eligible households.

Land

A great majority of households in the sample have access to land in Lesotho. Overall 90 percent of households included in the sample either own or operate a plot. An important distinction is drawn between land used for “kitchen” purposes—generally a plot less than 0.25 acres used for home consumption – and non-kitchen plots, generally used for more extensive agricultural production. Table 1 shows the decimal proportions of surveyed households operating land and their tenure status. Bolded entries in this and in subsequent tables indicate that the corresponding mean differences between the various sub-groups are statistically significant at the 90 percent level. The first panel reveals that around 90 percent have a kitchen plot, which comprises the only land holding for less than a quarter of households. For the rest, households on average own or operate two or more plots of land.

¹ This is done in a regression framework, incorporating household weights and clustered standard errors.

Table 1. Land use and tenure

	All	Eligible	Not Eligible	Treatment	Control
HH operates land	0.90	0.90	0.91	0.92	0.87
kitchen plot	0.88	0.88	0.88	0.89	0.86
kitchen plot only	0.22	0.21	0.22	0.20	0.22
number of non-kitchen plots	2.20	2.15	2.21	2.13	2.16
Tenure (excludes kitchen plots)					
owned	0.88	0.88	0.88	0.88	0.87
used by the household	0.66	0.64	0.67	0.65	0.62
sharecropped out	0.08	0.11	0.07	0.11	0.12
rented out	0.00	0.00	0.00	0.00	0.00
lent or free leased out	0.00	0.01	0.00	0.01	0.00
not in use	0.25	0.24	0.25	0.23	0.26
other	0.00	0.00	0.00	0.00	0.00
not owned	0.12	0.12	0.12	0.12	0.13
rented in	0.11	0.01	0.13	0.03	0.00
borrowed or free-leased	0.14	0.13	0.15	0.13	0.13
communal	0.00	0.01	0.00	0.01	0.01
sharecropped	0.70	0.84	0.66	0.83	0.85
other	0.05	0.01	0.06	0.01	0.01
Uses					
crop/vegetables	0.98	0.98	0.98	0.99	0.96
grazing/pasture	0.00	0.00	0.00	0.00	0.00
forestry	0.00	0.00	0.00	0.00	0.00
orchard	0.00	0.00	0.00	0.00	0.00
other	0.01	0.02	0.01	0.00	0.03
Area					
Kitchen plot area	0.23	0.24	0.23	0.24	0.23
Non-kitchen plot area	3.46	3.20	3.54	3.73	2.61
Owned and cultivated	2.04	1.87	2.09	2.12	1.59
Area owned and not cultivated	1.21	1.14	1.23	1.35	0.89
Area cultivated but not owned	0.44	0.43	0.44	0.49	0.37
Total area	3.69	3.44	3.76	3.96	2.84
Observations	3051	1486	1565	747	739

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

A surprisingly high share of households, 88 percent, own land. Of these, roughly 65 percent used land productively (for household purposes) and 25 percent left land fallow in 2011². Plots used but not owned are typically associated with sharecropping arrangements, but there is some renting in of land, notably undertaken by households ineligible for the CGP program. In terms of land uses, virtually all plots in operation were devoted to crop production.

Unfortunately, there are significant problems with the data for the land area variables (kitchen, owned and total). Around 90 percent of households reported that land size was unknown for *at least* one plot (approximately 93 percent for treatment households; and 90 percent for control). There are

² For land tenure and uses, the figures in Table 1 refer to the first plot reported by the household. Examining subsequent plots reveal almost identical patterns.

two sources of this error. First, anticipating difficulties in measuring small kitchen/garden plots, an option was given in the survey for kitchen plots to be described, when exact size was unknown, as less than 0.5 acres. Second, in many cases, the size of agricultural landholdings was unknown. The imputation approach adopted is described in detail in Section 3. Suffice to say that measures will need to be taken to correct the flawed collection of land data in the next round, either using GPS or at minimum ensuring adequate training of enumerators in estimating land size.

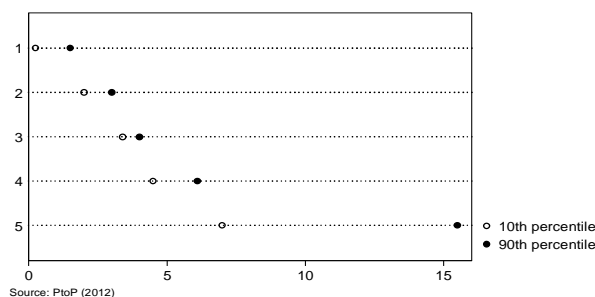
Considering the extent of imputation one must be wary of results on land area. Nevertheless, a variety of imputation approaches were taken and the general findings were consistent. Moreover, the imputations bring land area in closer correspondence with acreage reported in the crop production module.

On average, individuals in the treatment sample own or operate 3.9 acres of land, whereas for the control group this number is significantly less (2.8 acres). This difference appears driven by owned land that is used for non-kitchen purposes. Apart from this finding on land size, randomization was successful with no significant differences between treatment and control groups.

The dot plot shown in Figure 1 reveals the distribution of land area by quintile for all households captured in the survey. It shows the range of acres operated by households according to their overall land holding status. The spike occurring between the 4th and 5th quintiles is most striking—those operating more land do so by a large magnitude. Focusing on the fifth quintile, the majority of households have between 6 and 15 acres. Land ownership; however, does not seem to be a key factor in terms of household wellbeing. The right most panel in Figure 1 shows the cross tabulation of land size quintiles and per capita household expenditure quintiles. As can be seen, there appears to be little relationship between wellbeing (as defined by expenditure) and land size. In terms of landless households, a stronger relationship with well being can be observed; poorer households are more likely to have no land (non-kitchen), as compared to better off households.

Figure 1

10th and 90th percentiles of non-kitchen acres, by non-kitchen quintile
Lesotho 2011 baseline data



Consumption Quintile	Land Quintile					no land
	1	2	3	4	5	
1	21%	21%	25%	16%	16%	28%
2	20%	19%	24%	20%	17%	26%
3	28%	16%	18%	17%	20%	18%
4	25%	16%	22%	16%	21%	15%
5	27%	13%	23%	16%	21%	13%

In summary, land use and ownership is relatively homogenous. Indeed the only significant difference between eligible and non-eligible households is that the latter are more likely to rent land, and the former more likely to sharecrop. But some differences with respect to intensity and usage of that land are observed, which is discussed below.

Crop Production

Crop production is pervasive in the livelihoods of the households in the sample. As can be seen in Table 2, over three quarters of households in the survey grow crops. On average households produce two types of crops; primarily maize and vegetables (grown by over 70 percent of producers), followed by sorghum and beans. A few differences emerge between eligible and non-eligible households. The ineligibles were somewhat more likely to plant beans and fruit, and devoted a significantly greater amount of land to production overall, as well as specifically to maize. Not surprisingly the associated harvest of maize was greater, too.

