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The Impact of Productive Safety Net Program on Food Security of Beneficiry Households: The Case of Damot Gale, Damot Pulasa and Damot Sore Woredas in Wolaita Zone, Ethiopia

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Abstract
The Ethiopian government has various Food Security Programs (FSP). The Productive Safety Net Program is one of those programs implemented by the Ethiopian government to control food insecurity. There are also other components such as voluntary resettlement and Other Food Security Programs (OFSP). OFSP has many activities in different purposes which is mainly targeted towards "household packages" which supports both agricultural and non-agricultural economic activities. To generate data and analyze them both qualitative and quantitative techniques were employed. In the due course qualitative data were analyzed using description and logical narrations. Using SPSS 20 frequency distribution table and *t* test were used. Logistic regression model was employed to analyze the impact of productive Safety Net Program on the food security. Based on the data analysis result findings were distinguished. As it is indicated in the result of this study the PSNP was supporting beneficiaries in food consumption improvement, increasing job opportunity, household asset accumulation and betterment of livelihoods. The age and education level of the households heads and frequency of shocks in the last five years were significantly determined the effective and efficient performance of PSNP. Various factors were identified that challenged the effectiveness of PSNP. There were lack of awareness of beneficiaries, lack of follow-up, monitoring and evaluation, and low payment. To enhance the positive role of PSNP target identification should be done efficiently, monitoring and evaluation system should be improved, awareness of household heads about the use and benefit of safety net program should be periodically updated through training and forum discussion.
Keywords: Asset accumulation, Food Security, Livelihood, Productive Safety Net Program

1. Introduction

The Ethiopian government has various Food Security Programs(FSP). The Productive Safety Net Program is one of those programs implemented by the Ethiopian government to control food insecurity. There are also other components such as voluntary resettlement and Other Food Security Programs (OFSP). OFSP has many activities in different purposes which is mainly targeted towards "household packages" which supports both agricultural and non-agricultural economic activities (Gilligan et al., 2008). The PSNP works in Five Year term which means the beneficiaries would stay for five year and with the help of OFSP the households are expected to graduate from the program. After graduation the households would be categorized under food secured households. According to Stephen Devereux, who presented a paper on *Food insecurity in Ethiopia* for a DFID Ethiopia Seminar in 2000, Food insecurity is an enduring, critical challenge in Ethiopia which is Africa's second populous country after Nigeria. Over 80 percent of Ethiopian population live in rural areas and are heavily dependent on rain-fed agriculture; this makes them extremely vulnerable to changes in weather conditions. Dependence on unreliable and low-productivity rainfed agriculture may well be the primary determinant of household food insecurity in Ethiopia. For example, food-for-work programmes select community projects (such as soil and water conservation activities) that will enhance food production and reduce vulnerability to drought, thereby steadily reducing the numbers of people who are dependent on food aid. Food-for-work has also contributed to developing feeder roads and other physical infrastructure (Woldehanna, 2009).

According to World Bank report (2011) spending on safety net accounts an average, from 1 to 2 percent GDP across developing and transaction countries of the world though if can be sometimes much less than or much more in the last decades, visible growing expects in various areas of safety nets has taken place to. However even are extremely well through correctly implemented and demonstrably affective (WB, 2011 report No 62549).

The problem for food insecurity in Ethiopia has large extent have been addressed by annual emergency food aid from broad. During the past two decades Ethiopia has been a largest recipient of food aid in Africa and one of the largest recipients in the world (Little 2008). For the individual beneficiary food aid has been characterized by uncertainty, poor timing and insufficient assistance (information and statics bureau of woreda agriculture office). Food insecurity a situation which exists when people do not have adequate physical, social and economic access of insufficient, safe and nutrition food that meets their dietary needs and food preference for an active and healthy life. In many developing countries in world it is obvious that food insecurity failed to feed its people in making pronounced and efficient way (MOFED 2005). In responses in 2005 government launched an alternative system, the PSNP help address the needs of chronically food ensure households; Ethiopia productive safety net partition is an international friendship program both in its partnership approach having re oriented rural safety net is a better

responses to the need of food insecure households and create productive investments to underline the rural economic growth and environmental rehabilitation. This is achieved through provision of adequate food and cash transfer to target beneficiary productive and sustainable community asset (MOFED 2005).

