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SOCIO-ECONOMIC EVALUATION OF THE PANTAWID PAMILYANG PILIPINO PROGRAM (4PS) AMONG SELECTED HOUSEHOLDS IN HILONGOS, LEYTE

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This study investigates the impact of the conditional cash transfer program or locally known as Pantawid Pamilyang Pilipino Program (4Ps) on the socio-economic status of selected household beneficiaries in Hilongos Leyte, Philippines. This study aimed to compare the household income and education expenditure between household beneficiaries and non-beneficiaries. The pooled regression analysis was applied to assess the determinants of household income and education expenditure. Education expenditure is significantly affected by parental education, employment status and number of children. The method of difference in difference shows that the impact of the conditional cash transfer on the household income is positive and significant. However, result for the education expenditure is not significant suggesting no statistical difference in education expenditure between beneficiaries and non-beneficiaries. Key informant interviews revealed that children under the 4Ps program were able to attend more school days as compared to the non-beneficiaries. To further document the impact of the program, the local government unit should allocate more time for monitoring and evaluation to maximize the benefits from the program.

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1. INTRODUCTION

Poverty is a serious social economic problem that needs to be addressed. Poverty in many dimensions have always been the mainstream to all economic problems many countries are facing. It has become an illness in the society. A household is considered poor if its welfare level does not reach a given threshold (Stampini & Tornarolli, 2012). Poverty is when an individual experiences inadequacy in the acquisition of basic needs especially food, water, education, and health. But these needs are not commodities that can be purchased. Income can also come in the form of workers' compensations, social security, pensions, interest or dividends, royalties, trust, alimony, or other governmental, public or family financial assistance (Okioga, 2013). Aside from the lack of economic resources to satisfy basic needs, people are also poor because they live in a social, economic and political system which does not provide equality of opportunities. Poverty, if not addressed immediately may drag the whole economy down causing distortions in the process of economic growth. The government and policy makers initiate several programs to solve poverty and provide welfare to its constituents.

Conditional cash transfer program is one of the government initiatives to address poverty. Conditional cash transfer programs are increasingly perceived as an effective tool for poverty alleviation (Son, 2008). The Philippines, due to the growing concern on worsening poverty incidence, introduced a conditional cash transfer known as the Pantawid Pamilya Pilipino Program or 4Ps. The program has been hailed to help fulfil the country's commitment to (i) eradicate extreme poverty and hunger, (ii) achieve universal primary education, (iii) promote gender equality, (iv) reduce child mortality, (v) improve maternal health (Arulpragasam et al., 2011).

In exchange for the cash transfers provided by the government, the beneficiaries are obliged to comply the conditions given by the Department of Social Welfare and Development (DSWD). There are several conditions involve related to education and health. Education grants are provided for beneficiary households with children 6-14 years old with the conditions that the children are enrolled in primary or secondary school and maintain a class attendance rate of 85 percent every month (DSWD, 2022). However, the Department of Social Welfare and Development decided to extend the benefits to high school students aged 15-18 (Bolt, 2015). Health grants are provided for beneficiary households with children 0-14 years old and/or with pregnant women. In return, all children 0-5

years old and the pregnant women should visit health centers and receive services according to Department of Health (DOH) protocol. All children 6-14 years old should undergo de-worming protocol at schools and the household grantees (mainly women) are required to attend family development sessions at least once a month. The household beneficiaries will receive cash grants as much as 1,400.00 (Philippine pesos PhP) (USD 28) per month for a family with a maximum of 3 children in school. The eligible beneficiaries will receive PhP 500 (USD 10) per month for nutrition and health expenses and PhP 300 (USD 6) per month per child with a maximum of three children per household for educational expense (Bolt, 2015).

The education grant of the cash transfer ensures that children, regardless of the gender, will be able to complete full course of primary and secondary schooling. Beneficiaries can also avail free health services for children and standard pregnancy treatments to pregnant mothers (DSWD-CAR, 2022). The conditional cash transfer or locally known as 4Ps is a flagship program of the government in poverty alleviation of the country implemented by the Department of Social Welfare and Development (Frufonga, 2015). The 4Ps has now become third of the largest anti-poverty and social protection programs in the Philippines next to Mexico (6.5 million) and Brazil (8.8 million). However, there is limited empirical evidence in the literature on the benefits of the cash transfer program to the socio-economic development of household beneficiaries particularly on education. Hence, this study will investigate the effects of the cash transfer program to the education outcomes of beneficiaries in Hilongos, Leyte, Philippines. The town of Hilongos is of interest because poverty and inequality in the region remains high (Seriño, 2014a). As of 2020, poverty incidence rate was 26.05% (Philippine Statistics Authority [PSA], 2021).

