
Does Conditional Cash Transfer (PKH) Affect Infant Welfare?

Apakah Program Perlindungan Sosial (PKH) Mempengaruhi Kesejahteraan Bayi?

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Abstract

This research aims to assess the impact of conditional cash transfer (PKH) program on infant welfare. The poor people usually treated their babies inadequately due to lack of resources. Government intervention by social protection program is expected to contribute to increase infant welfare. Infant welfare determines their quality of future life, and to some extent will determine the quality of human resources in a country. This research uses two micro data set which are Indonesia family life survey (IFLS) 4 and 5. The method is using econometrics with difference-in-differences (DiD) model to measure impact of the CCT program. Then, this research reveals that CCT (PKH) program is significantly positive affected to infant health status by 1.02% with OLS (2.39% using ordered-probit and 4.38% using ordered-logit). However, the CCT program is insignificantly affected to increase infant weight. As a result, CCT program has just contributed to increase the infant welfare by increasing health status. By the result, the program should need to be improved and extended for beneficiaries in the future. By improving and extending program, the infant welfare will increase by health status indicator. By this research, we can see how the significance of the program is contributed to the quality of Indonesia's human resources by improving infant health status.

Keywords: conditional cash transfer program, infant, human resources

Abstrak

Penelitian ini bertujuan untuk mengukur dampak program keluarga harapan (CCT) terhadap kesejahteraan bayi. Masyarakat kurang mampu sering kali tidak mampu merawat bayinya dengan baik. Intervensi pemerintah melalui PKH/CCT diharapkan mampu meningkatkan kesejahteraan bayi. Kesejahteraan bayi menentukan kualitas hidupnya dimasa depan, dan akan menentukan kualitas sumber daya manusia pada suatu negara. Penelitian ini menggunakan dua periode data mikro *Indonesia family life survey (IFLS) 4 dan 5*. Metode penelitian yang digunakan dalam penelitian ini ialah dengan ekonometrika menggunakan model *difference-in-differences* untuk mengukur dampak program PKH. Berdasarkan hasil perhitungan, penelitian ini menunjukkan bahwa program PKH berdampak positif terhadap status kesehatan bayi sebesar 1,02% dengan OLS (2,39% dengan *ordered-probit*, dan 4,38% dengan *ordered-logit*). Namun, program PKH tidak signifikan memengaruhi berat badan bayi. Maka, program PKH telah mampu berdampak positif melalui peningkatan status kesehatan bayi. Berdasarkan hasil tersebut, keberadaan program PKH seharusnya perlu untuk ditingkatkan dan diperluas penerima manfaatnya. Melalui peningkatan dan perluasan manfaat, maka program akan secara langsung berdampak pada peningkatan status kesehatan bayi. Hasil penelitian ini juga menunjukkan bahwa kita dapat melihat bagaimana signifikasi dari program dalam berkontribusi meningkatkan kualitas sumber data manusia melalui peningkatan status kesejahteraan bayi.

Kata Kunci: program keluarga harapan, bayi, sumber daya manusia

Introduction

Social protection is an Indonesia's constitution mandatory that to make sure Indonesian citizen has equal access for all public and health facilities, moreover, the government should develop social safety nets for all Indonesian and empower vulnerable people. Actually, the social protection targets vulnerable people especially, to get same access and improve their welfare. Even though the social protection program is mandated by the constitution, Indonesia just started the program since 1998 intended for low-

income and other vulnerable people (The National Team for Acceleration of Poverty Reduction, 2018). At that time, the program was named the social assistance program that targeted for low income and vulnerable groups (The National Team for Acceleration of Poverty Reduction, 2018).

