BEYOND BORDERS

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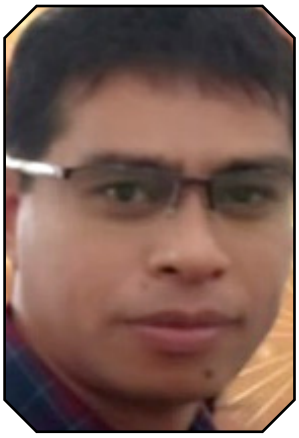
Do Subsidized Rice and Conditional Cash Transfer Programs Affect Poor Households' Food Consumption Expenditures? A Difference-in-Differences Approach



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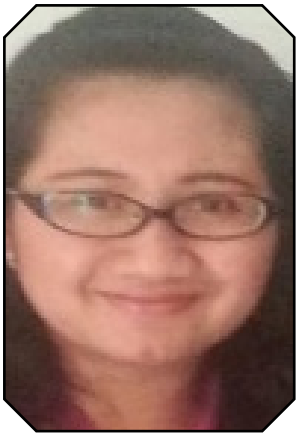
Abstract

Raskin (Subsidized Rice) and PKH (Conditional Cash Transfers for Low-Income Families) are social protection programs aimed at mitigating poverty in Indonesia. Using the difference-in-differences method, this study scrutinizes the impacts of *Raskin* and PKH on poor Indonesian households' food consumption expenditures. The analysis utilized data from the 2007 and 2014 Indonesia Family Life Survey (IFLS). The findings show that the implementation of the *Raskin* programme has a significant impact on the consumption expenditure of poor households. This is because most poor households receive *Raskin* as their main food to fulfil their household consumption needs, especially during periods of crisis, climate change or crop failure. Other factors that also influence the amount of food consumption expenditure of poor households include the age of the household head, the number of household members and the location of the household. On the other hand, PKH does not have a significant impact on consumption expenditure due to the lack of valid data of target recipients as its implementation requires behavioural compliance related to children's school attendance and antenatal health check-up. It is therefore, programme improvements for both *Raskin* and PKH are carried out by always updating the target data of poor households so that the assistance provided can be received by the right target. In addition, it is very important to promote understanding and raise awareness in order to encourage children to attend school and pregnant women to use health services with intensive socialization and assistance especially for poor households.

Keywords: subsidized rice program; family hope program; household food consumption expenditure; cash transfer; poverty; difference-in-differences method; Indonesia Family Life Survey.

Introduction

Poverty is a complex social, economic, political, and cultural phenomenon. Almost all developed and developing countries experience poverty. It is indicated by the number of poor people, unemployment, backwardness, starvation, and malnutrition. Poverty has several consequences, such as food insecurity [Wight et al. 2014], low-quality human resources, and limited access to social services, including education and healthcare [Brady 2019].



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As one of the developing countries, Indonesia faces poverty that can be seen in the number of people living in poverty and people who are vulnerable living below the poverty. In 2004, the number of people living in poverty was 36.10 million (16.66%), then gradually decreased to 25.9 million (9.36%) in 2023. Analyzing the distribution of people living in poverty, 11,74 million people (7.29%) reside in urban areas, while 14,16 million people (12.22%) inhabit rural areas. This data shows that the people living in poverty commonly live in rural settings and work as farmers [BPS 2023b].

Poverty in Indonesia is characterized by the low level of education of poor households, particularly the average length of education, as main indicator, of the heads of the household. The average length of education of household heads in school is 6 years or completed elementary school by 38.01 percent, while around 26 percent have never attended school or did not complete elementary school. In other words, almost 64 percent of household heads have only a primary school education or less. In addition, the ability to write and read among poor households shows that almost 94 percent can write and read in both Latin and other alphabets, with only 6 percent lacking these basic literacy skills. The school enrolment rate of the poor population aged 7–12 years is 97.99 percent, while it is 91.56 percent of those aged 13–15 years [BPS 2023a]. This data shows that the participation rate of students from poor households is very high for primary and secondary education, but decreases when it comes to higher education. One of the reasons for this is the limited funds to finance higher education. On the other hand, the support for educational infrastructures and facilities as well as educators, both in terms of quantity and quality, is still limited.

The average amount of food expenditure of the poor in Indonesia stands notably high at 64.45 percent. This supports Engel's argument that the greater the proportion of expenditure allocated to food, the poorer the family [Chakrabarty, Hildenbrand 2011]. In addition, the other problems faced by the poor are closely related to the fulfilment of basic food needs, nutritional demands, low purchasing ability, food availability, heavily reliance on rice and restricted food variety. The problem of food sufficiency is evident in the low-calorie intake of 1,571 kcal per day among the poor, falling below the BPS standard of 2,100 kcal per day. In addition, food sufficiency is also influenced by the consumption pattern of the poor that heavily relies on rice as the staple food. This consumption pattern leads to dependency on rice, which in long term can jeopardize the community's food security. Furthermore, it will weaken community initiatives to diversify food sources beyond rice, such as incorporating corn, cassava, taro, and other varieties of food. The problem of poverty in Indonesia is related to poor transportation access to health services and low health status impacting their ability to work and earn a living, limited ability of children's growth and development, and subpar maternal health. This is caused by a lack of adequate food, limited access and quality of basic health services, a lack of health education, and high healthcare costs.

