WWS 404 – The Psychology of Poverty

Professor Johannes Haushofer

***The Indonesian Idiosyncrasy*:**

Regression Analyses on the Effects of

Conditional Cash Transfers on Civil Conflict

Chesley Chan

8 May 2020

I pledge my honor that this paper represents my own work in accordance with University regulations.

Acknowledgements

Table of Contents

Briefing Memo

From Brazil to Cambodia, conditional cash transfer (CCT) programs have been one of the key strategies for poverty alleviation in developing countries. CCTs are programs that transfer cash, generally to poor households, on the condition that those households make prespecified investments in the human capital of their children. Because of these conditions, CCTs have been praised for their potential in not only breaking the vicious cycle of multi-generational poverty, but also promoting child health and education. In addition to poverty alleviation, therefore, CCTs have the potential to reduce civil conflict, as scholars have argued that increasing growth in a society has violence reducing effects. Civil conflict, also known as local conflict, is more disruptive than everyday disputes but is less disruptive than high level conflict. However, civil conflicts have the ability to escalate into civil war, which is concerning because developing countries lack the capacity to repair the damages of such high-level conflict. With the aforementioned scholarly argument in mind, this paper will attempt to verify this position by examining data from Indonesia's more recent CCT, the Program Keluarga Harapan.

The research question of this study, focusing on Indonesia, is: Does an increase in income from the Program Keluarga Harapan (PKH) lead to a decrease in civil conflict? Analyzing data from the 2014 Indonesian Family Life Survey, I hypothesize that villages receiving the PKH conditional cash transfer are correlated with fewer conflict-related incidents. Additionally, I hypothesize that among PKH-receiving villages, villages with a low percentage of PKH-receiving households are correlated with higher levels of conflict. The available data only allows the measurement of conflict type distribution, which is not a perfect measure of conflict intensity, but it will serve as this study's proxy for conflict level. This is a useful representation, assuming that conflict distribution is correlated with the likelihood of conflict level.

The results from this study do not support my hypothesis that the PKH economic intervention would correlate with lower levels of civil conflict. The naïve regression model depicts a statistically significant, positive correlation between conflict level and PKH-reception since 2007, while the same model accounting for the control variable of participation in poverty aid programs external to PKH is statistically insignificant. However, the independent variable's coefficient of the latter model is still positive and notable. The secondary regression analysis of this study, analyzing the relationship between conflict level and percentage of PKH-receiving households in PKH-receiving villages, is negative but statistically insignificant, which could be due to the lack of even data. With this in mind, we can still examine the results and the distribution of the data available, which has a negative coefficient and a general trend showing that, as the percentage of PKH-receiving households increase in PKH-receiving villages, the sum of occurring conflict types decreases.

Policy Recommendations:

1) To account for how certain CCTs, especially community driven and visible cash transfers, are correlated with violence increases, policymakers should allocate anti-violence educational campaigns in villages receiving these kinds of CCTs as a prevention mechanism.
2) To account for how PKH-receiving villages with lower percentages of PKH-receiving households are correlated with greater civil conflict, a more cost effective and violence-cautious approach to PKH-allocation would be to concentrate the PKH in villages that have a high percentage of PKH-eligible households. This would mitigate the inequality-exacerbating effects of the PKH and therefore reduce violence increases as well.

I.   Introduction

From Brazil to Cambodia, conditional cash transfer (CCT) programs have been one of the key strategies for poverty alleviation in developing countries. According to the World Bank, "[CCTs] are programs that transfer cash, generally to poor households, on the condition that those households make prespecified investments in the human capital of their children."[1] These investments are often routine childhood immunizations and school enrollment.[2] Because of these conditions, CCTs have been praised for their potential in not only breaking the vicious cycle of multi-generational poverty and inequality, but also promoting child health and education.[3]

These conditional factors may also yield indirect effects for individuals, especially since health and education can improve one's long-term wellbeing and life course. Additionally, this could have positive spillover benefits to the larger community, since individuals in CCT-recipient families have an increase in financial support to rise above poverty and contribute to societal growth. Scholar Tadjoeddin et. al's observations in Indonesia further this discussion by revealing that combating poverty and increasing growth has a significant violence-reducing effect because the opportunity cost of violence increases as income and education increases.[4] In other words, one will want to engage in less violence if their income, education, and well-being levels are high, as there would be more at risk in the case of conflict. Extrapolating Tadjoeddin et. al's research to the impacts of CCTs, moreover, a less explicit implication of the CCT could be the reduction of violence. It is important to note that this is not universally accepted by scholars, which will be explained by the literature review.

---

[1] Fiszbein, Schady, and Ferreira, *Conditional Cash Transfers*, 1.
[2] "Program Keluarga Harapan, PKH (Family Hope Programme)," 2.
[3] Ibid.
[4] Tadjoeddin and Murshed, "Socio-Economic Determinants of Everyday Violence in Indonesia," 706.

The global pervasiveness of violence and its detriment to development must not be understated. Since the end of World War II, over half of the countries in the world have experienced civil conflict, a form of violence, which has led to more than 16 million deaths and the mass annihilation of infrastructure.[5] The negative impact it has on developing countries is even more salient, as these states lack the capacity to repair these damages.[6] Civil conflict, also known as local conflict, is more disruptive than everyday disputes but less disruptive than high level conflict (usually a civil war). Some examples of civil conflict are conflicts between the community and a private business, conflicts between members of different ethnic groups, and conflicts on land between citizens and the government.[7] The likelihood of its occurrence can be increased by economic factors, such as inequitable development, unemployment, and regional economic disparities, political and institutional factors, such as controversial policing arrangements, and social factors, such as ethnic and religious tensions.[8] Civil conflict can also catalyze a cyclical effect by acting as a barrier to further development, and most concerningly, by escalating into major instances of violent conflict.[9]

More intentional research, policymaking, and policy implementation on civil conflict is critical to prevent local conflicts from escalating into more fully-fledged civil wars. This paper will examine whether or not CCTs reduce violence, which would prevent the escalation of such disputes. Additionally, the case of Indonesia will be the focus of this paper, as it is a developing country with routine violence and currently does not have policies dedicated to reducing everyday violence.[10] More logistically, Indonesia also allows research on whether or not CCTs