According to FAO (2012), food insecurity is a situation which exist when a people do not have adequate physical social economic access to sufficient safe and neutrons food that meets their dietary needs and food preferences an active and health life (Sebhatu 2012). This is not mean that if their exists shortage of some basic needs of human beings, that is food and if individuals is under umbrella of hunger, it is obviously possible to say tat there is food insecurity in the particular area or nations. Food insecurity incorporates low food intake. Variable access to food and vulnerability, a livelihood strategy that generates adequate food in good time but is not resilient against shocks. This outcomes broader correspondents to chronic cyclonical and transistor food insecurity on the other hand occurs when is regular pattern of in adequate access to food and season ability is its majority cause (Deverox, 2000 cited in sibhatu 2010).

According to Ethiopia ministry of agriculture and rural development (MOARD), theoretical concept of safety net program aims to increasing the magnitude and dimension of food security programs at both households and national levels. This aim is to be achieved by strength and increasing substances household income necessary to be insecure and to be a part of the food insecurity line national poverty line indicated in the poverty profile of the ministry. Therefore safety net programs introversion in food insecurity purpose is to avoid food minimize chronic in food insecurity by helping through financial technical and food supply to its beneficiary (MOARD 2007) Various organization are sponsoring this program those sponsors are governmental and non-governmental organization. There a number of food supply program that sponsored by nation private group, for example feller foundation, the pillar tropic organization founded in united states and world Bank (FAB, UN, Rener, 1998). Productive safety net program is one of food security strategy of current time there are others like household assets building program. Complementary community infrastructure program and resettlement program in Ethiopia and SNNPR has begun to meet to break the problems to gap and ensure food security. In case of implementation regional woreda bodies are responsible for food multi-spectral condition of the public work. (FCSD 2001).

2. Methodology

2.1 Description of the Study Area

The study was conducted in three selected Districts (Woredas: Damot Gale Woreda, Damot Pulasa Woreda and Damot Sore Woreda) of Wolaita Zone. Wolaita Zone is one of 13 Zones in Southern Nation Nationalities and Peoples Regional State (SNNPRS) of Ethiopia. This Zone is located at 385 km to south west from Addis Ababa, capital city of the country. The Zone is located between 6^0 40'- 7^0 10' N and 37^0 40' - 38^0 20' E, latitude and longitude respectively. It covers a total area of 4,541Sq. Km. and is composed of 12 administrative Woredas and 3 registered towns. According to Central Statistical Agency report of 2010, total number of estimated population of the Wolaita zone is about 1,581,650. The Zone is characterized with three agro ecological zones; These are: Waina Dega (mid-altitude) which covers about 56% of the area; Kola (low altitude), 35% and Dega (high altitude) 9%. The estimated average annual rainfall is 801 to 1600mm. The annual average temperature of the zone is 21.86°C. The altitude of the zone ranges from 501 to 3000 meter above sea level (WZFEDD, 2014).

2.2 Sampling Techniques and Sample Size Determination

The sample size was computed based on the formula proposed by (Hollander, 1999) for single population. Sample size was determined using the formula:

$$n_0 = \frac{P(1-P)z^2}{e^2}$$

Where: n_0= sample size, z = margin of error at the Z-value of 1.96, p=proportion of independent variable, d^2 = margin of error. Accordingly, under p = 0.5 the total sample size of the study was determined as:

$$n_0 = \frac{0.5*(1-0.5)(1.96)^2}{0.05^2} = \mathbf{384}$$

Therefore, the total numbers of samples included in the study based on the infinite population sample size determination formula were = 384.