Since 2004 Indonesia already has the law on national social security system that the law forced government to develop social insurance administration organization, known as BPJS. Nowadays, Indonesia has two BPJS where one

knows as BPJS-Kesehatan and the other one is BPJS-Ketenagakerjaan. Those institutions officially operated since 2014 and all Indonesia citizens who are eligible for the program should enroll to the program. BPJS-Kesehatan was proved that is giving a large access for people of Indonesia to health care services (Hidayat, 2008; Handoyo, 2019). Basically, social protection program needs to reach all individual who deserves to get the program through social assistance and/or social insurance. Before 2014, the government has only social assistance program, as known as cash transfer, rice for poor communities, and school operational assistance. The assistance program was given program targeting people who live close and under poverty line. Since then, social assistance transformed from time to time to improve the quality of the program and make sure that the program is right on target. The social assistance transformed to become food assistance for poor families, poor children school assistance (its different with school operational assistance), and conditional cash transfer (before that only cash transfer), those assistance programs are paid by electronic payment (cashless). Since 2014, the social insurance is a constitution mandatory which all Indonesia citizen and foreigners who work in Indonesia more than six months should enroll to those programs¹. It makes a different factor between social assistance and social insurance.

PKH as part of Social Protection

We already knew that social protection consisted of social assistance and social insurance. In Indonesia, social assistance is named as PKH in which the PKH's beneficiaries are getting cash transfer as long as they are following the rule of thumbs of the program, sometimes called CCT. The program targeted very poor families who has a pregnant mother, puerperal, or

breastfeeding; infant; preschool children, or school children in elementary and primary; and also has children in range 15-18 years old who has not finished their basic education (The National Team for Acceleration of Poverty Reduction, 2014).

The program has terms and conditions for all very low income families who are eligible for this program, the families' beneficiaries should send their children to school with certain level of attendance, health checking and or concerning to nutritious food intake and healthy life style for children and the pregnant mother. In 2014, there were more than 3 million families' beneficiaries that were eligible joined to this program, this number was six times compared to 500 thousand families' beneficiaries. The government of Indonesia is not giving the PKH program for lifetime, but they set the program only for 6 years. If the families' beneficiaries are still needing the program, the government will evaluate the program to the families before decides to continue or stop the program (The National Team for Acceleration of Poverty Reduction, 2014). If the economic level of families' beneficiaries of PKH program is not gradually increasing, the families are still getting the extension until three years.

PKH program is one of the powerful program of the government of Republic of Indonesia to break vicious cycle of poverty by welfare improving. Moreover, this program is also more generous compared to Chile (Solidario), Meksiko (Progresa-Opportunidades), Nikaragua (Red de Proteccion Social, RPS), and Honduras (Programa de Asignacion Familiar, PRAF) mostly only covering the program for 3 years, except Honduras, the program time frame depends on the availability of funding (The National Team for Acceleration of Poverty Reduction, 2014).

¹ However, the social insurance is required collecting premium from members, and the benefit of the program will be delivered to the member accordance regulation. The premium is classified into three level of classification which are class 1, 2, and 3, the class 1 is the most expensive premium, the class 2 is more expensive than class 3 but cheaper than class

1, and the class 3 is the cheapest premium. Those classes are related with room treatment, class 1 is the most private treatment room, however, it does not influence the quality and quantity of treatments. In addition, the government pays the premium for the poor families on class 3 on classification of social insurance.

Indonesia social protection system has transformed that focuses on future by protecting children, focusing on the program benefits the productive age group, involving elderly protection, and the availability protection for disabilities across age groups (The National Team for Acceleration of Poverty Reduction, 2018). The objective of this program is creating bright generations in the future and poverty reductions (Sparrow, 2006; The National Team for Acceleration of Poverty Reduction, 2014). In addition, Sparrow (2006) said the main contribution of social protection is reducing the threat of dynamic poverty by protecting from the economic shock.

