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Evaluasi Dampak Program Keluarga Harapan (PKH) terhadap Pengeluaran Rumah Tangga untuk Pendidikan di Pulau Jawa

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ABSTRAK

Kemiskinan menjadi permasalahan global mencakup negara-negara berkembang maupun negara-negara maju. Untuk mengatasi permasalahan kemiskinan, berbagai negara menerapkan program pengentasan kemiskinan berupa paket kebijakan *Conditional Cash Transfer* (CCT). Di Indonesia program CCT diberi nama PKH. Program ini mewajibkan prasyarat (kesehatan dan pendidikan) kepada penerima program dengan tujuan agar dapat keluar dari lingkaran kemiskinan. Penelitian ini bertujuan untuk mengetahui dampak PKH terhadap pengeluaran rumah tangga untuk pendidikan di Pulau Jawa dengan menggunakan data IFLS 5 tahun 2014.

Penelitian ini menggunakan metode analisis *Propensity Score Matching*. Penelitian sebelumnya menunjukkan bahwa PKH di Indonesia tidak berdampak signifikan terhadap total pengeluaran rumah tangga untuk pendidikan. Dengan membagi komponen pengeluaran pendidikan, paper ini berhasil menunjukkan adanya dampak signifikan meningkatkan total pengeluaran pendidikan di dalam rumah tangga sebesar Rp1.031.963,53 per tahun. Peningkatan juga terjadi pada total biaya transportasi sebesar Rp603.085,86. Sedangkan total pengeluaran pendidikan di luar rumah tangga bagi penerima PKH justru menurun sebesar Rp277.475,49 per tahunnya.

Kata kunci: Evaluasi Dampak, PSM, Transfer tunai, Pengeluaran Pendidikan.

Klasifikasi JEL: H75, I22, I38, O15

Impact Evaluation Program Keluarga Harapan (PKH) On Household Expenditure For Education in Java

ABSTRACT

Poverty becomes a global problem including developing countries and developed countries. To overcome the problem of poverty, various countries have implemented poverty alleviation programs in the form of a Conditional Cash Transfer (CCT) policy package. In Indonesia the CCT program is named PKH. This program requires prerequisites (health and education) to program recipients with the aim of getting out of the cycle of poverty. This study aims to determine the impact of PKH on household spending on education in Java using IFLS 5 data in 2014.

This study uses the Propensity Score Matching analysis method. Previous research shows that PKH in Indonesia has no significant impact on total household expenditure on

education. By dividing the components of education expenditure, this paper has successfully demonstrated the significant impact of increasing total education expenditure in the household by IDR 1,031,963.53 per year. The increase also occurred in the total transportation costs of IDR 603,085.86. While the total education expenditure outside the household for PKH recipients actually declined by IDR 277,475.49 per year.

Keyword: Impact Evaluation, PSM, Cash Transfer, Education Expenditures.

JEL Classification: H75, I22, I38, O15

INTRODUCTION

Poverty is an issue that is always interesting to study. In addition to the sensitive issue of poverty reduction is one measure of the success of development as a basis for planning a future state, and material evaluation of government programs. Poverty is not only a problem in developing countries but also a problem in developed countries.

Figure 1 Profile of Poverty in Indonesia (BPS, 2020)

Indonesia's poverty rate experiences a downward trend, even in 2018 for the first time since 1998 the percentage of poverty in Indonesia is below 10 percent and continues to fall until September 2019. Data also shows the number of poor people by island, Java is an island with a number of people the highest poverty rate among other large islands in Indonesia (BPS, 2020).

In total there are still 24,79 million poor people in Indonesia, to overcome poverty some countries have implemented a conditional cash transfer (CCT) policy program, this program provides conditional cash assistance to poor households to help with their daily needs.

Conditional cash transfer (CCT) programs offer countries a new way to overcome poverty and prevent the transmission of poverty to future generations. They do so by providing regular cash payments to families on the condition that they fulfill basic obligations, which are typically related to the usage of health and education services (Alatas, 2011).

