ESSAYS ON THE UNINTENDED IMPACTS OF TWO CASH TRANSFER INTERVENTIONS IN INDONESIA

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ABSTRACT

To achieve the millennium development goal (MDG), different approaches were applied by the Government of Indonesia (GOI) to eliminate both health and education demand and supply constraints. These efforts were translated into two cash transfer programs that were piloted in 2007 to target households and communities with the objectives of reducing poverty levels as well as investing in children's human capital. Thus, using randomization data collected by the World Bank to evaluate these two programs, this thesis analyzes three non-objective impacts of these programs in the following manner.

Regarding the demand side approach, the first study observes the impact of conditional cash transfer (CCT) or *Program Keluarga Harapan* (PKH) on local disharmony and conflicts. The results show that CCT does not generate any local disharmony and conflicts that can be observed by using the following measurements: mutual assistance participation, contribution and communal decision making processes, as well as violence and communal conflict and victim in the community. However, in the presence of ethnic diversity, we find some evidence that program implementation generated both disharmony and conflict in the community. This result suggests that it is important to take into account the potential for conflicts in the implementation of social programs that have human capital improvement as their core target in ethnically diverse areas.

Regarding the supply side approach, the second study investigates the impact of a Community CCT that gives block grants to communities with or without incentive of bonus performances on the local leader and household relationship quality, especially the leader relationship with the poorest households in the community. The relationship quality is represented by how closely households know their five different levels of local leaders. Our finding shows no effect of Community CCT on household-leaders closeness, in either the overall sample or even considering only the poorest in the communities. In addition, we also observe two possible mechanisms on how household-leader relationship is generated. First, through the presence of interaction cost of ethnicity heterogeneity, we find that the program – especially where incentive payments were offered – improved the relationship

quality between the poorest members of communities, regardless any types of local leader. Second, through household-leader participation changes as the result of program, results suggested that the program increases local leaders' participation in health and education initiatives and also the time spent by poor households on mutual assistance activity in their community. However, both poor household and leader participation do not improve in the presence of ethnic heterogeneity which suggests that there is some other channel that may explain why the closeness improves in such environments.

Regarding comparison of the demand and supply approach, the last study exploits both approaches' effect on women's autonomy and their participation in family planning, health and education counseling. The estimation of the effects focuses only on their overlapping area based on their supply side health and education facilities readiness. The results suggested that both programs positively increased women's autonomy in their freedom to buy. However, the other autonomy indicator on decision making is significantly decreased after the implementation of community intervention. This is probably due to program spillover on child related knowledge to other family members that induced their involvement in the decision making process. Thus, in term of participation, both programs significantly improved health counseling participation but not the usage of family planning. The participation in health counseling as the result of Community CCT was higher than CCT's impact. Finally, our results are almost the same as the previous studies that have evaluated program objectives. We found that household intervention gave more impact on women than Community CCT except for health counseling.

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LIST OF ABBREVIATIONS

BPD	Badan Permusyawaratan Desa (Village Consultative Council)
BPS	Badan Pusat Statistik (Statistic Indonesia)
CCT	Conditional cash transfers
CDD	Community-driven development
ELF	Ethno linguistic fractionalization variable
FDS	Family Development Sessions
GOI	Government of Indonesia
KDP	Kecamatan (Sub-district) Development Project
KUBE	Kelompok Usaha Bersama (Grants for Businesses Groups)
MDG	Millennium Development Goal
NTT	Nusa Tenggara Timur province
PKH	Program Keluarga Harapan (Hopeful Family Program)
PMT	Proxy Means Test
PNPM	Program Nasional Pemberdayaan Masyarakat (National Program for Community Empowerment)
PNPM Generasi Sehat dan Cerdas	PNPM Healthy and Smart Generation
PODES	Village potential statistics
Puskesmas	Community health center
Pustu	Auxiliary community health Facility
Raskin	Beras Miskin (Rice for Poor)

CHAPTER 1 INTRODUCTION

1.1 Background and Importance of This Research

The conditional cash transfer (CCT) is one of the most adaptable pro-poor policies in the world. It was started in Mexico and Brazil in 1997 and it has already been implemented in over 20 countries (Fiszbein, et al., 2009). The program itself provides cash to poor households under specific rules for the future of human capital investment on health and education. These investments typically involve conducting regular medical checkups and meeting minimum prerequisites of school attendance. According to Fiszbein, et al. (2009), there were two arguments on the need to include conditionality on cash transfer. First, in general, private investment in human capital among the poor was considered below its optimal value based on social perspective. Second, from the political economy perspectives, conditionality makes transfer more acceptable in terms of redistributive fairness when only certain people receive the cash because it reflects "good behavior" of the poor and provides opportunities for poor children.

The implementation of CCT is just like any other pro-poor program that sometimes generates wider impacts that captures unintended impact and spillover effects. The unintended impact is the impact of the program beyond its objective that affects the program recipient. According to Attanasio et al. (2009), the unintended impact of CCT, particularly on social capital, was brought about by the requirement of the main beneficiaries (who are typically women) to participate in health and education activities, such as attending program meetings or visiting health centers. However, they also

explained that the social change as the result of the program could be positive or negative. On one hand, it might generate opportunity for women to get out of the house and interact on a regular basis with other women in similar situations which would lead to the improvement of trust and social relations within the community. On the other hand, CCT might generate other cost such as the time that women spent on program related activities rather than on other economically productive activities. Thus, the unintended impact of social assistance program could become a concern because sometimes it might not only reduce potential economic loss but also reduce social capital as well as generating crime. Cameron and Shah (2014) reported there were some negative unintended impacts from the implementation of unconditional cash transfer in Indonesia According to them, the reduction of social capital and increased of crime is due to program leakage that is caused by mistargeting of the program's beneficiaries which includes ineligible household.