Numerous literatures found out that conditional cash transfers are effective in its goal to send children to school and reducing inter-generational poverty malnutrition and increase consumption (Bauchet et al., 2018; De Jesus & Rivera, 2020; Dela Torre, 2016; Millán et al, 2019; Orbeta et al., 2019; Parker & Vogl, 2021). A study conducted in Zamboanga del Sur, Philippines found out that 4Ps certainly helped its recipients and the school with 4Ps enrollees (De la Torre, 2016). The study therefore recommended that the program be continued but improved to ensure the attainment of its objectives. However, the study in Bagac, Bataan found out that there is no difference in the number of teachers and classrooms since the implementation of the program given that there is an increase in the number of students (Conchada & Tiongco, 2014). Another study on evaluation of the different conditional cash transfers, ended with mixed results (Acosta &

Velarde, 2015). While the programs helped reduce extreme poverty rates, the increase in school attendance did not necessarily result in better learning outcomes, nor did improved utilization of public health services translate into better health (Agbon et al., 2013).

Beneficiaries are expected to follow and comply with the terms and conditions provided by the government in exchange for the money transfer. There is a specific budget allocated for education and health as well as the food. However, previous studies reveal that the effect of the program on education is mixed. There are visible gains and failures in delivering and monitoring the assistance in some areas. In some cases, the money received by the household beneficiaries that is intended for education and health was realigned for food (Philippine Women's University [PWU], 2016). This happens probably because most of the beneficiaries' income is not enough to provide their families' daily food. This is observed in some municipalities that are covered by the 4Ps. Some anecdotal evidence shows that some parents and guardians at times spend the money for gambling and other expenditures instead of complying with the conditions (Montilla et al., 2015). A study on conditional cash transfer (CCT) programs in three Latin American countries revealed that the cash transfer increased fertility rates by 2-4% implying that the CCT encouraged women to have more children (Stecklov et al., 2017). The Philippines' CCT program faces issues, as the system is not entirely automated, particularly in rural areas with poor infrastructure, which could allow for political manipulation (Mendoza & Olfindo, 2016). Given the strengths and weaknesses of the program, there is a need to provide data driven evidence on the effect of the program on the lives of the poor and whether the program significantly meets its goals in improving education outcomes.

2. METHODOLOGY

To assess the impact of conditional cash transfer or locally known in the Philippines as the Pantawid Pamilya Pilipino Program (4Ps), before and after analysis was used. Two groups are compared. Group one includes the beneficiaries while the other group comprises the non-beneficiaries. Figure 1 outlines the conceptual framework used in the study. Following Seriño et al., (2021), Figure 1 shows that at the initial stage before the implementation of the program, it is assumed that poor households are relatively similar in their socio-economic characteristics and on their expenditure on education. After implementing the program and assuming that the program will bring benefits to

the poor households, it is expected that the expenditure in education will be improved as hypothesized in Figure 1. The cash grant to be received by the beneficiaries reflects the increase on the expenditures on education.

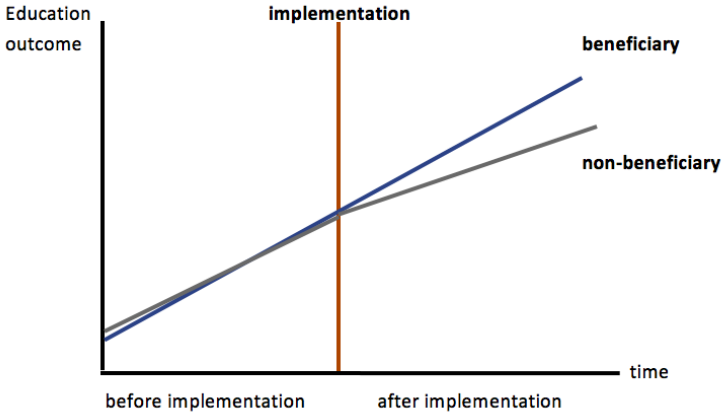

Figure 1. Conceptual framework on the effect of conditional cash transfer on education outcomes among beneficiaries (Seriño et al., 2021).