CCT programs in Indonesia was named the Program Keluarga Harapan (PKH). This program aims to reduce

poverty by targeting poor households and poor vulnerable households. CCT was first launched in July 2007 with a pilot in 7 provinces (DKI Jakarta, West Java, East Java, North Sulawesi, Gorontalo, East Nusa Tenggara, and West Sumatra) with the target audience of 500,000 households (TNP2K, 2014)

In 2012 PKH finally operated in all provinces in Indonesia, although it still did not reach all districts in each province. Expanding PKH coverage is a program challenge if it wants to have a large impact on Indonesia's poor population (Nazara and Rahayu, 2013)

PKH is given to Very Poor family or Keluarga Sangat Miskin (KSM), which meets at least one criterion of membership programs, namely, (1) having pregnant / postpartum / toddlers; (2) have children aged 5-7 years who have not entered primary education; (3) children aged SD/MI/PaketA/SDLB; (4) Child Junior/MTs/Package B/SMLB; (5) children 15-18 years old who have not completed basic education, including children with disabilities. The whole family in a household is eligible to receive cash assistance if they meet the criteria for membership in the program and meet its obligations.

The obligations that must be carried out and fulfilled by PKH participants include, among others, (1) the health component requires PKH participants to use prenatal services, the birth process must be assisted by trained health workers, postnatal services as well as immunizing children and monitoring child growth and development routinely; (2) the education component requires PKH participating children to be registered and attend school at least 85 percent of the number of valid school days. The stipulation of these requirements is expected to bring changes in the behavior of PKH participants to the importance of health and education for their children.

One of the indicators of program success can be measured by the effect of the program on household expenditure. One of the specific objectives of PKH is to improve the level of education of PKH participants so that indicators of the success of this goal can be seen from the household expenditure for education. Is there a difference between program

beneficiary households and households that don't get the program.

Table 1 the number of poor people by island

Island	Total Poor Populations (in 1,000)		
	Rural	Urban	Total
Sumatera	2.062,94	3.709,47	5.772,41
Jawa	6.338,48	6.217,43	12.555,90
Bali dan Nusa Tenggara	564,78	1.427,26	1.992,04
Kalimantan	329,36	632,15	961,51
Sulawesi	432,49	1.556,27	1.988,76
Maluku dan Papua	129,70	1.385,53	1.515,23
Indonesia	9.857,74	14.928,11	24.785,85

Source: (BPS, 2020)

Java island is an island with the highest number of poor people in Indonesia. According to BPS (2020), the number of poor in Java amounted to 12.55 million out of 24,7 million poor people in Indonesia. The data shows that nearly 50 percent of citizen poor in Indonesia are located in Java. BPS poverty rate calculations based on the concept of ability to meet basic needs (Basic Needs Approach) means that poverty is seen as incompetence in economic terms to meet the basic needs of food and non-food (BPS, 2020).

One of the specific objectives of PKH is to improve the level of education of participants where participants must be able to complete basic education and attendance of at least 85 percent at school. This will later have an impact on spending on household education costs that will increase.

Soares et al. (2010) estimated the impact of the Bolsa Familia program on inequality, poverty, consumption, education, health care, and labor force participation. With the PSM method and using data from A nationally and regionally representative sample survey carried out by Cedeplar and commissioned by the Ministry of Social Development (MDS). The results obtained by the Program affect monthly education spending up by R $ 2.65 but do not significantly affect total household consumption (Soares, Ribas and Osório, 2010).

Specific research on PKH conducted by Bappenas shows that PKH has a positive impact. On education indicators, the attendance rate of students in class rose 0.2 percent point. On average, PKH increases per capita household expenditure per month for the education component, each IDR 2,786 (Bappenas, 2009). Based on research using IFLS 5 data, Almunawaroh revealed that PKH has a significant effect on total household expenditure, but does not significantly affect the increase or decrease in household expenditure for education (Almunawaroh, 2016).

Different from Almunawaroh that describes household expenditure for education in general, this study describes the components of household expenditure for education to be more specific. Household expenditure for education is divided into school fees, schooling needs cost, transportation costs, pocket money and boarding fees. after that, every component divided on a child or family inside the household and outside the household.

The selection of the research locus on the Java Island because Java is the island with the largest number of poor people in Indonesia. From the results of the IFLS 5 survey data tabulation it is also known that 371 households in Indonesia responded to PKH, while 264 households were in Java. It is interesting to evaluate the PKH program in terms of the objectives to be achieved namely whether there is a significant difference in the expenditure of education costs for PKH recipients and not PKH recipients specifically in Java.

RESEARCH METHOD

This study aims to see whether the Program Keluarga Harapan (PKH) has an impact on household expenditure on education costs. This is important because it is related to the purpose of PKH in improving the quality of education. This study uses a quasi-experimental approach. The data used are secondary data from the survey data IFLS wave 5 in 2014. With these data, the analysis method to use is the matching method because this method has been popular for use as a method of estimation for the causal treatment

effect and can accommodate the possibility of selection bias. The matching method with the objectives of this study is to analyze the relationship between the dependent variable that household expenditure for education by the independent variable is participation PKH.