Spillover effect is the impact of the program that indirectly affects the non-targeted population by social and economic interaction with the program beneficiaries. Angelucci and Di Maro (2015) explained the types of spillovers and their related examples. According to them, there are four types of spillover effect related to the general development program: externalities, general equilibrium effects, interactions, and behavioral effects. The first type of spillover effect was transmitted from the program recipient to the untreated population. For example, the provision of de-worming drugs may improve the health of both treated and untreated children (Miguel & Kremer, 2004). General equilibrium effects describe the way in which the program that targeted only certain people in the population actually affected the whole population. For example, CCT has been found to affect prices in general

due to improvement of purchasing power of the poor (Angelucci & De Giorgi, 2009). Then, the last two spillover types were explained as the effect that might have resulted from social and economic interaction of the untreated with the treated and what kind of change that happened to the untreated as the result of the treated behavioral change.

In the case of Indonesia, Government of Indonesia (GOI) introduced a pilot project of two cash transfer programs in 2007. These programs aimed to improve the demand side of health and education services by providing conditional cash transfer to ultra-poor households and by providing cash grants with and without performance incentives to communities to improve the supply side of health and education services. These programs are part of GOI's commitment to improve future human capital investment as well as to reduce the poverty level. The intended impact of two CCT programs that targeted household and community had been evaluated by Alatas (2011), Olken et al. (2014), and Triyana (2013a), respectively.

Alatas (2011) found that CCT improved health indicators more than education indicators. She also found the program improved pre-natal care and child weights among the non-beneficiaries' neighboring households. These results showed that program had positive spillover effect. However, according to Triyana (2013a) even though the program improved the pre-natal care participation and number of available midwives in community, however, it also increased the fees of midwives' delivery in local health care facilities. The midwives' fees increase as result of CCT implementation was another possible instance of spillover effect that impacted the non-beneficiaries in the treatment community.

In terms of Community CCT, Olken et al. (2014) found that the bonus performance incentive that was provided by the program improved the preventive health indicators but did not generate different effects compared to the non-incentive type of program in terms of education impact. Besides the intended impact, they also observed the potential positive unintended impact, particularly on community effort, which they found only limited program impact on these matter.

Even after these comprehensive evaluations of both programs, they still leave us with some unexplored issues concerning the unintended impact of the programs. Moreover, as explained by Angelucci and Di Maro (2015), the observation of the importance of the spillover impact of the program was a way to correct identification and estimate both direct and indirect treatment effects. Therefore, it is necessary to measure both unintended and spillover effects to allow us to view the whole picture of program impact, the benefits and the consequences of program implementation.

1.1.1 Conditional Cash Transfers and Social Change

Social change is one of the aspects that could be categorized as unintended and as a spillover effect of CCT implementation. The impact of CCT on social change that ranges from social capital to social tension alterations has been evaluated by many researchers over different CCT programs in the world. The research has found mixed results; some were positive and some were not significant (Attanasio et al., 2009; Soares et al., 2010; Camacho, 2014; Crost et al., 2014; and Chioda et al., 2015). In the case of Indonesia, no study has been conducted to evaluate the CCT impact on social change but one study by

Tobias et al. (2014) evaluated the impact of Community CCT on politically related activities. They found that the program only improved the voter support for legislative members from the incumbent president's party, but it did not conclusively affect the vote for the incumbent president or have an impact on village level politics.

Concerning the positive impact of the program, Attanasio et al. (2009) found that cash transfers increased the cooperation among people in the recipient community. This was observed through public good games among CCT recipient and non-recipient communities in Colombia. Moreover, CCT also reduced the crime rate and incidence of conflicts (Chioda et al., 2015 and Crost et al., 2014). According to them, CCT might reduce these negative activities through the improvement of the poor's welfare and the improvement of the conduct of youths due to improvement of their peer group. As the program require young people to enroll to school, they have less time and chance to be involved with someone who conduct crime and other kinds of anti-social activities.

In the term of social participation that was defined as household involvement in political, religious, leisure, or labor associations, Soares et al. (2010) found no impact from CCT. Even after they extended their analysis on 'proactive' participation or household participation in some managerial role or/and voluntary work in these kinds of groups, they still could not find any impact of CCT. According to them, they found no impact because a household might substitute their social participation time into program related participation, which mostly has conflicting schedules.

Likewise, no impact of CCT on social engagement was also reported by Camacho (2004). However, he found that CCT affected the trust of recipients in government

institutions among household recipients and non-recipients in different ways. The trust in government institutions increased among the eligible households but decreased among ineligible ones. This result suggested that there was a possibility that program selection was perceived to be unfair among the non-recipients. This might create social problems if the implementers are only able to offer a small subset of households in a community with program benefits in communities where trust in the government is low.

1.1.2 Conditional Cash Transfers and Women's empowerment

For most CCT programs, women's empowerment is only part of the implicit program objectives. This is because women are the main program beneficiaries. According to Cecchini and Madariaga (2011), women played two roles in CCT, as those who managed the transfer and as those who ensured the conditions were fulfilled. However, the role in managing the transfer might be questionable because the transfer might go to women but the usage might not represent any women's needs. Thus, without any specific program component that promotes women's empowerment, the CCT only adds to their obligations without giving any benefit. This is why, in general, CCT is being criticized for using women as the conduit of policy but not as part of the program objectives (Tabbush, 2010).