Table 2. Crops planted and harvested

	All	Eligible	Not Eligible	Treatment	Control
	0.78	0.78	0.78	0.80	0.75
number of crops	1.92	1.90	1.93	1.92	1.86
Share of households growing:					
maize	0.71	0.69	0.71	0.69	0.70
sorghum	0.22	0.24	0.21	0.27	0.21
wheat	0.02	0.02	0.02	0.03	0.02
beans	0.11	0.09	0.12	0.08	0.10
peas	0.01	0.01	0.01	0.01	0.00
potatoes	0.01	0.01	0.01	0.01	0.01
barley	0.00	0.00	0.00	0.00	0.00
tobacco	0.01	0.02	0.00	0.00	0.04
other crops	0.01	0.01	0.01	0.00	0.02
vegetables	0.74	0.75	0.74	0.76	0.74
fruits	0.08	0.05	0.09	0.06	0.03
total acres	2.78	2.54	2.85	2.78	2.26
maize	2.06	1.81	2.13	2.01	1.57
sorghum	0.45	0.49	0.44	0.57	0.40
wheat	0.04	0.05	0.04	0.06	0.04
beans	0.20	0.15	0.21	0.11	0.20
peas	0.00	0.00	0.00	0.01	0.00
potatoes	0.01	0.00	0.01	0.00	0.00
barley	0.00	0.00	0.00	0.00	0.00
tobacco	0.01	0.02	0.01	0.00	0.04
other crops	0.01	0.01	0.01	0.01	0.01
total harvest (kg)					
maize	101.09	63.84	111.81	72.08	54.33
sorghum	21.76	18.08	22.82	19.62	16.30
wheat	2.43	2.56	2.39	3.03	2.02
beans	6.16	2.36	7.25	2.28	2.45
peas	1.52	0.20	1.90	0.32	0.07
potatoes	1.73	1.14	1.90	0.06	2.39
sunflower	0.02	0.09	0.00	0.08	0.10
barley	0.09	0.40	0.00	0.75	0.00
tobacco	0.96	3.28	0.29	0.05	7.01
other crops	1.04	2.57	0.60	0.18	5.34
Observations	3051	1486	1565	747	739

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

Less than 8 percent of producers sold crops (Table 3). The time period covered by the survey was anomalous (an issue to be discussed in more detail later), as approximately 75 percent of all

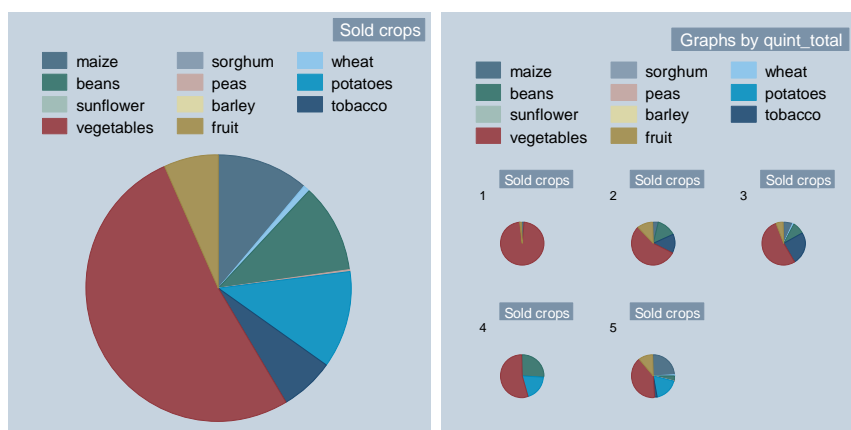
producers reported losing at least half of the production from flooding during 2010/11. For those households that did sell production, the lion’s share of sales were vegetables, with households in higher consumption quintiles showing more diversity in the mix of crops sold (Figure 2).

Table 3. Crop transactions

	All	Eligible	Not Eligible	Treatment	Control
HH sold or bartered crops	0.07	0.07	0.07	0.07	0.08
maize	0.01	0.01	0.01	0.01	0.00
sorghum	0.00	0.00	0.00	0.00	0.00
wheat	0.00	0.00	0.00	0.00	0.00
beans	0.01	0.00	0.01	0.00	0.00
peas	0.00	0.00	0.00	0.00	0.00
potatoes	0.00	0.00	0.00	0.00	0.00
barley	0.00	0.00	0.00	0.00	0.00
tobacco	0.00	0.01	0.00	0.00	0.01
vegetables	0.05	0.05	0.05	0.06	0.05
other crops	0.00	0.00	0.00	0.00	0.01
Total crop earnings	23.43	19.84	24.46	9.04	32.31
Observations	3051	1486	1565	747	739

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

Figure 2



NB: Pie graphs constructed from sample of households that sold crops.

In terms of the randomization, no significant differences between treatment and control households with respect to crop production are evident.

Livestock Holdings

Livestock production is an important economic activity for the majority of households in this sample. Over 60 percent of surveyed households own livestock. Moreover, livestock ownership is an important indicator of wealth, and thus many significant differences are found between eligible and ineligible households. Across the board households that are eligible for the CGP own and herd fewer animals than the ineligible. Table 4 shows that eligible households own one cow, one sheep, and one chicken *less* than the ineligible, on average.

Table 4. Livestock ownership and herding

	All	Eligible	Not Eligible	Treatment	Control
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HH owns or herds livestock	0.64	0.63	0.65	0.65	0.61
Proportion owning livestock	0.96	0.94	0.97	0.94	0.95
sheep	0.30	0.25	0.32	0.25	0.25
# of sheep	2.37	1.35	2.66	1.33	1.37
goats	0.21	0.22	0.21	0.22	0.23
# of goats	1.48	1.06	1.60	1.05	1.07
horse	0.11	0.07	0.12	0.08	0.07
# of horses	0.20	0.10	0.23	0.11	0.08
donkey	0.33	0.27	0.35	0.27	0.28
# of donkeys	0.56	0.43	0.60	0.44	0.42
chickens	0.50	0.48	0.51	0.47	0.49
# of chickens	3.24	2.15	3.55	2.15	2.14
pigs	0.24	0.25	0.24	0.19	0.30
# of pigs	0.42	0.29	0.46	0.24	0.36
cattle	0.66	0.56	0.69	0.56	0.55
# of cattle	2.59	1.55	2.88	1.58	1.52
Total (TLU) owned	2.36	1.47	2.61	1.48	1.46
Herds livestock	0.88	0.89	0.88	0.92	0.86
sheep	0.29	0.25	0.30	0.26	0.24
# of sheep	2.32	1.42	2.57	1.40	1.43
goats	0.20	0.22	0.19	0.22	0.21
# of goats	1.46	1.11	1.55	1.12	1.11
horse	0.11	0.08	0.11	0.08	0.07
of horse	...	...	...	...	...
donkey	0.34	0.28	0.35	0.29	0.27
of donkey	...	...	...	...	...
chickens	0.44	0.45	0.43	0.45	0.44
# of chickens	2.75	1.96	2.97	1.97	1.96
pigs	0.21	0.22	0.21	0.18	0.27
# of pigs	0.38	0.33	0.40	0.26	0.41
cattle	0.59	0.52	0.60	0.55	0.49
# of cattle	2.76	1.84	3.02	2.05	1.59
Observations	3054	1486	1568	747	739

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

Average number over those households that own or herd a given animal.

Figure 3 below contains the local linear regression relationship of number of tropical livestock units (TLU)³ owned on total household spending, and it clearly shows that livestock holdings increase dramatically with higher incomes. This is most likely driven by greater numbers of larger animals. Note also the flatter slope of the line at lower expenditure levels; given the construction of the TLU, this would reflect either a weaker relationship between income and livestock accumulation, or a relatively strong relationship with smaller animals that are weighted less in the TLU.