Respondents include the beneficiaries and non-beneficiaries. The conditional cash transfer program beneficiaries were randomly selected from the list beneficiaries starting in 2015. The non-beneficiaries serve as the control group in the study. Comparative analysis was conducted between the selected villages in Hilongos, Leyte, Philippines. Figure 2 shows the location of the study. Hilongos is a coastal town located in the central and western part of the Leyte island, Philippines. The municipality of Hilongos is a second class municipality in the province of Leyte. The municipality covers 192.92 square kilometres (3.05% of the total land area of Leyte). In 2020, the reported population was 64,514 (PhilAtlas, 2022). Common crops planted in the area include rice, coconut, banana rootcrops and vegetables (Giles et al., 2019; Ruales et al., 2020).

Simple random sampling method was used in the selection of respondents. A total of 166 respondents were interviewed. Ninety-nine are the beneficiaries of the program and the remaining sixty-seven are the control group or the non-beneficiaries.

Figure 2. Location of Hilongos, Leyte, Philippines (Source: Bing Map, 2022).

Data analysis

The study uses descriptive statistics to analyze the characteristic of the respondents and their socio-economic conditions and perceptions. Difference in difference analysis was used to evaluate the impact of conditional cash transfer program on education outcome. Regression analysis was done to evaluate the variables affecting education outcomes controlling for socio demographic and economic variables.

To estimate the impact of the conditional cash transfer on education outcomes, the regression models was specified as follows:

$$educ_i = \beta_0 + \beta_1 period_i + \beta_2 beneficiary_i + \beta_3 tot\_income_i + \beta_4 age_i + \beta_5 female_i + \beta_6 yrs\_educ_i + \beta_7 employ\_stat_i + \beta_8 accessfin_i + \beta_9 asset\_index_i + \beta_{10} hhsize_i + \beta_{11} elem\_child_i + + e_i$$

where:

$educ_i$	=	expenditure on education
period	=	dummy variable for time; 0 for before and 1 for after
beneficiary	=	dummy variable for 4Ps beneficiaries taking the value of 1 if the households are 4Ps beneficiaries and taking 0 for non-4Ps households
tot_income	=	monthly household income including the cash transfer (measured in pesos)
age	=	age of household head measured in years
female	=	gender of the household head taking the value of 0 for males and 1 for females
years_educ	=	years of education of household head
employ_stat	=	status of employment; 0 if unemployed and 1 if employed
accessfin	=	dummy variable for access to finance, 0 for No 1 for Yes if have access
asset_index	=	asset index
hhsize	=	number of family members
elem_child	=	number of children in elementary education
e	=	remaining error term

The subscript i refer to the individual households. The estimate of β coefficients indicates the associated change in the outcome variable.

The method of difference-in-difference is a powerful, yet data intensive way of getting rid of the unobserved heterogeneity causing selection bias assuming that this unobserved heterogeneity is time invariant. For assessing the impact of conditional cash transfer on the education expenditure in Hilongos, Leyte, the method of difference-in-difference involves the comparison of averaged before-after outcome level for the beneficiaries and non-beneficiaries. We can refer to the beneficiary group as the treatment group and the non-beneficiaries are the control group. We need to have a control group to compare the changes in outcomes between those who are recipient and not recipient of the cash transfer program. By doing this, we can estimate the impact of the project using algebraic approach as follows:

$$Impact = \frac{1}{n}\sum_{k=1}^{n}(O_k^{after} - O_k^{before}) - \frac{1}{m}\sum_{l=1}^{m}(O_l^{after} - O_l^{before})$$

where n being being the unit of analysis in the treatment group, m the unit of analysis in the control group and O denoting the outcome investigated. The

dependent variable impact is the difference in outcomes between the beneficiary and non-beneficiary group. To use regression analysis, the algebraic approach presented in the equation above is transformed into the following function form:

$$outcome = ß_0 + ß_1 impactDID + ß_2 benef + ß_3 time + e$$

where:

outcome	=	is the outcome indicator
impactDID	=	difference-in-difference effect capturing the interaction effect between beneficiary and time
benef	=	dummy variable coded as 1 for beneficiary and 0 for non-beneficiary
time	=	dummy variable coded as 1 after the project implementation and 0 for before
e	=	usual residual term

The coefficient of interest is $ß_1$ as it reflects the impact of the project comparing the beneficiary and non-beneficiary and changes over time. If $ß_1$ is positive it implies that there is positive impact of the intervention suggesting that the outcome variable increased over time and its value is also higher than that of the control group. If $ß_1$ is also significant, then there is sufficient evidence to indicated that the estimated coefficient is statistically difference from zero.