When using finite population sample size determination formula it becomes:

$$n = \frac{n_0}{1+\frac{(n-1)}{N}} = \frac{384}{1+\frac{(384-1)}{62945}} = \mathbf{382}$$

With the assumption of 10% non-response rate, 38 respondents were added to the calculation of 382*0.01. Therefore, the true sample size was 382 + 38 = 420.

This study employed two stages sampling techniques to select sample households. In the first stage, out of the 12 Woredas in the zone, three Woredas (Damot Gale, Damot Pulasa and Damot Sore) were selected purposively because considering the size of people, mostly benefited from PSNP. In the second stage three kebeles from each woreda were selected by using random sampling technique to minimize biasness. Finally 420 respondents were selected from the Nine kebeles using systematic random sampling techniques. The sample respondents chosen

from each kebele were selected using probability proportional sampling based on the total number of households in each kebele.

2.3 Method of Data Collection

The relevant data for this study were collected from both primary and secondary sources. Data were collected using different instruments such as interviews, questionnaires and focus group discussions. The associated secondary sources of information were documents related to international practices, academic literatures and published and unpublished materials. Considering available resources, existing capacity to manage them and the importance of increasing and diversifying sample sizes, reasonable sample size were taken from the selected Woredas.

2.4 Method of Data Analysis

The data were analyzed using the statistical package for Social Science (SPSS, Version 20) software. Data analysis was conducted using different statistical models among to identify impacts of PSNP on household food security. From these, logistic regression was widely used due to: the outcome variable in logistic regression is binary or dichotomous (Hosmer D.W., 1989). Because of its mathematical flexibility and simple function logistic distribution was chosen for this study. The logistic function was used because it represents a close approximation to the cumulative normal distribution and is simpler to work with. Therefore Binary Logit model was employed to determinants impacts of PSNP on households' food security. The results were analyzed using both descriptive and inferential (paired *t* test and logistic regression) statistical methods. For the purpose of logistic regression, food security level of PSNP beneficiaries was taken as the dependent variable. Age of the household head, family size, level of education, marital status, Job Opportunity, landholding of household heads, total income of household heads, food consumption, Child Schooling, Women Empowerment, Livestock Holding, and asset accumulation were independent variables included in the study.

3. Results and Discussion

3.1 Socioeconomic and demographic characteristics of sample households

From the total sample households, female-headed households were about 28.57%. Of which 6.91% were from Damot Gale, 8.81% from Damot Pulasa and 12.86% from Damot Sore. The remaining 71.43% were male-headed households. Of which 19.76% were from Damot Gale, 20.48% from Damot Pulasa and 31.19% were from Damot Soe (Table 2). With respect to educational background of respondents, 44.6% do not read and write, 21.9% achieved primary first cycle, 22.1% achieved secondary school and 11.4% achieved Bachelor Degree and above. The mean age of the respondents was 52.04 with a standard deviation of 18.741 and the maximum and minimum value being 28 and 93 years of age, respectively. Respondents have an average family size of 11.24 (approximated to eight). The minimum value for the family size of the household was 2 and the maximum one is 16 (very large family size) (Table 1).

Table 1: Socioeconomic and Demographic Characteristics of respondents

No	Variable	Characteristics of Respondents	Numbers of Respondents	Percentages
		Male	300	71.4%
1	Sex	Female	120	28.6%
		Total	420	100%
		31- 40	72	17.1%
2	Age	41 - 50	163	38.8%
		51 and above	185	44%
		Total	420	100%
		Do not read and write	187	44.6%
3	Education level	Primary School	92	21.9%
		Secondary School	93	22.1%
		Degree and above	48	11.4
		Total	420	100%
4	Marital status	Unmarried	56	13.3%
		Married	325	77.4%
		Divorced	27	6.4%
		Widowed	12	2.9%
		Total	420	100%

Table 2: Distribution of sampled households by *Weredas* and *Kebeles*

Woreda	Name of selected Kebeles from each Woreda	Number of samples taken from each Kebeles	Number of Sampled households taken from each Woreda	Male Headed Households	Female Headed Households
Damot Gale	Ade Sibaye	31	112	83	29
	Sibaye Korke	29			
	Wandara Gale	52			
Damot Pulasa	Bibiso Olola	57	123	86	37
	Worbera Golo	39			
	Siyara Mahe	27			
Damot Sore	Shamba Kile	72	185	131	54
	Sore Mashido	46			
	Sore Wamura	67			