The only CCT intervention that has women's empowerment as part of the objectives is *opportunidades* in Mexico. However, it targeted girls' education but not their mothers' empowerment (Behrman et al., 2010). Thus, some innovations on CCT are also developed not only to improve the targeted objectives but also to empower poor households. Even though the innovations are aimed to the whole family, women, as the main beneficiaries,

are expected to be empowered most. However, in practice these innovations are not guaranteed to result in the improvement of women's empowerment. For example, consider Chile Solidario (CS), the program that provides CCT with an extra of household tailor made intervention according to the seven dimensions of family need assessment (identification, health, education, housing conditions, family dynamic, income and work) based on 53 quality of life minimum conditions (Martorano & Sanfilippo, 2012). The tailor made program intervention is delivered through 21 home visits by social workers in its first two years (Scarlato et al., 2014). Moreover, even after this CCT program addition which one of its components was to ensure beneficiaries get access to education, training and work, still the effect on labor market outcomes favored men rather than women among recipient households (Scarlato et al., 2014).

Another example of extra CCT program components that might be beneficial to women was the Family Development Sessions (FDS). This component was attached to the *Pantawid Pamilya* program in The Philippines. The FDS captured structural modules and regular discussions on parenting practices, education, financial literacy and bank accounts access improvement, as well as the usage of other social services promotion (Chaudhury et al., 2013). According to them, FDS was empowering and facilitated the poor to voice demands for better social service delivery. FDS also helped to increase the coverage of health insurance programs among *Pantawid Pamilya* recipients (Chaudhury et al., 2013). However, its impact on women's empowerment has not been observed.

In the case of Indonesia, an additional CCT component that might relate to women's economic empowerment is a business grant that has been given to a group of CCT women

in Indonesia since 2013 as part of the CCT exit strategy. This program of grants for business groups or *Kelompok Usaha Bersama* (KUBE) is actually another pro-poor policy intervention that has been implemented in Indonesia since 1983 with the objective of providing capital for a group of poor people (consisting of around 10 persons) to start up or expand a group business. Besides the grant, this program also provides facilitators for three years to help these women with planning and running their business. The effectiveness of this hybrid program between CCT and KUBE has not yet been evaluated; therefore its impact on women's empowerment is also still unknown.

1.2 Research Objective

As explained in the previous section, the implementation of these programs is providing opportunity for us to conduct evaluation of both unintended and spillover effects which will enrich the general understanding of overall program impact.

In terms of household intervention, the issue of mistargeting is raised during its first year of implementation. This issue might jeopardize the program's impact and destroy trust and cooperation and might also create a conflict between the treated and untreated in the community. In addition to the only one piece of literature on CCT and conflict, in chapter 2, we will observe not only program average treatment's effect on local disharmony and conflict but also its effect on the treated and untreated in the community. The last effect is capturing the spillover effect of the program. Moreover, we will also investigate whether ethnic diversity plays important role in explaining on how the program might affect local disharmony. We observe the local disharmony using mutual assistance participation,

contribution and decision making process, whereas we measure conflicts as the probability incidence of violent and communal conflict in community.

In terms of community intervention, in chapter 3, we will analyze program's impact on the quality of local leaders-household relationship. The focus of this study is on how the poorest household linking social capital can be influenced by the program. There are also two potential mechanisms that will be observed in this chapter. The first mechanism is through the interaction costs between households and their leaders such as ethnic heterogeneity. The second mechanism is through the change behavior such as social participation of both household and local leaders after program that facilitates their interaction with each other.

Finally, in chapter 4, we want to compare the effectiveness of the program in promoting women's empowerment through women's autonomy and participation. This study is complementary with the previous evaluation studies on both of these programs that mostly observe the program's objective impacts rather than the non-objective one. Furthermore, to highlight the importance of supply side health and education services readiness that is used by program implementer as one of program allocation reference, the analysis also extended based on different levels of this readiness across community. The overall framework of this dissertation is summarized in Figure 1-1.

1.3 Contribution

This section will highlight the contribution of this thesis to the CCT impact evaluation of existing literature. The first study is about CCT's impact on local disharmony and conflicts.

Our contribution to the literature is threefold. First, we contribute to the limited study on the impact of CCT and conflicts because there is only one study on this topic by Crost et al. (2014). Second, we use local wisdom indicators in Indonesia as the measurement of community disharmony. Finally, this is the first empirical study that examines potential negative effects of CCT on social capital in Indonesia.

The second study observes the local leaders-household relationship as the impact of Community CCT intervention. We contribute to the literature by using different types of social capital, the linking type that is rarely observed in typical community intervention evaluations studies. Thus, we also explained how the incentive program for bonus performances, as well as different configurations of the underlying mechanisms, will affect the interaction of people in the community. As the Community CCT program is only implemented in Indonesia and Tanzania, the analysis regarding social capital and bonus performance is still limited.

The third study is the joint evaluation between the programs' impact on women's autonomy and participation. Our contribution to the growing literatures takes the following two forms. First, we provide evidence on the comparison of the impact of two types of CCT joint evaluation on women, focusing on unintended impacts. This is relatively new because typical studies on the topic usually only discuss the impact of one type of CCT. Second, the previous study on both programs evaluation by Triyana (2013b) was only focused on the propensity score overlapping region of both programs treatment whereas we also take into account the overlapping region of the control area for both interventions. Thus, we analyze both programs and control as multiple treatments rather than only using

one intervention as treatment and the other interventions as control in order to make direct comparisons.

The organization of this thesis is as follows. In the second chapter, we investigate the impact of conditional cash transfer on local disharmony and conflicts. Chapter 3 examines local leader and household quality relationship as the impact of Community CCT. Chapter 4 compares the impact of both household and community interventions on women's autonomy and participation. Finally, we conclude in Chapter 5.

