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DOES CONDITIONAL CASH TRANSFER DELIVER? THE INDONESIAN EVIDENCE ON PKH

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Abstract. Social protection programs aim to secure individuals' incomes from socioeconomic shocks and provide access to social services for developing human capital and alleviating poverty. In Indonesia, the Family Hope Program (*PKH – Program Keluarga Harapan*) is a social protection program that focuses on human capital development that requires children's school enrollment and mothers and toddlers' health as the conditions of cash transfers. This study seeks to analyze the effects of the *PKH* program on consumption expenditure, children's educational attainment, and prenatal visits in Indonesia. We use the 2007 and 2014 IFLS (Indonesian Family Life Survey) survey data analyzed by the difference-in-difference (DID) method. The results demonstrate that *PKH* has a significantly positive effect on food consumption expenditure. However, *PKH* has insignificantly negative effects on children's educational attainment and prenatal visits. The results suggest that the government monitors and ensures that the targeted recipients receive the program's benefits. As such, the government can enhance the recipients' awareness of the program's benefits and ensure the equal availability of supporting infrastructure that enables households to utilize education and health facilities optimally.

Keywords: Program Keluarga Harapan (family hope program), consumption expenditure, children's education, difference-in-difference, Indonesian Family Life Survey.

JEL Classification: E21, H53, I38.

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1. Introduction

Before the 1997 economic crisis, Indonesia was one of the Asian countries with the highest economic growth. It had an average annual GDP growth of 7 percent in 1967–1997. Such rapid growth was accompanied by human resource development and various economic activities. Consequently, the poverty rate declined from 70 percent in the 1960s to 11 percent in 1996. However, Indonesia did not have a well-structured and integrated social security system. It only focused on poverty eradication, community empowerment, and public service provision. However, the multidimensional 1997–1998 economic crisis has radically changed various economic indicators. Hence, Rupiah (the Indonesian currency) was depreciated to Rp 14,700 per US$. Similarly, the Indonesian GDP experienced contraction to minus 14 percent in 1998, inflation sharply rose to 78 percent, and poverty increased by 28 percent, especially for internationally traded goods (Hofman et al., 2004). The crisis highlights the vulnerability of the Indonesian economic condition and the importance of social protection for all populations.

After the economic crisis, Indonesia began to replace its Social Safety Net (*JPS – Jaring Pengaman Sosial*) program that was initiated for crisis mitigation to a social protection program that included social assistance and security. These programs included school operational assistance (*BOS – Bantuan Operasional Sekolah*), public health insurance (*Jamkesmas – Jaminan Kesehatan Masyarakat*), rice for poor families (*Raskin – Beras untuk Keluarga Miskin*), unconditional cash transfer (*BLT – Bantuan Langsung Tunai*), Family Hope Program (*PKH – Program Keluarga Harapan*), social assistance for abandoned elders (*ASLUT – Asistensi Sosial Lanjut Usia Telantar*), and social assistance for highly disabled persons (*ASODKB – Asistensi Sosial Orang dengan Kecacatan Berat*).

This study focuses on *PKH* as a conditional cash transfer (CCT) program that has also been administered in various countries. Several countries, such as Colombia, Mexico, Nicaragua, Jamaica, and Honduras, have successfully adopted CCT programs (Rawlings & Rubio, 2005). Consequently, CCT programs' success in alleviating poverty in various countries motivated the Indonesian

government to implement a similar program labeled as *Program Keluarga Harapan* in 2007. PKH aims to alleviate both current poverty through the income effect and future poverty through the substitution effect, especially for education and health-related human resource development. In education, households with school-aged children (7–15 years old) were encouraged to enroll their children in schools with a required minimum attendance rate of 85 percent as the prerequisite of receiving the program (Baird et al., 2013; Kamakura & Mazzon, 2015). Meanwhile, in the health aspect, households with pregnant mothers, babies, or toddlers need to control their health (including to monitor children's growth and development) and receive vitamins, immunization, and vaccines (Budlender, 2014; World Bank, 2011).

PKH is expected to change household behaviors in utilizing health and education facilities and relieve the burdens of consumption expenditures for improving recipients' welfare (Rawlings & Rubio, 2005; Saavedra & García, 2012). The transfers to households then add their income to affect their decisions, especially for female households heads, in utilizing the money (Duflo, 2012). In this respect, women are more likely to use the transferred cash to fulfill basic needs, such as nutrients for their family members, children's education, and healthcare.

Thus, the government has allocated an increasingly significant amount of budget to achieve the objective. Specifically, the average budget increase for the *PKH* program rose from Rp 390 million in 2007 to Rp 17.5 billion in 2018. The number of program recipients also increased from only 510 households in 2007 to 10 million in 2018. However, the amounts of transfers received by households vary, depending on whether the households have the following family members as the main focus of the program: pregnant mothers, children below six years old, and school-aged children. In 2016, the average annual transfers to households were between Rp 800 thousand and Rp 3.7 million.