There are some indicators of limited access and quality of basic health services. Firstly, the infant mortality rate among the poor households remains notably high, exceeding 17 per 1,000 births (in 2020), indicating that out of every 1,000 newborns, 17 babies die. Secondly, the average life expectancy of household heads is around 50 years [BPS 2023a].

Thirdly, the low-level health of the poor is mainly caused by unhealthy behaviors. For example, the habit of smoking and excessive drinking of alcohol that causes lung cancer and other diseases. Fourthly, the poor quality of basic health services is caused by the limited and misdistribution of health workers (midwives, nurses, and doctors) in all regions, particularly in cities and villages. In fact, sometimes health facilities lack the support of available health workers. Fifthly, the long-distance and poor transportation access between health service facilities and poor households lead to high transportation costs.

Accordingly, governments offer various social protection policy instruments to mitigate poverty due to economic crisis shocks among poor people, including in-kind transfers and conditional cash transfers as a form of social assistance [Kostyrko 2004; Ferreira, Robalino 2010; Budlender 2014; Heimo 2014]. In-kind transfers are a social assistance program delivered as food through subsidized prices to reduce poor households' financial burdens. Meanwhile, conditional cash transfers (CCTs) help impoverished households develop their human resources. For example, in education, low-income families are motivated to enroll their school-age children in schools with a minimum attendance rate of 85 percent. Furthermore, regarding health, they are encouraged to have routine prenatal and postnatal visits and immunization/vaccination for toddlers [World Bank 2011; Budlender 2014]. Through transfers in the form of foods staples, households receive income to increase their consumption as described by John M. Keynes. In addition, transfers are also used to meet the needs for education and health, thus encouraging access to education and health services. Fulfillment of household consumption allows households to meet consumption and nutritional needs so that they can work productively. Meanwhile, with easy and cheap access to education and health, households with school-age children can take education up to secondary level, and even higher education, and ensure the health and wellbeing of pregnant women and toddlers.

Almost thirty developing countries have implemented in-kind transfer and CCT programs [Fiszbein et al. 2009; Word Bank 2009]. Several scholars have investigated the effect of in-kind transfers on food consumption expenditures, especially in developing countries, such as Sub-Sahara Africa [Tiwari et al. 2016] and Pakistan [Aneesa, Khan 2019]. Both studies show that in-kind transfers increase households' food consumption expenditures quantitatively and qualitatively, mitigating food insecurity and poverty. While doing research in Indonesia, Girik-Allo, Rahayu, Sukartini [2016] analyzed the effect of *Raskin* (aid in kind) on household consumption using Indonesian Family Life Survey (IFLS) data from 2000 and 2017, and found that *Raskin* significantly effects household consumption. *Raskin* has a negative impact on food consumption expenditures and a positive influence on non-food spending. This shows that initially when poor households receive a transfer, they will fulfil their food consumption needs first, and after that they will switch to fulfilling non-food consumption.

In addition to in-kind assistance in the form of goods or food, there is also conditional cash transfer (CCT) assistance in the form of cash. Several studies analysing the effect of CCT on consumption were conducted in several countries, such as Colombia [Attanasio et al. 2005], Nicaragua [Maluccio 2010], the Philippines [Tutor 2014]. Meanwhile, Afkar and Matz [2015] conducted a study on the impact of *Raskin* and PKH (Conditional Cash Transfers for Low-Income Families) on food security and nutrition, using panel data from 2007 and 2009 in seven provinces in Indonesia (West Java, East Java, North Sulawesi, Gorontalo, East Nusa Tenggara, West Sumatra and DKI Jakarta). The results show that PKH has a more significant effect on food consumption than *Raskin*. However, the simultaneous impact of the two programmes is not significant.

Some research results found that in-kind transfers and CCT affect households' consumption expenditures, especially rice-related food. Rice is a staple food in many Asian countries, including Indonesia. It is the community's leading food for daily consumption. Hence, households devote more of their expenditures to rice than other consumption types. These two social assistance programs successfully reduced poverty in many developing countries [Word Bank 2009]. Word Bank motivated the Indonesian government to implement similar

programs: *Raskin* for in-kind transfers and PKH for CCTs. *Raskin* aims to reduce poor households' financial burdens in fulfilling their needs, especially food. On the other hand, PKH aims to alleviate the current and future poverty problems through human resource development, especially education and health. In addition, in its distribution, *Raskin* is given in the form of food to poor households without behavioural requirements, while PKH is given in the form of cash to poor households with behavioural requirements, namely, school-age children must attend a minimum 85 percent of school attendance and pregnant women routinely check their pregnancies at *Puskesmas* or clinics at least four times during pregnancy [TNP2K 2018]. However, both programs eventually aim to mitigate the poverty problem and improve households' welfare.