---

[5] Crost, Felter, Johnston, "Conditional Cash Transfers, Civil Conflict and Insurgent Influence," 1.
[6] Frischtak, *Governance Capacity and Economic Reform in Developing Countries*, 35.
[7] Strauss, Witoelar, and Sikoki, *The Fifth Wave of the Indonesia Family Life Survey*.
[8] Pradhan, Barron, and Kaiser, *Local Conflict in Indonesia*, 6-7.
[9] Crost et al, 1.; Pradhan, Barron, and Kaiser, 2.
[10] Tadjoeddin and Murshed, "Socio-Economic Determinants of Everyday Violence in Indonesia," 1.

reduce violence because the country has available data from the Indonesian Family Life Survey (IFLS), which conducts periodical household and village surveys that ask about CCT reception, experience with local conflict, and other related concerns.[11] The IFLS-derived dataset permits researchers to investigate the relationship between CCTs and violence in Indonesia as a case study and the conclusions have meaningful implications for other developing countries as well, since many participate in CCTs and are also vulnerable to civil conflict. This paper will specifically focus on Indonesia's more recent CCT, the Program Keluarga Harapan (PKH), which was launched in 2007 with the goals of reaching the 9% poorest households to alleviate short-term poverty and to promote investments in education and health through its conditional component.[12]

Thus, the research question of this study is: Does an increase in income from the PKH lead to a decrease in civil conflict? Analyzing data from the 2014 Indonesian Family Life Survey, I hypothesize that villages receiving the PKH CCT are correlated with fewer conflict-related incidents. Additionally, I hypothesize that among PKH-receiving villages, villages with a lower percentage of PKH-receiving households are correlated with higher levels of conflict. The available data only allows the measurement of conflict type distribution, which is not a perfect measure of conflict intensity, but it will serve as this study's proxy for conflict level. This is a useful representation, assuming that conflict distribution is correlated with the likelihood of conflict level.

The results from this study do not support my hypothesis that the PKH economic intervention would correlate with lower levels of civil conflict. The naïve regression model

---

[11] Monica and California 90401-3208, "Longitudinal Survey Explores Indonesian Family Life," 1.
[12] "Program Keluarga Harapan, PKH (Family Hope Programme)," 1.; Fiszbein, Schady, and Ferreira, *Conditional Cash Transfers*, 228.

depicts a statistically significant, positive correlation between conflict level and PKH-reception since 2007, while the same model accounting for the control variable of participation in poverty aid programs external to PKH is statistically insignificant. However, the independent variable's coefficient of the latter model is still positive and notable. The secondary regression analysis of this study, analyzing the relationship between conflict level and percentage of PKH-receiving households in PKH-receiving villages, is negative but statistically insignificant, which could be due to the lack of even data. With this in mind, we can still examine the results and the distribution of the data available, which has a negative coefficient and a general trend showing that, as the percentage of PKH-receiving households increase in PKH-receiving villages, the sum of occurring conflict types decreases.

II.   Historical Brief of Civil Conflict in Indonesia

Indonesian conflict can be traced back to pre-Dutch colonialism and the Dutch colonial era between the 1800s and 1950s with policies setting the stage for future conflicts to ripen. Today, the nature of the country's conflicts are mostly characterized by social and political tensions.[13] After Indonesia's independence, the new structure of life yielded many outbreaks of communal violence.[14] For example, the 1997 Asian financial crisis caused significant economic and political change, which unleashed more waves of civil unrest.[15] There were local conflicts in the late 1990s in West Kalimantan due to tensions between indigenous and migrant groups.[16] More recently, we have seen conflicts in 2005 in Malaccas and Sulawesi, as a result of Christian-Muslim fighting and also the struggle for power between local elite.[17] In 2017, furthermore, the Agrarian Reform Consortium recorded 659 land-related conflicts over a total area of 520,490

---

[13] "Causes of Conflict in Indonesia."
[14] Ibid.
[15] Commonwealth Parliament, Parliament House, "Crisis in Indonesia," 3.
[16] Ibid.
[17] "Causes of Conflict in Indonesia," 1.

hectares, affecting more than 650,000 households.[18] While many of the recent Indonesian conflicts are characterized by socially and politically driven tension, this paper seeks to understand the relationship between the PKH economic intervention and the level of civil conflict in villages.

III.   Literature Review: Economics of Conflict

In the field of economics of conflict, scholars disagree on whether economic growth can reduce conflict. Blattman et al. focuses on the social return of unconditional cash transfers to youths through a Ugandan aid program and finds that, despite impressive economic gains of the cash transfer, there is "no impact on cohesion, aggression, peaceful collective action, or violent protest."[19] As mentioned previously, the conditional element of CCTs may be an important influence in conflict levels.

Among those that argue for the negative relationship between economic development and conflict, however, researchers disagree on the short-term and long-term effects. Tadjoeddin et. al, focusing on Indonesia, identifies a non-linear relationship between conflict and the stages of development in terms of income and education, claiming that, initially in the first 8 months, violence increases as income rises, but, later on after the first 8 month mark, the level of violence falls as income continues to increase.[20] In other words, economic growth has a positive relationship with conflict in the short run, but after a prolonged period of economic growth, the relationship with conflict becomes negative. These results suggest that, in order to achieve a violence-reducing outcome from income and education, income and education levels need to continue rising in the long run because it confirms economic security.[21] Stagnating levels of

---

[18] Avenue, York, and t 1.212.290.4700, "World Report 2019," 6.
[19] Blattman et al., "THE ECONOMIC AND SOCIAL RETURNS TO CASH TRANSFERS: EVIDENCE FROM A UGANDAN AID PROGRAM," 1.
[20] Tadjoeddin and Murshed, "Socio-Economic Determinants of Everyday Violence in Indonesia," 689.
[21] Ibid, 706.

income and education, below the critical turning points of gaining confidence in economic

security, however, may result in persistent violence.[22]

Contrastingly, the research of Crost et. al, observing the experimental impact of a CCT

program on conflict in the Philippines, "finds that CCTs led to a substantial decrease in conflict

incidents in treated villages in the first year of the program, and a smaller and statistically

insignificant decrease in the second year."[23] Whereas Tadjoeddin et al. argues that economic

growth has a positive relationship with conflict in the short run and a negative relationship with

conflict in the long run, Crost et. al observes a general negative relationship between economic

growth and conflict but emphasizes a stronger negative relationship in the short run (first year)

and a much weaker negative relationship in the long run (second year).