The social protection program in Ethiopia has positive impact on people productivity and more powerful if combined with access to services design improving productivity of agriculture (Berhane *et al.*, 2014). On the other hand, Infant welfare also related with their mother life style, such as smoking, alcoholic, body exercise, and level of nutrition their consumed. The smoker teen mother who are reducing smoking during pregnancy, can improve teen, maternal, and infant health status, in the US health status increase and longevity (Sloan and Wang, 2008; Mollborn, Woo and Rogers, 2019). Moreover, Kodzi and Kravdal (2019) found that increasing parity on having a child with low birth weight at normative range, but the high parities have the lower chance of low birth weight than the low parities. In addition, there are also other factors may more important determinant of low birth weight in Africa, such as adolescent childbearing, poverty, inadequate prenatal care (Kodzi and Kravdal, 2019). The pregnant mother has a great responsibility for her fetus by consuming nutritious food, enough sleep, visiting doctor regularly, and exercise, also avoiding risks of bacterial infections and harmful substances as well (Altalib, AbuSulayman and Altalib, 2013; Wulansari and Nadjib, 2018).

Social protection is a country investment to have bright future generations by protecting vulnerable age groups such as infant, poor pregnant mother, health and education.

Moreover, low income families, single parent families, and unmarried couples needs more financial support from the government, but it could be counterproductive encouraging parental responsibility (Cancian and Meyer, 2019). However, without the social protection program, the families are potentially giving lack and low treatment to their children (lack of nutrition, miss out immunizations) (Wulansari and Nadjib, 2018).

Those programs will have strong impact for future generation if the government invests their money to protect the vulnerable groups especially infant and low income pregnant mother. Therefore, the infant welfare is related with families' background such as income, education, life style, and health awareness (physical and mental) (Sparrow, 2006; The National Team for Acceleration of Poverty Reduction, 2014; Kodzi and Kravdal, 2019; Mollborn, Woo and Rogers, 2019).

This research assesses the impact of PKH on infant welfare which means the research restrict the benefit of the program on infant. Infant by definition is a very young child or baby or newborn, then this research will reveal impact of the program on golden period of baby which means the first 1000 days (since in their mother womb).

Methods

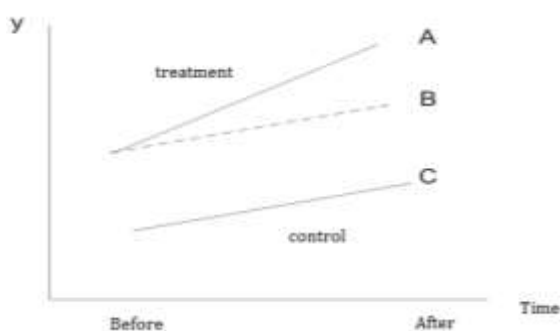
This research is using micro-economic secondary data survey i.e. Indonesian Family Life Survey (IFLS) (Rand Corp., 2007, 2015). The IFLS data are using for period 2007 (IFLS 4) and 2014 (IFLS 5) in both periods the program has been started. Then, using difference in differences (DiD) model, this research can show impact of the program infant welfare. The infant is also divided into two groups which are the period during pregnancy until birth and period after birth until approximately 2 years old.

The econometrics model (DiD) is showing the impact of the program to the infant welfare with two measurements that are baby weight and health baby status. Those two variables will be dependent variables that are representative of infant welfare and showing impact of the PKH

as well. On the other hand, this research is using independent variables, sometimes the variables are called control variables. These independent are consisting of PKH program (dummy), years (dummy time), mother age, mother education, monthly percapita consumption (mother food intake during pregnancy, or infant consumption after birth), marital status, household size, and number of doctor visit (during pregnancy; and primary care for vaccination or other treatment).

To generating DiD estimator, we need two groups where those groups have assumption similarity such as economic conditions, geography, and situations. One group called treatment group, and the another group is called control group. The treatment group is the sample group that get the program, on the other hand, control group is the sample group that never get the program intervention. According to Hicksian Demand function, the program intervention (subsidy) increases the level utilities function of treatment group rather than control group (Nicholson, 2004). This research will measure the impact of the program using ordinary least square (OLS) and difference-in-differences (DiD) methods. Then, DiD estimator assumes that the estimation is robust and the residual is the best linear unbiased estimator (BLUE).