Participation PKH in this paper is participation PKH in Java. This data was obtained from a questionnaire IFLS Book 1 Section KSR in question KSR17 "Has this household ever receive cash transfer from [...] program?" With a selection of "Yes" responses represented by the numeral 1 in the variable ksr17 to ksr3type status "B" in the file b1_ksr1.dta.

To retrieve PKH program recipient data in Java, the "PKH" interest variable will be combined with the "Java" control variable using the stata 14 analysis tool with the command [keep if PKH == Java] meaning to retain the "PKH" data if the value is equal to "Java ". Furthermore, the control variable data constructed refers to 14 poverty criteria according to BPS (2014). Of the poverty criterion, this study successfully using 7 criteria, such as, (1) the type of floor; (2) wall type; (3) toilet facilities; (4) Availability of electricity; (5) drinking water sources; (6) cooking fuel; (7) the highest education of the family head. This paper also adds some control variables beyond the 14 characteristics of poverty among other things, the type of roof; homeownership; water purchase; SKTM ownership; BLSM membership; BSM membership; marital status of the household head; household head activities; number of family members; the sex of the household head; households living in cities; the age of the household head. (see Appendix Table 2). Results data or outcome variable data that are examined as the impact of PKH are education expenditure. This education expenditure data is household expenditure for one year in units of Rupiah (IDR). Data were obtained from the IFLS questionnaire 5 Book 1 section KS (consumption) with the question "What is (roughly) expenditure on school fees for the past 1 year from all household members?" (See Appendix Table 3).

This study uses a matching method. The basic idea of the

matching method is to match between the treatment group and the control group. One of these matching methods is the Propensity Score Matching (PSM) method. This PSM method was introduced by Rosenbaum and Rubin (1983). The purpose of this method is to choose observable factors, two groups with the same value of these factors will show no differences in the characteristics of the sample reaction to the intervention/policy or in other words the aim is to find the closest comparison group from a sample non-participants in the sample of program participants. The word "closest" is measured in terms of observable characteristics. Propensity scores are defined as conditional probabilities of receiving an intervention based on characteristics before the intervention (Rosenbaum and Rubin, 1983).

According to Caliendo and Kopeinig (2008), the core model in this study consisted of households, treatment (PKH participation) and outcomes (household education expenditure) (Caliendo and Kopeinig, 2008). The model is as follows,

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

Where:

D_i ε {0,1} is the symbol for the treatment group. It will be equal to (1) if the household (i) is a PKH program participant and will be equal to 0 (zero) for the others. Y_i is the outcome indicator that is education expenditure. Y_{1i} is the expected result outcome / (education expenditure) when household (i) is a PKH participant, which is the result of treatment or when Di is equal to (1). Y_{0i} is the expected result when the household (i) is not a participant in the PKH program, which is the result of the control or when D_i is equal to 0 (zero).

Thus the effect of the intervention on the individual can be written into the equation,

$$\mathbf{T = Y_{1i} - Y_{0i}} \quad \textbf{.....(2)}$$

because it is not possible to observe a household when receiving treatment without receive treatment at the same time, the estimated of the treatment effect is done through the average treatment effect on the treated (ATET) is defined as follow,

$$\mathbf{\tau ATET = E\,[Y_{1i} - Y_{0i} \mid D_i = 1]}$$

$$\tau ATET = E(\tau \mid D_i = 1)$$

$$\tau ATET = E[Y_{1i} \mid D_i = 1] - E[Y_{0i} \mid D_i = 1] \quad \ldots\ldots(3)$$

$E[Y_{1i} \mid D_i = 1]$ is a potential outcome of households that receive PKH and can be observed. $E[Y_{0i} \mid D_i = 1]$ is a potential outcome to receive PKH when they don't receive and cannot be observed because it is a counterfactual of data loss. To find the value ATET, the researcher should be able to find a replacement value of $E[Y_{0i} \mid D_i = 1]$. One way is to use the potential outcome of the households that don't receive PKH $E[Y_{0i} \mid D_i = 0]$ because of the potential outcome of the households that don't receive PKH are not examined at the same time when households receive the intervention. So ATET can be searched using the formula:

$$\tau ATET = E[Y_{1i} \mid D_i = 1] - E[Y_{0i} \mid D_i = 0] \quad \ldots\ldots(4)$$

from here, ATET is an estimate of the potential outcomes of households that receive PKH $E[Y_{1i} \mid D_i = 1]$, minus the potential outcomes of the households that don't receive PKH $E[Y_{0i} \mid D_i = 0]$.