To explain, Crost et. al and Bohlken et. al's research clarifies how economic growth

could also increase the occurrence of ethnic violence. Crost et. al argues that CCT programs can

exacerbate conflict depending on the type and visibility of aid intervention and how reactive and

willingly-violent insurgents are against these government initiatives.[24] Community driven aid

interventions, such as rural employment projects and food aid, create incentives for insurgents to

steal and strategically retaliate to derail successful CCT implementation and avoid an anticipated

shift in popular support towards the government.[25] Bohlken et. al's empirical investigation of the

impact of economic growth on Hindu-Muslim riots in India similarly explore a more nuanced

understanding of economic growth and conflict by analyzing three mechanisms through which

economic growth can influence the occurrence of ethnic violence: (1) leading governing elites

could divert attention from adverse conditions by provoking a riot through economic

---

[22] Ibid.
[23] Crost et al., "Conditional Cash Transfers, Civil Conflict and Insurgent Influence," 172.
[24] Ibid.
[25] Ibid.

interventions, (2) economic growth can intensify economic competition between ethnic groups, and (3) economic growth can reduce the opportunity cost of engaging in conflict to potential participants.[26] In summary, based on the type of aid intervention, political environment, isolated population of study and the context of their experience, and other factors, CCT programs can decrease or increase conflict.

It is important to note the challenge of cross-country comparisons in a study already vulnerable to endogenous variables, such as this research question on the relationship between economic growth and civil conflict. The aforementioned scholars conducted studies in various developing countries, each with different state capacities and policies, and while some derived their conclusions from randomized experiments, others based their interpretations off of observational data. Nonetheless, the question of whether or not CCTs can reduce civil conflict in a region is crucial for policymakers, especially of those in Indonesia, where research in this field is sparse but is useful for a well-rounded understanding of how CCTs could positively and negatively impact society.

Acknowledging the complexity of the previously explained research designs, this study prioritizes the value of parsimony and strives to contribute to the economics of conflict dialogue with a bird's eye understanding of how PKH impacts all types of local conflicts in Indonesia. The timespan of this study also seeks to gain a deeper understanding of the long-term impacts of PKH, as the 2014 IFLS community facility survey asks respondents to reflect on the last 7 years since the launch of PKH (2007-2014). This timeline serves as a contrast to the research of Tadjoeddin et. al and Crost et. al, as both of these research pursuits only examine the timespan of 2 years.

---

[26] Ibid, 599.

IV.   Research Design and Methods

Setting

The setting of this study is in Indonesia and the data is sourced from IFLS, which is an

on-going longitudinal survey carried out by RAND Corporation, a non-profit research

organization.[27] As of now, five IFLS waves have been conducted, respectively in 1993, 1997,

2000, 2007, and 2014.[28] The IFLS is a panel survey that collects the information of more than

30,000 individuals living in 13 of the 27 provinces in Indonesia, representing approximately 83%

of the Indonesian population.[29] Provinces were selected to maximize representation of the

population, capture the cultural and socioeconomic diversity of Indonesia, and be cost-effective,

given the magnitude and terrain of Indonesia.[30] Additionally, the IFLS randomly selected 321

enumeration areas (EA), differentiated community zones, in the 13 provinces, oversampling

urban EAs and EAs in smaller provinces to facilitate urban-rural and Javanese-non-Javanese

comparisons.[31]

Furthermore, the IFLS collects socioeconomic information at the individual, household,

and community (village) level, such as a detailed consumption model and information about the

benefits of government programs.[32] For the purposes of this analysis, only the community-

facility survey of the fifth wave (fielded between late October 2014 and the end of April 2015)

be used, which yields a sample size of 311 villages.[33] To cover the major sources of public and

private outpatient health care and school types, the community-facility survey collects

information from village leaders and staff at health facilities and schools.[34]

[27] Monica and California 90401-3208, "Longitudinal Survey Explores Indonesian Family Life," 1.
[28] Ibid.
[29] Ibid.
[30] Ibid.
[31] Ibid.
[32] Ibid.
[33] Monica and California 90401-3208, "RAND IFLS-5 Survey Description," 1.
[34] Strauss, Witoelar, and Sikoki, *The Fifth Wave of the Indonesia Family Life Survey*, 14.

Description of Intervention: Natural Experiment

Although the IFLS randomly selects EAs, the fact that allocating PKH, the intervention of the study, is not implemented through a randomized control trial, means that the results cannot infer causality. Put differently, PKH's eligibility and conditional requirements automatically bias the intervention to be selectively, rather than randomly, assigned. For example, villages that did not receive PKH are likely to have been wealthier, therefore these communities could have had less issues to begin with and therefore civil conflict levels would logically remain low. However, the natural experiment of PKH-distribution based on real-life qualifications will still provide useful insight into the relationship between PKH reception and conflict levels.

To be eligible, participating households must meet at least one of the following criterias: (1) a pregnant or lactating woman, (2) one or more children below 6 years of age, (3) children aged 7-21 attending primary or secondary school, or (4) youth aged 16-21 years who have not yet completed basic education.[35] In order for the payee, the mother or woman who takes care of the children in the family, to continue receiving quarterly payments, the household must maintain the following conditions: (1) for pregnant or lactating women, complete four antenatal and two postnatal care visits, take iron tablets during pregnancy, and have a skilled attendant during childbirth; (2) for children aged 0-6 years, complete a childhood immunization and take vitamin A capsules twice a year; (3) for children aged 7-21 years, maintain an enrollment in primary or secondary school with an attendance rate of at least 85%; and (4) for children aged 16-21 years with an incomplete education, maintain an enrollment in an education program to compete 9 years of basic education.[36]

---

[35] Ibid.
[36] "Program Keluarga Harapan, PKH (Family Hope Programme)," 2.

