

Educational and Socio-Economic Factors on Multidimensional Poverty in the Special Region of Yogyakarta

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Abstract. This study analyses the impact of the Family Hope Program (PKH) in the Special Region of Yogyakarta. This conditional cash transfer initiative aims to reduce poverty by improving access to education, health, and social welfare for low-income households. The study evaluates the impact of PKH on households' education expenditure and participation, showing that although education participation rates are higher among PKH beneficiaries, they spend less on education due to budget constraints. The study also examines the socioeconomic factors that influence poverty in Yogyakarta, emphasizing the role of education in reducing economic inequality. In addition, the study examines the social safety net (JPS) program in Yogyakarta, using the PSM econometric model to assess its impact on household welfare. The findings highlight the need for increased education budgets and targeted interventions to improve education quality and access for poor families.

Keywords: conditional cash transfer, poverty, households well-being, education participation

1 Introduction

The main goal of development is to improve the quality and capability of human resources to alleviate poverty. Human development is one of the indicators of overcoming high levels of extreme poverty. It is related to the ability of households to fulfill their basic needs. According to [2] A household's social and economic characteristics play an essential role in identifying trends in poverty so that the government can pursue several targeted *social* protection programs. This is in line with Presidential Instruction of the Republic of Indonesia Number 4 of 2022 Regarding the acceleration of the elimination of extreme poverty, governors and regents/mayors are instructed to accelerate the elimination of extreme poverty by determining target data for extremely low-income families.

The Family Hope Program (PKH) is a form of BNPT (Non-Food Cash Assistance) which aims to improve household living standards implemented in 2007 [4]. This program is the government's implementation in achieving the Human Development Index (HDI) based on the three central dimensions of its formation: life expectancy, education level, and decent

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standard of living. In some countries, this program is often referred to as *Conditional Cash Transfer* (CCT), which is in line with the Family Hope Program, which helps increase resilience to economic *shocks*, which is the government's top priority in poverty alleviation efforts.

The Family Hope Program (PKH) was piloted in seven provinces in Indonesia at the beginning of 2007. The seven provinces are DKI Jakarta, West Java, East Java, East Nusa Tenggara, North Sulawesi, Gorontalo, and West Sumatra, with an occupancy of 382,000 households belonging to the poor. The inauguration of the PKH program in the Special Region of Yogyakarta began in 2008, along with Nangroe Aceh Darussalam, North Sumatra, West Nusa Tenggara, and South Kalimantan. The inauguration of this program was carried out simultaneously in all provinces in 2012. The program is positioned as a poverty alleviation effort and serves as an embryo (long-term investment in human resources) for poor households' accessibility to health and education [5], [6].

The percentage of poverty in the Special Region of Yogyakarta in 2004 was 19.14 percent, but based on its development until 2021, it decreased by 12.8 percent. However, the downward trend in poverty began in 2008, with a difference from the previous year of 0.97 percent. It can be concluded that the Family Hope Program, following its utility, impacts poor households with the main objective of investing in human resources (HR). It is hoped that the running of this program can break the chain of poverty between generations by providing opportunities [7].

