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Impact of Family Hope Program on Household Food Consumption: A Case Study in East Java Province

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ABSTRACT
Family Hope Program (PKH) is a conditional cash transfer in Indonesia that aims to alleviate poverty by improving the welfare of its receivers. Previous studies show that CCT has an impact on welfare observed from household expenditure indicators. This study aims to identify the impact of PKH on household food consumption in East Java Province. Data used in this study is derived from National Economy Social Survey (SUSENAS) of 2018 and the analysis method used is Propensity Score Matching (PSM). The analysis with Matching Nearest Neighbour Without Replacement method shows that PKH significantly improves whole grains food consumption and significantly lower the consumption of prepared food and drinks in households in East Java Province.
Keywords: *Family Hope Program, food consumption, Propensity Score Matching*

1. INTRODUCTION

It goes without saying that welfare is the primary objective of every nation and it is affected by per capita income, inequality and poverty [1]. On indicator of population welfare is income which is reflected by household spending in meeting nutritional needs based on calorie and protein consumed [2]. Every household must have their own income to satisfy consumption since theoretically, consumption will still occur even without income, called autonomous consumption. Consumption expenditure is directly proportional to income, meaning that the higher the income is, the higher the consumption spending will be. Food consumption is the most important needs because it is one of essential needs to survive, which is the reason why low-income community groups spend most of their income to purchase food.

Social security program in the form of social assistance and insurance is enforced by the state to achieve welfare. One of the social assistances is Condition Cash Transfers (CCT) which is a cash assistance given with certain conditions to poor people in order to alleviate poverty at present and future [3]. Historically, CCT program was initially implemented in Mexico in 1997 under the name Programa de Education, Salud y Alimentacion (PROGRESA), which was then implemented in many countries due to its success.

Indonesia is a little behind to jump on the bandwagon. In Indonesia, the first CCT program was implemented in 2007 in an experimental trial. It was given the name Program Keluarga Harapan (PKH) (Family Hope Program). PKH was priority program in alleviating poverty through the granting of cash assistance to really poor households based on set provisions. CCT has an impact on welfare which indicated by its impact on consumption, health and education. The impact on consumption is not only observed from total consumption, but also from consumption composition [3].

Studies on conditional cash transfer related to consumption in general has been performed in countries around the world [4]–[9], including in Indonesia [10], [11]. Specifically, CCT has a positive impact on poor household food consumption, especially when it comes to protein [10] and carbohydrate consumption [5].

This study aims to identify the impact of CCT in Indonesia on food consumption at province level. PKH policy evaluation is done in East Java Province because it is a province with a large population with higher poverty rate than national poverty rate [12]. High poverty rate in East Java contributes substantially to national poverty rate, thus, PKH as a poverty alleviation program is expected to have an impact on poor household food consumption spending. The success of the program observed from the consumption behavior of PKH participants shows that the assistance is used as intended. PKH assistance is supposed to be used to satisfy household basic needs, one of which is food consumption.

2. RESEARCH METHODOLOGY

The impact of PKH on household food consumption was analyzed using National Economy Social Survey (Susenas) data of 2018 in districts/cities in East Java Province. The household data used were 15,738 households consisting of 156 households that only received PKH assistance and 15,738 households that did

not receive any form of assistance from the government according to 2018 SUSENAS questionnaire.

Variables in this study consisted of interest, control and outcome variables. The interest variable used was PKH participation dummy, 1 for PKH participant and 0 for others. The control variable was poor family criteria and the characteristics of PKH participants which is presented below.

Breastfeeding mothers: dummy 1 if there was breastfeeding mothers in the household, 0 others children aged 0-6 years: dummy 1 if there was children aged 0-6 years in the household, 0 others school age children (elementary school, middle school and high school): dummy 1 if there was school age children in the household, 0 others

elderly ≥ 60 years: dummy 1 if there was elderly ≥ 60 years in the household, 0 others disability: dummy 1 if there was disability in the household , 0 others

family head education: dummy 1 if family head education not in school, not graduated and graduated elementary school, 0 others

size of house: dummy 1 if size of house percapita<8m^2, 0 others

house floor material: dummy if ground, bamboo and low quality wood floor, 0 others

toilet ownership: dummy 1 if no toilet facilities and have together with other household, 0 others

drinking water source: dummy 1 if water comes from unprotected springs, unprotected wells, surface water and rainwater, 0 others

wall type: dummy 1 if material from bamboo, woven bamboo, low quality wood, 0 others

water source for showering/washing/cooking: dummy 1 if water comes from unprotected springs, unprotected wells, surface water and rainwater, 0 others

fuel for food cooking: dummy 1 if it comes from firewood, charcoal, kerosene and not cooking, 0 others

The outcome variable was food consumption in Rupiah according to SUSENAS questionnaire for households in the past week.

Impact evaluation was performed to identify whether a program had the desired effect. To obtain the right methodology, impact evaluation must predict counterfactuals, program receiver condition if they did not receive the intervention program. An experimental design could be used by comparing control group and treatment group [13].

One method of impact analysis was Propensity Score Matching (PSM) used to identify outcomes discrepancies between a household that received a treatment compared to that that did not. In this study, the outcome in question was household food consumption and the treatment in question was PKH participation. Mathematically, it is expressed as:

$$Y_i = D_i Y_{1i} + (1 - D_i) Y_{0i} \quad (1)$$

Where Y_i was the outcome indicator which is food consumption, D_i was the treatment indicator with a score of 1 if a household was a PKU participant and a score of 0 for others, Y_{1i} was the spending total estimation for food consumption as a PKH participant and Y_{0i} was the spending total estimation as a non-PKH participant.