The benefit structure can amount to a minimum of 600,000 Rupiah (Rp) (US $67) to a maximum of 2,200,000 Rp (US $247) annually and the duration of the program can last up to 6 years, depending on eligibility and conditional requirements.[37] With the limitations of the study design, we can only draw correlational conclusions from the data analysis.

Dependent and Independent Measures

As clarified earlier, we are interested in how PKH impacts the level of local conflict in Indonesia. Therefore, the primary dependent variable of interest measures conflict at the intensive margin, proxied by the sum of occurred conflict types since 2007. For robustness checks, a binary variation of the dependent variable is also used to measure conflict at the extensive margin: the occurrence of any type of civil conflict in the village since 2007. The conflict types include conflicts on land between citizens and the government, conflicts on land between citizens alone, conflicts arising from abuses of authority, conflicts related to the election of public officials or general election, conflicts between members of different ethnic groups, conflicts between members of different religions, and conflicts between the community and any private business.

The primary independent variable of interest is whether or not PKH was implemented in the village since 2007. For a more nuanced understanding, an additional independent variable variation is the percentage of PKH-receiving households in PKH-receiving villages since 2007.

Data Wrangling

Using R Studio, I selected the variables of interest from community-facility survey book 1C of the 2014 IFLS: 'ea', 'commid14,' 'pap1type,' 'pap7, 'pap8,' 'trtype,' 'tr01,' and 'tr04,' indicating the respondents' EA, community ID, poverty alleviation program type, whether or not

---

[37] Fiszbein, Schady, and Ferreira, 228.

the program was implemented in the village since 2007, the percentage of households in the village who were recipients of the program (among the villages that received poverty alleviation programming since 2007), the type of conflict, whether or not the conflict had occurred in the village since 2007, and if the conflict has increased, remained the same, or decreased since 2007 (if the conflict had occurred in the village since 2007).

Then, I filtered the dataset to only contain responses regarding PKH (choosing to analyze only the responses when the 'pap1type' variable is set to '7,' which indicates the PKH). There are many other government aid programs, but this analysis intends to focus on the impacts of PKH. I recoded the variable names to be more descriptive as to what information they contain, changing 'commid14' to 'cid,' 'pap7' to 'pkh_since07,' 'pap8' to 'pkh_pct_hhrecip,' 'tr01' to 'conflict_since07,' and 'tr04' to 'conflict_change_since07.' I then re-coded the 'pkh_since07' variable so that the bins had more descriptive categorical names — yes or no. Similarly, I re-coded the discrete 'conflict_since07' variable into a binary variable, with 0 indicating no conflict since 2007 and 1 indicating the presence of conflict since 2007.

To create the aggregate and binary variables for the outcome of interest, 'conflict_since07,' I applied the "spread" dplyr function on 'trtype' and 'conflict_since07' to allow each conflict type to have its own column, horizontally added up the occurence of each conflict type into an aggregate 'conflict_sum' variable for each village, and created the binary 'conflict_or_not' variable which records whether or not there was any conflict (across all conflict types) since 2007 for each village. For example, if village 1 indicated that conflicts A, B, C occurred, but conflicts D, E, F, and G did not, the 'conflict_sum' variable would amount to 3 to indicate that 3 types of conflicts have occurred in the village since 2007 and the binary

'conflict_or_not' variable would amount to 1 to indicate that there has generally been conflict, regardless of type, in the village since 2007.

To create the control variable 'otherprog_sum,' which provides the sum of the poverty programs that the village participated external to PKH, I also used the "spread" dplyr function on the 'pap1type' and 'pap7' variables and horizontally added up the occurrence of all poverty programs each village received external to PKH. In addition to PKH, there are 19 other poverty aid programs that villages can enroll in and they range from unconditional cash transfers, to CCTs, and to health insurance.[38] The intuition behind this aggregate control variable is derived from the literature review arguments: increasing growth, which can be achieved through poverty alleviation programs, has a violence-reducing effect because the opportunity cost of violence increases as income increases. The number of poverty programs a village participates in, in addition to PKH, could impact the level of civil conflict.

Data Analysis

The statistical techniques used to analyze the data are four linear models and four generalized linear models. The four linear models are: (1) regression of the sum of occurring conflict types ('conflict_sum') on whether or not the village received PKH since 2007, (2) linear model 1 with the control variable 'otherprog_sum,' (3) regression of the sum of occurring conflict types on the percentage of PKH-receiving households in PKH-receiving villages, and (4) linear model 3 with the control variable 'otherprog_sum.'

---

[38] The 19 poverty aid programs (external to PKH) are as follows: Jamkesda (regional health insurance), Jamkesmas (public health insurance), Jampersal (delivery insurance), JKN (national health insurance), Raskin (rice for the poor), Market Operation for Rice, Market Operation for Other goods, PKPS BBM SLT (unconditional cash transfer), PNPM Mandiri, BLSM (direct cash assistance for the people), BSM (cash transfer for poor students), Askesos (social welfare insurance), PPA-PKH (child labor reduction-conditional cash transfer), JSPACA/JSODK (disabled social insurance/severe-disabled social insurance), JSLU/ASLUT (elderly social insurance), KUBE/UEP (joint enterprise group/productibe economic enterprise), RTLH (renovation program for home unfit for habitation/house renovation), PKSA (children social welfare program), and KPS (social security card)

The four generalized linear models: (1) regression of occurrence of conflict ('conflict_or_not') on whether or not the village received PKH since 2007, (2) logistic model 1 with the control variable 'otherprog_sum,' (3) regression of occurrence of conflict on the percentage of PKH-receiving households in PKH-receiving villages, and (4) logistic model 3 with the control variable 'otherprog_sum.' I conducted logistic regressions due to the binary nature of the response variable (whether or not the village recorded any presence of conflict, regardless of the type), which therefore causes the data to be abnormally distributed. The linear and logistic regression models are expressed in Tables 3 and 4, respectively. The following are the regression specifications for the four regression models we are examining (all applicable to both the linear and generalized linear models).