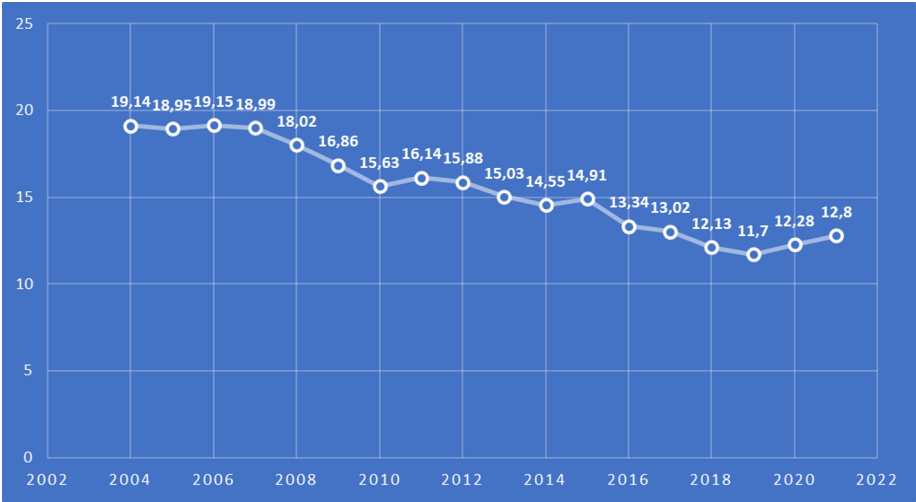


Fig. 1. Poverty Percentage of Yogyakarta Special Region

This aligns with presidential instruction number 4 of 2022 on accelerating the elimination of extreme poverty to mayors/regents by collecting data on households classified as poor families so that assistance can be carried out through the Family Hope Program (PKH). The implementation of this program at the district/city *level* is expected to compare and adjust its duties and functions according to the characteristics and locality of each region. Based on Table 1. 2. the poverty rate can be identified based on each district/city. The areas with the highest poverty rates yearly are Gunungkidul and Kulonprogo, in contrast to Yogyakarta City and Sleman Regency, which have relatively low poverty rates.

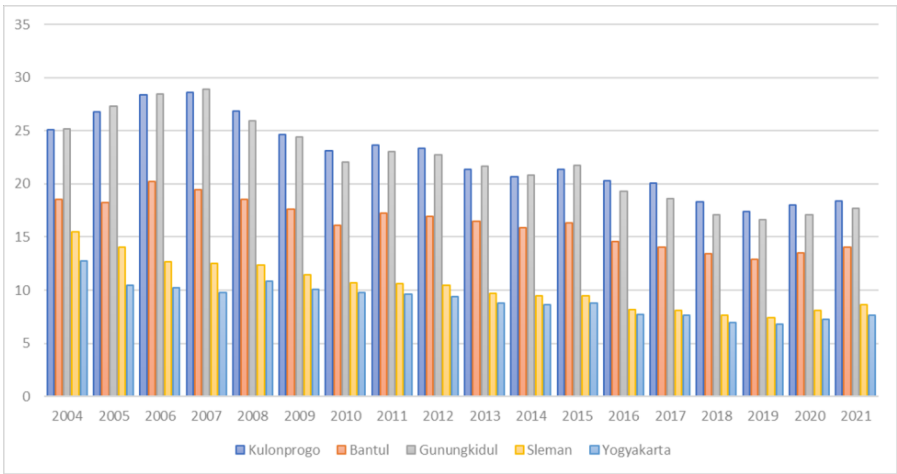


Fig. 2. Poverty Levels of Districts/Municipalities in the Special Region of Yogyakarta

Comparing a poverty reduction policy program cannot only examine the poverty rate. Inequality is one dimension that needs to be seen in accelerating poverty alleviation. Inequality is an economic phenomenon where an imbalance exists between the income and opportunities of households in a region. The Gini index can be classified into three levels: low inequality (<0.40), moderate inequality (0.40 - 0.50), and high inequality (>0.50). This is because the spatial and social dimensions need to be considered so that the programs implemented can be well-located according to the needs and characteristics of an area. Based on Table 1. 3. it can be concluded that Yogyakarta City has the highest level of inequality compared to other regions in the Yogyakarta Special Region.

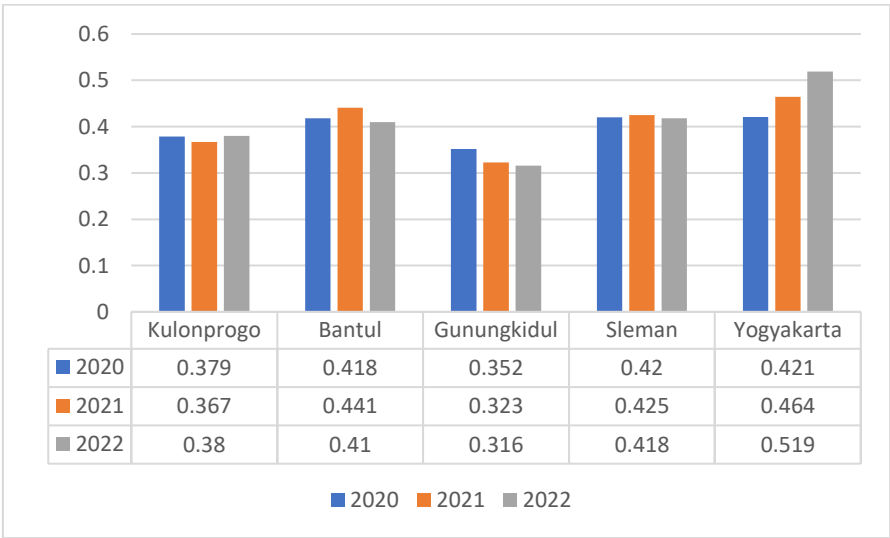


Fig. 3. District/City Inequality in the Special Region of Yogyakarta in 2020 - 2021

A high level of inequality can be assumed to mean differences in opportunities between households in Yogyakarta City. One of the opportunities discussed in this study is education. In line with research conducted by Yuliani et al. (2021) states that education significantly increases labor productivity [8]. Poverty alleviation efforts can be easily carried out by providing social assistance through broad access to education to poor households to improve the human development index. One indicator of the Family Hope Program (PKH) success is the reduction in household expenditures.