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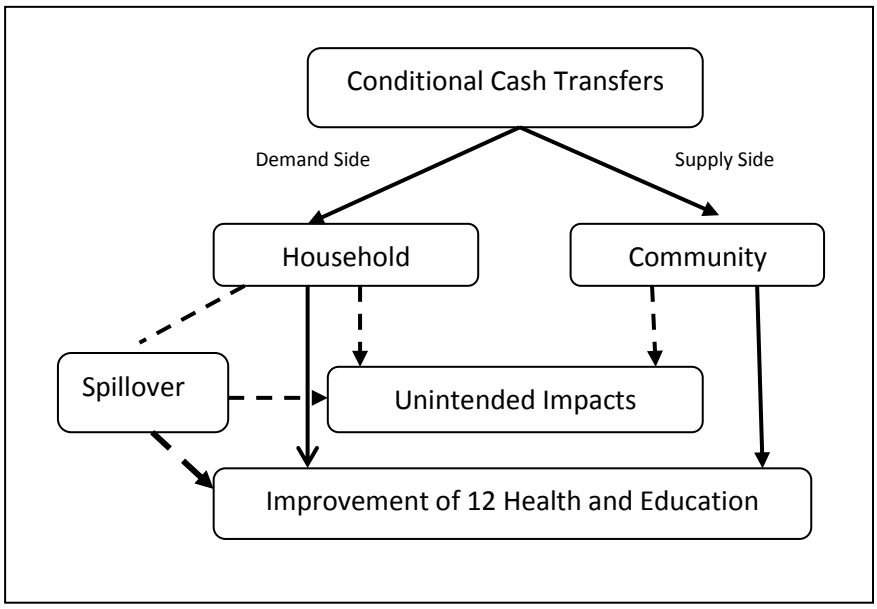

CHAPTER 2 THE IMPACT OF CONDITIONAL CASH TRANSFER ON LOCAL DISHARMONY AND CONFLICT IN INDONESIA

2.1 Introduction

The conditional cash transfer (CCT) has become a very important part in poverty alleviation programs. CCT is believed to be one of the best policies that help the poor to maintain their short-term needs as well as reducing poverty in the future. Though its goal mainly focuses on the improvement of human and physical capital, CCT generates social changes in many ways. On one side, it might increase cooperation among people in targeted area as found by Attanasio et al. (2009) in Columbia. However, as a welfare program, it can also damage interpersonal trust (Chong et al., 2009). In particular, CCT may also have impact on social tension. A few studies have investigated the relationship between CCT and community social tension's indicators such as crime and conflicts (Chioda et al., 2015; Crost et al., 2014). Both of these studies found a positive impact of CCT: it reduced crime and insurgent rate due to the increasing opportunity cost for the poor to join these kinds of activities as their welfare was improved by the program. Aside from the income improvement, another reason for why CCT will not generally create social tension in the community is due to its clear conditionality. The households who do not meet the program criteria are expected to understand why they do not receive the program. However, in the present of poor targeting and unclear socialization, the story might be different.

In the context of Indonesia, with the application of the earlier generation of cash transfer policy, the unconditional cash transfer (UCT) program tends to generate social

problems. There is good evidence reported by Cameron and Shah (2014) that the UCT had increased crime rate and decreased the social capital in the country. Furthermore, the UCT also negatively affected the mutual assistance activity in the community by reducing community participation (Hastuti et al., 2006). According to this qualitative study, the head of communities felt that it was more difficult to ask the members of his community to engage in this kind of community activity after the implementation of the UCT program. This tension caused by the poor program targeting shift the social burden to the beneficiaries. These two findings showed the possibility of disharmony in the community due to poor program targeting.

The mistargeting issue might continue to the administration of CCT because program participation is mainly drawn from the UCT beneficiaries list. The CCT mistargeting cases in various targeted areas have been reported by several qualitative program evaluations (Center for Health Research, 2010; Kharisma, 2009). Moreover, another reason why the implementation of a CCT program might generate social conflict is due to inadequate program socialization. Kharisma (2009) reported that both beneficiaries and non-beneficiaries in the Sumba Barat district went on strike due to the unclear program selection process and criteria to their local house representative. Despite such evidence, the possibility for the CCT program inducing social disharmony on mutual activity, at least for the case of Indonesia, is yet to be measured.

Using data that was collected for the program evaluation and the national village level census data; we aimed to measure the potential community disharmony and conflict as a result of the implementation of the Indonesian CCT program. We used the change in

the typical traditional mutual activity or *gotong royong* participation, contribution, and perception on the decision-making process for *gotong royong*—also known as *musyawarah*—as indicators of community disharmony. We will also evaluate the general indicators of social tension in the community, such as incidences of violent and communal conflict. Finally, we will explore community ethnic heterogeneity as a pathway that connects the CCT with community disharmony and conflict.

Our estimation results suggest almost no impact of CCT on community disharmony and conflict, except for the decrease in mutual assistance sanction perception among the non-beneficiaries in the treatment area compared to households in the control area. As a consequence of this finding, our results could not support our proposition the "burden shifting" or the move of responsibility for the collective act between non-beneficiaries to beneficiaries, as well as social jealousy of non-beneficiaries as a result of the program implementation. However, in the presence of ethnic diversity, we find some evidence that program implementation generates both social disharmony and conflict in the community. With heterogeneous ethnicities in the community, CCT reduces all types of *gotong royong* contribution that we observe in the treatment area compared to the control area. These reductions are even higher among the beneficiaries of the program than the comparable households in the control area. We also find indications of a negative impact of CCT, such as the decrease of some *musyawarah* perception indicators on beneficiaries' households as well as the increased probability for violent and communal conflicts in the presence of multi ethnicities in the community.

We contribute to the currently limited literature on CCT impact on social tension, particularly on measuring the community disharmony and conflict using local indicators. This is also the first empirical study that examines the potential of the negative effect of CCT on social capital in Indonesia. Thus, this study is organized as follows: Section 2 describes the background of the CCT program, local context of traditional collective action and ethnicities in Indonesia; Section 3 explains the data source; Section 4 that provides the estimation strategies; Section 5 discusses the summary statistics for variables of interest; Section 6 discusses the estimation results and robustness check; and the final section summarizes and discusses the implications of the results.