$$\hat{y}_i = \hat{\beta}_0 + \hat{\beta}_1 pkhsince07_i + \epsilon_i$$
$$\hat{y}_i = \hat{\beta}_0 + \hat{\beta}_1 pkhsince07_i + \hat{\beta}_2 otherprogsum_i + \epsilon_i$$
$$\hat{y}_i = \hat{\beta}_0 + \hat{\beta}_1 pkhpcthhrecip + \epsilon_i$$
$$\hat{y}_i = \hat{\beta}_0 + \hat{\beta}_1 pkhpcthhrecip + \hat{\beta}_2 otherprogsum_i + \epsilon_i$$

In addition, I used a regression plot, Figure 1, to illustrate the third linear regression by representing the relationship between the percentage of PKH-receiving households in PKH-receiving villages and the aggregate types of conflict through a scatterplot with regression line. Furthermore, I use sjPlots, Figures 2-5, to visualize marginal "effects" of PKH-implementation on predicted probability of conflict as shown by the data (with and without the control variable).

Hypotheses

I hypothesize that villages receiving the PKH CCT are correlated with a lower sum of occurring conflict types and a lower predicted probability of conflict. Additionally, I hypothesize that among PKH-receiving villages, villages with a low percentage of PKH-receiving households

are correlated with higher sums of occurring conflict types and a higher predicted probability of conflict.

V.   Results

Tables 1 and 2 present the summary statistics generated for villages receiving PKH since 2007 and villages *not* receiving PKH since 2007. From Table 1, one can observe that among villages receiving PKH, the distribution of percentages of households receiving PKH is highly right-skewed. This means that even for villages receiving PKH, the percentage of its households receiving PKH is highly likely to be low. Furthermore, notice that there is missing data for the 'pkh_pct_hhrecip' variable. This will shape our forthcoming analyses regarding PKH-receiving households.

Additionally, comparing the summary statistics of 'conflict_sum' and 'conflict_or_not' across Tables 1 and 2, one can see that the average sum of conflict types is highly right skewed for both villages that did and did not receive PKH since 2007. However, the average sum of conflict types is slightly higher for villages receiving PKH since 2007 than for villages that did not receive PKH since 2007. This means that most villages did not experience that much conflict, but, on average, villages receiving PKH experienced greater conflict types than villages that did not receive PKH. Furthermore, the distribution of the more parsimonious variable measuring conflict on the extensive margin, 'conflict_or_not,' is very similar between villages that did and did not receive the PKH. It reflects the same accumulation of higher conflict levels for PKH-receiving villages.

Tables 1 and 2 also show that, while the average sum of poverty aid program participation external to the PKH since 2007 ('otherprog_sum') is measurably higher for villages receiving PKH compared to villages not receiving PKH, which makes sense because

impoverished households are likely to need more assistance from poverty alleviation programs. It is also important to note that the number of observations for villages receiving PKH since 2007 is more than double the number of observations for villages that did not receive PKH since 2007 (216 in comparison to 95). This explains the noticeably larger margin of error for villages that did not receive PKH since 2007.

Table 1: Summary Statistics for Villages Receiving PKH since 2007

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
pkh_pct_hhrecip	178	10.800	14.600	0.000	1.000	15.000	80.000
otherprog_sum	216	12.600	2.450	6	11	14	19
conflict_sum	216	1.110	1.180	0	0	2	7
conflict_or_not	216	0.644	0.480	0	0	1	1

Table 2: Summary Statistics for Villages NOT Receiving PKH since 2007

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
otherprog_sum	95	11.100	2.420	3	10	12	18
conflict_sum	95	0.811	1.070	0	0	1	6
conflict_or_not	95	0.516	0.502	0	0	1	1

Table 3 presents the linear regression tables generated from the four linear models. Linear model 1, the most naïve model without controls, is statistically significant. This means that we can reject the null hypothesis that there was no significant difference between the sum of occurring conflict types and whether or not the village received PKH since 2007. It explains that a shift from a non-PKH-receiving village to a PKH-receiving village yields a 0.301 increase in total civil conflict types in the village. However, linear model 2 with the added control of aggregate external poverty aid program participation is statistically insignificant, meaning that we cannot reject the null hypothesis when accounting for the control variable. This proves that the naïve model is not robust and that policy leaders need to be mindful of the impact of poverty alleviation aid external to PKH on civil conflict.

To add on, whereas the independent variable of linear model 2 is not statistically significant, the control variable itself is statistically significant with a weak and notable coefficient, which means that it explains more in the linear regression than the predictor variable. This means that a larger part of the variation in the outcome variable, can be explained by the control variable, sum of external poverty aid programs, than by the variable of interest.

The third and fourth linear regression models of the sum of conflicts on the percentage of PKH-receiving households in PKH-receiving villages are statistically insignificant as well. This means that we cannot reject the null hypothesis that there was no significant difference between the sum of occurring conflict types and the percentage of PKH-receiving households in PKH-receiving villages. Moreover, while the relationship is negative, it is also very weak and near 0. Figure 1 illustrates the third linear regression and it depicts a visualization of the right-skewness of the percentage of PKH-receiving households in PKH-receiving villages by the sum of occurring conflict types. Although the linear regression results are not statistically significant, there is a distinguishable pattern revealing that PKH-receiving villages with lower percentages of PKH-receiving households are more likely to have a greater sum of occurring conflict types. The general trend also shows that as the percentage of PKH-receiving households increase in PKH-receiving villages, the sum of occurring conflict types decreases. However, there are noticeably fewer PKH-receiving villages with high percentages of PKH-receiving households, which is why the margin of error expands as the percentage of PKH-receiving households increases. This lack of data could also be the reason as to why the regression analysis lacks explanatory power and is statistically insignificant.