This research focuses on analyzing the impact of the PKH program on education expenditure in Yogyakarta City as a recommendation for city government policy to develop human resources. Similar research has been conducted by [7] which discusses the evaluation of the impact of the Family Hope Program on household expenditure on education in Java Island. The database used comes from the RAND institution, namely IFLS 5. In contrast to research conducted by [6] who conducted research using SUSENAS data in 2018 to evaluate the impact of the Family Hope Program on the use of health facilities for delivery services in Indonesia.

A study is needed to identify the impact of PKH on household education expenditure in Yogyakarta more comprehensively and identify the impact of a policy or program. This program is the government's implementation in achieving the Human Development Index (HDI) based on the three main dimensions of its formation: life expectancy, education level, and decent standard of living. The program is positioned as a poverty alleviation effort and serves as an embryo (long-term investment in human resources) for poor households' accessibility to health and education [5], [6].

Based on the considerations outlined, it is necessary to research the Impact Evaluation of the Family Hope Program (PKH) in Yogyakarta City. This research will provide new information about PKH's success in reducing household education expenditures in Yogyakarta City. Based on the research results, the government of Yogyakarta City can determine the next policy steps to improve the quality and capability of its human resources.

2 Literatur review

2.1 Family hope program (PKH)

Research on the impact analysis of the Family Hope Program (PKH) focuses on evaluating the effectiveness of a policy on beneficiaries. According to the theory of public policy is one part of a political decision based on the best choice of several alternatives from several government affairs [9]. In line with the arguments put forward by [10] which defines public policy as a series of political actors or a group of other actors concerning the objectives that are built and the stages to achieve a common consensus, where the decision is within the power of these actors. Furthermore, an essential stage in the public policy cycle is implementing the public policy. Based on its definition, implementation is an idea, idea, policy, and practical innovation that impacts knowledge, skills, values, and *behavior*—one example of implementing public policy regarding efforts to alleviate poverty and inequality.

Poverty is related to inequality and vulnerability, but they are different. Inequality examines how things like income and consumption are spread across the population. Suppose it is believed that the well-being of individuals depends on their economic position and others in society. In that case, an analysis of inequality is necessary in the context of poverty. Being vulnerable means being at risk of poverty in the future, even if one is not currently poor.

Vulnerability is often associated with "*shock*" effects such as drought, falling agricultural prices, or financial crises. Because it affects people's investment decisions, production habits, coping mechanisms, and how they view their situation, vulnerability is an important component of well-being [11].

Income inequality and dimensions of well-being can reflect diverse populations or households[12]. In the research of [13], it is argued that there are various aspects of welfare, such as employment, health, and socio-cultural conditions, that have a relationship with inequality. The population's quality can be achieved by developing human resources through investment and fulfilling basic services and needs (Ministry of Social Affairs, 2020) The level of inequality influences the size of the welfare figure. To achieve the objectives of the economic development program, efforts are needed to reduce poverty inequality and promote welfare.

The Family Hope Program (PKH) has the same concept as *Cash Conditional Transfer* (CCT) in some countries but with different names. This program is one of the conditional social assistance for underprivileged households recorded in the Integrated Social Welfare Data (DTKS). Several criteria for PKH participants have been determined based on the "Guidelines for the Implementation of the Family Hope Program 2021 - 2024". The contribution of this program is to make it easier for PKH recipients to access health facilities and education facilities so that it is in line with the government's strategy to accelerate poverty alleviation. Some of the objectives of poverty alleviation are implemented as follows:

- 1) Improve living standards based on the dimensions of access to education, health, and social welfare;
- 2) Reduce the burden of expenses and increase the income of PKH recipient households;
- 3) Encourage household behavior and the level of independence of beneficiaries;
- 4) Reduce poverty and inequality;
- 5) Financial inclusion.

The basis for determining the objectives of PKH is explained through the legal basis for its determination and technical implementation. The legal basis for the implementation of PKH are:

- 1) Law number 11 of 2009 concerning Social Welfare;
- 2) Law number 13 of 2011 concerning Handling the Poor;
- 3) Government Regulation number 39 of 2012 concerning the Implementation of Social Welfare;
- 4) Regulation of the Minister of Social Affairs of the Republic of Indonesia Number 1 of 2018 on the Family Hope Programme.