To support the implementation of the *Raskin* and PKH programs, the Indonesian government allocated a significant increase in the budget from 2007 to 2018. The *Raskin* budget increased from IDR 6.6 trillion in 2007 to IDR 21 trillion in 2018. Similarly, the PKH budget increased from IDR 0.39 trillion in 2007 to IDR 17.5 trillion in 2018. Such increases also expand the number of recipients. The number of *Raskin* recipient households declined from 19.1 million in 2007 to 15.6 million in 2018. However, PKH recipient households increased from 510 thousand in 2007 to 10 million in 2018. Consequently, the percentage of poor people declined from 16.58 percent in 2007 to 9.82 percent in 2018.

Although poverty has declined, the number of poor people remains significant because households do not have sufficient economic resources to participate in the economy. Lack of economic resources includes insufficient income to fulfill daily needs that limit purchasing power [Bradshaw 2007]. Households face financial inability to spend on food and non-food expenditures, as shown in the proportion of average monthly per-capita consumption expenditures based on goods groups and expenditure types in 2018. In general, the proportion of food expenditures based on expenditure types declines, implying that higher households' income will reduce their food expenditure proportion. Those with a monthly income of less than IDR 150,000 exhibit the highest proportion of food expenditures (75.82 %) but the lowest proportion of non-food expenditures (24.18 %). Meanwhile, those with a monthly income of more than IDR 1.5million have the lowest proportion of food expenditures (59.99 %).

The existence of *Raskin* and PKH programmes are very important for food consumption needs as well as access to education and health services as basic needs for poor households in reducing poverty, both in short and long term. Although international research related to in-kind and CCT programmes has been conducted in various countries, similar research in Indonesia related to *Raskin* and PKH is still limited. Previous studies related to the *Raskin* programme used IFLS data in 2000 and 2007 and employed the variable instrument method, while research on PKH used survey data in 2007 and 2009 and applied the *Inverse Probability Weigthing* model technique. In addition, previous studies have focused predominantly on examining the relationship between transfers and consumption expenditure in isolation, and ignored the interconnected impact of *Raskin* and PKH on consumption expenditure as an integrated programme. Whereas the impact of both programmes in overcoming poverty both in the short and long term is very strategic, the synergies between programmes are still needed. This can provide valuable insights to policymakers or the government on how effective the strategies for social protection programmes as an integrated system in overcoming poverty problems. Therefore, considering the interconnected role of the *Raskin* and PKH programs and the target of poverty alleviation as well as filling the gap of previous research both in terms of data and analytical approach, the authors aim to analyse the impact of the *Raskin* and PKH programs on food consumption expenditure of poor households in Indonesia. This study uses IFLS data from 2007 and 2014, employing the *Difference-in-Difference* (DiD) analysis method.

Literature Review

Income Redistribution

Income redistribution *(distribution of income*) is an effort made by the government so that community income is evenly distributed among citizens. Equitable does not mean that all citizens have the same income, but rather that they have the same opportunity to earn income. The aim is to avoid income inequality in society, which can lead to social unrest and jealousy and thus disrupt national stability [Boadway, Keen 2000].

The consequences of unequal income distribution affect not only individuals and family conditions but also health status, opportunities to live together, social relationships and trust in institutions. It is an impediment to long-term growth, particularly in restricting low-income households from investing in education and skills [OCDE 2017].

Inequality in income distribution occurs due to [Todaro, Smith 2015]: (1) differences in ownership of factors of production, especially *capital* stock, between groups of people, and (2) imperfections in market mechanisms *(market failure*) that cause imperfect competition. Therefore, to overcome this income inequality problem, government policy is needed in the form of income redistribution policy. Income redistribution policy is an important function of the government, which is implemented through tax and transfer payments to reduce poverty and inequality by strengthening the economy, protecting people from social shocks and developing better social conditions [Boadway, Keen 2000; Rosen, Gayer 2008]. One form of tax payment is in the form of progressive taxation, where the higher a person's income, the higher the percentage of the tax rate imposed. The revenue from the progressive tax is used to finance economic activities including to provide subsidies for low-income groups. Meanwhile, transfer payments take the form of *cash transfers* such as PKH, and also in-kind transfers such as the *Raskin* programme that provides food for the poor.

However, transfers to the poor are not just enough to provide cash or food, but must also be able to increase the capacity of people to generate income in the present and future, through the provision of education and training facilities as well as access to health, micro-credit and the provision of public facilities [Bourguignon, Ferreira, Leite 2003].