Table 3: Linear Regressions: Sum of Conflicts on Whether or not Village Received PKH since 2007 (1-2); Sum of Conflicts on Percentage of PKH-receiving households in PKH-receiving villages since 2007 (3-4)

	Dependent variable:			
	conflict_sum			
	(1)	(2)	(3)	(4)
pkh_since07yes	0.301**	0.217		
	(0.142)	(0.147)		
otherprog_sum		0.055**		0.061
		(0.027)		(0.039)
pkh_pct_hhrecip			−0.009	−0.009
			(0.006)	(0.006)
Constant	0.811***	0.195	1.230***	0.451
	(0.118)	(0.319)	(0.112)	(0.511)
Observations	311	311	178	178
R^2	0.014	0.028	0.011	0.025
Adjusted R^2	0.011	0.022	0.006	0.014
Residual Std. Error	1.150 (df = 309)	1.150 (df = 308)	1.210 (df = 176)	1.200 (df = 175)
F Statistic	4.490** (df = 1; 309)	4.430** (df = 2; 308)	2.000 (df = 1; 176)	2.230 (df = 2; 175)

Note: *p<0.1; **p<0.05; ***p<0.01

Figure 1: Linear regression of sum of conflict types in village on percentage of PKH−receiving households (among PKH−receiving villages since 2007)
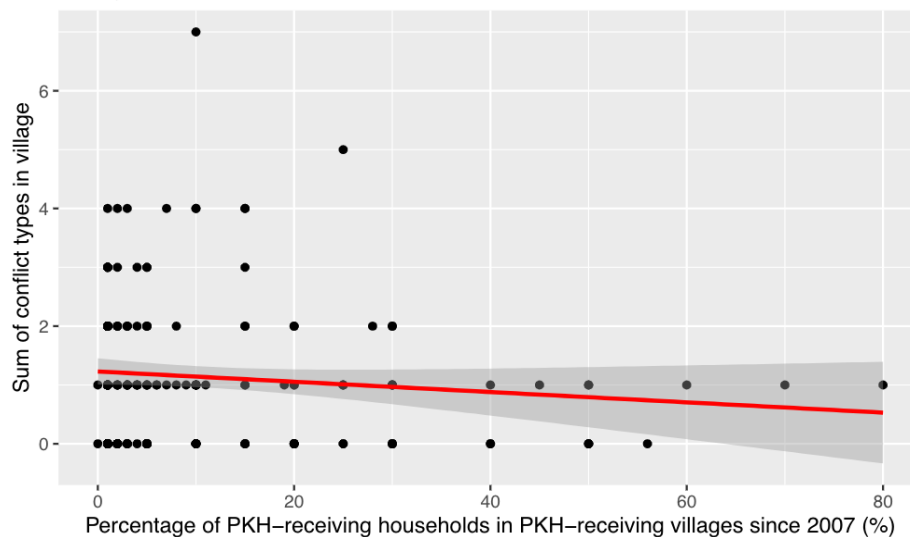
Table 4 presents the logistic regression tables generated from the four generalized linear models. With mostly the same statistical significance and insignificance per model as the parallel linear regression with the 'conflict_sum' outcome variable, we can reject the null hypothesis that there was no significant difference between whether or not conflict occurred in

the village since 2007 and whether or not the village received PKH since 2007. However, with

the added control to generalized model 2, we cannot reject the null hypothesis when accounting

for the control variable. One difference between generalized linear model 4 and linear model 4 is

that the coefficient of the control variable, 'otherprog_sum' is statistically significant in the

logistic regression model, providing further evidence that a larger part of the variation in the

outcome variable can be explained by the control variable compared to the variable of interest.

Table 4: Logistic Regressions: Conflict or not on Whether or not Village Received PKH since 2007 (1-2); Conflict or not on Percentage of PKH-receiving households in PKH-receiving villages since 2007 (3-4)

	Dependent variable:			
	conflict_or_not			
	(1)	(2)	(3)	(4)
pkh_since07yes	0.527**	0.342		
	(0.250)	(0.261)		
otherprog_sum		0.132***		0.160**
		(0.050)		(0.071)
pkh_pct_hhrecip			−0.003	−0.003
			(0.011)	(0.011)
Constant	0.063	−1.410**	0.634***	−1.390
	(0.205)	(0.591)	(0.195)	(0.913)
Observations	311	311	178	178
Log Likelihood	−206.000	−203.000	−116.000	−113.000
Akaike Inf. Crit.	417.000	412.000	235.000	232.000
Note:			*p<0.1; **p<0.05; ***p<0.01	

Nonetheless, observing the general trends illustrated in Figures 2 and 3, the logistic

regression results show that villages that received PKH since 2007 have a higher predicted

probability of conflict than villages that did not receive PKH. Among PKH-receiving villages,

additionally, Figures 4 and 5 show that villages with a lower percentage of PKH-receiving

households are correlated with higher predicted probabilities of conflict (while acknowledging

the statistically insignificant coefficient as well as lack of data).

Overall, the margin of error is larger for villages that did not receive PKH since 2007 because this bin has less than half the amount of observations than the bin that represents villages that did receive PKH since 2007. It is interesting that the added control variable changes the regression analyses 1 and 2 from statistically significant to insignificant, yet the changes in the data visualizations are negligible. In summary, the regression analyses between our outcome variable and main independent variable are not statistically significant with an added control, therefore extended research must be conducted to reach a final conclusion for concrete policy recommendations.

These results challenge my hypotheses and a large body of theory from the economics of conflict and further emphasizes the unique circumstances of each state, poverty alleviation program, a threat of civil conflict.