Figure 1. Concept of Difference-in-Differences



Source: Wooldridge (2009:454), modified

The concept of the econometrics model with DiD can be written as

$$Y = \alpha + \delta t + \beta D + \gamma D*t + \varepsilon \quad (1)$$

where, Y is the dependent variable (endogenous variable), α is the constant (intercept), t is the

research time frame (*dummy* variable), D is the dummy variable for treatment and control, and $D*t$ is the interaction variable that estimator represents impact of the program. Using panel data to measure the impact of the program, γ is a coefficient of the DiD estimator. Table 1 illustrates the mechanism of the DiD framework to get the pure impact of the program.

Table 1 Difference-in-Differences Method

	T0	T1	T1-T0
Control	α	$\alpha + \delta$	δ
Treatment	$\alpha + \beta$	$\alpha + \delta + \beta + \gamma$	$\delta + \gamma$
Treatment-control	β	$\beta + \gamma$	γ

Source: Wooldridge (2009:454)

To get the best estimation, we also add some control variables that may correlate with DiD estimator through error term. This step is useful to eliminate (reduce) omitted variable bias. By adding control variable, we assume that both control variables and DiD estimator do not correlate with error term. In the data panel, it has two error term that are an unobserved effect and idiosyncratic error (time-varying error). Those error terms are constructed by cross sectional and times series as a characteristic of panel data. The full model can be seen in equation 2 that X variable is a representative of control variable in the model.

$$Y = \alpha + \delta t + \beta D + \gamma D*t + \pi X + \varepsilon \quad (2)$$

Econometric Model, and Variables

- $IHS = \alpha + \theta years_{it} + \delta PKH Program_i + \beta_1 PKH program * years_{it} + \pi_1 age_{it} + \pi_2 agesquared_{it} + \pi_3 maritalstatus_{it} + \pi_4 householdsize_{it} + \pi_5 logpercons_expend_{it} + \pi_6 educ_mother_{it} + a_i + u_{it}$
- $IW = \alpha + \theta years_{it} + \delta PKH Program_i + \beta_1 PKH program * years_{it} + \pi_1 age_{it} + \pi_2 agesquared_{it} + \pi_3 maritalstatus_{it} + \pi_4 householdsize_{it} + \pi_5 logpercons_expend_{it} + \pi_6 educ_mother_{it} + \pi_7 d_immunization_{it} + \pi_8 d_ironpills_cons_{it} + \pi_6 n_checkup_{it} + a_i + u_{it}$

- α = constant
- $i = 1, 2, 3, \dots, n$
- $t = 1, 2, 3, \dots, T$
- years= dummy year (1, IFLS-5 and 0, IFLS-4)
- IHS= Infant health status (category variable, which is 1 unhealthy, 2 somewhat unhealthy, 3 somewhat healthy, 4 very healthy)
- IW=Infant weight
- PKH program= dummy PKH Program (1, get program and 0, do not get program)
- PKH program*years= interaction variable
- age = age of respondent
- agesquared=age squared of respondent
- maritalstatus = marital status of their
- parenthouseholdsize = size of household
- logpercons_expend = monthly log of percapita consumption expenditure
- educ_mother = years of infant's mother education
- d_immunization =dummy of immunization
- d_ironpills_cons=dummy of iron pills consumption
- n_checkup=number of check up during pregnancy

Result

Using the panel data regression with OLS, ordered-probit, and ordered-logit regression, Table 2 shows that the impact PKH program is significantly positive to Infant health status. The PKH program is a conditional cash transfer to the beneficiaries of the program. The receiver

should meet certain condition that was determined by the government. By the regression results, the model with OLS, ordered-probit, and ordered-logit regression are consistently showing that the PKH program is positive impact to the infant health status. The impact of PKH program can be seen by coefficient of interaction (PKH program*years) variable as a total impact of the program. The program is increasing the infant health status by 28.8% using OLS regression. In addition, the ordered-probit and ordered-logit are also showing the positive impact of the program to infant health status.