One of the main components assisted by this program relates to education. It is hoped that this education fund distribution assistance can provide PKH recipients with the opportunity to increase capacity and quality through investment in human resources. Therefore, the criteria for PKH recipients of the education component are school-age children aged 6 - 21 years who are still in the stage of completing compulsory education, who are studying at the SD/MI equivalent or SMP/MTs equivalent, and SMA/MA equivalent. The rights received by PKH recipients of the education component are in the form of PKH social assistance, PKH social assistance, educational facility services, and complementary assistance programs in the field of education and other needs. In addition to the rights of PKH recipients, the education component must also participate in teaching and learning activities with an attendance rate of at least 85% (eighty-five percent) of effective learning days.

2.1 Household wellbeing

Family households are the smallest economic actors, providing factors of production, labor and owning land. This economic unit can interact by making purchases and sales to other sectors. These actors can have two roles in implementing economic activities, both as consumers and providers of production factor services. Family households can consume goods and services to fulfill basic needs as consumers. In addition, this economic unit also acts as a party that can accommodate labor and other production factor services. Household production can absorb more labor [15]. Governments, companies, and communities abroad have a role to play in supporting the human resources of family households in producing goods and services.

Community welfare's outcome increases income and decreases the inequality index [16]. Households are part of society. Land and capital are factors of production owned by family households and have the potential to generate income. The income earned from the business conducted by family households will be allocated to fulfill their needs and used to pay citizen obligations such as taxes. In addition, households can also invest their capital through investments in various company sectors so that it becomes an asset in the future.

3 Methodology

3.1 Data

The economic model used in this research is a development of research conducted by (Sasmito & Sulistyanningrum, 2021). [7]. The objective is to analyze more deeply how PKH impacts household expenditure, more precisely, education. This is because education is one of the main components of the poverty alleviation program. Based on this, with the help of poor households in accessing education, it is hoped that they can get out of the poverty cycle. The results of this research can be used as a reference for policymakers that the correct allocation of education funding is a long-term investment for the government to alleviate poverty and improve the quality of human resources.

This research uses secondary data from the National Socio-Economic Survey (Susenas) collected by Statistics Indonesia. Susenas collects data and information related to the social and economic conditions of households in Indonesia. There are three modules in Susenas, namely the KOR module, MSBP, and consumption/expenditure module. The KOR module contains socio-demographic information such as education, health, fertility, family planning, housing, and social protection programs. The MSBP module contains more in-depth information on culture and education during COVID-19. Meanwhile, the consumption/expenditure module contains household expenditure on goods/services for basic, secondary, and tertiary needs.

The variables used in this study are found in the two Susenas modules. A summary of the variables used is presented in the Table. The data used is the year 2022. This was done to obtain comprehensive and sustainable results.

Tabel 1. Identification of Susenas 2022 data

Variables	Definition	Data type
<i>Dependent variable</i>		
PKH	Households as PKH recipients	Dummy 1 = PKH recipient

0 = Not a Recipient		
<i>Independent variable</i>		
Total cash education expenditure	Household education expenditure (<i>out of pocket</i>)	Numerical
Learning Participation	The dummy variable for learning participation rate, 1 equals active and 0 inactive.	Dummy 1 = actively learning 0 = not active
<i>Control Variable</i>		
<i>Household characteristics</i>		
Education of the head of household	Highest education completed by head of household	Categorical 0 = Not in school 1 = SD 2 = JUNIOR HIGH SCHOOL 3 = HIGH SCHOOL 4 = College
Internet	Households accessing the internet	Dummy 1 = Accessing 0 = No access
Gender of head of household	Gender of household head	Dummy 1 = Male 0 = Female
Age of household head	Age of household head	Numerical
Number of household members	Total household members	Numerical
Employment of head of household	Employment status of the head of household	Dummy 1 = Agriculture 0 = Other
KUR	Whether households can access microcredit	Dummy 1 = accessible 0 = unable
Home	Homeownership status	Dummy 1 = owned 0 = other
Assets	Total assets owned by the household	Numerical
Household area	Location of household residence	Dummy 1 = Urban 0 = Rural