The underlying problem of outcome potential of households that received treatment (Y_{1i}) and those that did not (Y_{0i}) at the same time cannot be measured, thus, only one of them that can be observed, making the impact estimation of the intervention impossible. Therefore, a mean effect of the intervention's impact, or called The Average Treatment on the Treated (ATT) was estimated. ATT could product the average impact of households that received treatment.

There were several matching techniques that could be used in a PSM analysis such as Nearest Neighbor Matching, Caliper and Radius Matching, Stratification and Interval Matching, Kernel and Local Linear Matching, and Weighting. No method is superior over the other. In this study, the PSM analysis used a method with stages that were contained in Caliendo's study [14].

3. HYPOTHESIS

The hypothesis in this study was that CCT/PKH would have a significant impact on food consumption increase in poor households.

4. RESULT AND DISCUSSION

The impact analysis using PSM method started with logit model estimation and propensity score. The probability of a household to be a PKH participant in Table 1 was influenced by factors such as the presence of children aged 0-6 old, school age children, family head education, house floor material, water source for showering/washing/cooking, and fuel for food cooking.

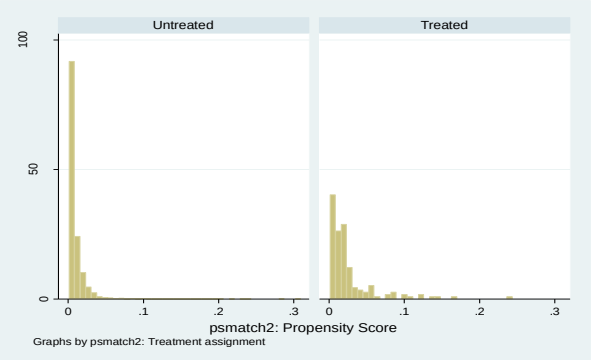

Figure1. Propensity Score Distribution

Source: Author's Calculation (2019)

The bancing score test show statisfied with 9 final block. This analysis used Nearest Neighbor (NN) method with replacement because there is a difference between total data and propensity score distribution in the interest variables in treatment and control groups [14], as shown in Figure 1.

Table 1. Logit Model of PKH Participants

Variable	Parameter Estimation	
	Coefficient	Std. Error
breastfeeding_ mothers	0.2120184	0.2516992
children	0.4621647**	0.1906805
school_age	1.236516**	0.181313
elderly	-0.1695066	0.1897567
disability	0.7158395	0.5195862
family_head_educ	0.9867032**	0.1832392
size_house	-0.2357558	0.4000039
floor	1.42228**	0.2530581
toilet	0.2415985	0.2233278
drinking_water	-0.2120954	0.4649802
wall	0.3563799	0.3772784
water_cooking	0.7480438*	0.3942072
fuel_cooking	0.4355955**	0.2180547
_cons	-6.263744**	0.2207187

Source: Author's Calculation (2019)

* significant α 10%, ** significant α 5%

PKH impact estimation on food consumption included the impact on total consumption and food types as detailed in Susenas Questionnaire of 2018 in a week. PKH impact resulting from ATT score estimation of the result of matching quality was satisfaction. ATT score estimation on food expenditure was presented in Table 2

ATT score estimation showed that PKH had no impact on total food expenditure, however, a significant impact was observed on whole grains food expenditure as well as prepared foods and drinks expenditure. ATT value in whole grains consumption was 10,208, meaning that PKH participants had Rp10,208 higher whole grains consumption average compared to non-PKH participants. This was in line with the hypothesis and [5]. The study [15] showed that food commodity was a essential needs for poor households in East Java. Low purchasing power of poor households caused unvarying food consumption. Any amount of money they had would be largely used to buy food that provides solid energy from carbohydrate.

ATT value on prepared foods and drinks expenditure was negative 33,611. This means that PKH participants had Rp33,611 lower prepared foods and drinks expenditure average compared to non-PKH households. Prepared foods and drinks consumption indicated a rising trend both urban or rural areas of East Java [2]. However, PKH households had lower consumption compared to non-PKH participants.

Table 2. Impact of PKH on Household Food Consumption

Variable	NN With Replacement	t-stat
grains	10.208,7756**	2,21
bulbs	122,089744	0,15
fish/shrimp/squid	5.119,10256	1,30
meat	-3.186,53846	-0,91
eggs and milk	-1.897,64744	-0,32
vegetables	-1.253,07692	-0,48
nut	1.240,12821	0,77
fruits	-5.316,02564	-1,51
oil and coconut	-1.374,02564	-1,24
beverage ingridients	-2.240,0641	-1,33
herbs and spices	-114,051282	-0,14
other food ingridients	-1.526,53846	-1,08
prepared food-drink	-33.611,0897*	-1,76
cigarettes and tobacco	6.298,65385	0,65
total food	-27.530,3077	-0,79

Source: Author's Calculation (2019)

* significant α 10%, ** significant α 5%

5. CONCLUSION

Based on the discussion in previous section, it can be concluded that PKH had a positive and significant impact on carbo-based food consumption in households in East

Java. Negative and significant impact was observed in prepared foods and drinks consumption. It shows that the assistance given was used to satisfy household food needs. To achieve quality food status in PKH participants, PKH advisers are expected to not only publicize the program but also advise on nutritious and quality food consumption.

6. ACKNOWLEDGEMENTS

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