2.2 Background

2.2.1 *Program Keluarga Harapan* (PKH)

The Hopeful Family Program (*Program Keluarga Harapan*, PKH) was launched by the Government of Indonesia (GoI) in 2007. This program is an adaptation from a conditional cash transfer in the Latin American countries such as the *Bolsa familia* in Brazil and *Progresa* in Mexico. PKH has three objectives stated in the program guidelines: to increase the health quality of the ultra-poor family, to increase the education level of children from the ultra-poor family, and to improve access and quality of basic health and education services, especially for children from the ultra-poor family (Government of Indonesia, 2014).

The PKH is conditionality set to follow its objectives on the development of future human capital in the aspect of health and education. It requires the program recipients to

access the health and education facilities regularly. The household recipient must be very poor, and be a pregnant/lactating mother or have children from 0 to 15 years or 16 to 18 years who have not yet completed basic education. The first year of PKH covered around 300,000 household over seven provinces in Indonesia (Alatas, 2011). The transfer amount received by each household ranges from approximately $60 to $220 USD (1$=~ Rp. 10,000) per year, and it is distributed every 4 months. The amount of transfer varies depending on the type of conditionality and the number of children within the target age group in the family.

According to Alatas (2011), there were several steps in the selection of PKH participants. First, Statistics Indonesia generated a roster sample drawn from the poorest households for UCT 2005 beneficiaries. This listing includes only approximately 60-70% of UCT participants. Then, to reduce the exclusion error they added extra 5% new households through a limited sweeping in the sub-districts that were targeted by the program. Second, they conducted a Health and Education Service Survey on these households to check the current poverty level and program conditionality criteria. Using this survey data, they then conducted a proxy means test (PMT). A set of indicators that represent housing characteristics, education attainments, fuel sources, type of employment, and access to health and education services were used as the basis for participant selection.

2.2.2 Indonesian Context of Local Wisdom

The ideas of collective, consensual, and cooperative behaviors were believed to be the ideological keys of social interaction since Indonesian independence in 1945 (Bowen,

1986). Two applications of these ideologies are the tradition of *gotong-royong* and *musyawarah*. Even though *gotong royong* was originally applied mostly within the context of the Javanese tradition, the concept was adopted nationally during the Soeharto era[1]. Bowen (1986) defines *gotong royong* as a mutual assistance activity that has three features: labor exchange, generalized reciprocity, and labor mobilization based on the political status. However, in a broader context, this tradition is not only associated with physical activities, but can also be formed as a contribution in kind or cash. *Gotong royong* is also interpreted as cooperation inside the social network and between different networks (Kusumasari & Alam, 2012). Due to the lack of formal social institution in the country, the *gotong royong* tradition has also played crucial roles as a safety net during the difficult periods. For example, Kusumasari and Alam (2012) explained how important the tradition of *gotong royong* was in the disaster recovery after a major earthquake in 2006 in Bantul, Central Java.

As a collective action in communities, *gotong royong* can be categorized into three levels: village level public works, hamlet level public works, and household level mutual help (Kawagoe et al., 1992). The first two *gotong royong* categories are classified as *kerja bakti*, which means a "work together" activity on a voluntary basis to clean, fix, or even build public facilities such as road, worship places, and bridges. Originally, the *gotong royong* tradition was organized privately and conducted informally. However, the current arrangement of *gotong royong* has evolved so that the village official now directs minor public work within a community (Kawagoe et al., 1992). The implementation of *gotong*

[1] The second President of Indonesia that served from 1967 to 1998.

royong as a communal action requires a collective decision or at least represents a majority choice decided by members of the community. The process of making decisions to reach a consensus in the local Indonesia context is known as *musyawarah*. Within this system, people will try to avoid conflict by accommodating every decision through a forum of discussion. The community official will usually invite the male member of each household to attend a *musyawarah* to discuss various problems faced by the community, including *gotong royo*ng.

Thus, the idea of *gotong royong* and *musyawarah* are to promote community participation that will consequently increase both community and individual social welfare. However, the implementation of these two concepts might generate some social construction problems that can lead to a tension in the community. For *musyawarah*, accommodating many interests into one consensus is very difficult, especially in large communities. It is always the case that some people who are not part of the majority group will feel left behind and their voices remain unheard. However, *gotong royong* might contribute to social tension due to two aspects. First, the voluntary basis can generate free riding and tragedy of common problems. As explained by Olson (1965) and Hardin (1968) in their seminal works on collective act arrangement, a member in a large group acts rationally by putting his/her personal welfare maximization over the common objective. Therefore, free riding and tragedy of common are unavoidable without government control and private property rights regulation. In the context of *musyawarah* and *gotong royong* tradition, these two requirements are difficult to fulfill. This is because, historically, the nature of these traditions is informal and based on voluntary arrangement.

However, as argued by Ostrom (1990), a group actually has their own mechanism to generate their own rule to prevent unwanted outcomes. In the community where the social tie is very strong, *gotong royong* and *musyawarah* traditions were able to generate their own social sanctions to prevent community members from failing the activity. These social sanctions can be formed both formally and informally such as fine and gossip, respectively. In general, people in the community will try to avoid social sanction in order to invest "goodwill" in case they need help for their personal special events (such as weddings or parties) or emergencies. Therefore, in practice, these local wisdoms are not solely about volunteering, they also contain social sanctions and reflect some amount of social investment. However, in the existence of social jealousy triggered by poor program targeting, the community self-regulated mechanism might be broken. Thus, the implementation of programs might reduce participation in *gotong royong*, and change the way people making decisions in communities in more non-democratic way.