³ TLU is a standardized measure that aggregates all types of animals, accounting for animal size and value. Conversion factors used are: 0.5 for horses, cattle, and donkeys; 0.2 for pigs; 0.1 for goats and sheep; and 0.01 for chicken.

Figure 3

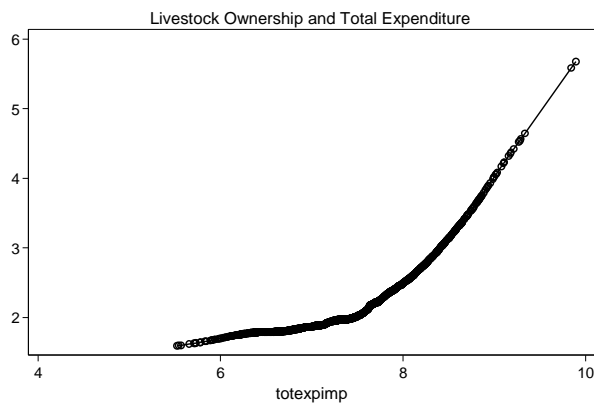


Table 5 reports on livestock transactions in the past year. Overall, approximately 7 percent of surveyed households purchased livestock, 16 percent sold and 5 percent bartered livestock. While the proportion of households selling animals is the same for eligible and non eligible households, the latter received earnings more than double that of CGP- eligible producers. This is a curious finding, perhaps indicative of differences in the quality of animal holdings between the two groups. In addition, households eligible for the program were 5 percent *less* likely to have acquired new animals in the previous year.

A few notable differences between treatment and control households emerge in the area of livestock production. While there is equality in terms of livestock ownership (measured in TLU), households in the control group own more pigs on average. Perhaps more importantly there are significant differences with respect to market activity; with the control group having a greater propensity to sell and or barter livestock (overall and for sheep and pigs) and the treatment group more likely to purchase.

Table 5. Livestock transactions

	All	Eligible	Not Eligible	Treatment	Control
Purchased livestock	0.07	0.04	0.08	0.06	0.03
sheep	0.02	0.00	0.02	0.01	0.00
# of sheep	0.05	0.00	0.06	0.01	0.00
goats	0.01	0.01	0.01	0.01	0.00
# of goats	0.03	0.01	0.03	0.02	0.00
horse	0.00	0.00	0.00	0.00	0.00
of horses	...	...	...	...	...
donkey	0.01	0.01	0.01	0.01	0.00
of donkeys	...	...	...	...	...
chickens	0.02	0.01	0.03	0.01	0.01
# of chickens	0.48	0.10	0.59	0.14	0.06
pigs	0.02	0.01	0.02	0.02	0.01
# of pigs	0.05	0.02	0.06	0.02	0.01
cattle	0.01	0.00	0.02	0.00	0.00
# of cattle	0.03	0.01	0.04	0.01	0.00
Sold livestock (including by-product)	0.16	0.16	0.16	0.11	0.21
sheep	0.05	0.05	0.05	0.03	0.07
# of sheep	0.15	0.10	0.17	0.06	0.15
goats	0.02	0.02	0.02	0.02	0.03
# of goats	0.07	0.08	0.07	0.04	0.12
horse	0.00	0.00	0.00	0.00	0.01
of horse	...	...	...	...	...
donkey	0.01	0.01	0.01	0.01	0.01
of donkey	...	...	...	...	...
chickens	0.05	0.06	0.04	0.03	0.09
# of chickens	0.58	0.36	0.64	0.32	0.40
pigs	0.02	0.01	0.02	0.00	0.02
# of pigs	0.07	0.02	0.08	0.00	0.04
cattle	0.05	0.04	0.06	0.03	0.04
# of cattle	0.08	0.04	0.08	0.04	0.05
Bartered livestock	0.05	0.04	0.05	0.03	0.04
sheep	0.01	0.01	0.01	0.00	0.02
# of sheep	0.01	0.01	0.01	0.00	0.03
goats	0.00	0.01	0.00	0.01	0.01
# of goats	0.01	0.02	0.01	0.02	0.01
horse	0.00	0.00	0.00	0.00	0.00
of horse	...	...	...	...	...
donkey	0.00	0.00	0.00	0.00	0.00
of donkey	...	...	...	...	...
chickens	0.01	0.01	0.01	0.00	0.01
# of chickens	0.04	0.02	0.04	0.01	0.03
pigs	0.00	0.00	0.00	0.00	0.00
# of pigs	0.01	0.00	0.01	0.00	0.00
cattle	0.03	0.01	0.03	0.02	0.01
# of cattle	0.03	0.01	0.03	0.02	0.01
Earnings from livestock					
Total livestock sales	538.3	283.13	610.49	220.12	355.44
by-product sales	57.21	31.54	64.46	26.02	37.88
Observations	3054	1486	1568	747	739

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

Agricultural Inputs and Assets

Overall, sample households exhibit relatively low use of inputs and technology in both crop and livestock production. Less than a third of crop producers use modern inputs, while less than half of livestock producers used feed, fodder or veterinary services (Table 6). Relatively few households hired in agricultural labor (18 percent)—mostly for livestock production.

However, there are large differences between eligible and ineligible households. Ineligible households have higher rates of input usage and associated expenditures, especially with respect to livestock. They also have greater ownership of assets (tools and implements) and rely less on sharing arrangements for farm implements (Table 7). Ineligible households also hire in substantially more labor for working the plots. Taken together, higher income households have greater use of technology and appear more connected to input markets (especially for labor).

In terms of randomization, some differences emerge in the evaluation sample with ownership of a planter and a cultivator, and, more strikingly, hired labor—though the latter over only (or based only on) a relatively small number of observations. On average treatment households hired in 45 more days of agricultural labor than control households (though the distinction is not statistically significant with the result seemingly driven by labor for livestock).

Table 6. Input usage

	All	Eligible	Not Eligible	Treatment	Control
HH has livestock or crops	0.86	0.87	0.86	0.88	0.85
Input uses					
seed	0.98	0.98	0.98	0.97	0.98
pesticide	0.18	0.16	0.19	0.15	0.17
organic fertilizer	0.44	0.40	0.46	0.35	0.45
Inorganic fertilizer	0.27	0.24	0.27	0.26	0.23
feed	0.51	0.42	0.54	0.43	0.42
fodder	0.29	0.22	0.31	0.25	0.20
veterinary services	0.35	0.25	0.38	0.24	0.26
Input expenditure					
seed	51.71	24.95	59.45	24.60	25.35
pesticide	8.42	5.84	9.17	6.33	5.28
organic fertilizer	12.01	4.61	14.16	5.50	3.60
Inorganic fertilizer	56.64	35.95	62.62	37.24	34.49
feed	90.74	26.13	109.06	26.51	25.69
fodder	60.74	4.17	76.79	5.48	2.66
veterinary services	29.79	10.21	35.34	10.67	9.68
Input purchases					
seed	0.42	0.31	0.45	0.32	0.29
pesticide	0.15	0.12	0.16	0.12	0.13
organic fertilizer	0.05	0.03	0.05	0.04	0.02
Inorganic fertilizer	0.17	0.14	0.17	0.15	0.13
feed	0.47	0.37	0.50	0.37	0.37
fodder	0.06	0.01	0.08	0.02	0.01
veterinary services	0.25	0.16	0.28	0.15	0.17
HH hired labor for agriculture					
	0.18	0.09	0.20	0.11	0.07
Total days					
crop	120.06	62.72	127.55	80.43	35.43
livestock	30.62	31.13	30.56	35.69	24.10
male	82.30	31.16	88.99	44.18	11.10
woman	100.02	47.82	106.84	68.98	15.21
child	15.78	14.63	15.93	11.45	19.51
	4.26	0.28	4.78	0.00	0.71
Observations	3053	1486	1567	747	739