3.2 Estimation strategy

This study aims to estimate the impact of the social safety net programme on the welfare of poor households in Yogyakarta City. In order to conduct a proper estimation, an impact evaluation scheme is applied by dividing the research observations into two groups, namely the treatment group and the control group. The treatment group is the group that receives special treatment or, in this study, the group of households that receive the JPS programme. Meanwhile, the control group is the group that did not receive the JPS programme. The two groups are compared in terms of household welfare *outcomes* (consumption and income). It is assumed that the *outcome* variable is a linear function of JPS_i , then the equation is as follows:

$$Y_i = \beta X_i + \delta JPS_i + \varepsilon_i \quad (1)$$

Where Y_i is the *outcome* variable (household consumption and income); JPS_i is household participation status in the JPS programme; β and δ is the estimation parameter, and ε_i is the error. However, the government generally determines household participation in the JPS programme, not random, so the *ordinary least square* (OLS) estimation will produce biased estimates. Therefore, another model is needed that can accommodate the problem. The *endogenous switching regression* (ESR) and *propensity score matching* (PSM) models are used in this study to produce consistent and unbiased estimates. The ESR model can solve the endogeneity problem in program participation by accounting for sources of bias from the observed and unobserved samples. Meanwhile, PSM can control selection bias by identifying factors influencing participation in the JPS program. Both models will be applied in the analysis of this study to obtain more comprehensive estimation results.

3.2.1 Endogenous switching regression (ESR)

In the ESR model framework, the impact of the JPS program on household welfare is estimated in two stages. The first stage focuses on the decision/factors of households to receive the JPS program (Equation 2). The second stage is the estimation of *outcomes* in two groups, one for the treatment group and the other for the control group (Equations 3 and 4).

$$Y_i^* = \alpha Z_i + \sigma_i, Y_i = 1 \text{ if } Y_i^* > 0, \quad (2)$$

$$\text{Group 1: } Y_{1i} = \beta_1 X_i + \varepsilon_{1i} \text{ if } M_i = 1 \text{ (Treatment)} \quad (3)$$

$$\text{Group 2: } Y_{2i} = \beta_2 X_i + \varepsilon_{2i} \text{ if } M_i = 0 \text{ (Control)} \quad (4)$$

Where Z_i is a vector of socio-economic and demographic characteristics; Y_{1i} and Y_{2i} represents the *outcome* in each group; X_i is the characteristic of household i . β_1 and β_2 are the estimated parameters and ε_{1i} and ε_{2i} are errors associated with the *outcome* variable.

The impact of the JPS program on household welfare can be calculated with the *average treatment effect on treated* (ATT) and *average treatment effect on untreated* (ATU) values, as in the following formula:

$$ATT = E(Y_{1i}|M = 1) - E(Y_{2i}|M = 1) = (\beta_1 - \beta_2)X_i + \gamma_{1i}(\sigma_1 - \sigma_2) \quad (5)$$

$$ATU = E(Y_{1i}|M = 0) - E(Y_{2i}|M = 0) = (\beta_1 - \beta_2)X_i + \gamma_{1i}(\sigma_1 - \sigma_2) \quad (6)$$

3.2.2 Propensity score matching (PSM)

The second estimation model used in this study is the PSM impact evaluation model. Similar to ESR, PSM also compares the *outcomes* of the two groups, namely treatment and control, by matching the scores of each treatment and control group household obtained from the equation of the characteristics of the two households. The first stage in PSM is estimating households' determinants receiving the JPS program through simple logit regression. At that stage, the score of each household is also obtained, and the results can then be compared. The propensity score matching estimation equation is as follows [17]:

$$\Delta|_{m=1} = E(Y_{1i}|M_i = 1) - E(Y_{i0}|M_i = 1) \quad (7)$$

Where, $M = 1$ is treatment and $M = 0$ is the control. While Y_{i1} is the outcome variable for treatment and Y_{i0} is the value of the outcome variable for the control. Thus, the estimation of propensity score matching is to see the difference in outcomes in two groups of households, also known as the average treatment effects of the treated (ATT).

There are three steps to estimating propensity score matching [18]. First, estimating the participation model requires all treatment and control samples to be pooled and then all samples to be estimated on all control variables or covariates that may affect program participation (in this case, mobile phone usage). Logit estimation is used to do this. The second step is determining the region's common support and balancing test. Common support is needed to determine that the propensity scores for treatment and control do not *overlap*. The *balancing test* is needed to check whether the average propensity score and the average control variable are the same in each quantile propensity score distribution. Finally, matching treatment and control aims to find each treatment and control with the same characteristics. There are four matching methods: Nearest-Neighbour Matching, calliper or radius matching, stratification or interval matching, and kernel and local matching.