Second, *gotong royong* has become a practiced ideology for most people in Indonesia. It teaches equality and togetherness in good and bad situations, and everyone should contribute to community welfare. Thus, when people need to contribute equally to the community, they expect to get the same amount of return. If a community member receives any social protection program, the rest of the members expect to also be part of it. One example of a program that is often reported to be mistargeted due to the "equally sharing" rule is rice for the poor (Hastuti et al., 2007). The distribution of rice in this program is supposedly only for poor households. However, to avoid a protest by the community members, the village officials shared the rice quota equally to all households.

As a result, the poor households received less than what they should have. Community tension might arise because CCT was not distributed equally.

The next question is on whether the magnitudes of social damage as a result of program implementation will contribute to greater economic loss. Due to the pre-conditions of Indonesia that has a long history of social conflicts, community disharmony might easily increase to become a negative act. According to Barron et al. (2009), heterogeneous ethnicity in the community is one of the factors that reflect the change of population composition, which might influence community conflict. In the presence of this factor, a CCT program might generate not only social tension but also local conflicts. Regarding this factor, the hypothesis is that the CCT program might create a higher chance to generate local conflict in a heterogeneous environment. However, two previous studies on the impact of CCT on violent activities such as crime and insurgence found the opposite results (Crost et al., 2014; Chioda et al., 2015). The program did reduce these activities due to the improvement of income of the poor and school enrollment of children. Then, in the case of CCT in Indonesia, it will depend on whether the income effect of the program can offset the dissatisfaction of non-beneficiaries to prevent them doing such damage. The whole change in the community harmony as a result of the program is detailed in Figure 2-1. The program rules that require regular group meetings and facilitation will bring the beneficiaries closer in the community, whereas the poor that are excluded from the program will feel left behind and pulled out from the community ties.

2.2.3 Ethnicity in Indonesia

Indonesia is a country with over thousands of islands and over 200 million people, making it the fourth most populous country in the world. It has multi ethnicities, but the exact number is unknown since different resources provide a different number depending on the level of detail in the observation (Mavridis, 2015). The most recent national ethnicity data are from the 2010 national census records for about 1,331 raw ethnicity categories[2] (Ananta, et al., 2014). According to this census, most of the population or approximately 85% of people were from 15 biggest ethnicities groups. The distribution of population across the country is very unequal and is concentrated in Java Island. Two ethnicities in these Islands—Javanese and Sundanese—already account for approximately 55% of the total number of ethnicities in 2010 (Ananta, et al., 2014).

These two ethnicities were the original ethnicity for five out of six provinces on the Java Island. Sundanese is the ethnicity originating from Banten and West Java provinces, whereas, Javanese is the ethnicity originating from Central Java, Yogyakarta, and East of Java. The West Java and East Java provinces are the two sample locations in this study that covered almost 70% of total study sample, and almost 86% of them are Javanese and Sundanese. The other ethnicity that originated from East Java is Madurese that represent 3% of the total population in Indonesia (Ananta, et al., 2014). The other three provinces included in this study (North Sulawesi, Gorontalo, and East Nusa Tenggara (NTT)) consist of several small ethnicities.

[2] The ethnicities in the census data were based on respondent self-report. Therefore, these categories might capture the same ethnicities with multiple codes due to different spelling of the same ethnicity names.

In terms of the heterogeneity of ethnicities, using the 2010 Indonesia Census data, Mavridis (2015) found that the average fractionalization and polarization levels that measured ethnic concentration (0 to 1, where 0 reflects a very concentrated area, and 1 is otherwise) at district level were 0.275 and 0.377, respectively. The minimum to maximum range was from 0.006 to 0.805 for fractionalization, and from 0.011 to 0.968 for polarization. This result suggests that although Indonesia is a very heterogeneous country, most of its districts are relatively homogeneous. In terms of our study sample, the distribution of fractionalization in Figure A2-1 in the Appendix shows relatively homogenous ethnicity communities, because approximately 50% of the sample areas have zero fractionalization.

2.3 Data

Two data sets were used in this study. The first data source was data from a survey of health and education services that was collected by World Bank[3]. The survey was conducted in six provinces (all PKH sites except for West Sumatera), and covered approximately 44 districts, 360 sub-districts, and 2832 villages. The objective of the survey was to evaluate the administration of CCT randomization. The randomization or random allocation of treatment and control status was conducted at the sub-district level, and eight random villages were selected in each of these sub-districts (Sparrow et al., 2008). Each village in the same sub-district had the same treatment status. In each of these villages, five random households were selected among the poorest that were stratified based on program

[3] Data used in this study are available at http://microdata.worldbank.org or http://economics.mit.edu/faculty/bolken/data.

conditionality: two households with married women who were pregnant for the past two years, and three households with school age children (Alatas, 2011). Although the sub-district treatment status allocation was random, the program beneficiaries were not. They were selected among the poorest households in the community that met program conditionalities.

The original data sample was constructed with a random allocation of 180 sub-districts, where half was allocated into the treatment group and the other half was allocated into the control group. However, as reported by Alatas (2011), there were 45 cases of contamination in the sub-districts sample. These cases included refusals of the program from two sub-districts, implementation delay in four sub-districts, and unanticipated program expansion in 39 control sub-districts.

The first round of the survey was conducted around mid-2007, which was followed by two more surveys in 2009 and 2013[4]. These surveys contained rich information on socio-economic and demographic characteristics at individual, household, and community levels. The data from these surveys also provided information on the selected education and health service providers in the sample location. The data for all village level (including health and education facilities), and most households (14,326 household) were re-interviewed in each round of survey (panel data). We are particularly interested in the set of variables that explain how collective act is conducted in the communities. This set of questions available in the data included the approaches used by the community to decide *gotong royong* activities, household participation, and different types of contributions.