Before estimating the 5 stages of PSM, the data must be certain to meet 2 assumptions namely Conditional Independence Assumption (CIA) and common support. Potential outcomes are independent of treatment assigned based on observable attributes of covariate x which are not affected by treatment (Caliendo and Kopeinig, 2008). The difference in observed characteristics between the treatment group and the group that did not receive treatment should be controlled; the outcome of treatment absence was the same in both cases. Determination of assumptions for matching also determines assumptions for a simple regression estimator known as Conditional Independence Assumption (CIA).

Common support is a condition where there are areas that support overlap matching variables in the distribution of the density values of treatment groups and groups that do not receive treatment. The common support area is the range score that overlaps between the density values for groups that did not receive treatment and the density values for groups that received treatment.

After passing through the two PSM assumptions, the next process is 5

stages of PSM. PSM following 5 steps. First, Estimating the propensity score. According to (Caliendo and Kopeinig, 2008), there are two steps to be taken when estimating the Propensity Score, namely: choosing a model and choosing variables that must be included in the model. For the choice of models that can be used, namely Binary Logit, Binary Probit, Multinomial Logit, Conditional Logit, and Multinomial Probit. The choice of model is not very important when an intervention is applied to one of two groups, but when the model uses several interventions, several assumptions must be satisfied. Moreover, the choice of variables chosen must refer to economic theory and previous studies that have been found.

The model used in this study is a Binary Logit model with the dependent variable being PKH participation (1 = PKH participants and 0 = others) and the independent variable is poverty factors and other factors that determine households to obtain PKH.

For the poverty factors, a new variable is created which results from the sum of all the poverty variables in this study as follows:

$$poor = No\_electric + Water\_Source + No\_Toilet + Cooking\_Source + Floor + Roof + Wall + HHHeduc \quad \text{.....(5)}$$

Thus obtained logit model equations used are:

$$Logit\ (PKH) = a_1 + a_2 poor + a_3 SKTM + a_4 Purchase\_Water + a_5 HHHMarried + a_6 HHHActivity + a_7 HHsize + a_8 HHHFemale + a_9 HHHAge + a_{10} Urban + a_{11} Rooms + a_{12} NoHouse + U_i \quad \text{.....(6)}$$

After the process logit estimation process will be performed propensity score, then every observation in the treatment and control groups were matched (matching) which have the same propensity score value.

Second, Choosing a matching algorithm. There are several matching techniques used in this stage is Nearest Neighbor Matching, Caliper and Radius matching, Stratification and Interval Matching, Kernel and Local Linear matching, and weighting. The selection method for matching

where the literature has not found the best method among others.

Third, Checking common support. Common support ensures that the equivalent could be found between the treatment group and the control group when compared to see the distribution of both. This assumption can be met if there is a cross-sectional area (overlap) on the density of the propensity score between treatment and control groups.

Fourth, Measuring the quality of matching (match assessing quality). Tests that can be carried out to measure the quality of matching include the standard bias test, the average difference test before and after matching (t-test) and the test of the merging of variables in the matched sample (F-test). If the matching quality is poor, or there is still a difference, it is better to step back and repeat the steps taken to get a good and satisfying matching quality.

Last step, Sensitivity analysis. To deal with the problem of ignoring standard errors because the variations exceed the normal sample variations when estimated. (Lechner, 2002) suggests using a standard bootstrapped error that is usually used when the parameters of the sample distribution may not be standard. Bootstrapped standard errors rely on the assumption that the current sample represents the population. Besides, sensitivity analysis should be applied to estimate the level of bias in research/investigations (Guo and Fraser, 2010). Based on (Rosenbaum and Rubin, 1983) and (Rosenbaum, 2005), sensitivity analysis is used to see hidden biases when the treatment and control groups may differ. Among other things, sensitivity analysis can be done by looking at Wilcoxon's signed-rank test developed by Rosenbaum. (Rosenbaum, 2005).

RESULTS AND DISCUSSION

This study uses a quasi-experimental approach method. The data used are secondary data from the survey data IFLS wave 5 in 2014.

Table 4 Distribution of the data sample

Province code	Province	Household
31	D.K.I Jakarta	970
32	West Java	2,148
33	Central Java	1,861
34	D.I. Yogyakarta	808
35	East Java	2,073
36	Banten	602
	Total	**8,462**

Source: IFLS 5, processed

The number of samples taken for 8,462 households in Java. The sample is divided into 6 provinces. The largest sample is in the province of East Java with a total of 2,073 households, while the smallest sample is from the province of Banten. Then observation will be eliminated due to the merging of data into as shown in the descriptive statistics table .