Social Protection

Social protection refers to policies and programs designed to reduce poverty and vulnerability by introducing labor market functions, reducing public risk exposure, and increasing individuals' capacity to protect themselves from disasters and income loss [Barrientos 2019]. It is crucial to fulfilling the Millennium Development Goals (MDGs) targets, ensuring universal access to essential services for pregnant mothers, education, nutrition, and health [Bappenas 2014]. Social assistance represents a social protection component that seeks to provide minimum resources for individuals and households living below specific income standards regardless of recipient individuals or households' contributions. Social assistance consists of in-kind transfers and Conditional Cash Transfers (CCT) [Rosen, Gayer 2008; Ferreira, Robalino 2010; Heimo 2014].

In-Kind Transfer

In-kind transfers or unconditional grants are social assistance in the form of food or resources related to school (e. g., uniforms, books, and others) and health (e. g., medicine, medical equipment, and others). Unconditional provision of in-kind transfers to poor households aims to reduce their burdens due to various economic shocks and crises and increase their access to food [Kostyrko 2004]. Another reason is that improved access to food will enhance their nutrition, especially for school-aged children, and increase school participation [Rosen, Gayer 2008].

In Indonesia, in-kind transfers are known as *Raskin* or rice for low-income families. The program was previously known as Special Market Operation (*OPK — Operasi Pasar Khusus*), which sought to enhance food security to cope with emergencies due to the 1998 economic crisis. In 2012, OPK changed into *Raskin*, which has expanded into social protection programs. *Raskin* offers 15 kg/month of rice to poor households at a subsidized price of Rp 1,600/kg. However, empirically, the implementation of the *Raskin* program still faced various problems, including ineffective rice distribution from the primary distribution points to recipients, lack of socialization and effective program targeting [Sulaksono, Mawardi 2012], and low rice quality [Isdijoso et al. 2011]. In some areas, *Raskin* had been distributed equally among recipients to avoid conflicts and social jealousy [Tabor, Sawit 2005]. However, this equal distribution has led to the *Raskin* program's ineffectiveness. Ultimately, it is not optimal in helping to reduce the consumption expenditure of poor households. Therefore, it is necessary to conduct socialization to provide a better understanding of the program's targets, price, and distribution amounts. It is also essential to provide information on the frequency of receipt and the distribution mechanisms.

Conditional Cash Transfer (CCTs)

Conditional Cash Transfers (CCTs) refer to cash transfers to impoverished households with certain conditions to improve their education and health. Rawlings and Rubio [2005] explained that transfers without certain requirements for poor people will result in ineffective public services. The requirements included enrolling school-aged children by achieving minimum attendance rates, routine health checks for pregnant or breastfeeding mothers, immunization and vaccinations for babies, and monitoring toddlers and preschool children's growth and health [Son 2008; Brauw, Hoddinott 2011]. Thus, household members' changing behavior would improve long-term health and education, enabling better employment opportunities, earning a higher income, and eventually reducing poverty [Sawhill 2003; Brookings 2015]. Nevertheless, it is necessary to complement this demand-side program with the supply-side supporting aspects to change poor households' behavior and increase the utilization of health and educational facilities to improve the outcomes. In particular, the government needed to enhance the quantity and quality of health and educational facilities, such as schools, primary public health centers, hospitals, and so on [Rawlings, Rubio 2005].

CCTs have two effects on program outcomes, namely, the income effect and the substitution effect. As a government program, CCTs seek to change household behavior to enroll their school-aged children into schools by achieving a minimum attendance rate, having routine prenatal visits, and monitoring toddlers' health and growth. These behaviors are substitution effects that enhance poor households' access to essential social services with subsidized prices. Consequently, poor households can improve their human capital and alleviate poverty in the long run. When poor households change their behavior to the expected one, they receive cash incentives to fulfill their food consumption and cover health and educational expenses. These cash incentives represent the income effect. Hence, CCTs positively affect consumption.

Consumption

Keynes explains that household expenditures in the economy depend on income, as formulated by $C = f(Y)$, where C is Consumption and Y is income. The comparison between consumption and income refers to the marginal propensity to consume (MPC). Higher MPC implies more income for consumption expenditures and vice versa; hence, $0 \leq MPC \leq 1$. Further, Keynes explained that psychological factors affect consumption because individuals' or households' consumption increases to a lesser proportion to the degree of income increase [Case, Fair, Oster 2007; Ajmair, Akhtar 2012]. Engel assumes low-income or poor households will increase their income to fulfill their basic needs, especially food [Chen, Ravallion 2010; Chakrabarty, Hildenbrand 2011]. Conversely Trisnowati and Budiwinarto [2013] explained that more prosperous households would use a lower (more significant) proportion of their income for food (non-food) consumption.

The neoclassical theory assumes that households have two options based on their preferences for two goods. However, they are confronted with budget constraints when maximizing their preferences. This theory explained that goods transfer programs would produce similar results to cash transfer programs when household members lived in marginal areas [Hoynes, Schanzenbach 2009].

Household consumption is influenced by various factors beyond just income, including wealth, interest rates, expectations of future income, and government transfers [Case, Fair, Oster 2007]. Hone and Marisennayya [2019] added that consumption expenditures were also affected by age, household heads' education, number of household members, disposable income, and household savings.

