PROYECTOCAPITAL

inshort

Number 55 / February 2015

FINANCIAL EDUCATION, PRODUCTIVE INVESTMENT AND STABILIZATION OF FOOD CONSUMPTION.

EVIDENCE FROM THE EVALUATION OF THE PILOT PROGRAM FOR PROMOTING SAVINGS AMONG BENEFICIARY FAMILIES OF JUNTOS, IN PERU[1]

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THE PROMOTION OF SAVINGS PILOT PROGRAM

The design of the Promotion of Savings Pilot Program (PSPP) included a series of activities aimed at promoting financial savings. These activities were grouped into three components: (a) training (what is the financial system, government protection for customers of this system and financial services, with particular emphasis on the promotion of financial savings); (b) financial accompaniment (reinforcing what was taught in the training, carried out by the leader mothers and also through visits from the trainers); and (c) non-monetary incentives for saving (raffling food baskets worth S/.180 to JUNTOS users with positive balances in their savings accounts, with two baskets per district raffled bi-monthly).

In practice, however, it was not made clear that these raffles would only be for users who had positive balances in their accounts. These raffles are also expected to have a small impact, because there are only two winners per district, and each district has at least a thousand users. As a result, the

1. I am grateful for the continual cooperation of Chris Boyd and the valuable comments of Johanna Yancari and Carolina Trivelli.

evaluations capture the impact of the training and the reinforcement of the training, but not the impact of the raffles.

Between November 2009 and March 2012, the PSPP intervened in 17 districts, which were selected in a non-random manner from an initial group of 216 districts. This initial group of districts met certain characteristics, such as having a low HDI (Human Development Index), receiving JUNTOS since 2007 and having a critical mass of at least one thousand JUNTOS users. The intervention in the 17 selected districts was not uniform, for several reasons: the training was done at different times in each department; an additional module, on productive development, was offered only in the department of Ayacucho; and the users in La Libertad received messages promoting financial savings through a radio drama.

This paper shows the impact of the PSPP on productive investment (agriculture, livestock and business initiatives) and on food consumption, distinguishing between consumption in the highest-income and lowest-income months of the year. This evaluation also analyzes the results, dividing the sample according to two indicators of wealth:

- A first indicator, which we will call the "JUNTOS Index", is the indicator usually used by JUNTOS and is mainly based on the couple's degree of illiteracy and housing materials.
- A second indicator, which we will call "Asset value", which considers the total value of all of the household's productive assets.

The impact of the program is measured as the simple difference between the indicators of households residing in the treatment districts and households residing in the control districts, controlling for a group of independent variables. The indicators are measured using the exit line survey, which was conducted in July 2012, when the intervention ended.

Because whether or not these households actually participated in the pilot is not considered, the estimated effect is similar to the "intention to treat" effect. This effect reflects an amount that constitutes a lower bound of the real impact of the pilot. It is important to note that, because the treatment was not assigned randomly, the results presented suggest possible trends and impacts, but are not conclusive.

Impact on productive investment

It is likely that the promotion of financial savings leads to higher levels of total savings among the participants. That is, that the increase in financial savings is not accompanied by a decrease of the same amount in informal savings. The increase in total savings could allow people to have more money during the time of year when they invest in agricultural inputs. It could also enable them to accumulate enough money to make larger investments, such as purchasing large animals.

Table 1
Description of result variables on productive investment

	Control Districts	Treatment Districts
% that use fertilizers 1/	19	20
% that use pesticides, herbicides or fungicides 1/	15	17
% that purchased large animals 2/	39	47
% that invested to grow their business	1	1
Percentage that created new businesses	8	7

1/ on products harvested between June 2011 and May 2012 and products not yet harvested in June 2012.
2/ between June 2010 and April 2012.