Although a significant amount of funds has been allocated to poor households, especially through *PKH,* the number of poor households has only declined slowly. Based on the 2017 *BPS* data (*Badan Pusat Statistik* – Central Bureau of Statistics), the proportion of the population who live below the national poverty line tends to decline from 16.58 percent in 2007 to 9.82 percent in 2018. Hence, the number of poor people has declined by 11.2 million people or 6,76 percent in eleven years (Figure 1).

Individuals or households with insufficient economic resources is a factor that explains the significant number of poor people. Consequently, they cannot participate in the economy, especially in utilizing various social facilities, such as education and health. Lack of economic resources, including insufficient income to fulfill daily needs, leads to lower purchasing power (Bradshaw, 2005). Besides, poor households also lack information on social facilities utilization and access to public infrastructure. Hence, government intervention in social assistance for both consumption and human capital investments is crucial to overcome the condition. Social assistance is a social protection program that delivers goods and cash transfer. As suggested by John M. Keynes, cash transferred as income is closely related to consumption. In this regard, households earn incomes both internally and externally, such as the government's cash transfer. The assistance aims to sustain individual or household consumption – especially during the economic crisis or difficult economic situation –, increase income, and enhance access to social facilities, such as education and health, as the primary strategic key to alleviating poverty (Lanjouw et al., 2001). Several studies demonstrate the positive impact of CCT programs on food consumption, including (Skoufias & Di Maro, 2008) in Mexico; (Gitter & Caldes, 2010; Maluccio, 2010) in Nicaragua; (Brugh et al., 2018) in Malawi; and (Afkar & Matz, 2015) in Indonesia.

Besides food consumption, households also allocate their income for non-food needs, especially education and

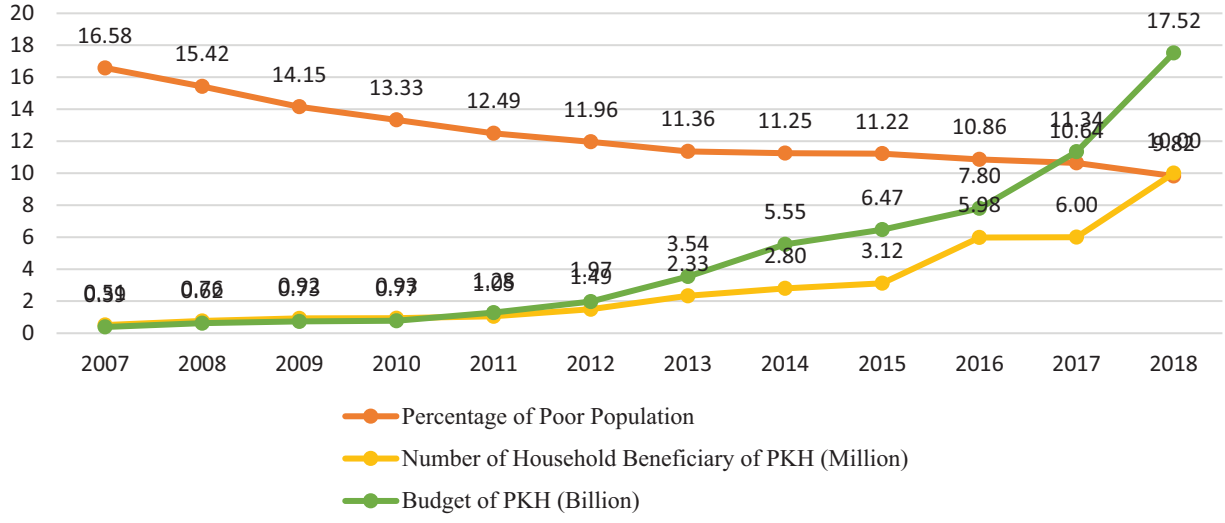

Figure 1. The percentage of poor people, the number of household receiving *PKH,* and *PKH* Budget, 2007–2018 (source: Central Bureau of Statistics, 2019)

health. Cash transfers to women enable them to support children's education and healthcare for pregnant mothers and toddlers. Poor households cannot access education and health facilities because of their economic limitations, especially income, and lack of knowledge and information on the importance of health and education in developing human capital and alleviating poverty in the future. Thus, CCT uses children's school participation (at least until the secondary level) and routine healthcare for pregnant mothers and toddlers as the prerequisites for poor households to receive the cash transfer to fulfill their needs. Studies investigate the effects of CCT programs on children's school enrollment and presence in developing countries (Fiszbein & Schady, 2009; Saavedra & García, 2012). Meanwhile, other studies analyze the impacts of CCT on pregnant and breastfeeding mothers' health, immunization or vaccinization of children below five years old in Mexico (Gertler, 2000; Hoddinott & Skoufias, 2004); Nicaragua (Rawlings & Rubio, 2005); Brazil (Lindert et al., 2007), and Tanzania (Evans et al., 2017).