In-Kind Transfers, Conditional Cash Transfers (CCTs), and Consumption Expenditures

In Indonesia, government transfers to poor households come in the form of in-kind support, such as *Raskin,* and in the form of Conditional Cash Transfer (CCT), such as the Family Hope Programme (PKH). Both programmes have the effect of increasing income and reducing the burden of consumption expenditure of poor households. Through food or income assistance, poor households have increased purchasing power leading to higher consumption expenditure on both food and non-food items. Engel specifically explained that low-income households, if they receive assistance, tend to use most of their income to buy basic needs in the form of food. This shows that the higher the income of a household, the higher the household consumption expenditures on food consumption.

Transfers are more effective when the value provided is greater than the amount of household consumption needs. Conversely, transfers are less effective if the value is less than the amount of consumption required. In addition, by fulfilling the consumption needs for healthy and nutritious food in the CCT program, households are able to invest in a higher level of education in order to improve the quality of human resources, which in the long run can alleviate poverty.

In addition, the transfers will enable the poor households to be more resilient to face sudden changes of external environment, such as climate change, floods, natural disasters, crop failures and etc. [Cheema et al. 2014]. However, this expectation is based on the assumption that the value of the transfer can solve the problem of extreme poverty, if the value of the transfer exceeds the amount of household consumption needs. In other words, the poor households must be able to not only meet their basic needs but to invest or get involved in productive activities improving their overall economic wellbeing.

Methodology

This study aims to analyse the impact of poverty alleviation programs, particularly *Raskin* and PKH, on consumption expenditure based on the theory of cash transfers and income redistribution. Previous studies in many countries have shown that cash transfers can increase household consumption expenditure. However, the difference is that in some countries poverty programmes have a significant impact, while in others they do not. Therefore, it is very important to determine the impact of poverty programmes on the fulfilment of household consumption expenditure, as this can be used to evaluate and improve poverty alleviation policies to ensure they are more effective and efficient in the future. In analysing the impact of *Raskin* and PKH programs on food consumption expenditure, the Difference-in-Difference (DiD) method is adopted. The Difference-in-differences (DID) approach is conducted by comparing treatment groups (programme recipients) and (non-programme recipients) across two time periods, namely before ($t = 0$) and after ($t = 1$) implementation [Khandker, Koolwal, Samad 2010]. Each group has different time invariant unobserved factors. The difference in pre- and post-programme conditions for each group will reduce the unobserved time-invariant factors that can help reduce the bias.

The DID approach uses the basic model proposed by [Khandker, Koolwal, Samad 2010]: (1)

The model is then used in the form of an alternative regression equation as follows: (2)

Y_{it} is the average outcome of household i in year *t*. *T* represents the treatment group that received the programme (T_1) at $t = 1$ and did not receive the programme (T_0) at $t = 0$. In this case, *t* refers to the year of observation (2007 and 2014); *i* is poor households; β indicates the magnitude of the programme impact; and ρ indicates the dummy of poor households receiving the programme (1), and not receiving the programme (0). $T * t$ is the interaction between treatment and year. Cit represents the control variables of the household head, namely, the gender, the marital status, the age, the number of household members, and the location of the region (urban and rural; Java and outside Java). The selection of several control variables is based on the factors that influence the consumption expenditure of poor households on the micro level [Haughton, Khandher 2009].

Based on the basic DID model using regression equation (2), this study uses two models as follows:

Model 1: The effect of *Raskin* on food consumption expenditure of poor households (3)

Model 2: The effect of PKH on food consumption expenditure of poor households (4)

CF_{ijt} is the proportion of individual *i*'s food consumption expenditure that household *j* had in year *t*. Meanwhile, *dRaskinj* and *dPKHj* are dummy variables (1 = poor households received *Raskin* / PKH in 2007 or 2014 or both years, 0 = otherwise). In the model, λ_3 and β_3 represent the magnitude of the impact of the *Raskin* / PKH programme on food consumption expenditure. C_{ijt} is a control variable that includes gender, marital status, age, number of household members, and region of residence (urban vs rural, Java vs non-Java). In the model, gt_t is a dummy variable representing $t = 0$ (year 2007) and $t = 1$ (year 2014). Meanwhile, ε_{it} and μ_{it} are errors.

Data

The research data used Indonesian Family Life Survey (IFLS) data from 2007 and 2014, with a total of 12,942 and 15,082 poor and non-poor households respectively. From this number, poor households were selected using the amount of consumption expenditure according to the standard food poverty line in Indonesia. According to BPS, the standard food consumption expenditure in 2014 was IDR 300,000/month ($20 dollars/month). So, if a household's consumption expenditure is below this standard, it is considered poor. Therefore, based on these criteria, the number of poor households that can be taken as data is 983 poor households.