Figure 2: Predicted probability of village conflict by PKH –implementation since 2007
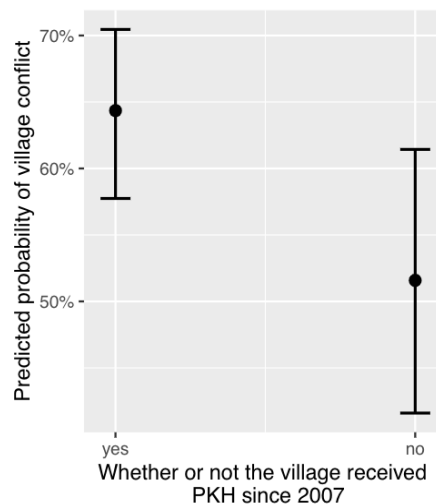
Figure 3: Predicted probability of village conflict by PKH –implementation since 2007 (with Control)
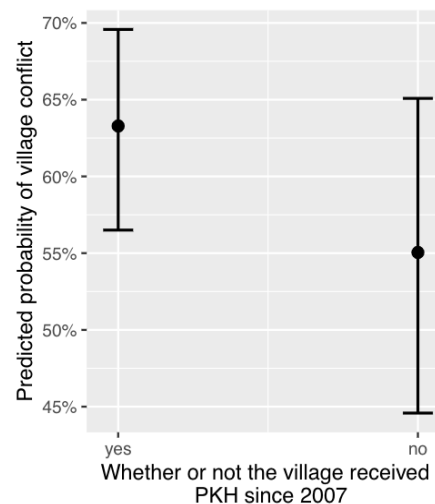
Figure 4: Predicted probability of village conflict by percentage of PKH–receiving households (among PKH–receiving villages since 2007)
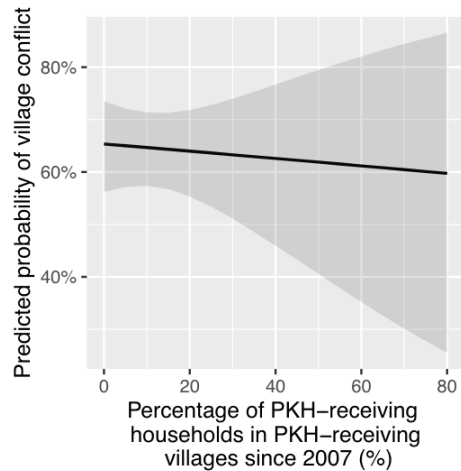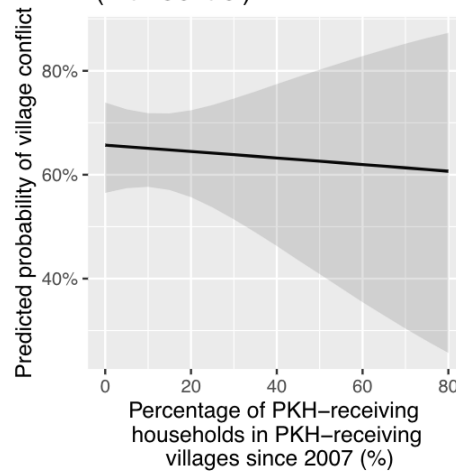
Figure 5: Predicted probability of village conflict by percentage of PKH–receiving households (among PKH–receiving villages since 2007) (with Control)

VI.   Discussion

Contextualizing Results within Literature Review

The results from this study do not support my hypothesis that the PKH economic intervention would correlate with lower levels of civil conflict. The findings are also inconsistent with Crost et. al's conclusion that CCTs have a stronger negative relationship with conflict in the short run compared to the long run, as this study observes the impact of 7 years of PKH intervention and shows that the long-term intervention is correlated with positive (greater) levels of conflict. With the notion that this study examines the long-term effects of PKH on conflict, furthermore, the findings also disagree with Tadjoeddin et. al's long-term observations, which are studied in a smaller time frame, because they claim that the long-term increase in economic and education growth (proxy for a CCT) results in economic security, therefore that the greater opportunity cost yields less violence.

However, Tadjoeddin et. al's short-term findings may explain the long-term findings of this study — perhaps the Indonesian villages in the IFLS study were still below the critical

turning points of gaining confidence in their economic security even after CCT intervention, which may have been the reason behind violence growth. Crost et. al and Bohlken et al.'s explanations that the type and visibility of aid intervention may explain why CCT programs can increase conflict is also relevant, because PKH may have been more visible due to its impacts on education (Scholar Christopher Roth's research in Indonesia states that expenditures on education are perceived to be more visible in Indonesia), the Indonesian villages in the IFLS study could have had more reactive, anti-government insurgents, and the economic growth may have intensified economic competition between groups.[39]

The latter reason explains the micro-level finding that among PKH-receiving villages, villages with a lower percentage of PKH-receiving households are correlated with higher predicted probabilities of conflict (although the coefficient was statistically insignificant, the lack of data may have been the reason for lack of explanatory power). This shows that economic growth can be a dividing factor by increasing economic competition between groups. The correlational findings also highlight how a more unequal distribution of aid intervention could increase the wealth imbalance within a village, thus creating more economic competition, pockets of tension, and higher probabilities of conflict.

Limitations

The methodology of this study falls victim to the following limitations: the lack of causal analysis from a randomized control trial due to the reliance on observational data, the lack of control variables, the potential for omitted variable bias, the reliance on the sum of conflict proxy for intensity of conflict, social desirability bias, and the lack of observations for 'conflict_since_2007' in the community-facility survey.

---

[39] Roth, "Conspicuous Consumption and Peer Effects among the Poor: Evidence From a Field Experiment," 3.

Since the data collected was observational and the intervention was not randomized, our results cannot infer any causal link between receiving PKH and the sum of conflict types or the probability of conflict occurrence. It was also a challenge to find additional control variables on social and political factors that could impact the level of civil conflict in the village external to PKH because the questionnaire does not ask politically and socially sensitive questions. This means that I may have missed some influential confounding factors, thus making this study vulnerable to omitted variable bias. The reliance on the sum of conflict proxy for intensity of conflict, furthermore, is not an exact measure for level of conflict and is therefore another setback of this research design.

Additionally, the respondents of this survey are village leaders and staff members, meaning that they more likely to have social desirability bias, as they may have been tempted to highlight more of the positive aspects of their community, such as less conflict, and also underreport the more distasteful occurrences, such as more conflict. Nonetheless, because the individuals surveyed by RAND Corporation were drawn randomly from the Indonesian population, we can generalize any results from this study to the broader population of the 13 provinces in Indonesia.

Furthermore, the survey itself does allow for the opportunity to track the growth of each conflict type since 2007 due to the lack of observations. For the 'tr_04', re-coded 'conflict_change_since07,' variable, there is too much missing data for substantive analysis. The absence of data combined with social desirability bias creates an unreliable dataset for this variable. If there were more available data for 'conflict_change_since07,' we would have a better understanding of the intensity or stagnancy of each conflict's growth since 2007. This would have provided for a more explanatory outcome variable because than the 'conflict_sum' variable,

let alone the binary 'conflict_or_not' variable. To explain, a village could have had a 'conflict_sum' of 2 indicating that there were two types of conflict that had occurred since 2007, but these two conflict types could have either grown more intense, more frequent, less acute, less frequent, or demonstrated no change over time.