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

Table 7. Asset ownership

	All	Eligible	Not Eligible	Treatment	Control
HH has livestock or crops	0.86	0.87	0.86	0.88	0.85
Assets used					
hoe	0.65	0.67	0.65	0.69	0.65
plough	0.49	0.55	0.47	0.57	0.54
planter	0.38	0.36	0.38	0.37	0.34
tractor	0.18	0.09	0.20	0.10	0.09
cultivator	0.38	0.36	0.39	0.38	0.33
scot-cart	0.34	0.28	0.36	0.29	0.26
yokes	0.56	0.57	0.56	0.59	0.55
Owned					
hoe	0.57	0.58	0.57	0.60	0.55
plough	0.26	0.20	0.27	0.22	0.18
planter	0.15	0.09	0.17	0.11	0.06
tractor	0.03	0.01	0.03	0.01	0.01
cultivator	0.19	0.12	0.21	0.15	0.08
scot-cart	0.18	0.09	0.20	0.11	0.07
yokes	0.30	0.22	0.32	0.25	0.19
Rented					
hoe	...	...	...	...	...
plough	0.02	0.02	0.02	0.03	0.01
planter	0.05	0.05	0.05	0.04	0.05
tractor	0.13	0.06	0.15	0.06	0.06
cultivator	0.02	0.02	0.03	0.02	0.02
scot-cart	0.02	0.02	0.02	0.01	0.02
yokes	0.03	0.02	0.03	0.02	0.01
Shared					
hoe	...	...	...	...	...
plough	0.06	0.09	0.05	0.09	0.09
planter	0.04	0.07	0.03	0.08	0.06
tractor	0.02	0.02	0.02	0.02	0.02
cultivator	0.04	0.07	0.04	0.08	0.06
scot-cart	0.04	0.07	0.03	0.08	0.06
yokes	0.06	0.10	0.05	0.11	0.09
Borrowed					
hoe	0.06	0.07	0.06	0.06	0.08
plough	0.15	0.24	0.12	0.23	0.26
planter	0.13	0.15	0.12	0.13	0.17
tractor	0.01	0.01	0.01	0.00	0.01
cultivator	0.12	0.14	0.12	0.13	0.16
scot-cart	0.11	0.11	0.11	0.10	0.12
yokes	0.17	0.22	0.15	0.20	0.25
Observations	3048	1485	1563	746	739

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

Agricultural shocks and adaptation

Startlingly, 75 percent of crop producers reported losing more than half of their expected harvest in the previous year—a shock due almost entirely to flooding (Table 8). This significant shock to crop production across all households may be one plausible explanation for the low rates of market participation observed in crop output markets. Only 5 percent of livestock producers experienced a shock of similar magnitude on their holdings and production, and no one type of shock stood out.

While fortunately (from an impact evaluation perspective) the shock was equally distributed among treatment and control households (a result which confirms the benefit of randomization), the

widespread nature of the shock may complicate impact evaluation analysis on crop production outcomes.

Table 8. Crop and livestock failure

	All	Eligible	Not Eligible	Treatment	Control
HH had crop failure	0.75	0.75	0.75	0.76	0.74
drought	0.09	0.09	0.09	0.07	0.10
flood	0.93	0.92	0.93	0.93	0.91
pests	0.06	0.06	0.06	0.06	0.06
frost	0.17	0.19	0.16	0.20	0.18
animal	0.06	0.06	0.05	0.06	0.06
other	0.07	0.08	0.07	0.09	0.07
HH had livestock failure	0.04	0.03	0.05	0.02	0.05
drought	0.02	0.00	0.03	0.00	0.00
flood	0.31	0.23	0.33	0.10	0.30
theft	0.38	0.49	0.36	0.29	0.59
other	0.34	0.34	0.34	0.61	0.20
Observations	3049	1482	1567	744	738

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

An additional component of the PtoP project is to examine the impact of the CGP on the adoption of farm practices more resilient to climate change and agricultural shocks. If indeed the CGP is able to relieve household constraints and vulnerability we might expect to see the adoption of improved farming strategies (e.g., drought resistant crops, zero tillage cropping techniques, etc.). Table 9 shows results from a series of questions asking about changes in farm practices over the last year, and the associated reasons for doing so. Overall a quarter of households adopted a new strategy; predominantly in response to climate change and to reduce labor costs and risk. Less than 20 percent of crop farmers reported changing planting dates, followed by changing crop variety (7 percent), or a new crop (7 percent). There were effectively no changes to livestock rearing practices.

There are almost no differences between treatment and control groups in these two areas. The only exception is the reason for livestock failure, which was taken over a very small number of observations. More striking is that ineligible farmers appear no more likely to diversify or adapt than the eligible.

The adoption of new farming strategies thus appears relatively low in Lesotho, especially in consideration of the significant flooding. Of course, more evidence on the general question of adaptation and conservation may also be uncovered indirectly by looking at changes in land use and farming intensity (through purchases of commercial inputs and/or changes in the use of family and hired labor).

Table 9. Farming adaptation and climate change

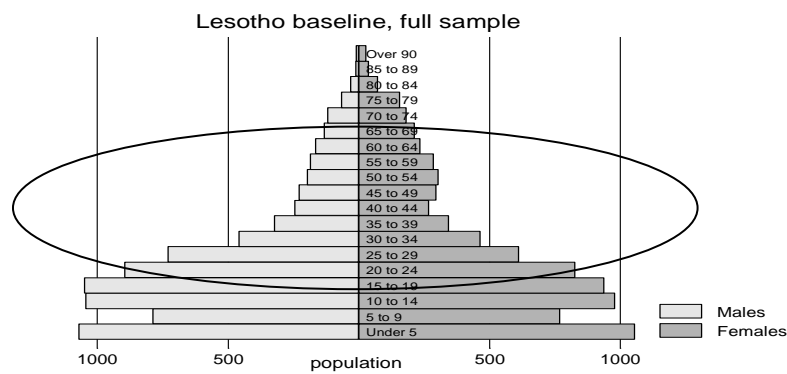
	All	Eligible	Not Eligible	Treatment	Control
HH made change to practice	0.25	0.23	0.26	0.24	0.21
Reasons for change					
climate change	0.21	0.24	0.20	0.25	0.22
more profitable	0.10	0.08	0.11	0.06	0.11
labor saving	0.21	0.24	0.20	0.25	0.22
land quality	0.10	0.07	0.10	0.06	0.08
to spread risk	0.21	0.24	0.20	0.25	0.22
advised	0.09	0.07	0.10	0.06	0.08
other	0.09	0.07	0.09	0.06	0.08
Changes in Crops					
change variety	0.06	0.04	0.07	0.04	0.03
change type	0.07	0.06	0.07	0.05	0.06
change plant date	0.17	0.16	0.18	0.19	0.13
change land size	0.01	0.02	0.01	0.03	0.01
implement soil and water	0.02	0.02	0.02	0.03	0.01
conservation					
mix crop and livestock	0.04	0.03	0.05	0.03	0.04
build trenches	0.05	0.06	0.05	0.07	0.06
practice zero or minimum	0.01	0.01	0.01	0.01	0.01
tillage					
use cover crop	0.01	0.01	0.01	0.01	0.02
change fertilizer or pesticide	0.04	0.03	0.05	0.02	0.03
plant tree	0.03	0.03	0.03	0.02	0.03
Changes in Livestock					
destock	0.03	0.03	0.03	0.02	0.04
change feed	0.01	0.00	0.01	0.00	0.00
change veterinary	0.02	0.01	0.03	0.01	0.01
intervention					
change portfolio of species	0.00	0.00	0.00	0.00	0.00
change animal breeds	0.01	0.00	0.01	0.00	0.00
Observations	3049	1482	1567	744	738