Although numerous studies have examined the impacts of CCT in various countries, the Indonesian setting (*PKH)* is still relatively understudied. Further, prior studies largely focus on the partial effects of *PKH* on consumption, education, or health. However, the simultaneous impacts of *PKH* on consumption, education, and health as an integrated part is still underexplored. *PKH* mainly aims to enhance human capital development (health and education) by improving access and utilization of health facilities for pregnant mothers and toddlers and school participation rates. Eventually, inter-generation poverty will discontinue in the long-run. Besides, *PKH* also increases income and purchasing power. Consequently, household recipients may use their additional incomes to increase their consumption quantitatively and qualitatively (Cheema et al., 2014).

This study seeks to fill in the gaps of prior studies by analyzing the impacts of *PKH* on food consumption expenditure, education, and health by using the difference-in-difference (DID) analytical approaches. The purpose of this study is to analyze the impact of the Family Hope Program on consumption expenditures, children's educational attainment, and prenatal visits. Thus, it is hoped that the findings of this analysis can provide an overview and at the same time suggestions for policy maker in the implementation of better and more effective PKH program in poverty alleviation.

2. Literature review

2.1. Social protection

Social protection refers to a set of policies and programs designed to reduce poverty and vulnerability by introducing labor market functions, reducing public exposure to risks, and enhancing public capacity to protect from disasters and lost income (Barrientos, 2019). Social protection is a crucial instrument to help achieve the Millennium Development Goals (MDGs) targets, such as healthcare for pregnant mothers, education, health, and nutrition.

Social assistance is a component of social protection that provides minimum resources for individuals and households that live below certain income standards regardless of the contributions of the individual and household recipients (Ferreira & Robalino, 2010; Heimo, 2014). Social assistance consists of two components, namely in-kind transfers and conditional cash transfers. In-kind transfer or unconditional grants refer to the provision of social assistance in the form of food or other resources related to school (e.g., uniforms, books, and other school facilities) or health (e.g., medicine, medical equipment, and other facilities). Unconditional in-kind transfers to poor households reduce household expenditure burdens due to various shocks and crises and increase their access to food.

Conditional cash transfer (CCT) is cash transfer to extremely impoverished households (demand side) with certain terms and conditions to incentivize poor households to enhance their human capital in education and health. In this respect, transfers without certain favorable conditions for poor households will erode the effectiveness of the transfers (Rawlings & Rubio, 2005). For example, cash transfers may require that school-age children of low-income families enroll in schools with certain minimum attendance rates, pregnant or breastfeeding mothers undergo routine health checks, babies receive immunization or vaccination, and toddlers and pre-school children undergo routine growth and development monitoring (De Brauw & Hodinott, 2011; Son, 2008). CCT enables individuals to have better jobs and income opportunities contributing to poverty reduction (AEI-Brookings, 2015; Sawhill, 2003). However, this program needs supply-side supporting or supplementary components to enhance its outcome effectiveness in changing households' behavior of utilizing health and education facilities. These components include improving the quantity and quality of health and educational facilities, such as schools and other educational equipment, teachers, community health centers, hospitals and their equipment, medicine, and medical staff (Rawlings & Rubio, 2005).

2.2. Consumption

Consumption refers to households' use of goods and services to fulfill their needs (Mankiw, 2016). Consumption largely depends on income. As suggested by Keynes, household consumption is determined by income that can be formulated by the function of C = f(Y), where C is consumption, and Y is income. The proportion of consumption and income is labeled as the marginal propensity to consume (MPC). Greater (lower) MPC values imply higher (lower) portions of income used for consumption. Hence, the theoretical values of the MPC range between 0 and 1 ($0 \leq MPC \leq 1$). Further, he mentions that psychological factors affect consumption when individuals or households receive higher incomes, their consumption will increase but with lower magnitude than the increase in income (Ajmair

& Akhtar, 2012; Case et al., 2012; Pangaribowo, 2012). Specifically, Engel assumes that low-income households will mostly allocate their additional incomes for primary needs, especially food. Hence, higher proportions of household income allocated to foods indicate that they are poorer (Chakrabarty & Hildenbrand, 2011). Besides income, other factors also affect consumption, including age, household heads' education, the number of family numbers, disposable income, and household savings.

2.3. Education

Formal education is human capital investments that help ones obtain knowledge and skills to improve their labor productivity (Alam, 2009), increase their wages and salaries, and eventually their welfare (Dewan, 2012; Mankiw, 2016; Romer, 2012). Education also develops capacities and stimulate sustainable economic growth and development, including human capital (Romer, 2012; Todaro & Smith, 2006).

However, improving education access by households is not easy because it is closely related to public awareness and economic abilities. Hence, the behavioral approach offers economic incentives in the form of cash transfers with certain behavioral conditions (Brady, 2018), such as requiring households to enroll their children in schools with certain minimum attendance rates.