Table 1 shows the percentage of households that make different types of investments, as it presents the average values of the investment variables that we analyzed. Table 2, meanwhile, shows the effects of living in the districts where the program was implemented or, in other words, the impact of the pilot's "intention to treat." This table shows that the program had a statistically significant effect of 11 percent on the use of fertilizers for the poorest 50 percent, based on both the JUNTOS index and asset value. It also shows that there was a statistically significant effect of 10 percent on the use of pesticides, herbicides and/or fungicides for the poorest 50 percent, based on asset value.

Table 2
Impact of intention to treat on productive investment

	JUNTOS index		Asset value		Entire sample
	Poorest 50%	Least-poor 50%	Poorest 50%	Least-poor 50%	
% that use fertilizers 1/	0.107***	0.039	0.112***	0.032	0.068***
% that use pesticides. herbicides or fungicides 1/	0.046	0.010	0.096***	-0.020	0.030
% that purchased large animals 2/	0.046	0.066*	0.025	0.078**	0.049
% that invested to grow their business	0.005	-0.006	0.002	-0.008*	-0.002
% that created new businesses	0.005	0.001	0.016	-0.010	0.005

*** Significant at 1%
** Significant at 5%
* Significant at 10%
1/ on products harvested between June 2011 and May 2012 and on products not yet harvested in June 2012.
2/ between June 2010 and April 2012.

There was also a positive effect on the purchase of large animals. This effect was statistically significant for the least-poor 50 percent, according to the two indicators of wealth. Considering the JUNTOS index, this effect was 7 percent for the least-poor 50 percent, while considering asset value, this effect was 8 percent for the same group. For the poorest 50 percent of households, meanwhile, the effect is smaller and not statistically significant. These results underscore the heterogeneity of households within the group of JUNTOS users, and within this heterogeneity, the smaller investment capacity of the poorest households. On the other hand, the pilot shows no positive impacts on investment in businesses.

It is important to emphasize that the impacts on investment occur in activities that the base line show as being the most important sources of income—farming and raising livestock. In the base line survey,[2] 93 percent of households were dedicated to farming and 85 percent raised livestock. In that survey, only 12 percent of women reported having a business.[3] The pilot's effect on investment, therefore, may be occurring in activities in which households already engaged before participating in the pilot, and may not be contributing to a diversification of sources of income.

2. The base line survey was conducted in June and July 2010. For nine of the 10 treatment districts, the intervention began in June 2010 or later; as a result, the base line survey reflects base line data for a large majority of the treatment households.

3. The base line survey did not ask if men have a business. That information is included in the end line, and in this survey only 2 percent of men reported having a business.

Impact on food consumption

For rural households, which depend on agriculture, the availability of resources is not the same throughout the year, and the PSPP exit survey allows us to explore that issue, as it asks in what months the household has the largest amount of cash and in what months there is less cash. Not surprisingly, the months most frequently reported as being those when people have the most cash are the harvest months: 80 percent of harvests are reported to fall between May and July, and 60 percent of the months reported as being those with the largest amounts of cash available fall between May and August.

The months reported as being those with the smallest amount of cash were concentrated between February and April: 54 percent of the months reported as being those when the least cash was available fall within this period. This makes sense, as these are the months immediately before the harvest, and money from the previous harvest has probably been spent by then.