3.2.3 Logistic regression

Multinomial logistic regression is a development of binary logistic regression, which in this study aims to analyze samples derived from Susenas. This analysis method is useful for measuring and determining factors that can predict the socioeconomic characteristics of poor families. The multinomial logistic regression model is suitable for predicting the probability of the category model for the dependent variable based on multiple independent variables. As with binary logistic regression, multinomial logistic regression also uses *maximum likelihood* estimation to identify category probabilities [2], [19], [20]. Logit equation in general form:

$$L_1 = \ln\left(\frac{p_i}{1-p_i}\right) = \beta_1 + \beta_1 x_1 + \mu_i \quad (8)$$

Finally, after identifying the *logistics regression* formation equation, the following econometric model is obtained:

$$y = \beta_0 + \beta_1 \text{EducLevel} + \beta_2 \text{Internet} + \beta_3 \text{HHSIZE} + \beta_4 \text{HHSIZE}^2 + \beta_5 \text{Sex} + \beta_6 \text{HHAge} + \beta_7 \text{Sectoral} + \beta_8 \text{BusinessPeopleCredit} + \beta_9 \text{HousingOwnership} + \beta_{10} \text{DwellingAsset} + \beta_{11} \text{UrbanRural} + \varepsilon \quad (9)$$

4 Findings and discussion

Descriptive statistical analysis helps us understand the data's basic characteristics. It overviews the variables involved, including the mean, median, standard deviation, and data distribution. By understanding the distribution and basic properties of the data, researchers can identify existing patterns, trends, and anomalies. Descriptive statistical analysis of this data showed significant differences between the control and treatment groups in various aspects. Here are some of the most extreme comparisons found:

The procedural sequence in this investigation involves an initial stage of logistic regression estimation as a precursor to the implementation of propensity score matching on observations in the treatment and control groups. The results of the logistic estimation are

depicted in Table 2, where the dependent variable indicates the demographics under consideration for participation in the Family Hope Program (PKH) or Conditional Cash Transfer (CCT), denoted as $D = 1$ for the treatment group and $D = 0$ for the control group. The estimation findings show that an increase in average years of schooling is correlated with a reduced likelihood of receiving PKH. Notably, less-than-optimal housing conditions and private residence ownership are associated with an increased likelihood of benefiting from PKH assistance.

The average education expenditure of the control group (IDR 449,694.3) is much higher than that of the treatment group (IDR 167,874.1). This difference indicates that households in the control group spend more on education than those receiving the PKH program. The proportion of education participation also shows a significant difference, where the control group has an average education participation of 0.212, while the treatment group is higher at 0.253. This suggests that households in the treatment group are more likely to have family members participating in education.

The control group had higher internet access (73.6%) than the treatment group (69.2%). It can be interpreted that despite the difference, access to information technology remains quite high in both groups. In terms of the employment characteristics of the household head, the control group is more likely to work in the tertiary sector (55.6%) compared to the treatment group (36.3%). In contrast, the treatment group was more likely to work in the primary sector (35.3%) than the control group (24.2%). This suggests that household heads in the control group tend to work in the service sector, while the treatment group is more likely to work in agriculture or other primary sectors. Asset ownership also shows a significant difference, with the control group having a higher average number of assets (4,011) than the treatment group (2,553). This indicates that households in the control group have greater material wealth. The percentage of home ownership was higher in the treatment group (84.0%) compared to the control group (77.8%), which may indicate that the PKH program helped increase homeownership for beneficiaries.

Table 2. Descriptive Statistics (N = 13,092)

Variables	Definition	Control		Treatment	
		Mean	Std. dev	Mean	Std. dev
PKH (n/%)	=1 if a resident receives PKH, 0 otherwise	9,872/75.40%		3,220/24.60%	
<i>Outcome</i>					
Out-of-Pocket Education	Household Average Education Expenditure	449694.3	1729089	167874.1	401268.1
	Out-of-Pocket Expenditure				
Education Participant	=1 if there is a school participant, 0 otherwise	0.212	0.408	0.253	0.434
<i>Houeshold head characteristics</i>					
Age	Number of household heads age	37.390	23.110	37.139	21.584
Sex	=1 if male, 0 otherwise	.852	.354	.811	.391