Extensions

For further research on the relationship between Program Keluarga Harapan and civil conflict, investigators should identify causality. I recommend linking scholar Chris Roth's randomized PKH CCT program dataset collected in Indonesia in 2007 and 2009 from his research on "Conspicuous Consumption and Peer Effects among the Poor: Evidence From a Field Experiment" to this study using the fifth wave of the IFLS.[40] Future avenues of work should also account for more control variables related to social and political factors that could increase civil conflict. It would also be ideal for these variables to be measured more objectively compared to the reporting framework of the IFLS. For example, one could link census data on Indonesia from Integrated Public Use Microdata Series International to the 2014 IFLS and to the randomized PKH CCT dataset from Roth.

An improved research design would also need to be aware of the following concerns when designing the survey: on the topic of conflict, the language of the question and categories need to allow for more objective and detailed measures, the investigators need to present more of an incentive for respondents to be honest about conflict levels, and there needs to be fewer NAs and more responses regarding conflict levels. Additionally, further research in the economics of conflict field needs to consider conflicts in areas beyond those normally conceived of as being

---

[40] Roth, 1.

"high conflict," due to the more frequent nature of civil conflict compared to civil wars and the potential for civil conflict to grow into severe civil wars.

VII.   Policy Recommendations

Granted there are limitations to this study regarding the lack of causality and controls, I will explore policy recommendations based on my conclusions. Generally, the potential for conflict must be taken into account when designing and implementing CCT programs to reduce, rather than exacerbate, the risk of civilian conflict.

1) To account for how certain CCTs, especially community driven and visible cash transfers, are correlated with violence increases, policymakers should allocate anti-violence educational campaigns in villages receiving these kinds of CCTs.

2) To account for how PKH-receiving villages with lower percentages of PKH-receiving households are correlated with greater civil conflict, a more cost effective and violence-cautious approach to PKH-allocation would be to focus PKH on villages that have a high percentage of PKH-eligible households. This would mitigate the inequality-exacerbating effects of PKH and therefore reduce violence increases as well.

VIII.   Conclusion

It is imperative that further research is conducted on the relationship between conditional cash transfers and civil conflict because the threat of civil conflict has severe setbacks for developing countries and their constrained resources. The counterintuitive result that PKH is correlated with greater levels of civil conflict serves as a wakeup call to Indonesian policymakers and implementers — They need to scrutinize the mechanisms in which PKH is delivered, as it could have long-term damaging effects on civilians and infrastructure, which would inherently counteract any progress PKH strives to make on poverty alleviation.

Bibliography

Avenue, Human Rights Watch | 350 Fifth, 34th Floor | New York, and NY 10118-3299 USA | t
1.212.290.4700. "World Report 2019: Rights Trends in Indonesia." Human Rights
Watch, December 28, 2018. https://www.hrw.org/world-report/2019/country-
chapters/indonesia.

Blattman, Christopher, Nathan Fiala, DIW Berlin, and Sebastian Martinez. "THE ECONOMIC
AND SOCIAL RETURNS TO CASH TRANSFERS: EVIDENCE FROM A
UGANDAN AID PROGRAM," n.d., 53.

Asia Society. "Causes of Conflict in Indonesia." Accessed April 11, 2020.
https://asiasociety.org/causes-conflict-indonesia.

Crost et al. "Conditional Cash Transfers, Civil Conflict and Insurgent Influence: Experimental
Evidence from the Philippines | Elsevier Enhanced Reader." Accessed April 10, 2020.
https://doi.org/10.1016/j.jdeveco.2015.08.005.

Fiszbein, Ariel, Norbert Rüdiger Schady, and Francisco H. G. Ferreira. *Conditional Cash
Transfers: Reducing Present and Future Poverty*. A World Bank Policy Research Report.
Washington D.C: World Bank, 2009.

Frischtak, Leila L. *Governance Capacity and Economic Reform in Developing Countries*. World
Bank Technical Papers. The World Bank, 1994. https://doi.org/10.1596/0-8213-2962-6.

Monica, 1776 Main Street Santa, and California 90401-3208. "Longitudinal Survey Explores
Indonesian Family Life." Accessed April 11, 2020. https://www.rand.org/well-
being/social-and-behavioral-policy/data/FLS/IFLS.html.

———. "RAND IFLS-5 Survey Description." Accessed April 11, 2020.
https://www.rand.org/well-being/social-and-behavioral-policy/data/FLS/IFLS/ifls5.html.

Parliament; address=Parliament House, Canberra corporateName=Commonwealth. "Crisis in
Indonesia: Economy, Society and Politics." Text. Accessed April 11, 2020.
https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Li
brary/Publications_Archive/CIB/CIB9798/98cib13.

Pradhan, Menno, Patrick Barron, and Kai Kaiser. *Local Conflict in Indonesia: Measuring
Incidence and Identifying Patterns*. Policy Research Working Papers. The World Bank,
2004. https://doi.org/10.1596/1813-9450-3384.

"Program Keluarga Harapan, PKH (Family Hope Programme)." Accessed April 11, 2020.
https://socialprotection.org/programme/program-keluarga-harapan-pkh-family-hope-
programme.

Roth, Christopher P. "Conspicuous Consumption and Peer Effects among the Poor: Evidence

From a Field Experiment," n.d., 46.

Strauss, John, Firman Witoelar, and Bondan Sikoki. *The Fifth Wave of the Indonesia Family Life Survey: Overview and Field Report: Volume 1*. RAND Corporation, 2016. https://doi.org/10.7249/WR1143.1.

Tadjoeddin, Mohammad Zulfan, and Syed Mansoob Murshed. "Socio-Economic Determinants of Everyday Violence in Indonesia: An Empirical Investigation of Javanese Districts, 1994—2003." *Journal of Peace Research* 44, no. 6 (November 1, 2007): 689–709. https://doi.org/10.1177/0022343307082063.