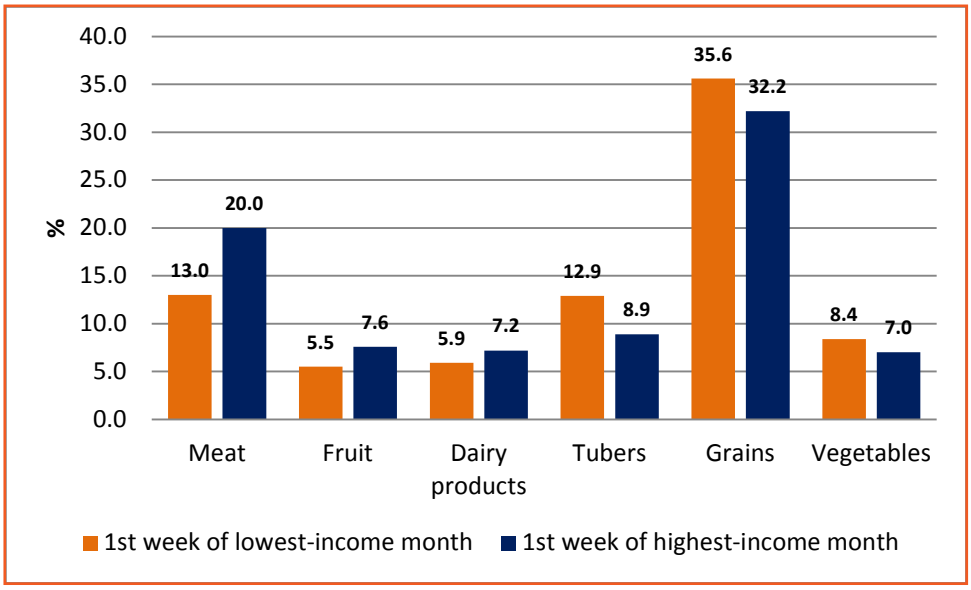
Changes in the availability of money imply important changes in food consumption. Valuing consumption using the median price of purchases in the week before the survey, we find that this consumption rose from about US$ 6.50 per capita per week in the month with the lowest income to about US$ 11.50 per capita per week in the month with the highest income.

Figure 1 shows differences in the distribution of food in household consumption, depending

on whether it is the period of highest income or lowest income. During the month of lowest income, meat, fruit and dairy products carry less weight in the distribution of this type of consumption:

- The most important difference occurs with meat, which drops from an average of 20 percent of consumption value in the highest-income month to an average of 13 percent in the lowest-income month.
- For fruit, the difference is relatively small, decreasing from an average of 7.6 percent to an average of 5.5 percent of food consumption.
- For dairy products, the difference is also small, decreasing from an average of 7.2 percent to an average of 5.9 percent.

Figure 1: Average of the percentage of the value of food consumption, represented by different food groups during the highest-income and lowest-income months of the year



The food groups that increased in importance during low-income periods are tubers, grains and vegetables:

- The greatest difference is seen in tubers, which rose from an average of 8.9 percent of consumption in the highest-income month to 12.9 percent in the lowest-income month.
- Grains increased from an average of 32.2 percent to an average of 35.6 percent, a relatively small change.
- For vegetables, the change is smaller still, as they rose from an average of 7 percent to an average of 8.4 percent of consumption.

Given these changes in the distribution of consumption, our estimates are not limited to the effect of the pilot on total consumption value, but also include the effect on the likelihood of consuming meat and fruit. We focus on these two foods because their consumption decreases more during the months when resources are least available. Table 3 shows average food consumption[4] for households in the treatment districts and the control districts, and the percentage of households that consume fruit and that consume meat.

Table 3
Description of result variables on food consumption

	Control Districts		Treatment Districts	
	1st week of lowest-income month	1st week of highest-income month	1st week of lowest-income month	1st week of highest-income month
Per-capita consumption US$	6.89	11.65	6.59	12.62
% that consume meat	0.64	0.91	0.62	0.94
% that consume fruit	0.72	0.95	0.78	0.97

Tables 4 and 5 show the effect of living in the districts where the PSPP intervened; the study found that in the poorest 50 percent, based on the JUNTOS index, food consumption in the households in the treatment districts is 11% below that of the control group. Similarly, for the poorest 50 percent, based on asset value, consumption in the lowest-income month is lower (by 15 percentage points) in the treatment districts than in the control districts. Among the poorest 50 percent, based on both indices, the likelihood of consuming meat in the lowest-income month is lower for households in the treatment districts. This likelihood decreases by 9 percent if the Juntos index is used and decreases by 8 percent if asset value is used to identify the poorest half of the households.