3.2 Before and after status of beneficiary households. Source: Field Survey, 2017

Considering the overall livelihood effect of PSNP, majority (43.3%) of respondents described that the livelihood situations of the household are improved after they have joined PSNP (Table 3). The program also provided moderate improvement for 15.2% of the households. 12.3% of respondents stated that their livelihood was less improved after they have joined the PSNP. Though there was no evidence about the negative impact of PSNP 3.1% of respondents stated that their living standard has been worse while they are the beneficiaries of the program (Table 3).

Table 3: Before and after status of the beneficiary households. Source: Field Survey, 2017

Status	Frequency	Percentage
Highly Improved Now	97	23.1
Improved Now	182	43.3
Moderately Improved Now	64	15.2
Less Improved Now	52	12.3
Worse Now	13	3.1
Don't Know	12	2.9
Total	420	100

3.3 Role of PSNP on Community Development

As it was observed during data collection and from results obtained PSNP was helping the local development in different ways. Among them the two ways are strongly effective on the livelihood of the beneficiaries. First, the program allocated a certain proportion of its budget for the construction of local infrastructures. Second, households that have normal adult labor engage in public works and receive transfers for 6 to 8 months of the year. Public works focus on integrated community based watershed development activities such as soil and water conservation measures, rangeland management and development of community assets such as roads, water infrastructure, schools and clinics. These works contribute to improved livelihoods (through increased availability of natural resources, including water and cultivatable land, soil fertility, increased agricultural production and improved market access), strengthened disaster risk management and climate change adaptation and mitigation.

Table 4: Parameter Estimate of the logistic Regression Model

Variables	B	S.E	Wald	Sig.Level	Odds Ratio
SEXHH	-1.553	1.244	2.111	0.156	0.191
AGEHH	-0.030	0.040	1.064	0.200	0.953
EDUCHH	0.186	0.389	0.233	0.537***	1.204
FAMSIZE	-0.134	0.223	0.345	0.442*	0.876
LANDHHH	0.386	0.336	0.655	0.375***	1.463
TOTINCOM	0.002	0.001	8.203	0.006**	1.000
FOODCONST	-0.311	0.355	2.685	0.106	0.553
CHILDSCH	1.501	0.322	4.375	0.055	3.389
WOMEMP	-1.228	0.246	16.521	0.000	0.264
LIVESHOLD	-0.479	0.275	2.018	0.244*	0.564
ASSETACC	-0.834	0.376	5.485	0.018	0.382
JOBOPP	-1.432	0.741	4.468	0.077	0.239
Constant	11.573	2.242	11.465	0.003	32.521
Pearson- X^2 value = 133.786***					

*, **, *** Significant at 10%, 5%, and 1% probability level respectively
Source: Model Output

3.4 Model Result

The model chi-square value with 133.786 shows that inclusion of the explanatory variables Contributed to improvement in appropriateness of the full model. As a result, out of 12 hypothesized variables which were included in the binary logit model, 5 variables showed statistically significant relationship with beneficiary's food security. These are education status of household head, family size households, livestock holding, landholding, and total annual income of households (Table 4).

4. Conclusion

In this study, the impact of the Productive Safety Net Program (PSNP) on food security of the beneficiary households has been evaluated. PSNP was contributing to the local development in two ways. First, the program provided budget allocation for the construction of infrastructures for communities. Second, productive-aged beneficiaries contribute their labor for the construction of these infrastructures.