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

Labor

The population pyramid in Figure 4 shows the age and gender distribution of all individuals included in the survey. In line with the program's targeting, infants and children constitute the majority, but there is still a large portion of working age individuals for whom the transfer might impact labor allocation choices and opportunities. Further, child labor, particularly that of boys in livestock herding, is a concern.

Figure 4



According to Table 10 and 11, individuals in non eligible households reported similar rates of participation and time spent in on-farm activities. Roughly 60 percent of working aged (18-60) individuals and under 40 percent of children (6-17) worked on the farm in the past year. This varied along gender lines somewhat, with males 20 percent more likely than females to be in own-agriculture. Almost 20 percent of boys were involved in livestock rearing, working on average 6 hours a week.

Turning to paid off-farm work overall participation rates and hours worked are lower for ineligible individuals. Unfortunately, the survey instrument did not capture the type or sector of work associated with paid employment. Notably, ineligible individuals are more likely to be engaged in work on a permanent basis; and as will be shown below, reap higher earnings from their labor activity. As before there is some heterogeneity in intensity of paid work with respect to gender. Males worked about 7 hours more than similarly aged females.

In terms of randomization, only one variable—the share of households dedicating labor to both crop and livestock activities on farm—is significantly different between treatment and control households.

Less than 5 percent of surveyed households hired in non-agricultural labor (Table 12). Of those that did, it was primarily labor for construction and child care activities. A large difference between eligible and non eligible households is evident—and not surprising.

Table 10. Labor participation

	All	Men	Woman	Eligible	Not Eligible	Treatment	Control
In past 12 months							
Adults (18-60)							
worked in any labor	0.76	0.83	0.71	0.79	0.76	0.80	0.77
non-farm business	0.07	0.05	0.10	0.10	0.07	0.10	0.10
only own crop	0.31	0.24	0.38	0.33	0.31	0.33	0.34
only own livestock	0.09	0.14	0.04	0.08	0.09	0.08	0.10
both own crop and livestock	0.24	0.36	0.14	0.22	0.25	0.25	0.18
any own agriculture	0.64	0.74	0.56	0.64	0.64	0.66	0.62
paid work	0.33	0.36	0.30	0.43	0.30	0.44	0.41
permanent job	0.06	0.06	0.05	0.03	0.07	0.03	0.03
temporary job	0.05	0.05	0.05	0.05	0.04	0.05	0.06
occasional job	0.22	0.24	0.20	0.34	0.18	0.36	0.32
Children (6-17)							
worked in any labor	0.36	0.47	0.24	0.33	0.37	0.35	0.31
non-farm business	0.01	0.01	0.01	0.02	0.01	0.02	0.02
only own crop	0.13	0.12	0.14	0.14	0.12	0.15	0.14
only own livestock	0.11	0.18	0.04	0.10	0.12	0.11	0.09
both own crop and livestock	0.24	0.16	0.04	0.22	0.25	0.25	0.18
any own agriculture	0.35	0.46	0.22	0.32	0.36	0.34	0.30
paid work	0.02	0.02	0.02	0.02	0.02	0.02	0.03
In past 7 days							
Adults (18-60)							
worked in any labor	0.33	0.38	0.30	0.38	0.32	0.37	0.39
non-farm business	0.04	0.03	0.05	0.04	0.04	0.04	0.05
own crop and livestock	0.14	0.17	0.12	0.16	0.14	0.15	0.17
paid-work	0.19	0.22	0.16	0.23	0.17	0.23	0.24
Children (6-17)							
worked in any labor	0.14	0.47	0.07	0.14	0.14	0.14	0.14
non-farm business	0.01	0.01	0.01	0.00	0.01	0.00	0.01
own crop and livestock	0.12	0.19	0.06	0.13	0.12	0.13	0.12
paid-work	0.01	0.02	0.01	0.01	0.01	0.01	0.02
Observations	11890	5977	5912	3162	2751	1632	1530

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

Table 11. Labor intensity

	All	Men	Woman	Eligible	Not Eligible	Treatment	Control
Hours worked last week							
Adults (18-60)							
worked in any labor	15.54	18.75	12.84	17.79	14.87	16.74	19.16
non-farm business	1.23	0.90	1.54	1.26	1.22	1.15	1.42
any own agriculture	4.16	6.36	2.21	4.13	4.17	3.80	4.57
paid work	10.15	11.49	9.09	12.40	9.48	11.80	13.18
Children (6-17)							
worked in any labor	4.20	6.64	1.55	4.95	3.90	4.80	5.12
non-farm business	0.07	0.06	0.09	0.06	0.08	0.04	0.08
any own agriculture	0.62	6.02	0.86	0.69	0.59	0.74	0.64
paid work	0.57	0.55	0.59	0.74	0.50	0.32	1.23
Days worked last week							
Adults (18-60)							
worked in any labor	0.91	1.09	0.75	0.98	0.89	0.95	1.02
non-farm business	0.20	0.17	0.24	0.21	0.20	0.19	0.24
own crop and livestock	0.72	0.93	0.53	0.78	0.70	0.76	0.79
paid-work	...	...	...	...	...	...	...
Children (6-17)							
worked in any labor	0.65	1.01	0.25	0.72	0.62	0.76	0.67
non-farm business	0.03	0.02	0.04	0.02	0.03	0.01	0.03
own crop and livestock	0.62	0.99	0.22	0.69	0.59	0.74	0.64
paid-work	...	...	...	...	...	...	...
Observations	11890	5977	5912	3162	2751	1632	1530

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

Table 12. Hired agricultural labor

	All	Eligible	Not Eligible	Treatment	Control
HH hired-in non agriculture labor	0.04	0.01	0.05	0.01	0.01
Total days	91.96	17.59	97.30	20.60	15.26
construction	36.71	4.59	39.01	5.60	3.80
child care	29.89	7.89	31.47	3.41	11.37
elderly care	16.90	5.06	17.75	11.60	0.00
other	8.46	0.05	9.06	0.00	0.09
Observations	3040	1483	1557	746	737

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

Sources of income and household enterprise

The top panel in Table 13 presents variables constructed from a question asking respondents to list the income sources (up to 5) received by the household. Each response was then converted to a ratio by dividing by the total number of income sources reported. Treatment households reported significantly more income sources than control households. Also, they were more likely to report loans and less likely to report no income than the control group.