Marital status	=1 if married, 0 otherwise	.490	.499	.530	.499
Not Involved Education	Household head not involved in any Education	0.002	0.050	0.001	0.043
Primary Education Level	Household head involved in Primary Education	0.2	0.400	0.338	0.473
Lower Secondary Education Level	Household head involved in Lower Secondary Education	0.209	0.407	0.322	0.467
Upper Secondary Education Level	Household head involved in Upper Secondary Education	0.394	0.488	0.294	0.455
Tertiary Education Level	Household head involved in Tertiary Education	0.193	0.394	0.043	0.203
Internet Access	=1 if household head Access internet is Urban, 0 others	0.736	0.440	.692	.461
HHSize	Number of Households	3.889	1.534	4.269	1.385
HHSizeSquare	Square Number of Households	17.481	14.036	20.148	12.596
Sex	=1 if the household head is male, 0 Others female	0.494	0.499	0.498	0.500
HHAge	Household Head Age	37.139	21.584	37.390	23.110
<i>Dwelling Asset and Socio-Economics Characteristics</i>					
Primary Sectoral	=1 if househod head is working in the primary sector, 0 others	0.242	0.428	0.353	0.478
Secondary Sectoral	=1 if househod head is working in the secondary sector, 0 others	0.202	0.401	0.284	0.451
Tertiary Sectoral	=1 if the household head is working in the tertiary sector, 0 others	0.556	0.497	0.363	0.481
Business People Credit	1=1 if Access KUR, 0 otherwise	0.133	0.340	0.141	0.348

House Ownership	1=1 if own the house, 0 otherwise	0.778	0.416	0.840	0.367
Asset	Number of Asset Ownership	4.011	2.231	2.553	1.088
Urban Rural	1=1 if lived in Urban, 0 Rural	0.692	0.462	0.555	0.497

Sources: SUSENAS (2022).

According to Keynesians, income is important in determining household consumption patterns in consumption theory. Households with higher incomes tend to spend more, including on education. The fact that households in the control group have higher average education expenditure than the treatment group (PKH) may reflect differences in income or household budget allocation priorities. Households receiving PKH assistance may allocate additional income to other basic needs besides education [21].

The difference in employment sectors between the control and treatment groups can be analyzed through economic development theory, which separates the economy into primary, secondary, and tertiary sectors. Moving from the primary to the tertiary sector usually indicates economic development. In this case, the control group is more likely to work in the tertiary sector, which suggests that they may be more economically developed than the treatment group, which still works mostly in the primary sector. This aligns with the theory that people in the tertiary sector usually have higher incomes and better access to education and health services [22].

Human capital theory states that investment in education increases individuals' capabilities and productivity, increasing their future income. Higher education enrollment in the treatment group suggests that the PKH program may encourage households to invest more in their children's education, albeit with lower expenditure than the control group. This could be because PKH helps to ease the burden of education costs through conditional cash transfers, which increases the incentive to send children to school [23].

According to wealth theory, asset accumulation is an important indicator of long-term economic stability. Higher asset ownership in the control group suggests that they may have better economic stability, which allows them to allocate more resources for education and other needs. On the other hand, the treatment group may still be in the early stages of asset accumulation, which is reflected in the lower number of assets owned [24].

Social capital, such as home ownership and access to information technology, is important to household welfare. Higher home ownership in the treatment group suggests that PKH assistance may have helped improve social capital by providing housing stability. In addition, higher internet access in the control group suggests disparities in access to information and technology, which are important components in economic and social development [25], [26].

Tabel 3. Logistic model estimation result

VARIABLES	(1) PKH
Primary Education Level	0.133** (0.0661)
Lower Secondary Education Level	0.143**

	(0.0662)
Upper Secondary Education Level	0.0825
	(0.0660)
Tertiary Education Level	0.00196
	(0.0668)
Internet Access	-0.0414***
	(0.0148)
HHSize	0.235***
	(0.0165)
sex	-0.0122
	(0.00986)
HHAge	-0.000637
	(0.000467)
HHsizeSquare	-0.0204***
	(0.00183)
Secondary Sectoral	2.83e-05
	(0.0150)
Tertiary Sectoral	-0.0386***
	(0.0144)
People's Business Credit	-0.0266*
	(0.0137)
Housing Asset	0.0824***
	(0.0136)
Dwelling Asset	-0.0840***
	(0.00390)
Urban-Rural	0.0241**
	(0.0108)
Observations	6,087

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

The propensity scores were balanced between beneficiary and non-beneficiary households using the same support areas. Figure 1 shows the distribution of propensity scores between beneficiary and non-beneficiary households. The Kernel Density method shows the scores before and after matching. Before matching, there are overlapping observations in the propensity scores between the treatment and control groups. However, the overlapping data points were removed after the matching process, resulting in similarity scores between the two groups. Once the general support requirements are met, the ATT calculation can proceed with matching results.