Table 4
Impact of intention to treat on food consumption

	First week of lowest-income month	First week of highest-income month
Log of per-capita consumption	-0.085***	0.064**
% meat consumption	-0.067***	0.005
% fruit consumption	0.003	0.002

*** Significant at 1%

** Significant at 5%

4. Calculated using the median price of purchases in the past week.

Table 5

Impact of intention to treat on food consumption, by poverty index

	JUNTOS Index			
	Poorest 50%		Least-poor 50%	
	First week of lowest-income month	First week of highest-income month	First week of lowest-income month	First week of highest-income month
Log of per-capita consumption	-0,114***	-0,041	-0,059	0,101**
% meat consumption	-0,091**	0,004	-0,034	0,011
% fruit consumption	-0,055*	-0,004	0,065**	0,008
	Asset value			
	Poorest 50%		Least-poor 50%	
	First week of lowest-income month	First week of highest-income month	First week of lowest-income month	First week of highest-income month
Log of per-capita consumption	-0.159***	0.023	-0.013	0.060
% meat consumption	-0.079**	0.024	-0.056*	-0.013
% fruit consumption	-0.009	-0.001	0.021	0.004

*** Significant at 1%

** Significant at 5%

* Significant at 10%

What mechanisms cause the intervention to result in lower consumption of food and meat during the lowest-income period?

There are various hypotheses associated with the intervention:

- One possible mechanism is related to the training, because it promotes saving fixed amounts per period, on the premise that this forms a habit (change in behavior) among the users participating in the PSPP.
- A second mechanism is related to the greater use of agricultural inputs; the increased use at planting time and during the growing season could mean that there is less money available just before the harvest. Because this is the period of lowest income for most of the households, the decreased availability of cash could explain the lower consumption reported in the treatment districts.

The latter hypothesis could seem counterintuitive, since the households participating in the intervention would be expected to have more money at planting time and would therefore be able to invest in inputs without having to sacrifice their consumption in the months just before the next harvest. This negative impact on consumption could arise,

however, if, to be profitable, the investment in inputs must be greater than a minimum amount. In that case, households that did not have the minimum resources for investment at planting time could decide not to invest, since the future consumption sacrifice would be high, and they would therefore have more resources for consumption in the period before the harvest than households that made this investment.

Some considerations must be kept in mind: the differences are too great to be explained solely as a result of the intervention. For a negative effect of 11 percent in consumption, the intervention would have had to imply changes in savings patterns for a large percentage of households, and a large proportion of them would have had to have decreased their consumption during the lowest-income month as a result. For the effects to be consistent with the 11 percent figure, 20 percent[5] of households involved in the intervention would have had to have changed their savings patterns and 50 percent would have had to have varied their food consumption. Those effects are too great to be credible.

The results of the impact of the pilot program on food consumption highlight the need to accompany savings-promotion programs for low-income populations with talks about food consumption and its importance, to avoid any possible negative effect, especially on children under age 5.

Conclusions

The PSPP intervention focused on the promotion of financial savings through financial training for JUNTOS users in the treatment districts. The results show a positive effect on productive investment, which suggests an increase in total savings. There are differences in investment depending on the degree of poverty; for the poorest 50 percent of households, there has been an impact on the use of agricultural inputs, while for the least-poor 50 percent, there was an impact on the purchase of large animals, which underscores the lower investment capacity of the poorest households in the population studied.

The results also show that the promotion of savings pilot program has not resulted in improved food consumption in the lowest-income month. On the contrary, households belonging to the treatment districts have a lower level of consumption in the months when the household has the lowest income. It is likely that the greater investment in agricultural inputs, along with the promotion of a fixed amount of saving during the training, have contributed to these results. Given the type of investment found (in productive assets and agricultural inputs), however, it is very likely that these negative results will reverse in the future, because of higher income from farm and livestock resulting from increased investment.

5. It is not possible to estimate these changes in savings patterns precisely, because some could have occurred between the base line survey and the end line survey.

These results suggest that it is important to do everything possible to keep financial education from resulting in an inadequate diet, even if only temporarily. It is therefore recommended that the training emphasize that saving should not jeopardize adequate diet, in terms of either quality or quantity.

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This publication is possible thanks to the support of the Ford Foundation and the IDRC - International Development Research Centre

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