Table 13. Sources of income

	All	Eligible	Not Eligible	Treatment	Control
number of income sources	1.80	1.89	1.77	2.01	1.77
salary	0.15	0.07	0.17	0.08	0.06
casual agriculture	0.08	0.12	0.07	0.12	0.13
casual non agriculture	0.21	0.28	0.19	0.29	0.27
own farm	0.05	0.05	0.05	0.04	0.05
own livestock	0.03	0.02	0.03	0.02	0.03
enterprise	0.08	0.08	0.08	0.08	0.09
artisan	0.01	0.01	0.01	0.01	0.01
mining	0.02	0.00	0.03	0.00	0.01
fishing	0.00	0.00	0.00	0.00	0.00
agricultural rental	0.00	0.00	0.00	0.00	0.00
non-agricultural rental	0.00	0.00	0.00	0.00	0.00
remittances	0.13	0.15	0.12	0.14	0.15
loan	0.08	0.10	0.07	0.13	0.07
government	0.14	0.08	0.15	0.08	0.08
none	0.01	0.01	0.01	0.01	0.02
other	0.01	0.02	0.01	0.01	0.02
has enterprise	0.18	0.20	0.18	0.22	0.19
number of enterprise	0.19	0.22	0.19	0.23	0.20
months in operation	1.37	1.28	1.39	1.39	1.16
In operation last month	0.14	0.15	0.14	0.17	0.12
number of employees	0.04	0.04	0.05	0.05	0.03
net profit	784.19	202.99	952.18	247.26	155.52
Observations	3052	1485	1567	746	739

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

Comparing the eligible versus ineligible sample households, we see that eligible households have more overall income sources, engaging more in casual labor—both on and off farm. Eligible households, however, are less likely to have income from salaried employment. Ineligibles are fractionally less likely to report receiving remittances and less likely to have a loan, but the share receiving government support—mostly in the form of pensions—is twice as high as eligible households. Net profits from household enterprises are dramatically higher for the ineligible households.

Income aggregates were constructed using the Rural Income Generating Activities (RIGA) methodology (details can be found in Carletto et al, 2006). This approach makes use of information reported in the production, transfer, and wage labor modules to estimate of a household’s yearly income and composition. Importantly, own-consumption from home produced crop and livestock is valued and incorporated in the aggregate. Annual food and non-food expenditure aggregates were also created using information from the consumption module.

Table 14 presents the sources of food consumed, as a share of total household food consumption. The differences between eligible and ineligible are statistically significant in all categories, with the major source for both groups being purchases (61 percent for ineligible households and 49 percent for CGP eligible households)—mainly in local village stores. The second most important source for both groups is that from home production (23 percent and 30 percent) followed by gifts from relatives and friends/ neighbors (14 percent and 19 percent). Consuming from own production is more important for eligible households—an expected result. However, these shares may be lower than usual due to the widespread crop failure.

Table 14. Sources of food consumption

	All	Eligible	Not Eligible	Treatment	Control
Share from purchased food	0.58	0.49	0.61	0.49	0.49
individual in village	0.08	0.09	0.08	0.09	0.08
store in village	0.32	0.25	0.34	0.25	0.26
outside the village	0.18	0.14	0.19	0.14	0.14
Share from own-produced	0.25	0.30	0.23	0.30	0.29
home produced	0.22	0.26	0.21	0.27	0.25
gathered	0.02	0.04	0.02	0.04	0.04
Share bartered	0.01	0.02	0.01	0.03	0.02
Share from gifts/aid	0.15	0.19	0.14	0.18	0.20
from relative	0.09	0.11	0.09	0.10	0.12
from neighbors/friends	0.05	0.07	0.04	0.08	0.06
from NGO	0.01	0.02	0.01	0.01	0.02
Share borrowed	0.00	0.00	0.00	0.00	0.00
Observations	3032	1474	1558	741	733

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

Table 15 shows in more detail the occurrence of household consumption of own production. As can be seen, over half of the households report consuming some of what they farm or gather. The three main food categories for this are vegetables (36 percent), cereals (26 percent), and meat (11 percent). The average share in total food consumption that these items represent is shown in Table 16. Overall, no single food category exceeds 10 percent of valued consumption. The greater reliance on own-production for eligible households is again evident, with the shares for home produced cereals and vegetables significantly greater than for ineligible households.

Table 15. Consumption of own-production

	All	Eligible	Not Eligible	Treatment	Control
Consumed any home production	0.54	0.54	0.54	0.56	0.52
cereals	0.26	0.28	0.25	0.29	0.26
fish	0.00	0.00	0.00	0.00	0.00
meat	0.11	0.10	0.12	0.09	0.11
vegetables/legumes	0.36	0.37	0.36	0.37	0.36
milk/oil	0.02	0.02	0.02	0.01	0.02
fruit	0.04	0.04	0.04	0.03	0.04
other	0.02	0.03	0.02	0.04	0.02
Observations	3032	1474	1558	741	733

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

Table 16. Share of own production in total food consumption

	All	Eligible	Not Eligible	Treatment	Control
own production is main source	0.19	0.23	0.17	0.24	0.22
cereals	0.09	0.12	0.09	0.12	0.11
fish	0.00	0.00	0.00	0.00	0.00
meat	0.03	0.03	0.04	0.03	0.03
vegetables/legumes	0.08	0.10	0.08	0.10	0.09
milk/oil	0.00	0.00	0.00	0.00	0.00
fruit	0.00	0.01	0.00	0.01	0.00
other	0.00	0.00	0.00	0.00	0.00
Observations	3032	1474	1558	741	733

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

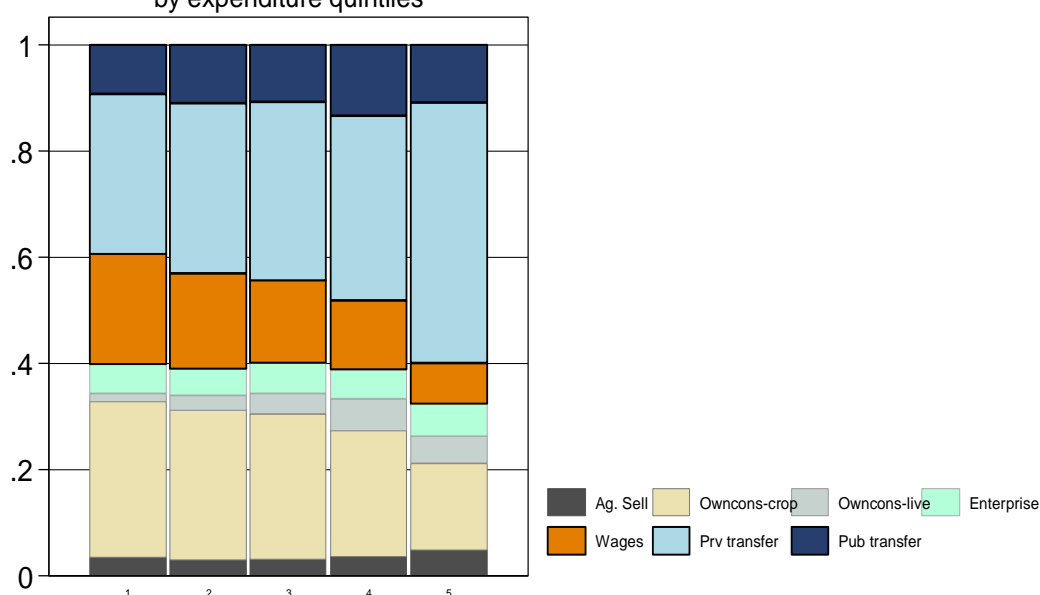
Turning to income, the data in table 17 reveal there are no significant differences between treatment and control groups with respect to absolute levels of income and total expenditure. Levels from all income sources are of course significantly higher for ineligible households. There are significant differences in income levels between eligible and ineligible households for most income categories, with the largest share of the difference in the total is due to higher private transfers (primarily remittances) received by households in the ineligible group. Government transfers (primarily pensions) are also markedly higher for this group. Differences in income from agricultural production are relatively small—it is the non farm sources of income that distinguish eligible from non eligible households. The increasing importance of private transfers with wealth—and decrease in importance of wages and own production—can be seen in Figure 6.