However, the PKH program variable its self is negative significant to infant health status. On the other hand, the trend its showed by years is showing significantly positive to infant health status. It means that the infant health status tends to better from time to time. In addition, the household size is showing significantly negative impact to infant health status. This situation means that the bigger household size will have negative impact to infant health status due to the household resources should be shared to all household member. If the household size increase by one person, it will reduce the infant health status for 1.02% with OLS (2.39% using ordered-probit and 4.38% using ordered-logit).

Table 2 Infant Health Status Regression

VARIABLES	(1)	(2)	(3)
PKH program	-0.0280 (0.0227)	-0.0721 (0.0535)	-0.122 (0.0997)
years	0.0813** (0.0360)	0.182** (0.0832)	0.403*** (0.156)
PKH program*years	0.288* (0.148)	0.664* (0.346)	1.127** (0.542)
age	0.0148 (0.0108)	0.0352 (0.0252)	0.0688 (0.0478)
agesquared	-0.000150 (0.000174)	-0.000357 (0.000404)	-0.000718 (0.000764)
maritalstatus	0.00337 (0.0362)	0.00769 (0.0843)	-0.00237 (0.154)
householdsize	-0.0102**	-0.0239**	-0.0438**

	(0.00470)	(0.0110)	(0.0206)
logpercons_expend	-0.00814 (0.0142)	-0.0201 (0.0333)	-0.0226 (0.0626)
educ_mother	0.00214 (0.00220)	0.00519 (0.00518)	0.00890 (0.00965)
Constant cut1		-2.591*** (0.589)	-5.653*** (1.162)
Constant cut2		-0.868 (0.581)	-1.211 (1.108)
Constant cut3		1.409** (0.584)	2.658** (1.110)
Constant	2.881*** (0.250)		
Observations	4,692	4,692	4,692

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, *

p<0.1

- (1) Ordinary least square (OLS) panel data regression
- (2) Ordered-probit panel data regression
- (3) Ordered-logit panel data regression

In addition, this research also measures the impact of the PKH program to infant weight when the babies were born (see Table 3). The interaction program is insignificantly affected infant weight. The dummy year of the independent variables shows the insignificantly effect on infant weight. The PKH program variable its self-shows that the negative insignificantly affects to infant weight and the total effect of the program is also in the interaction variable (PKH program*years) statistically insignificant. Moreover, per capita

expenditure is also statistically insignificant affecting infant weight. By the estimation, the program of PKH Program is not enough increasing the infant weight, the PKH program can be significant if the program can increase the household expenditure that is focusing infant nutrition consumption. This research shows that the people who got access for the PKH program have very low income, so that they need significant program intervention to increase their household expenditure.

Table 3 Infant Weight Regression

VARIABLES	(1)
PKH program	-0.0957 (0.323)
years	0.0218 (0.0636)
PKH program*years	0.238 (0.341)
age	-0.00841 (0.0200)
agesquared	0.000291 (0.000339)

maritalstatus	0.0193 (0.0785)
householdsize	-0.0121 (0.00746)
logpercons_expend	-0.0191 (0.0241)
educ_mother	0.00328 (0.00422)
d_immunization	0.0476 (0.0338)
d_ironpills_cons	0.0335 (0.0403)
n_checkup	0.00355 (0.00225)
Constant	3.284*** (0.419)
Observations	2,483

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

(1) Ordinary least square (OLS) panel data regression

(2) Ordered-probit panel data regression

(3) Ordered-logit panel data regression

Discussions

There are some research just evaluating the PKH program to household expenditure which means the program significant increasing the household expenditure respectively. On the other hand, Glassman *et al.* (2013) proved the CCT program that has increased antenatal visits, skilled attendance at birth, delivery at a health facility, and tetanus toxoid vaccination for mothers and reduced the incidence of low birthweight, but CCT had insignificant impact on fertility while impact on maternal and newborn mortality had not been documented well. Moreover, Fukayama (2017) proved that CCT is the powerful policies to break poverty trap, but the CCT has a core component to drive long-term effect and create incentive structure to recipients to achieve outcome such as on education and health prevention.