2.4. Health

Health is a component of human capital, crucial in economic development. Hyman (2010) argues that health likely affects economic growth in various ways. For example, more healthy individuals have higher educational participation. Consequently, they have higher productivity and probabilities of accessing job opportunities.

However, the provision of and access to healthcare facilities are often subject to various limitations, such as distance, cost, and information, especially for poor households (Glassman et al., 2007). Poor households utilize healthcare facilities suboptimally and lack sufficient health knowledge and information. Thus, improving access to health facilities need to incorporate both demand-side and supply-side factors. The demand-side factors are related to the level and frequency of access to available facilities by individuals and households affected by their information on the benefits and use of these services (Thomas, 2010). Meanwhile, the supply-side factors are related to the quantity, quality, and distribution of service provision (Rawlings & Rubio, 2005).

2.5. The impacts of CCT on consumption expenditure, children's education, and prenatal visits

CCT has two effects on program outcomes, namely income and substitution effects. Government-provided CCT aims to motivate households to enroll their children in school with certain required minimum attendance rates (Fiszbein & Schady, 2009), have prenatal visits for their pregnant mothers, and have their babies and toddlers receive vaccination and development monitoring (Adato & Hoddinott, 2010). Such objectives imply the substitution effect to increase poor households' access to basic social services through government subsidies. This program's final goal is to enhance human capital and break the poverty chain in the long-run. When households meet the conditions, they will receive cash disposable for consumption. This condition indicates the income effect.

Several studies in developing countries demonstrate that income transfers to the poor greatly affect fulfilling consumption, especially foods and basic services. This is in line with Engel's statement which explained that if households receive income, especially poor households, then most of their income is used for food consumption needs (Chakrabarty & Hildenbrand, 2011). Through increased consumption, it can lead to an increase of labor productivity. Social transfer is also often used to directly support investments in human resource development, such as school enrollments and healthcare visits. Therefore, through improving good nutrition and higher education, it will increase capacity development and higher labor productivity, thereby encouraging income growth in the households (Barrientos, 2012).

3. Methodology

This study uses secondary data from the 2007 and 2014 Indonesian Family Life Surveys (IFLS) that observed 12,942 and 15,082 households, respectively. Meanwhile, we rely on the difference-in-difference (DID) method that compares the treatment (program recipient) and control (non program-recipients) groups in two observation periods, namely pre- (t = 0) and post- (t = 1) program implementation (Khandker et al., 2010). Each group has different time-unvarying unobserved factors. The differences between pre- and post-programs for each group (treatment and control) will eliminate time-varying unobserved factors and consequently be free from bias.

he basic model of the DID method can be illustrated in the following equation (Khandker et al., 2010):

$$DD = E\left(Y_1^T - Y_0^T \middle| T_1 = 1\right) - E\left(Y_1^C - Y_0^C \middle| T_1 = 1\right) \quad (1)$$

or stated in the following regression equation:

$$Y_{it} = \alpha + \beta T_{it} t + \rho T_{it} + \gamma t + C_{it} + \varepsilon_{it}, \quad (2)$$

where Y_{it} is the average outcome value of household i in year t, T is the treatment group (program recipients) with (T_1) in t = 1, and (T_0) in t = 0 when the program has not started, t refers to the observation years, i is household, $T \times t$ is the interaction between treatment and year, C_{it} refers to control variables (individual, household, and community characteristics) of household i in year t.

Based on the DID model, this study proposes the following three models:

Model 1: The impact of *PKH* on households' food consumption expenditure

$$CF_{ijt} = \beta_{0it} + \beta_1 dPKH_j + \beta_2 gt_t + \beta_3 \left(dPKH_{ij}\, x\, gt_t\right) + \sum C_{ijt} + \varepsilon_{ijt}. \quad (3)$$

Model 2: The impact of *PKH* on children's educational attainments in households

$$YS_{ijt} = \alpha_{0it} + \alpha_1 dPKH_j + \alpha_2 gt_t + \alpha_3 \left(dPKH_{ij}\, x\, gt_t\right) + \sum C_{ijt} + \nu_{ijt}. \quad (4)$$

Model 3: The impact of *PKH* on prenatal visits

$$PV_{ijt} = \gamma_{0it} + \gamma_1 dPKH_j + \gamma_2 gt_t + \gamma_3 \left(dPKH_{ij}\, x\, gt_t\right) + \sum C_{ijt} + \epsilon_{ijt}, \quad (5)$$

where: CF_{ijt}: the proportion of food consumption expenditure of individual i of household j in year t; YS_{ijt}: education achievement of individual i of household j in year t; PV_{ijt}: the number of prenatal visits of individual i (pregnant mother) of household j in year t to health service centers; $dPKH_j$: a dummy variable (1 = poor household receiving *PKH* in years 2007 and 2014, or both, and 0 = poor household j that did not receive *PKH* in years 2007 and 2014); β_3, λ_3, π_3 the magnitude of the effect of *PKH* on consumption expenditure, children's educational attainments, and prenatal visits; C_{it}: control variables that consist of sex, marital status, age, the number of family members, household location, area location (village and city; Java and non-Java); gt_t: a dummy variable, where t = 0 (year 2007), and t = 1 (year 2014); ε_{it}, μ_{it}, ν_{it}: error term.