Through the provision of cash, food or both, PSNP was helping households to achieve the consumption needs of the households. The program has also increased the food expenditure and level of consumption. As it was observed from the result of this study the PSNP was keeping the minimum level and smoothing consumption, PSNP has improved the food security status of the beneficiary households in the study area. The participation of beneficiary households in public work activities such as soil and water conservation measures, rangeland management and development of community infrastructures such as Schools, water supply, and others contributed to the improvement in livelihoods through the increasing availability of natural resources, increasing agricultural production and improved market access, strengthened disaster and risk management and climate change adaptation and mitigation. These all community-based infrastructures were contributed to the improvement of the livelihood of the community. Lack of awareness among local people, less cooperation with concerned bodies, lack of coordinators, unwise selection of beneficiaries and poor conservation and monitoring of locally built infrastructures were considered as some of challenges for the effective implementation of PSNP.

5. Recommendation

For effective implementation of PSNP the following points have been suggested:

- ✓ In order to a clear vision of understanding about the use of Productive Safety Net, the level of awareness of people should be enhanced through training and education as periodic forums.
- ✓ Enhancing effective target identification and improving evaluation and monitoring system.
- ✓ The government and other concerned bodies should follow-up and monitor the effective use and implementation of the program
- ✓ Beneficiary households should be encouraged to be engaged in diversified and asset building livelihood strategies (off-farming income generating activities), so that sustainable livelihood improvement of the beneficiary households can be achieved.