As far as we know this research is a frontier research in Indonesia that is measuring impact of PKH program on infant welfare which are measured by infant health status and weight. In addition, we did not find the paper measuring impact the PKH program to infant welfare. However, unfortunately, the time constraint

makes this research only using IFLS micro data with two period of time (IFLS4 & 5). We hope that the next time the program can be exercised using Susenas micro data. The lack of IFLS data is a very small number of the PKH program recipients.

Moreover, the next research also can be extended by measuring impact the social protection program that is separated by kind of the program and the total program as well. As we know that the social protection is consisted of social insurance and assistance. Then, the next can be separated those program to measure impact of the program to infant welfare. We already stated that the infant welfare will affect to the quality human resources in the future of the nation. The golden period of infant should be important to be necessarily fulfilled with high nutrition.

Social protection is a good program to improve the quality of people especially for poor society. We know that the social protection consisted of social insurance and social assistance. The poor society usually needs government intervention for both social insurance and assistance. And, the social protection is already known improving the people society especially low income household. However, we never measure the impact of the

social protection to infant welfare. Logically, the improving of people welfare should increase also the infant welfare as well. This research already proved that the PKH program is improving infant health status. However, the program is insignificant increasing the infant weight when the infants were born.

Increasing of infant health status by PKH program is a good indicator that is showing of the program efficacy. It means that program will contribute to improve the infant welfare. The health status, even though, it is not the only one indicator of infant welfare, is already showing us that the program will make infant health getting better. In addition, the household size has negative impact on the infant health status. By using OLS, ordered-probit, and ordered logit, those methods are consistent result that household will reduce infant health status by 1.02% with OLS (2.39% using ordered-probit and 4.38% using ordered-logit).

We already know that the efficacy of the PKH program is increasing the infant welfare by infant health status. Thus, the government should improve the program by quantity and quality of PKH program. The quantity program means that the government should increase coverage of the program receiver. The income threshold that is showing the people eligible or not for the program should be evaluated because it is too low. The government should increase the level income for the people who are eligible for the program. It means the people who are eligible for the program should be pregnant and had very low income. However, there are many pregnant mothers who have a little bit higher income than the very low income household are not eligible for this program. In fact, the low income households also need to involve in the program to increase the infant welfare. The income threshold should be increased at least 100% of the very low income household. Thus, the coverage of program will be wider and cover more mother pregnant with low income.

The quality of PKH program should help the mother pregnant choosing the good food for their babies. However, many mothers who have very low income are also having low education

level. Thus, the government with the program should give a mandatory for the program receiver for buying high nutrition food that are needed to support their infants. This intervention is not easy implemented because of the mother behavior, location of very low income people living (geographic challenge), and inequality of high nutrition food distribution. However, this policy can be implemented with consider those challenges that may face by very low income household. The improving quantity and quality of the program will improve the efficacy of the program. The improving of program will make the very low income household achieve the golden period of the infant and also improve the quality of human resources in the future.

Conclusion

PKH has positive impact on infant health status. However, the CCT is insignificant increasing infant weight. Those approaches are indicators this research to measure infant welfare. By the data exercise using econometric model, we can conclude that the CCT contributes to increase infant health status. The treatment for who received the program improves the quality of infant health status by terms and conditions that are already designed. We can say the design program of CCT successes increasing family welfare by healthier infant status. On the other hand, CCT program is not successfully contributing to increase infant weight. The result shows the interaction variable (treatment*years) that is insignificant. It means the terms and conditions are set up for who received the program is not affecting to infant weight level. As a result, if those indicators are representative of infant welfare, we just can say the CCT has positive impact on infant health status level, however, it does not contribute increasing infant weight.

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