Results and Discussion

We illustrated the *Raskin* and PKH programs using data from 2007 and 2014 and focusing on the following aspects: households' characteristics including sex, marital status, age, education, number of household members, household income, per capita household income, total food expenditures, average food expenditures, total and average expenditures, residential areas (urban vs. rural and Java vs. non-Java).

Household participation in the *Raskin* program shows that the number of households receiving *Raskin* was 755 (76.81%), while 228 (23.19%) households do not receive it. The number of *Raskin* recipient households in 2007 was 591 (60.12%). In 2014, it was 392 households (39.88%). On the other hand, household participation in the PKH program shows that the number of households receiving PKH was 38 (3.87%), with 945 (96.13%) households not receiving it. The number of PKH recipient households in 2007 was 591 (56.1%). In 2014, there were 392 households (43.90%) receiving PKH.

An overview of the *Raskin* program implementation shows that the level of household participation in the program is already high because the government has implemented it since the crisis period. In contrast, the PKH program shows that poor households' access to the program is still limited because the implementation of the program is still in the preparation and socialization stages. Thus, only a few low-income families are involved.

ased on the frequency of receiving *Raskin* by each household, the average is around seven times per year, with the amount of rice of 50–56 kg per household. Meanwhile, according to program guidelines, the frequency of receipt should be 12 times or every month, with an amount of 15 kg per household (TPN2K, 2018). The implementation of *Raskin* has been hindered by several obstacles, including difficulties in paying the subsidized price of rice for distribution and transportation costs. Because the government faces budget constraints, the distribution costs are covered by poor households. Thus, the actual amount of rice received is reduced. Meanwhile, the frequency of receiving PKH is four times per year, offering IDR 990,000–1,254,000 per household. Before the provision of PKH, the government conducted socialization with the objectives of (*i*) providing opportunities for school-age children to pursue education with a minimum attendance rate of 85 percent and (*ii*) assisting with regular check-up services for pregnant women at hospitals, public health center, or clinics.

Table 1 shows that the average age of household heads in 2007 was 44 years and increased to 48 years in 2014. This indicates that the age of the household head is still very productive within the labor force age range of 15–65 years [BPS 2019]. Meanwhile, household heads and members' education levels were crucial in supporting their lives. In this regard, years of schooling are used to measure education levels. The average education level of household heads is around seven years, equivalent to junior secondary school grade 1. Education level was closely related to households' socioeconomic status because individuals with higher education levels had more excellent knowledge and skills to improve their productivity and income. Conversely, individuals with lower education levels had limited opportunities to access job opportunities and earned lower incomes to fulfill their household needs.

On average, households consisted of four members. Larger households typically need more significant consumption expenditures, including food-related ones. From the residential area perspective, most families live in urban areas (574 homes or 64.28% of total households), while the remaining (319 households or 35.72%) live in rural areas. Furthermore, 680 families (76.15% of total households) were located on Java island, and the remaining (213 homes or 23.85%) resided outside Java.

In 2007, the average monthly household consumption expenditure was IDR 1,942,653. The minimum household expenditure was IDR 84,833 per month, and the maximum was IDR 27,228,166 monthly. In 2014, the average household expenditure increased to IDR 3,872,493, with the minimum being IDR 166,750 and the highest IDR 38,800,000. This condition shows that the average household expenditure has increased by IDR 1,929,840, or approximately 99 percent. Likewise, the lowest and highest household expenditures have a considerable disparity. This shows that there is a gap in consumption expenditure between households. The statistical summary of the above explanation can be seen in the Table 1.

Table 1

Summary Statistics

Variable	Obs	2007				2014			
		Mean	Std.Dev	Min	Max	Mean	Std.Dev	Min	Max
Household consumption expenditure (per month)	983	1,942,653	1,681,053	84,833	27,228,166	3,872,493	3,441,578	166,750	38,800,000
Sex of household head (male=1)	983	0.834	0.372	0	1	0.818	0.386	0	1
Marital status of household head (married = 1)	983	0.821	0.384	0	1	0.813	0.390	0	1
Age of household head (year)	983	44.205	14.711	11	100	48.37	13.573	12	101
Number of household members (persons)	983	3.869	1.793	1	22	3.903	1.769	1	17
Education of household head (year)	983	7.475	4.614	0	19	7.823	4.720	0	22
Household's Residential Area (urban = 1)	983	0.508	0,500	0	1	0.575	0.494	0	1
Household's Residential Area (Java = 1)	983	0.571	0,495	0	1	0.569	0.495	0	1

The Impacts of Raskin and PKH on Poor Households' Food Consumption Expenditures

The number of poor households participating in the *Raskin* program was 983. A total of 755 families received *Raskin* (76.18%), and 228 homes did not receive it (23.19%). The data shows that most poor households have received *Raskin* to fulfill household consumption needs. The number of poor households participating in the *Raskin* program was 983, with 755 households receiving *Raskin* (76.18%) and 228 households did not receiving it (23.19%). The data shows that the majority of poor households received *Raskin* to meet their household consumption needs. The large number of poor households have received *Raskin* because this program has been implemented for a long time since the crisis period. Nevertheless, there are still around 23 percent of low-income families who have not received *Raskin*. This is due to inaccurate targeting of program recipients as a result of invalid data. In practice, there are still households that should receive the rice subsidy but they do not, or conversely, there are households that are not eligible but receive *Raskin* [Hastuti et al. 2008; Kusumawati, Kudo 2019].