Table 17. Income and expenditure

	All	Eligible	Not Eligible	Treatment	Control
Farm sales	70.6	47.5	93.7	35.5	59.6
Own crop consumption	362.8	349.5	376.2	348.5	350.6
Own livestock consumption	66.7	55.3	78.1	50.5	60.0
Off farm income	132.6	47.3	217.9	57.4	37.1
Wages	369.4	239.7	499.0	248.9	230.4
Private transfer	703.6	401.2	1006.0	339.2	463.2
Public transfer	281.1	143.3	418.9	121.4	165.1
Total income	1986.6	1283.4	2689.7	1201.3	1366.0
Total expenditure	2939.5	2201.3	3677.6	2194.5	2208.2
Observations	3040	1483	1557	746	737

Figure 6

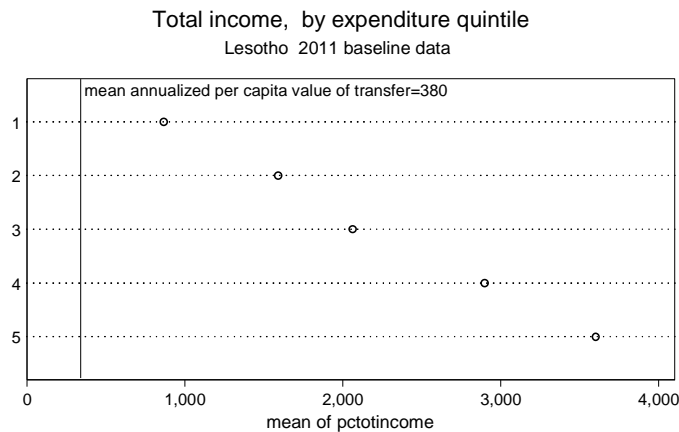
Share of total income from main income generating activities
by expenditure quintiles



Note: Expenditure quintiles move from poorer to richer

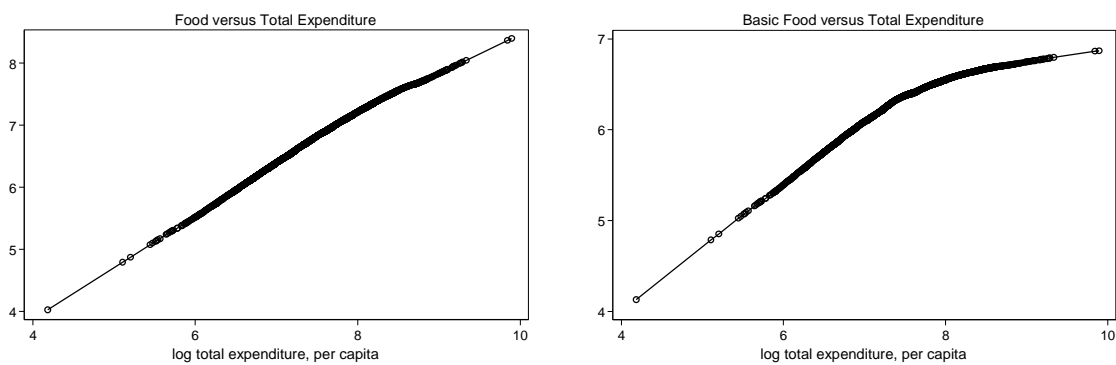
The mean annualized per capita value of the transfer (indicated by a vertical line) has been added to Figure 7 which describes household income by consumption quintiles. Unsurprisingly, expenditures correlate strongly with household earnings. Of more interest is to note that the transfer will represent a fairly large share of household income for the poor---roughly 30 percent of current income for eligible households.

Figure 7



The graphs below (Figure 8) show the local regression relationship between food expenditure versus total expenditure. In looking at total food expenditure, the relationship is approximately constant, flattening only slowly at higher expenditure levels. When looking at basic foods only (cereals and grains) the slope of this line flattens out even faster at higher expenditure levels, possibly indicating substitution towards higher valued food products at higher income levels.

Figure 8



Social Networks

Tables 18 and 19 describe the type and extent to which households in the sample interact in community support networks. Almost every household reports having received some kind of assistance—the most common form being food and cash. A slightly lower proportion of households report providing assistance (around 70 percent). One interesting distinction between households

eligible for the CGP program and those that are not is the former are more likely to receive, whereas the latter are more likely to contribute in their respective networks. Two differences emerge when comparing the evaluation sub-sample: control households are slightly more likely to receive assistance (97 percent versus 93 percent); a difference stemming from higher proportions of received cash and food.

Table 18. Received support in social network

	All	Eligible	Not Eligible	Treatment	Control
<i>HH receives support in social network</i>	0.92	0.95	0.91	0.93	0.97
<i>money</i>	0.64	0.67	0.64	0.62	0.72
family	0.43	0.47	0.41	0.43	0.51
friend	0.18	0.13	0.20	0.15	0.12
neighbor	0.36	0.36	0.35	0.41	0.32
other	0.04	0.03	0.04	0.01	0.04
<i>food</i>	0.69	0.74	0.67	0.70	0.79
family	0.51	0.48	0.52	0.50	0.47
friend	0.09	0.08	0.10	0.07	0.09
neighbor	0.39	0.43	0.38	0.43	0.43
other	0.00	0.00	0.00	0.00	0.00
<i>labor</i>	0.13	0.11	0.14	0.11	0.11
family	0.55	0.49	0.56	0.42	0.56
friend	0.08	0.06	0.08	0.05	0.06
neighbor	0.37	0.46	0.35	0.53	0.38
other	0.01	0.00	0.01	0.00	0.00
<i>tools</i>	0.39	0.46	0.37	0.46	0.46
family	0.43	0.48	0.42	0.44	0.52
friend	0.08	0.10	0.08	0.11	0.08
neighbor	0.48	0.42	0.50	0.45	0.40
other	0.00	0.00	0.00	0.00	0.00
<i>other</i>	0.36	0.34	0.37	0.31	0.38
family	0.65	0.65	0.65	0.64	0.67
friend	0.09	0.10	0.09	0.12	0.09
neighbor	0.25	0.24	0.25	0.24	0.24
other	0.01	0.00	0.01	0.00	0.00
Observations	3054	1486	1568	747	739