6. References

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Appendices

Appendix 1: Figures

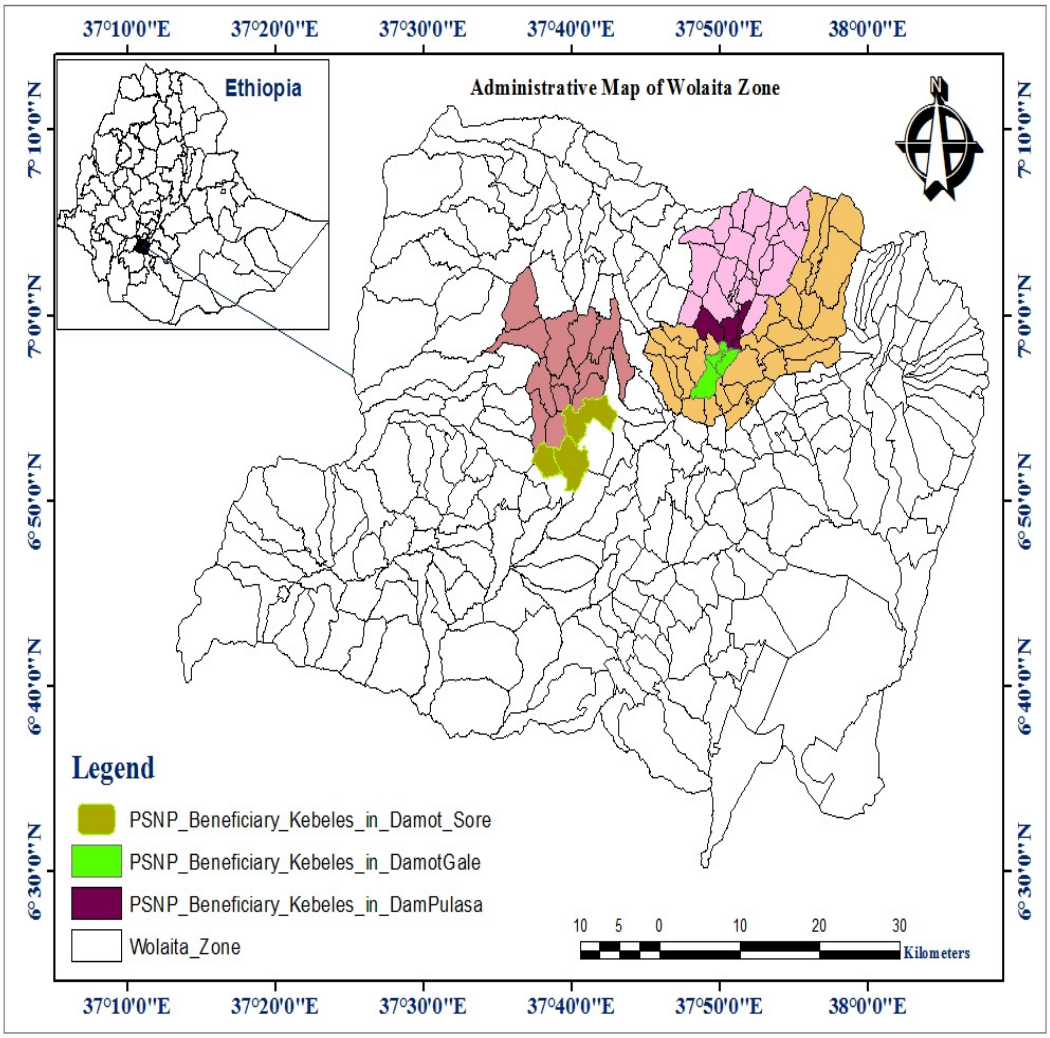

Figure 1. Map of Study Area

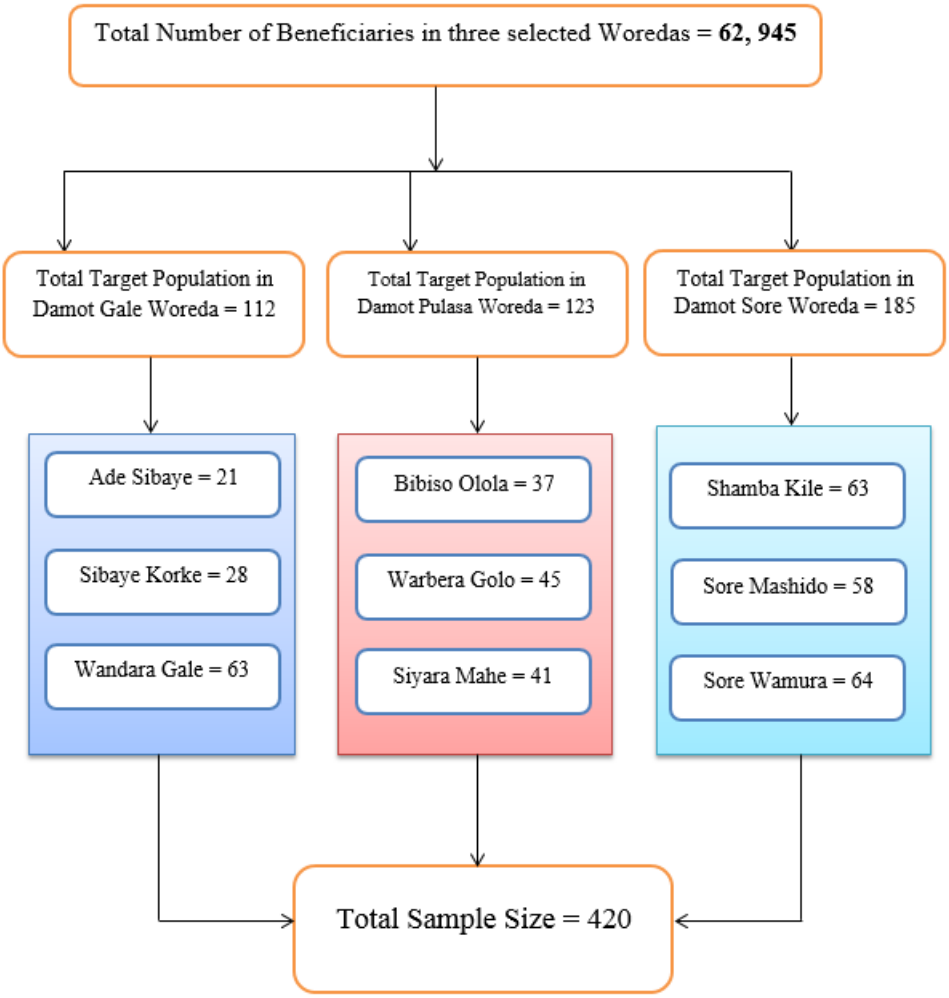

Figure 2. Conceptual Framework of Sampling Procedure