According to Table 2, the coefficient of determination (R-squared) for model 1 on the effect of *Raskin* on the consumption expenditure of poor households is 0.585 or 58.5 percent. This means that *Raskin* and several control variables of the household head, such as gender, marital status, age, number of household members,

education, occupation, household assets, location of household residence and area of household origin, are able to explain the consumption expenditure of poor households by 58.5 percent and the rest is explained by other variables outside the model.

To examine the impact of *Raskin* on the consumption expenditure of poor households, difference-in-difference (DID) analysis is used. The analysis shows that the *Raskin* program has a significant influence on the consumption expenditure of poor households, as evidenced by the p-value < α = 0.1 or = 10%. This means that an increase in *Raskin* assistance can reduce the burden of consumption expenditure of poor households by – 0.063 thousand rupiah. The existence of rice assistance for poor families at subsidised prices below market prices can help reduce the consumption expenditure of poor households, especially for food in the form of rice by 6.3 percent. Rice is the main food staple in Indonesia, so the existence of *Raskin* assistance can help poor households, especially in times of crisis or crop failure. This is also in line with the previous study [Djamaluddin 2015], showing that the main consumption including poor households in Indonesia is rice, accounting for 65 percent of total household consumption expenditure. This observation resonates with Engel's theory which states that when poor households receive income, they will spend more of their income to meet basic needs, e. g., food and meat, milk, and eggs [Barrett 2002]. Through *Raskin* assistance, households can receive additional foodstuffs. Thus, it could reduce the proportion of household consumption expenditure that they would otherwise have to purchase on their own [Girik-Allo, Rahayu, Sukartini 2016]. Household income allocated to food purchases can be diverted to non-food expenditures. Therefore, through this *Raskin* assistance, household consumption has increased for both food items and non-food necessities.

There are several control variables that also affect the food consumption expenditure of poor households, including gender, marital status, age, education, number of household members, and region of household residence (rural/urban or Java/out of Java). Of all these variables, there are three variables (age, number of household members, and rural/urban area of household residence) that have a significant influence on the food consumption expenditure of poor households. As the age of the household head advances, food consumption expenditure decreases by 0.3 percent, reflecting the changing needs during the aging process. Meanwhile, the number of household members has a positive effect on food consumption expenditure. The average number of poor household members is 5 people. By increasing the number of poor household members, food consumption expenditure increases by 18.7 percent. Lastly, the location of residence, whether urban and rural, also has a positive effect on food consumption expenditure. Specifically, food expenses for poor households in urban areas are 16 percent higher compared to those in rural areas. This is related to the higher price of foodstuffs in urban areas.

Although the *Raskin* program has been considered quite effective in reducing the consumption expenditure of poor households, its implementations still have some weaknesses that need to be improved. For example, inaccuracy of recipient data, which means that there are still poor households that have not received assistance, or conversely there are households that should not receive assistance. The amount of assistance is sometimes below the provisions (15 kg per month). Therefore, since 2017 the *Raskin* program has been transformed into the Non-Cash Food Assistance (BTNP) program. This transformation was carried out as an effort to overcome the 6T problems in the *Raskin* or Rastra (Beras Sejahtera) program, namely, right target, right amount, right time, right quality, right price and right administration (TNP2K, 2018). Unlike *Raskin*, which is given in-kind in the form of 10 kg of rice per month per household, the BPNT program provides electronic vouchers/e-vouchers (known as Kartu Keluarga Sejahtera or KKS) worth 150,000 per poor household per month. BPNT is distributed through the Family Hope Program Joint Business Group Stall (e-Warung KUBE PKH) utilizing an electronic payment system through ATM banks (Mandiri, BNI, BRI, BTN).

Table 2

The Estimation Results of The Impacts of Raskin dan PKH on Food Consumption Expenditures

Variables	*Raskin*	PKH
Treatment (*Raskin**PKH)	– 0.001 (0.039)	– 0.021 (0.039)
Dummy_year	0.528 (0.056)	0,474 (0,028)
Treatment * Year (DID)	– 0.063* (0.063)	0.227 (0.140)
Sex of household head (male = 1)	0.047 (0.056)	0.045 (0.056)
Marital status of household head (married = 1)	0.038 (0.056)	0.044 (0.056)
Age of household head (year)	– 0.003*** (0.001)	– 0.003*** (0.001)
Number of household members (persons)	0.187*** (0.006)	0.187*** (0.006)
Education of household head (year)	0.003 (0.004)	0.016*** (0.004)
Occupation of household head	0.021 (0.033)	0.018 (0.033)
Household assets	0.041*** (0.008)	0.042*** (0.008)
Household's Residential Area (urban = 1)	0.163*** (0.027)	0.165*** (0.027)
Household's Residential Area (Java = 1)	– 0.036 (0.027)	– 0.035 (0.026)
Constant	11.87*** (0.081)	11.87*** (0.129)
Observation	983	983
R-Squared	0.585	0.586
Prob > F	0.000	0.000

Standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The participation of poor households in the Family Hope Programme (PKH) was 983 households. However, only 38 households (3.87%) received cash assistance from PKH, while 945 households (96.14%) or most of them did not receive or have not yet received the cash assistance. In 2007, the number of PKH recipient households was 591 (56.1%), and it decreased to 392 (43.90%) in 2014. This shows that poor households that can access PKH are far fewer than households that do not receive cash assistance. This condition is caused by inaccurate data in determining the target beneficiaries and insufficient program socialisation, preventing many eligible households from accessing the benefits. In addition, as PKH is a relatively new program implemented in 2007, it requires time to implement, socialize and provide understanding and awareness of the importance of education and health for poor households.

According to Table 2, the coefficient of determination (R-squared) for model 2 on the effect of PKH on consumption expenditure of poor households is 0.586 or 58.6 percent. This means that PKH and several control variables of household head, such as gender, marital status, age, number of household members, education, occupation, household assets, location of household residence and area of household origin, are able to explain the consumption expenditure of poor households by 58.5 percent, and the rest is explained by other variables outside the model.

To analyze the impact of PKH on poor households' food consumption expenditure, difference-in-difference (DID) analysis is used. It shows that the PKH programme is positively correlated with household food consumption expenditure. However, it does not have a significant effect (p-value > 0.05). This suggests that when poor households receive PKH assistance in the form of cash, it leads to an increase in household income. The income is then used to buy food according to market prices, resulting in an increase in total household consumption expenditure. Through the provision of cash in the PKH programme of 1 percent (as an incentive for the participation of school-age children in education and the utilization of health services for pregnant women and toddlers from poor households), households receive cash assistance for this participation and ultimately

have an impact on increasing food consumption expenditure by 22.7 percent. This means that through behavioural changes that see the importance of education and health for households, it encourages school-age children and pregnant women to make good use of education and health services. As a result, households receive cash assistance to fulfil household needs, which are used for consumption expenditure, especially food consumption. Cash assistance obtained through conditional cash transfer programmes can increase income used for household consumption expenditure by increasing the quantity, quality and diversity of food types [Ninno, Dorosh 2003; Arnold, Conway, Greenslade 2011; Pangaribowo 2012]. Engel further explains that when poor households receive income, the largest proportion of consumption expenditure is for food [Chakrabarty, Hildenbrand 2011].

However, the impact of the PKH programme on consumption expenditure shows that PKH does not have a significant impact on food consumption expenditure of poor households. This is due to (*i*) the inaccurate data collection system of target households receiving the programme. This can be seen from the fact that the number of beneficiary households is only 38 poor households, while the number of poor households that do not receive assistance is very large, comprising 983 households. In addition, in its implementation of PKH is a program that requires behavioural requirements related to children's participation in schools with a minimum attendance rate of 85 percent and antenatal check-ups visits at least four times during pregnancy as requirements for cash assistance. In other words, cash assistance is largely determined by the compliance of poor households in meeting these behavioural requirements. Prior to the implementation of the program, intensive socialization and mentoring for poor households were conducted to provide an understanding and awareness of the objectives and benefits of the PKH program. This result is also in line with the findings of Maluccio [2020], which states that CCT programme interventions cannot have an impact in a short time, but require a long time for four years or more.

The results of the analysis of the impact of *Raskin* and PKH on household consumption expenditure show that the government's income redistribution policy through the provision of *Raskin* and PKH assistance can reduce the burden and increase the income of the poor households, especially food staple. However, the implementation of the *Raskin* program still faces some weaknesses that need to be addressed to ensure the effective distribution of targeted assistance.

Conclusion

This study analyses the impact of *Raskin* and PKH on the consumption expenditure of poor households in Indonesia. The results show that the implementation of the *Raskin* programme has a significant impact on the consumption expenditure of poor households. This is because most poor households receive *Raskin* as their main food to fulfil their household consumption needs, especially during periods of crisis, climate change or crop failure. Other factors that also influence the amount of consumption expenditure of poor households are the age of the household head, the number of household members and the location of poor households. Conversely, PKH does not have a significant impact on consumption expenditure due to the lack of valid data on target recipients and its implementation requires behavioural compliance related to children's participation in schools and antenatal check-up visits in health facilities.

Therefore, improving of both *Raskin* and PKH programmes can be carried out by always updating the target data of the poor households so that the assistance can be provided for the right target. In addition, it is important to provide understanding and awareness to encourage children to go to school and to use health services for pregnant women. In other words, intensive socialization and assistance for poor households are significantly important.

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