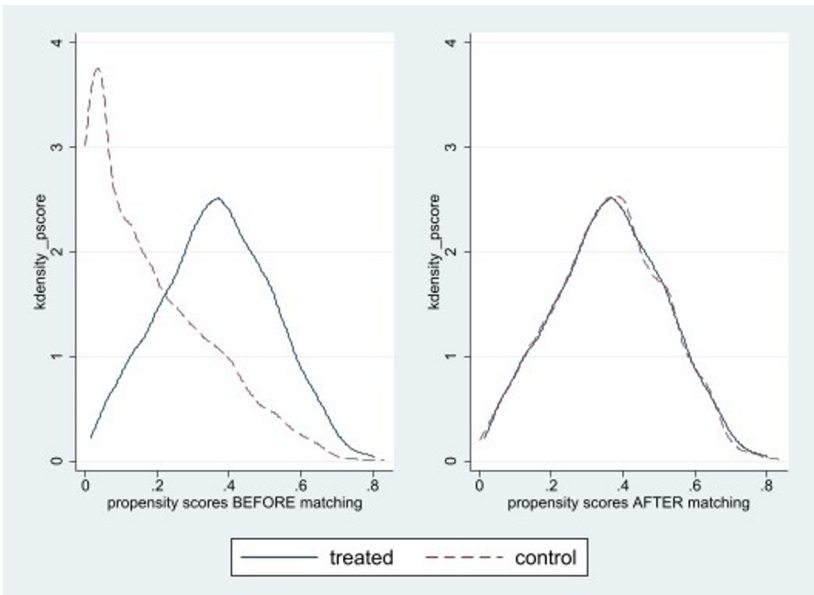


Fig. 4. Kernel Density Matching

Table 4 presents the results obtained from the Propensity Score Matching (PSM) framework. Explaining the effect of access to education, this analysis highlights the positive impact of conditional cash transfers on expenditures associated with access to learning participation. Households benefiting from the Conditional Cash Transfer (CCT) program show a marked improvement, ranging from 0.05%, in terms of expenditure but still have an inequality of IDR 45,501 with the *control* group.

Table 4. Matching Method Results

Matching method	n. treat.	n. contr.	ATT	Std. Err.	t
<i>Education OOP</i>					
Kernel Matching	167968.1 25	213469.2 84	- 45501.1589	39976.22 9	- 1.14***
<i>Education Participation</i>					
Kernel Matching	.0489671 23	.0434036 8	.00556347 8	.0078179 74	0.71** *

The Family Hope Programme (PKH) is a form of social intervention from the Indonesian government that aims to improve the welfare of poor households by providing conditional cash transfers. One of the main objectives of PKH is to increase the educational participation of children from beneficiary families. Based on the analyses conducted, it appears that PKH has succeeded in increasing enrolment, as indicated by higher enrolment rates in the PKH recipient group compared to the non-recipient group. This suggests that PKH assistance incentivizes poor families to send their children to school, which aligns with the program's objective.

However, despite the improvement in education participation, the two groups have a significant gap in education expenditure. The PKH recipient group has a significantly lower average education expenditure than the non-recipient group. This inequality could be due to several factors, including the limited budget that PKH recipient families have, which may be used more for other basic needs such as food and health. In addition, differences in the quality of education accessible to the two groups could also be a contributing factor [27], [28]. Families that do not receive PKH may be able to access higher quality but more expensive education. In contrast, PKH recipient families may only be able to access more affordable but lower-quality education.

This disparity reflects the challenges still faced in equalizing access to and quality of education in Indonesia. While the PKH program has successfully boosted education participation, additional efforts are needed to ensure that children from poor families participate in education and receive an adequate quality of education. Therefore, more comprehensive policies are needed to address these inequalities, including increased educational budget allocations and direct interventions in the education sector to ensure equitable education quality for all children, regardless of their economic background [29], [30], [31].

5 Conclusion

This study concludes that the Family Hope Program (PKH) in Indonesia positively impacts the education participation of recipient households despite constraints in education expenditure due to budget limitations. The program has successfully encouraged families to participate more in education, but there is still a gap in education expenditure between PKH recipients and non-recipients. In addition, this study highlights the importance of human capital development in poverty alleviation and reducing economic inequality. To improve the effectiveness of PKH, it is necessary to increase the education budget and direct interventions to improve the quality of education for low-income families. The research also emphasizes the need for continuous policy evaluation to ensure that social programs such as PKH and JPS can benefit the welfare of poor households.

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