[4] We only used the first two rounds of the survey because the last wave of the survey was not yet publicly available.

There were two types of *gotong royong* asked in the survey. These two types represented the typical *gotong royong* in local communities in Indonesia, the cleaning of public asset, and the building of new public facilities[5]. The non-material contribution was then measured by the amount of manpower spent in the previous year for *gotong royong* activities, whereas material contributions were measured by money spent in money contribution and other types of contributions such as food or building materials.

The second data set came from the Indonesia Village Census (*Potensi Desa*, PODES) that is collected every three years by BPS. PODES provides information about economic and social characteristics as well as the incidence of violence and numbers of its victims at the village level. We therefore combined the PODES data with the health and education services survey data at the village level. The baseline data of the latter were matched with PODES 2005, which was the closest PODES survey year to the baseline year; while the follow-up survey were matched with PODES 2011. Figure 2 shows the complete timeline of the data and program implementation.

2.4 Estimation Strategy

To observe the impact of conditional cash transfer on community disharmony, we distinguish between two levels of data: the household level and the village level. At the household level, we were particularly interested in *gotong royong* and *musyawarah* activities in the previous year before each round of surveys. We constructed indicators for *gotong royong* for whether households participated in these activities or whether there is

[5] We do not distinguish our interest indicators based on different types of *gotong royong* to simplify our estimation.

sanction for people who fail the activity and household contribution level in time, money, and other types[6]. The *Musyawarah* indicator was created based on household perceptions on whether the decision around the implementation of *gotong royong* is decided through meetings in a village administration unit. Then, at the community level, our dependent variables focus on several types of conflict incidence. Table 2-1 summarizes the indicators constructed for estimation.

For the first part of the estimation, we aimed to measure the impact of program assignment or the placement effect at the community level, or the average treatment effect on social harmony at the household level by estimating the following equation:

$$Y_{hvt} = \beta T_{st} + \gamma' X_{hvt} + \varepsilon_{hvst} \quad (1)$$

where Y and X are the set of variables of interest and control variables, respectively. Household level X captures a set of variables that represents the data year dummy variable, and both household and community characteristics. The subscripts denote household (*h)*, community (*v*), sub-district (*s*), and survey time (*t*) with 0 for baseline and 1 for follow up survey. The program assignment (T; 1 for treatment and 0 for control) is assigned randomly at the sub-district level. Thus, eight random communities that were selected in the sub-district had the same assignment status.

However, due to some contamination in the program implementation that changed the allocation status for 45 sub-districts as explained in the data section, the program

[6] We categorized the non-participant of *gotong royong* and contribution as one who failed the activity and who do not know the existence of activities (if they said no activity in the community but there is at least one person in the community who said yes and mention the type of *gotong royong* in their community). The definition of sanction was based on the household perception regardless of whether they participated in *gotong-royong*. We are also assuming no sanction for those who do not know about the activity.

assignment, T, was no longer exogenous. Thus, such contamination might allow us to observe T as program implementation rather than program assignment. To correct for this endogeneity problem, we followed Alatas (2011) by using the initial sub-district lottery program allocation (L) as the instrument in our estimations. We also corrected two other items in our model. First, the possibility of unobserved households and the community effect that may influence the decision to participate and contribute to *gotong royong* and the perception of *musyawarah*, as well as the probability of conflict by using a panel fixed effect model. Second, the probability of having incorrect inferences due to errors in the correlation among observations within the survey randomization level due to the clustering of the standard error at the sub-district level. The regression model in (1) can be expressed as follows:

$$Y_{hvt} = \beta T_{st} + \gamma' X_{hvt} + \eta_h + \varepsilon_{hvst} \quad (2)$$

The first stage estimation model for (2):

$$T_{st} = \pi' L_{st} + \gamma' X_{hvt} + \theta_{hv} + \varepsilon_{hvst} \quad (3)$$

Due to the implementation of instrumental variables in our model, we can only observe the local average treatment effect (LATE) or the average effects that relate only to the units whose treatment assignment statuses were affected by the instrument.

In addition, to have a better understanding of the impact of the program, we also decomposed our estimation into two effects: the effect of the program to the beneficiaries or the participation effect, and the effect on the non-recipients in the treatment area or the

indirect effect[7]. There are two purposes of separating these two effects. First, to observe the behavior change among different groups in the same community as a result of the program implementation. Second, to check whether there was burden shifting in *gotong royong* participation, contribution, and the decision-making process from the non-beneficiaries to the program recipients. For these two decomposable effects, we compared beneficiaries (non-beneficiaries) in the treatment area with the eligible households in the control area directly, as well as using samples that were already trimmed based on their overlapping propensity score. This sample trimming process was to ensure that beneficiaries or non-beneficiaries in the treatment area were comparable[8].

To trim the non-overlapping sample for both groups in the treatment area, we conducted the following steps. First, we predicted the propensity score for the probability of receiving the program in a clean-cut treatment area, or a community assigned to be a treatment area at the beginning of the study that received the program based on household characteristic variables used for selecting CCT participants. These variables represent the household social-economics status, participation in previous poverty alleviation programs, conditionality that relates to the program, and networks to the village officials. Details of the variables and the estimation of the propensity score are shown in Table A2-1 in the Appendix. Second, using the propensity score in a clean-cut treatment area, we replicated the propensity score in the rest of the sample areas. Thus, we eliminated the sample on non-

[7] We follow Alatas (2011) that estimated three effects on measuring CCT impact. However, she called the indirect effect as spill-over effect.