4. Results

Based on Table 1 statistical summary, it shows that the number of PKH program participants in 2007 and 2014 was 21,681 households, of which only 324 households (1.49%) received PKH benefits. On the contrary, there were still 21,357 households (98.51%) who had not received PKH benefits. This shows that the distribution of PKH was not evenly distributed because the program was relatively new and required behavioral conditions so it took a long time for all participants to receive the benefits. The individual and household characteristics of *PKH* participants are sex, marital status, age, education, number of household members, household income and household income per capita, total food expenditure, average food expenditure, total expenditure, and average expenditure. Meanwhile, the house characteristics include house status, access to electricity and clean water, toilet use, and fuel use. Lastly, the residential location characteristics consist of city (urban) and village (rural), and Java-outside Java.

The average age of household members involved in *The PKH program* is 46 years that still fall within the working or productive ages of 15–65 years (Central Bureau of Statistics, 2019). The average education level of the members of *PKH* participant households is eight years or equal to the 8th grade (2nd class of junior high school), even though education level is closely related to households' socioeconomic status. Particularly, individuals with higher education levels are more productive and earn higher incomes. Conversely, those with limited education have limited access to job opportunities and abilities to fulfill their household needs.

Table 1. Statistical summary

Explanation	Consumption		Children's Educational Attainment		Prenatal Visits	
	Obs	Mean	Obs	Mean	Obs	Mean
Household Characteristics						
Sex	21.682	0,826	22.824	0,865	–	–
Marital Status	21.682	0,817	22.824	0,886	–	–
Age	21.681	46,289	22.820	42,579	–	–
Education	21.654	7,649	22.795	8,155	1.267	7,858
Number of Household Members	21.682	3,886	22.824	4,809	1.268	3,774
Household Income	21.682	21.100.000	22.824	22.300.000	1.268	12.300.000
Household Income per Capita	21.682	5.857.615	22.824	4.859.380	1.268	3.566.951
Household Expenditure per Capita	21.682	1.252.246				
Average Food Expenditure	21.682	2.034.164	–	–	–	–
Average Non Food Expenditure	21.682	1.985.738	–	–	–	–
Total Expenditure	21.682	2.067.155	–	–	–	–
Average Expenditure	21.679	172.447,8	22.824	212.281	1.268	63.463
House Characteristics						
House status	21.682	0,758	22.824	0,737	1.268	0,732
Access to Electricity	21.680	0,976	22.823	0,975	1.268	0,972
Clean Water	21.497	0,743	22.645	0,737	1.260	0,752
Own a Toilet	21.538	0,791	22.680	0,780	1.259	0,763
Use of Fuel	21.669	0,440	22.817	0,454	1.268	0,464
Residential Location						
City (urban)	21.682	0,541	22.824	0,554	1.268	0,536
Java	21.682	0,570	22.824	0,529	1.268	0,644

On average, the *PKH* participants have four household members. More household members imply higher household consumption needs, especially food. The average household monthly expenditure is Rp 2,022,662, with the average household monthly expenditure per capita of Rp 1,252,246. Household expenditure consists of food consumption expenditure with the average monthly value of Rp 2,034,164 and non-food consumption expenditure with the average monthly value of Rp 1,985,738. Additionally, the average expenditures for education and health are only Rp 212,281 and Rp 63,463, respectively. The figures suggest that households allocate their expenditures almost equally between food and non-food consumption purposes, with slightly higher food consumption than non-food consumption. However, the tiny proportions of households' expenditures on health and education alarmingly indicate their less awareness of these issues.

Analyzing the residential locations of *PKH* participants, this study observes that most households are located in urban areas (11,738 units or 54.14% of total households) while the rest (9,944 units or 45.86% of total participants). Similarly, most households live in Java (12,352 units or 56.97%) while the rest live outside Java (9,330 units or 43.03%).