3. RESULTS AND DISCUSSION

Socio-demographic characteristics of respondents

A total of 166 respondents were randomly selected as respondents of the study. Out of these total numbers of respondents, there were 99 beneficiaries interviewed and 67 non-beneficiaries. Table 1 shows the summary profile for the gender and age of the respondents. Both the interviewed respondents were dominantly female. The age of the respondents was divided into 5 categories. About 35% beneficiary respondents and 54.4% of the non-beneficiary is aged 26-40 years old. The mean age of the beneficiary is 45.29 or 45 years old while the average age of the non-beneficiary respondents is 37.90 or 38 years.

Table 2 shows the marital status and educational profile of the respondents. Majority of the beneficiaries (87%) and non-beneficiary (66.2%)

respondents were married. For educational attainment, around 70% of the beneficiary households were elementary level and 44% of the non-beneficiary were elementary level.

Table 1. Sex and age profile of the conditional transfer program beneficiaries and non-beneficiaries in selected villages in Hilongos, Leyte, Philippines.

Socio-Economic characteristics of respondents		Beneficiaries		Non beneficiaries	
		n	%	n	%
Sex of Respondents	Male	12	12	9	13.2
	Female	87	88	58	86.8
	Total	99	100	67	100
Age of Respondents	18-25	1	1	9	13.2
	26-40	34	35	36	54.4
	41-49	27	37	10	14.7
	50-69	36	36	11	16.2
	70-85	1	1	1	1.5
	Mean Age	45		38	

In terms of educational attainment, Table 2 shows that around 12% of the beneficiary respondents were high school level and close to 30% of the non-beneficiary respondents were also at the high school level. There were only few of the respondents who indicated that they were able to attend and graduate from college. This suggests that both conditional cash transfer beneficiaries and non-beneficiaries located in the agricultural and rural areas of Hilongos, Leyte have relatively lower level of education. The region had relatively lower level of education. The southern part of the island also indicated that respondents are commonly around elementary level of education (Diacamos et al., 2021).

Table 3 shows the average monthly cash income of the respondents. For the conditional cash transfer beneficiary, the total cash is sum of their usual monthly income plus the cash transfer they receive. Before the becoming recipient of the cash transfer program, it is observed that both groups have relatively average monthly income. After becoming recipient of the conditional cash transfer program, the beneficiary group is expected to have a higher income.

As shown in Table 3 program, the increase in income of being a beneficiary of the cash transfer program is relatively higher than the comparison group. The

cash transfer program was able to increase the household's monthly income by as much 54.81% as compared to the non-beneficiary group who reported an increase in income by around 22.18%. The income from the non-beneficiary group is also expected to increase because of the general changes with respect to time and may contribute to their development.

Table 2. Marital status and educational profile of the respondents.

Socio-Economic characteristics of respondents		Beneficiaries		Non-beneficiaries	
		n	%	n	%
Status	Married	86	87	44	66.2
	Live in	3	3	15	22.1
	Separated	4	4	5	7.4
	Widowed	6	6	3	4.4
Educational attainment	Elementary Level	69	70	29	44.1
	Elementary Graduate	0	0	0	0
	High school Level	12	12	19	27.9
	High school Graduate	16	16	13	19.1
	Vocational	0	0	1	1.5
	College Level	1	1	2	2.9
	College Graduate	1	1	3	4.4

Table 3. Average monthly income of respondents plus half of the cash transfer before and after the program in Hilongos, Leyte.

Period	Beneficiary	Non-Beneficiary
Before	4,060.00	3,908.96
After	6,285.35	4,776.12
% Change	54.81%	22.18%

Table 4 shows the average monthly expenditures of selected beneficiary and non-beneficiary households. As observed, non-beneficiary respondents have higher total expenditures before the program started. However, after the program, the beneficiary group respondents have higher expenditure in terms of food and education related expenditure. The difference presented in Table 4 is very little marginal as compared to the expected increase. This can be an indication that even

without the program, household expenditure related to education will increase even without the conditional cash transfer. Expenditures of households around the poverty threshold are mostly concentrated on food related items (Seriño, 2014b) but as income increases other expenditure categories like education, health and recreation will also increase.

Table 4. Average monthly expenditures of beneficiary and non-beneficiary households in Hilongos, Leyte, Philippines

Average monthly expenditures		Beneficiary	Non-beneficiary
Before	Food expenditure	3,440.20	3,529.85
	Education expenditure	490.91	502.99
After	Food expenditure	4,232.32	4,240.30
	Education expenditure	746.46	658.96

Factors affecting household income and education expenditure using pooled multiple regression analysis

Table 5 shows the factors affecting total income and education expenditures. The regression results in models 1 and 2 used is a semi-logarithmic approach where the log of total income and education expenditure is used as dependent variable. Robust standard errors were used in the model and different diagnostic tests were also used to check the validity of results. All models are significant at 1% since Prob > F=0.0000. This suggests that at least one of the explanatory variables is significant.