Table 5 Descriptive Statistics of research variables

variables	variable name	Obs	Average	Std. dev	Min	Max
interest	PKH	6,797	0.365	0.187	0	1
outcome	Total_Educ_Exp	6,736	4,298,805	8,190,701	0	15,300,000
	Educ_Exp_IHH	6,764	3,116,859	5,680,665	0	8,900,000
	Educ_Exp_OHH	6,758	1,189,794	5,484,237	0	14,200,000
	Total_School_Fees	6,771	1,233,315	3,633,343	0	6,200,000
	School_Fees_IHH	6,774	872,276.5	2,854,300	0	6,200,000
	School_Fees_OHH	6,787	362,807.6	2,104,558	0	5,420,000
	Total_Schooling_Need	6,758	505,426.3	1,077,650	0	3,020,000
	Schooling_Need_IHH	6,777	420,633.6	788,194.1	0	1,800,000
	Schooling_Need_OHH	6,771	86,500.07	703,534.4	0	3,000,000
	Total_School_Transport	6,768	2,307,279	4,528,829	0	7,460,000
	School_Transport_IHH	6,784	1,825,255	3,451,093	0	6,300,000
	School_Transport_OHH	6,776	481,109.1	2,853,485	0	7,200,000
	Food_Rent_School	6,788	289,050.6	1,645,119	0	4,500,000
Control	NoHouse	6,777	0.300	0.458	0	1
	No_Electric	6,777	0.013	0.115	0	1
	Water_Source	6,777	0.468	0.499	0	1
	Purchase_Water	6,777	0.396	0.489	0	1
	No_Toilet	6,777	0.183	0.387	0	1
	Cooking_Source	6,777	0.334	0.471	0	1
	SKTM	6,777	0.213	0.410	0	1
	BLSMcard	6,777	0.170	0.375	0	1
	BSM	6,777	0.141	0.348	0	1
	HHHMarried	6,795	0.810	0.392	0	1
	HHHActivity	6,795	1.731	1.597	1	7
	HHHeduc	6,795	0.380	0.485	0	1
	HHsize	6,795	1.820	1.431	1	11
	HHHFemale	6,795	0.158	0.365	0	1
	HHHAge	6,795	43.645	14.497	9	94
	Rooms	6,794	5.366	2.392	1	40

Table 5 Descriptive Statistics of research variables

variables	variable name	Obs	Average	Std. dev	Min	Max
	floor	6,795	0.210	0.407	0	1
	Wall	6,795	0.315	0.465	0	1
	Roof	6,770	0.009	0.097	0	1
	Urban	6,797	0.503	0.500	0	1
	Java	6,797	0.036	0.187	0	1
	poor	6,749	1.917	1.625	0	8

Source: IFLS 5, processed

The table above explains the descriptive statistics of the variables of interest, outcome variables and control variables. After merging the data, the number of observations became 6797 households. Interest variable is a PKH recipient dummy, outcome variable is a household expense for education funding in Rupiah. While the control variable is a poverty criterion variable that is majority dummy. There are some non-dummy control variables such as HHHActivity shows 7 activities during the last 1 week during the survey, then HHsize is the size of the household or the number of household members, HHage is the age of the head of the household, and Rooms are the number of rooms in the household.

Table 6 Results of propensity score

Inferior of block of pscore	PKH Participation		Total
	Yes	No	
0	40	2,927	2,967
0.025	94	2,336	2,430
0.05	81	1,053	1,134
0.10	31	221	252
0.20	2	12	14
total	248	6549	6,797

Source: IFLS 5, processed

This study uses a logit model to estimate the impact of PKH. This study uses 20 control variables. To achieve the CIA condition, 2 variables must be discarded, including the BLSMcard and BSM variables, after the BLSMCard and BSM variable drop processes are obtained the results are **"satisfied"** and show that the model meets the CIA conditions.