Table 2. The estimation results of the effects of *PKH* on consumption, children's educational attainments, and prenatal visits

Independent Variable	Model 1	Model 2	Model 3
Treatment (*PKH*)	–0.217 (0.033)***	–0,297 (0.130)***	0.161 (0.085)**
Year (dummy)	0.631 (0.008)***	4.517 (0.042)***	0,073 (0.038)**
Treatment*year (DID)	0.095 (0.048)**	–0.125 (0.184)	–0.188 (0.154)
Constant	11.825 (0.222)***	1.851 (0.115)***	0.222 (0.059)***
Sex	0.071 (0.014)***	0.054 (0.073)	–
Marital Status	0.106 (0.014)***	–1,460 (0.080)***	–
Age	0.001 (0.000)***	0,038 (0.002)***	–
Education	0.040 (0.001)***	0.044 (0.055)***	0.029 (0.004)***
Number of Family Members	0.117 (0.002)***	–0.127 (0.012)***	0.016 (0.010)
Urban	0.121 (0.009)***	0.239 (0.043)***	–0.091 (0.034)**
Java	–0.150 (0.008)***	–0.054 (0.041)	0.078 (0.034)**
Observation	21.644	22.790	888
R-Squared	0.390	0.406	0.065

Note: * Means and Standard Errors are estimated by linear regression; **Inference: *** p < 0.01; ** p < 0.05; * p < 0.1.

4.1. The effect of *PKH* on households' food consumption expenditure

The amount and frequency of cash transfers received by *PKH* recipient households in 2007 and 2014 were still below the requirements. On average, the participating households only received the cash transfer nine times per year, with each transfer amounted to Rp 990,350 in the 2007–2014 period.

The difference-in-difference analysis results (see Table 2) demonstrates that *The PKH program* has a significantly positive impact on food consumption expenditure (p-value < 0.05). The cash transfers of *PKH* to incentivize households to improve children's education and maternal health increases food consumption expenditure by 9.5 percent. The finding indicates that *PKH* recipient households have limited economic conditions and low income levels that the cash transfers from *PKH* greatly affect their consumption, both quantitatively and qualitatively. The result is in line with Ninno and Dorosh (2003) and Maluccio (2010) who observe that conditional cash transfers increase income used for households' consumption expenditure through enhanced food quality and variety. Further, Barrett (2002) and Pieters et al. (2012) explain that increases in poor households' incomes motivate them to shift their expenditures from consuming low-calorie food to high-calorie ones such as fruits, vegetables, and meat.

However, things that need to be considered so that cash transfers can have a positive impact on household consumption expenditures are that the beneficiaries are households from poor families and the amount of assistance received can meet basic needs, as well as payment by direct transfer system to reduce transaction costs. Cash transfers also enhance households' ability to survive external negative shocks such as floods, natural disasters, death, and possible sales of productive household assets, such as land, livestock, and others (Cheema et al., 2014).

The control variables that affect food consumption expenditure include age, number of family members, marital status, and sex. All these variables exhibit significantly positive effects on food consumption expenditure (p-value < 0.05), except for residential location difference (Java – outside Java) that has a negative impact. However, this variable (together with the urban-rural variable) has the greatest effect among the control variables. Our findings suggest that when households in Java increase their income, they tend to reduce their food consumption by 15 percent and shift it to non-food consumption. Meanwhile, urban-rural residential location significantly affects food consumption expenditure by 12.1 percent, thus implying that urban households tend to have greater consumption expenditures than rural households.

4.2. The effect of *PKH* on children's educational attainments

Based on the Indonesian Family Life Survey 4 and 5, each educational level's educational participation rates (primary,

secondary, and tertiary) as the indicator of children's educational levels tended to decline. Specifically, 4,582 students (21.16%) were at primary schools; 2,487 students at junior secondary schools (11.49%), 4,792 students at senior secondary schools (22.13%), 1,158 students at undergraduate level (5.35%), and 114 students at postgraduate (master) level (0.53%). Meanwhile, the 2018 data on student participation rate in Indonesia informs that the participation rate of students of 7–12 years was almost 99.2 percent, or only an extremely small proportion of children do not go to school. However, the school participation rates of students of 13–15 and 16–18 years were 95.36 percent and 71.99 percent, respectively (Central Bureau of Statistics, 2018). Hence, school participation rates declined for higher educational levels. The condition is quite alarming because there were still 2,005 children who could not continue their education at higher levels.

The estimation results of *difference-in-difference* show that PKH has negative and insignificant impacts on children's educational attainment levels in school (p-value > 0.05). PKH does not have an impact on children' educational attainment levels, especially those aged 7–12 years, mainly because of several factors, including; (i) lack of awareness of children and parents about the importance of education. This is also generally influenced by the low level of parental education mainly just grade 2 junior high school and thus affecting the limited level of understanding and awareness of parents in directing and educating children to participate in education.

As a result, children become discouraged and less motivated to take further education, especially to a higher level, and (ii) low economic conditions or parental incomes and being easily vulnerable to economic situations and crises, causing the children to sacrifice their future by dropping out their education to a higher level or choosing to leave school early (Edmonds, 2006). On the other hand, school-age children are forced to work to help their parents to meet their daily needs in the households. Children who cannot continue their education to a higher level, especially those who live in villages with various limitations such as parental incomes and supporting facilities for schooling, have difficulties to get a better education.