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

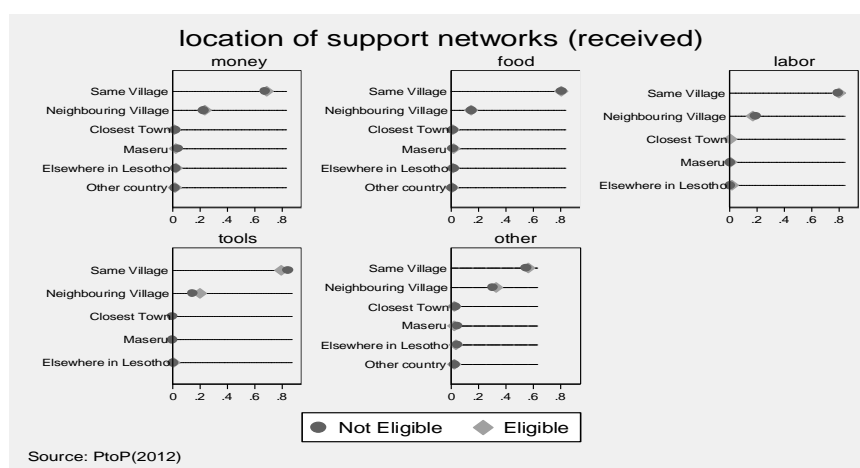
Table 19. Contributed support in social network

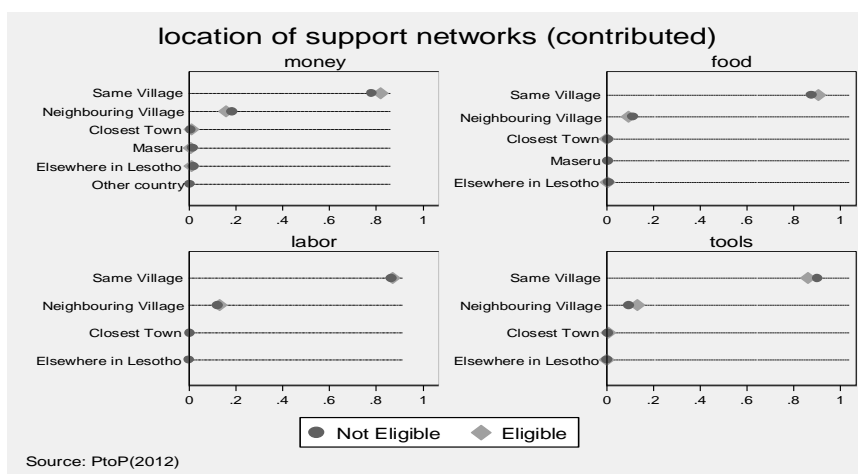
	All	Eligible	Not Eligible	Treatment	Control
HH provides support in social network	0.73	0.66	0.75	0.64	0.68
money	0.40	0.26	0.45	0.24	0.29
family	0.38	0.41	0.37	0.35	0.45
friend	0.16	0.12	0.17	0.10	0.15
neighbor	0.46	0.47	0.46	0.55	0.40
other	0.00	0.00	0.00	0.00	0.00
food	0.57	0.48	0.59	0.45	0.51
family	0.35	0.30	0.37	0.33	0.28
friend	0.10	0.09	0.11	0.06	0.11
neighbor	0.54	0.61	0.52	0.61	0.60
other	0.00	0.00	0.00	0.00	0.00
labor	0.17	0.17	0.17	0.17	0.17
family	0.46	0.49	0.46	0.47	0.50
friend	0.06	0.06	0.06	0.08	0.03
neighbor	0.47	0.46	0.48	0.45	0.47
other	0.00	0.00	0.00	0.00	0.00
tools	0.26	0.23	0.27	0.23	0.24
family	0.34	0.40	0.33	0.40	0.40
friend	0.08	0.10	0.08	0.12	0.08
neighbor	0.58	0.51	0.59	0.49	0.52
other	0.00	0.00	0.00	0.00	0.00
Observations	3054	1486	1568	747	739

NB: Bold indicates statistically significant differences at 90% or greater confidence levels.

The location in which these networks occur is overwhelmingly local, as can be seen in Figure 9. With few exceptions the interactions take place in the same or neighboring villages, with no discernible variation between eligible and ineligible households. While this is perhaps not surprising for food, labor and tools, it is somewhat striking that arrangements involving cash are not more dispersed throughout the country.

Figure 9





3. Data quality issues and suggestions for future data collection

Land area imputations

In total there were 2,752 land area observations (>80 percent kitchen plots) reported as unknown but less than 0.5 acres (coded 888) and 1,114 unknown but greater than .5 acres (<3 percent kitchen plots). All land area reported as 888 (unknown but less than 0.5 acres) were imputed with the value of 0.25. This resulted in changes in 495 regular plots and 2,257 kitchen plots. For land area reported as 999 (unknown but greater than 0.5) the following strategy was adopted:

- Outliers were imputed separately for kitchen and non-kitchen plots by RIGA standard methodology using district as categorical level (which is the first to have sufficient non zero, non missing observations of land size).
- Unknowns were then imputed with the median value of non-kitchen land size at increasing levels, using only values having 15+ observations. The levels are: village, cluster, and district. Almost 80 percent are imputed at village level; with the remainder imputed at cluster/district level.

Adding in imputed kitchen land sizes thus yields a land area variable with no missing observations.

Keeping track of households and missing data

The final data contained some errors and inconsistencies requiring careful cleaning procedures. The most consistent issue was inconsistency between households reporting yes (or no) to a filter and subsequent information provided in the module. Often, the filter questions would not match information provided in the modules. For all files, a variable recording if the household reported any information in the module was created and used to recode missing or incorrect filter questions on a case by case basis.

There was some loss of households when moving from the production modules to the input usage data. Around 20 households were captured as reporting production, but were not included in the agricultural inputs module. Additionally, 19 households were missing consumption expenditure data and 12 households were missing non food expenditure data. These were imputed with median values at the cluster level.

While missing data are—in practice—inevitable, future data collection efforts must consider improving strategies for estimating land area and adding additional cross-reference checks to ensure that respondents end up where they’re supposed to be as enumerators progress through the interview.

Conclusions for analysis

There were three objectives for this note: to assess the quality of the randomization mechanism in creating a control group that is comparable to those receiving the CGP; to gain insight into the economic livelihoods of households and individuals captured in the survey; and to identify data quality issues that can inform future data collection. The conclusions drawn from each of these respectively are that:

- i) the randomization appears to be hugely successful in “balancing” observable characteristics between treatment and control households and individuals.
- ii) based on the baseline data and comparing the characteristics of the surveyed households, especially those eligible versus those ineligible for the CGP, we are likely to expect:
 - More impact of the cash transfers on livestock holdings
 - More impact on the allocation of child and adult labor and time
 - Less impact on crop production, either because of its secondary, subsistence nature, or because it has been obscured by the flooding shock. Hopefully both the weather and the data will clear up in the following round.
- iii) measures will need to be taken to correct the flawed collection of land data in the next round, either using GPS or at minimum ensuring adequate training of enumerators in estimating land size.

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