Table 7 logit regression results PKH

Dependent Variables: PKH	parameter Estimates	
	Coefficient	standard Error
poor		
1	0.769 ***	0.266
2	1.308 ***	0.264
3	1.376 ***	0.283
4	1.472 ***	0.314
5	1.457 ***	0.365
6+	1.347 ***	0.511
SKTM	0.935 ***	0.136
Purchase_Water	0.155	0.155
HHHMarried	1.391 ***	0.274
HHHActivity	0.045	0.041
HHsize	-0.005	0.050
HHHFemale	1.027 ***	0.227
HHHAge	-0.0007	0.005
Urban	0.392 ***	0.148
Rooms	0.011	0.032
NoHouse	-0.529 ***	0.182
constants	-6.169 ***	0.527

Description: The dependent variable is PKH, where dummy 1 equal receive the program and 0 is other. *** significant at alpha 1 percent, ** significant at alpha 5 percent,* Significant at alpha 10 percent.
Source: IFLS 5, processed

After fulfilling the CIA assumption, a logit estimate is performed. The coefficient values shown in Table 7. Result show the probability of households receiving the PKH program. The poor variable as a poverty characteristic variable specified in 1-6 shows a coefficient value that increases with the increasing criteria for poverty, meaning that the probability of households receiving the higher the CCT program if the household increasingly meets the criteria of poverty.

After logit estimate, then the next step is 5 steps PSM. The first stage to estimate the propensity score is a selection matching algorithm. This study uses the Kernel Matching because there are differences in the distribution of data between treatment group and the control group (treated and untreated group).

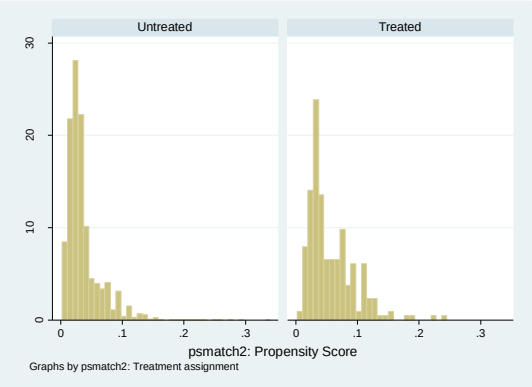

Figure 2. Comparison of the distribution of the value of propensity score (IFLS 5, processed)

Figure 2 shows that the value of density in the untreated group (control) was higher than in the treated group (Treatment).

The next step is checking common support. Common support requires that the treatment and control groups have the same propensity values after matching.

Figure 3 shows that there are overlapping propensity scores. This can be seen from the red axis which represents the group that received the program (treatment group) and the blue axis for the group that did not get the treatment (control group). the two intersecting graphs show common support.

To check the success of matching all independent variables, there are several tests conducted after matching. This checking according to (Caliendo and Kopeinig, 2008) is assessed matching quality by looking at the standard bias, t-test to determine the average equivalence before and after the matching process, F-test is used to find out the average quality together in the matched sample.

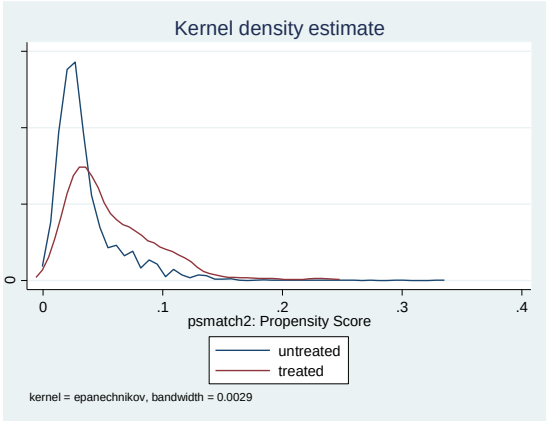

Figure 3 Distribution propensity score and Common Support to estimate propensity score (IFLS 5, processed)

Table 8 standard test results matching bias of kernel for total spending on education

variables	Before Matching (%)	After Matching (%)
Total_Educ_Exp	3.9	4.3
Poor	34.2	30.7
SKTM	47.9	44.4
Purchase_Water	-15.4	-13.3
HHHMarried	22.0	18.5
HHHActivity	9.5	9.1
HHsize	-8.5	-7.7
HHHFemale	8.1	8.2
HHHAge	13.8	11.5
Urban	1.1	1.5
Rooms	-5.8	-6.0
NoHouse	-29.9	-25.5

mean Bias	16.7	15.1

Source: IFLS 5, processed

Table 8 shows the results of the standard bias test, it is seen that 8 variables out of 13 variables experienced a reduction in the percentage of bias. The mean bias is reduced by 1.6 percent after matching. So it can be concluded that the matching process in this study was successful.