Other factors that also explain the impacts of *PKH* on children's educational attainment include sex, age, number of family members, education, and residential location (urban vs. rural and Java vs. outside Java). From all these variables, residential location difference between urban and rural has a significantly positive effect on children's educational attainment by 23.9 percent. Hence, urban households tend to attain higher educational levels than their rural counterparts, likely because their parents have sufficient income and educational levels and better access to education facilities. Meanwhile, the difference in household location between Java and outside Java does not significantly affect children to attain higher educational levels. Massive development in almost whole parts of Indonesia and especially outside Java, including primary, secondary, and tertiary educational facilities, enables school-aged children to attend schools anywhere.

4.3. The effect of *PKH* on prenatal visits

Routine prenatal visits are a crucial phase in ensuring healthy pregnancies. Obstetricians or midwives check pregnancies for at least four times during the normal pregnancy time, namely in the first, second, and third trimesters of the pregnancy. However, pregnant mothers should have prenatal visits once a month until the sixth month of pregnancies, twice for each month when their pregnancies are 7–8 months, and once for each week when their pregnancies are already in the ninth month.

The difference-in-difference analysis result demonstrates that *The PKH program* has a negative and insignificant impact on staple food consumption expenditure (p-value > 0.05). Thus, *PKH,* as cash transfers to incentivize recipient households to improve their health, still fails to increase the frequency of prenatal visits in healthcare facilities. Cash transfers in *PKH* even reduce the frequency of prenatal visits by –18.8 percent. Poor people, especially rural ones, still lack the awareness to utilize healthcare facilities because they lack sufficient information on various diseases and are less educated and knowledgeable on health issues. Besides, poor households have lower household incomes that inhibit them from having routine health checks. In this respect, routine health checks require sufficient funds that proportionally exceed total household expenditures. Thus, these factors, directly and indirectly, lead to the low frequency of healthcare facilities (Gaarder et al., 2010). Besides the demand factors from the recipients, the quality and availability of healthcare facilities also matter. The objectives of *PKH* to improve the health status, develop human resources, and alleviate poverty will not be optimally achieved when the quality, quantity, and availability of healthcare facilities and medicines are insufficient.

Other factors that also affect prenatal visits are education, residential location (urban vs. rural and Java vs. outside Java). More highly educated household members, especially housewives, play a crucial role in raising awareness and generating sufficient knowledge of health issues' importance. Hence, educated mothers will search for various health-related information, including how to utilize necessary health services. However, from these variables, households' residential location difference (urban vs. rural) significantly affects prenatal visits by 9.1 percent. Lower prenatal visits in urban areas than in rural areas are closely related to higher healthcare costs in cities, especially unsubsidized ones. Furthermore, living costs in cities are already more expensive. Consequently, households in urban areas are less motivated to have health checks in community health centers (*Puskesmas – Pusat Kesehatan Masyarakat*), clinics, or hospitals. Another factor that significantly affects prenatal visits is residential location (Java vs. outside Java). Households located in Java have better access to healthcare facilities for pregnant mothers than those outside Java.

5. Discussion

Government intervention in creating income redistribution carried out through cash transfer of PKH can increase consumption expenditures, especially for food consumption expenditures both quantity and quality by poor households (Barrett, 2002), not only foods containing carbohydrates but also vegetables, fruits, milk and meat. Engel has explained that when a household receives income or cash transfers, the household will mainly use it for food consumption needs (Chakrabarty & Hildenbrand, 2011).

In addition to income from transfers, other factors that also affect the need for food consumption are the number of household members, and the location of the household area. Poor households tend to have a large number of members so the needs for food consumptions also increase. Similarly, the locations of the households affect the food consumption, for example, households in Java where consumption expenditure has a greater proportion for non-food consumption than food, and vice versa for households living outside Java. Therefore, the existence of PKH assistance in the form of cash, especially in an uncertain economic situation, is very helpful to meet the needs of poor households in lightening the burden of household expenses. Moreover, the cash transfer is given to poor households with a large number of household members and in isolated locations.

Fulfilling the need for food consumption (minimum consumption) and nutritious aims are to encourage the development of human resources through the participation of children in education services in schools (Baird et al., 2013), and easy access for household members, especially pregnant women in accessing healthcare facilities (Glassman et al., 2007). However, the fact is that the fulfillment of household nutrition through food consumption has not been able to significantly increase the development of human capital both aspects of education and health.

Although, it has been given easy access with all benefits to 12 years of compulsory education (ages 7–18 years), starting from the basic level, junior secondary level (SMP) and upper secondary level (SMA), the level of educational attainment of children in households in Indonesia is still low with average of 2 grade of junior secondary school education. This shows that parents' awareness of the importance of education for their children is still low. In addition, the economic condition or income of parents is still low and easily vulnerable to economic situations and crises as well as the environment, causing children to discontinue their education to a higher level. On the other hand, school-age children have to sacrifice their education to help their parents at work in order to meet the needs of the family. Children who cannot continue their education to a higher level, especially children who live in villages with various limitations such as low parental income, lack of school supporting facilities, have difficulties to get a better education.