Model 1 shows the variables affecting total income of the respondents. Model 1 shows that 43.2% of the variation of total income is explained by the variables in the model. Among the variables included, the being a beneficiary of the program, educational background of the respondents, access to finance, asset index, household size including time period positively influence household income. The coefficient of the time period suggests that after the program the respondents' total income increases by 29.9%. This means that even without the program, total income of the respondents are expected to increase by around 30%. Being a beneficiary of the conditional cash transfer program, the expected monthly income of agricultural households is expected to increases by 18.8%. As to the other control variables in model 1, results suggest that if households have relatively higher education is associated with higher monthly income as compared to households with lower level of education. This reflects the value of literacy when it comes to the job/salary matters. Access to credit also increases total income

by 8.91%. For household asset, a 1% increase in the asset index increases total income by 12.2%. Household size is also expected to contribute to the total monthly income. This is plausible because in rural villages, the human assets would generate more labor source for the households.

Table 5. Factors affecting total income, health and education expenditures and child labor as influenced by 4Ps

VARIABLES	Income	Education Expenditure
Time period	0.299***	0.305***
	(0.0393)	(0.0555)
4Ps Beneficiary	0.181***	0.00185
	(0.0465)	(0.0613)
Log of total income		0.0767
		(0.0728)
Age	0.00103	0.000645
	(0.00211)	(0.00241)
Female	0.0108	0.0478
	(0.0723)	(0.0853)
Years of education	0.0177**	0.0259**
	(0.00851)	(0.0112)
Employed	0.0368	0.191***
	(0.0687)	(0.0701)
Access to finance	0.0891**	0.0511
	(0.0405)	(0.0604)
Asset index	0.122***	0.0228
	(0.0280)	(0.0285)
Household size	0.0336***	0.111***
	(0.0118)	(0.0127)
Elementary school children	0.00583	0.0787**
	(0.0225)	(0.0304)
Constant	7.971***	4.612***
	(0.160)	(0.606)
Observations	276	267
R-squared	0.432	0.396

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Model 2 shows the variables affecting education expenditures of the respondents. Results show that 39.6% of the variation of education expenditure is

explained by the model. After the program, education expenditure of respondents increases by 30.5% and is significant at 1%. Being a beneficiary of the conditional transfer program, suggest that expenditure in education tend to increase but the effect is not significant. The other variable that positively influence education expenditure include household education, employment status, household size and number of children in elementary school. These results are as expected. For parents with relatively higher education, will likely push their children to also pursue and acquire higher level of education. Being employed positively affects expenditure in education. Household size and number of children in elementary school will positively affect expenditure in education.

As a form of diagnostic check, we conducted graphical approach in assessing the normality of the residual term. Figure 3 shows that the distribution of the residuals is normally distributed. Results indicate sufficient evidence that the assumption of normality of residuals is not affected. The figure shows that the residuals can be considered normally distributed because of the proximity of the estimated density over the normal curve (Figure 3).

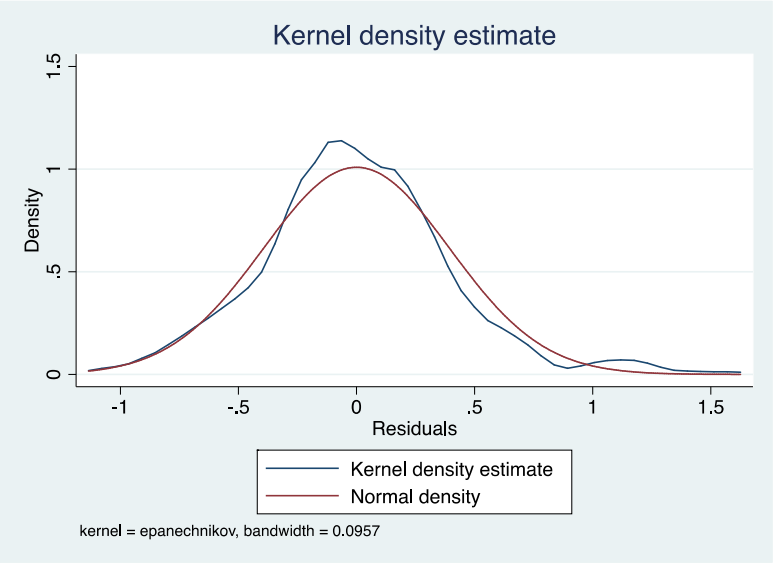

Figure 2. Normality check of the residual for the regression analysis with education expenditure as dependent variable.