Table 9 Test average difference before and after matching (t-test)

variables	p-value of t-test	
	Before matching	**After matching**
Total_Educ_Exp	0.566	0.634
Poor	0.000	0.001
SKTM	0.000	0.000
Purchase_Water	0.020	0.139
HHHMarried	0.002	0.038
HHHActivity	0.132	0.317
HHsize	0.196	0.391
HHHFemale	0.197	0.362
HHHAge	0.061	0.203
Urban	0.862	0.871
Rooms	0.436	0.507
NoHouse	0.000	0.004

Source: IFLS 5, processed

Table 9 shows the results of the average equality quality test before and after matching (t-test). The results show that overall the p-value after matching is not significant, this condition is as expected because in general it is indicated that there is no significant difference between the average propensity scores in the two groups.

Table 10 Hotelling test after matching

variables	Mean PKH = 1	Mean PKH = 0
Total_Educ_Exp	4,526,427	4,230,975
Poor	2.431	1.899
SKTM	0.423	0.206
Purchase_Water	0.325	0.399
HHHMarried	0.886	0.807
HHHActivity	1.882	1.726
HHsize	1.703	1.823
HHHFemale	0.187	0.156
HHHAge	45.325	43.562

Table 10 Hotelling test after matching

variables	Mean PKH = 1	Mean PKH = 0
Urban	0.508	-0.502
Rooms	5.240	5.361
NoHouse	0.179	0.305
Hotelling p-value	0.000	
number of observations	246	6,442

Source: IFLS 5, Processed

Table 10 shows the results of the hotelling test, it appears that the hotelling p-value is less than 5 percent, meaning that the combination of control variables is unsatisfactory. Overall 3 methods of quality matching testing can be concluded that the control group has the same characteristics as the treatment group.

Last, the sensitivity analysis needs to be carried out as an evaluation. Acccording to Rosenbaum research, selection bias may occur when two individuals with the same covariate have a different probability value in determining intervention. To handle with selection bias and also hidden bias, Rosenbaum suggested that a sensitivity analysis test be conducted using Wilcoxon's signed-rank test to determine the Rosenbaum limit (Sulistyaningrum, 2016).

Table 11 Summary results of sensitivity test

Outcome	Sensitivity Test Results
Total_Educ_Exp	sensitive
Educ_Exp_IHH	sensitive
Educ_Exp_OHH	Not sensitive
Total_School_Fees	Not sensitive
School_Fees_IHH	sensitive
School_Fees_OHH	Not sensitive
Total_Schooling_Need	sensitive
Schooling_Need_IHH	Sensitf
Schooling_Need_OHH	Not sensitive
Total_School_Transport	sensitive
School_Transport_IHH	sensitive
School_Transport_OHH	Not sensitive
Food_Rent_School	Not sensitive

Source: IFLS 5, Processed

The results of the sensitivity test summaries in Table 11 show the results of various tests. There is 6 outcome variable with the results not sensitive to hidden bias, and 7 others are sensitive to hidden bias. The results of this sensitivity test indicate a weakness of this study because there are a number of test results showing that there are still hidden biases. Good

test results show no sensitivity to hidden bias.

CONCLUSION AND SUGGESTION

This study provides empirical evidence that Program Keluarga Harapan (PKH) in Java doesn't have a significant impact on total household expenditure for education, but specifically, it turned PKH able to increase education expenditure for children or families in the household significantly by IDR1,031,963.53 per year. An increase also occurred in total transportation costs by an average of IDR603,085.86 per year.

Moreover, the education expenditure of children or families outside the household has a significant negative impact. Each of them for school fees, the school expenses, transportation costs, and rental fees for PKH recipients must reduce spending by IDR205,654.42. IDR50,901.28 IDR277,457.49 and IDR209,241.53 per year (see table 12).

Referring to the results of this study, there are several implications for program development and policy implementation as follows, (1) Increase the budget allocation so that it can reach the educational needs of children or families outside the household; (2) The need for companion participation in conducting financial management training so that PKH recipient households can manage finances well; (3) The government through relevant ministries needs to ensure that educational support facilities are well provided, access from home to educational facilities can be easily reached.