The same conditions are also related to easy access of healthcare visits for pregnant women, not only to maintain the maternal health but also to monitor the growth of children in the womb and after birth, in order to reduce various risks of disability and death (Baird et al., 2013). However, in fact the levels of healthcare visits of pregnant women to get health services have not shown significant results. This is thought to be related to the lack of awareness of pregnant women about the importance of maternal and child health, which is still low, indicated by the relatively low level of healthcare visits (visits to health centers or hospitals) or still below 4 times according to program provisions. This is also closely related to the low understanding and awareness of the head of the households who pay less attention to the health of mothers and children in the womb and nutritious foods needed. In addition, households especially with pregnant women have difficulties to get regular healthcare visits because of limited economic conditions such as transportation costs, examination fees, and others. Through PKH, it can increase household consumption expenditures, especially poor households for food fulfillment. However, the assistance of cash transfer has not had a significant impact in increasing children's participation in school and the level of examination of pregnant women in healthcare facilities. This is related to the lack of information and awareness of the importance of education and healthcare for households. Therefore, the strategy that can be taken in the future so the program of PKH for the households can be effective by raising understanding and awareness, providing an intensive mentoring process, socialization and guidance by the government. The purpose of this strategy is to show the importance the education for children and healthcare visits for pregnant women as a solution to solve the poverty problems. Meanwhile, assistance and entrepreneurship training for poor households are needed to manage available resources so that they can increase their income to reduce the burden of household expenses, particularly basic needs, as well as by paying attention to the availability of education and health infrastructures and facilities.

6. Conclusions

The implementation of PKH has a significant impact on household consumption expenditures because the PKH can help to fulfill the consumption of poor households, especially foods, both in quantity and quality (Chakrabarty & Hildenbrand, 2011) and not only foods containing carbohydrates but also foods in the form of vegetables, fruits, milk and meat (Barrett, 2002). Therefore, the program of PKH in the form of cash transfer, particularly in an uncertain economic situation, is very helpful to meet the needs of poor households, lightening the burden of household expenses. Moreover, the cash transfer is given to poor households with a large number of household members and in isolated locations.

However, the implementations of PKH do not have a significant impact in encouraging the improvement of children's educational attainment and the level of healthcare

visits of pregnant women. In the aspect of education, the low educational attainment of children is due to the lack of awareness of parents about the importance of education for their children. In addition, the economic conditions or income of parents are low and vulnerable to economic situations and crises as well as the environment, causing children cannot continue their education to a higher level or dropping out of schools.

Meanwhile, in the health aspect, the low level of healthcare visits of pregnant women is due to the lack of awareness of pregnant women about the importance of their healthy, indicated by relatively low level of healthcare visits to health centers or hospitals (Glassman et al., 2007), still below 4 times according to the program provisions. This lack of awareness is closely related to the low average level of education of the head of the households who pay less attention to the health of mothers and children in the womb and nutritious food needed. Moreover, another factor that affects the low level of awareness is the limited economic condition of the households especially for pregnant women to get regular healthcare visits due to the expenses such as transportation costs, examination fees and others.

Therefore, to support the implementation of PKH to be on target and effective, several strategies are taken (i) to increase understanding and awareness of parents, an intensive mentoring process including socialization and guidance provided by the government to the poor households to show the importance of education for children and healthcare visits for pregnant women, as a solution to solve the problem of poverty, (ii) to assist poor households to fulfill their basic needs, so they do not only depend on government assistance but also requires active efforts of the family to fulfill their basic needs. It is therefore necessary for entrepreneurship mentoring and training to manage available resources in order to increase income and reduce the burden of their household expenses, especially basic needs, and (iii) to utilize the access to education and health services to be more effective and efficient, particularly the availability of facilities and infrastructures of education and healthcare.

Limitations and future research

This study is subject to several caveats. First, IFLS does not provide more detailed data on the educational aspect, such as the number of students enrolling at each beginning of the semester and the number of students' presence each week. The availability of more detailed data will result in better measures of educational attainment. Similarly, future studies need to generate other variables such as the frequency of the immunization and vaccinization in health service centers by incorporating other data sources with such data for the health aspect.

Second, the *PKH* program started in 2007 and began to deliver its benefits several years later. Hence, the fourth wave of IFLS was organized when the *PKH* program was still at the preparatory and socialization stages with limited recipient households. Thus, future studies need to use the later waves of IFLS to generate more household data.

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Author contributions

Adrianus Kabubu Hudang conceived the study and were responsible for the design and development of the data analysis. Tri Hariyanto were responsible for data collection and analysis. Adrianus Kabubu Hudang were responsible for data interpretation. Rossanto Dwi Handoyo wrote the first draft of the article.

Disclosure statement

Authors declare that there is no conflict of interest.

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