Estimating impact of conditional cash transfer

Table 6 shows the analysis was done using difference-in-difference in estimating the impact of the conditional cash transfer program among program beneficiaries in Hilongos, Leyte. The variables in the independent side include: (1) period which is a dummy for time with a value of 1 for after the program implementation and 0 for before the program implementation, (2) treatment which is a dummy for the treated and control group with 1 for the treated group (member) and 0 for the control group (non-member); and (3) impact variable (period*treatment) is the interaction and captures the impact of the conditional cash transfer on the households income and education expenditures. The dummy variable period*treatment is the most important variable in the impact estimation because this is considered as the difference-in-difference estimator of impact.

Based on the results, the conditional cash transfer program has significant impact in the total income of the respondents. The coefficient of the impact estimator on total income is positive and significant at 1%. This means that the program is effective increasing the monthly income of the beneficiaries. This shows that the program was able to increase the income of respondents by around 25%. However, when it comes to education expenditure, the coefficient is positive but not significant. The impact estimate for the education suggests a 22.2% increase in education expenditure but we cannot confidently claim this because the effect is not statistically significant. This suggests that there is no sufficient evidence to indicate that the conditional transfer was effective in increasing expenditure related to education.

Table 6. Estimation of Impact using difference in difference regression analysis.

VARIABLES	Total income	Education expenditure
Time period	0.215***	0.448**
	(0.0580)	(0.208)
4Ps Beneficiary	0.0446	0.0167
	(0.0531)	(0.190)
Impact	0.249***	0.222
	(0.0751)	(0.269)
Constant	8.187***	5.789***
	(0.0410)	(0.147)
Observations	332	332
R-squared	0.281	0.060

Note: Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

To provide further explanation to the results, key informant interviews were conducted. Parents mentioned that there children was able to attend more school days compared before becoming recipient of the program. The enrolment of the children of household beneficiary of the cash transfer program is relatively higher compared to the non-beneficiary households. The findings of this study are similar to what is available in the literature that there are some evidence that the conditional cash transfer program was able to increase enrolment of elementary school children (Chaudhury et al., 2013); Montilla et al., 2015). Although education expenditure did not increase, the increase in enrolment suggests that the program is effective in sending the children to school.

Many studies were conducted regarding the impact of the conditional cash transfer program in different parts of the country. Mixed results were produced. However, most studies found the program to be effective. Our analysis also produced mixed results, while the impact on household income is significant, the impact on education expenditure is weak. This might because a large portion of income they receive is allocated on food expenditures.

4. CONCLUSION

This study collected primary data from the 166 selected households in Hilongos, Leyte. The respondents are composed of conditional cash transfer program beneficiary and non-beneficiary. The study aimed to investigate the impacts of the conditional cash transfer program to the respondent's monthly income and expenditure on education.

The descriptive analysis shows that the program increases the monthly income and the education expenditure of the beneficiaries. There is an increase in monthly income, food, education expenditure. However, the analysis using difference in difference method suggest that positive and significant increase in monthly income but the impact on education expenditure is not statistically significant.

This study suggests that the local government unit (LGU) in the locality should allocate time devoted to the evaluation and monitoring of the program. This is because the cash transfer that is given to the beneficiaries might be misallocated and spent on the other expenses resulting to an insignificant impact especially on education expenditures. Misallocation of the cash always happens especially when there is a large household size. Channeling government resources to help agricultural communities appears to be beneficial in the long term (Seriño

& Seriño, 2016). The local government unit may intensify its role in monitoring to further strengthen the benefits from the cash transfer program. Continued capacity building is an important long-term investment to uplift the overall welfare of agricultural communities.

The conditional cash transfer program has good intentions of providing additional source of income and alleviating poverty in the country. It provides assistance to the poor families to help them uplift from the poverty they are in now. However, for the program to become truly successful, the provision of cash transfer for the poor should not be the end. It is important to allocate enough time and budget on the monitoring and evaluations of the program to take into account the negatives and positives it brings on the society and to find out whether the program is a success or not.

5. CONFLICT OF INTEREST

The authors declare no conflict of interest.

6. ACKNOWLEDGMENT

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