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APPENDIX

Table 2 List of control variables

No.	variable control	variable type	Definition	Name File / Variable
1	floor	*dummy*	Type floor of the building 1 = Land, bamboo, wood / board 0 = other	Bk_krk, krk08
2	Wall	*dummy*	Type of wall, 1 = timber / boards / plywood 0 = other	Bk_krk, krk09
3	Roof	*dummy*	This type of roof 1 = leaves / palm 0 = other	Bk_krk, krk10
4	No_Toilet	*dummy*	ownership toilet 1 = latrines shared / common / time / garden / ditch / pond / ocean 0 = other	B2_kr, kr20
5	No_Electric	*dummy*	ownership of electricity 1 = don't use electricity 0 = use electricity	B2_kr / kr11
6	Water_Source	*dummy*	The main source for drinking, 1 = well / spring / river water 0 = other	B2_kr, kr13
7	Cooking_Source	*dummy*	Cooking fuel, 1 = firewood / charcoal / kerosene / no cooking 0 = other	B2_kr, kr24
8	HHHeduc	*dummy*	Education of household head, 1 = no school, elementary, kindergartens, package A 0 = other	*Bk_ar1, ar16
9	NoHouse	*dummy*	Home ownership 1 = occupied / rental 0 = own their own home	B2_kr / KR03
10	Purchase_Water	*dummy*	Is the home water purchased? 1 = yes 0 = no	B2_kr, kr17b
11	SKTM	*dummy*	ownership SKTM 1 = yes 0 = no	B2_kr, kr27a
12	BLSMcard	*dummy*	BLSM card ownership 1 = yes 0 = no	B2_kr, kr27b
13	BSM	*dummy*	Households got BSM 1 = yes 0 = no	B2_kr, kr27d
14	HHHMarried	*dummy*	Status married households head 1 = married 0 = other	*Bk_ar1, ar13
15	HHHActivity	discrete	Household head activities last week	*Bk_ar1, ar15c
16	HHsize	Person	Number of household members	*Bk_ar1, ar01a
17	HHHFemale	*dummy*	The sex of the household head 1 = female 0 = male	*Bk_ar1, ar07

Table 2 List of control variables

No.	variable control	variable type	Definition	Name File / Variable
18	Urban	*dummy*	Location dwelling households 1 = town 0 = village	Bk_sc1, sc05
19	HHHAge	Year	Age of household head	*Bk_ar, ar09
20	Java	*dummy*	Category territory 1 = java 0 = other	Bk_sc1, sc01_14_14

information: * If variable ar02b equal 1 (for household head)
Source: IFLS 5

Table 12 Impact of PKH

Outcome Variables	Impact	Number of observations
Total_Educ_Exp	319,719.76	6,688
Educ_Exp_IHH	1,031,963.53 ***	6,716
Educ_Exp_OHH	-713,808.25 ***	6,710
Total_School_Fees	-114,437.33	6,723
School_Fees_IHH	89,431.34	6,726
School_Fees_OHH	-205,654.42 **	6,739
Total_Schooling_Need	4,539.24	6,710
Schooling_Need_IHH	52,730.01 *	6,729
Schooling_Need_OHH	-50,901.28 ***	6,723
Total_School_Transport	603,085.86 **	6,720
School_Transport_IHH	887,805.35 ***	6,736
School_Transport_OHH	-277,475.49 ***	6,728
Food_Rent_School	-209,241.53 ***	6,740

Description: *** significant at alpha 1 percent, ** significant at alpha 5 percent, * significant at alpha 10 percent
Source: IFLS 5, processed

Table 3 List of the outcome variables

No.	variables	Definition	source variable
1	Total_Educ_Exp	Total spending on education	ks10aa + ks10ab + ks11aa + ks11ab + ks12aa + ks12ab + ks12bb
2	Educ_Exp_IHH	Total expenditures on education of children / families in the household	ks10aa + ks11aa + ks12aa
3	Educ_Exp_OHH	Total expenditures on education of children / family outside the household	ks10ab + ks11ab + ks12ab + ks12bb
4	Total_School_Fees	The total cost of attending school	ks10aa + ks10ab
5	School_Fees_IHH	School fees of children / families in the household	ks10aa
6	School_Fees_OHH	School fees of children / family outside the household	ks10ab
7	Total_Schooling_Need	Total cost of school supplies	ks11aa + ks11ab
8	Schooling_Need_IHH	The cost of school supplies children / families in the household	ks11aa
9	Schooling_Need_OHH	The cost of school supplies children /	ks11ab

		family outside the household	
10	Total_School_Transport	Total cost of transportation	ks12aa + ks12ab
11	School_Transport_IHH	Cost of transporting children / families in the household	ks12aa
12	School_Transport_OHH	Cost of transporting children / family outside the household	ks12ab
13	Food_Rent_School	Boarding fees / rent included	ks12bb

Description: The outcome variables derived from data IFLS 5 b1_ks0 variables.
OHH: Outside the Household, **IHH**: Inside the Household