[8] The CCT program is allocated for the poorest household in the community. Therefore, the non-beneficiary in treatment area might slightly better household compared to the beneficiary in that community.

overlapping propensity score distribution for the program effect between beneficiaries (non-beneficiaries) and controls for beneficiaries (non-beneficiaries). The distribution of the propensity scores for both effects showed little difference (Figure A2-2 in Appendix). To estimate both effects, we also used the lottery allocation as our instrumental variable. Table 2-2 shows details of our estimation strategies of the three effects that we measured.

In the second part of the estimation, we explored the possible pathway that links the CCT program with community harmony. We distinguished this possible channel through the heterogeneity of community characteristics. The heterogeneity of the community is represented by ethnic differences in the community. We used an ethno linguistic fractionalization variable (ELF) based on the calculation by Taylor and Hudson (1972). The ELF index formula is as follows:

$$ELF = 1 - \sum_{i=1}^{n} s_{iv}^2 = \sum_{i=1}^{n} s_{iv}\,(1 - s_{iv}) \qquad (4)$$

Where s_{ij} shows the share of group *i* ethnicity (i = 1...N) in community *v*. This index can be interpreted as a measure of two individuals' random chance to be part of different ethnic groups in the community. Careful interpretation in this index is needed because our data did not provide the proportion of all ethnicity groups in the community, but only provides the three largest ethnic groups in the community[9]. Thus, since we calculated the ELF index using the baseline value, this index was dropped from the panel estimation and only the interaction with the program was left in the model.

Thus, estimation (3) was transformed to:

$$Y_{hvt} = \beta T_{st} + \vartheta_2(\, T_{st} * ELF_v) + \gamma' X_{hvt} + \eta_h + \varepsilon_{hvst} \qquad (5)$$

[9] However, 93% of the communities that we observed suggest that three ethnicities already cover all ethnicities in the area.

The first stage equation is:

$$T_{st} = \pi_1{}' L_{st} + \pi_2 L_{st} * ELF_v + \gamma' X_{hvt} + \theta_h + \varepsilon_{hvst} \quad (6)$$

$$T_{st} * ELF_v = \pi_1{}' L_{st} + \pi_2 L_{st} + \gamma' X_{hvt} + \theta_h + \varepsilon_{hvst} \quad (7)$$

These estimations allow us to determine whether the cause of disharmony in the community after program implementation is due to ethnic diversity.

2.5 Results and Discussion

2.5.1 Baseline Summary Statistics

Table 2-3 and Table 2-4 describe the summary statistics of the baseline data for both household level and village level. Table 2-3 divided the statistics into two groups, treatment (T) and control (C2), whereas Table 2-4 provides more detailed statistics by separating the treatment into two groups: CCT beneficiaries (B) and non-beneficiaries (C1). The differences between groups were calculated with a clustered standard error at the sub-district level. The selection between B and C1 in the treatment area was not random, and therefore we found some significant differences when we compared each group with C2.

Before the intervention, household *gotong royong* participation and sanction in the treatment community (T) was higher compared to households in the control community (C2). However, the only significant difference was shown for household perceptions of the existence of sanction in their community (Table 2-3). With a breakdown of T into B and C1, we found that the highest average rate of *gotong royong* participation and sanction was among program beneficiaries, and these differences were significant compared to C2 (Table 2-4). Therefore, the difference in sanction perceptions that was significantly different

between T and C2 (Table 2-3) was due to higher perceptions of the existence of sanction among T.

In terms of the average in *gotong royong* contributions, C2 had the highest manpower and other types of contributions, but it contributed less money compared to households in T or C1. However, only the average manpower contribution of C1 was statistically lower than C2. Moreover, two out of three *musyawarah* perception indicators showed a statistically significant difference between C1 and C2. Finally, no significant difference between the treatment community and the control community were found in the incidence of conflicts at the village level (Table 2-3).

One type of *gotong royong* or labor exchange was very closely related with the agriculture related sector, especially in a developing country (Gilligan, 2004). According to Gilligan (2004), this typical activity was conducted by pooling the farmers into one team to complete all farming related activities such as crop planting, weeding, or harvesting in each plot in succession. However, even though Table A2.1 shows more than 68% head of households working in the agriculture related sector (including animal husbandry and fishery), we could not highlight the connection between this finding and *gotong royong* activities. This is because our data only observed one type of *gotong royong*, the labor mobility that covers cleaning or building new facilities in the community but not the labor exchange.

Figure A2-2 show the propensity score distribution between each group. The figures indicate that most of sample from each group overlaps one another. This mean was based on the general variables program participation selection that had no difference between

beneficiaries and non-beneficiaries in the treatment area with household controls in the control area. If we then trim the non-overlapping area between B and C2, and C1 and C2, we only decrease by 98 and 58 households, respectively.

2.5.2 CCT Targeting and Contribution Pattern

The amount of CCT transfer ranging between $60 to $220 USD per year or around Rp.50.000 to Rp. 183.333 per month per household is a very significant amount of money for the poorest households. For example, the average of household number of people in our sample in the baseline data is 5 persons, and the transfer will cover about 14 % to 52 % of their total expenditure (Table 2.5). This substantial amount of extra cash received by the beneficiaries might generate the perception that they are already better off after the program. This general perception might reduce the tendency of people in the community to help the beneficiaries during difficult times. This tendency of not helping the program beneficiaries might be even worse in the presence of program mistargeting.

To explore the potential of program mistargeting, we present a simple exercise using the allocation of CCT beneficiaries and non-beneficiaries in the treatment area based on their Ln PCE quintile distribution. Based the results in Table 2.5, in general, the proportion of the number of people who receive CCT were decreased with the increase of Ln PCE quintile group. However, there were CCT recipients in every quintile group of Ln PCE and include the recipients the highest Ln PCE group. This finding demonstrates the posibility of program mistargeting, because according to Alatas (2011), the program only targeted the poorest households in the community.

Then, for the contribution pattern using the distribution in the Ln PCE analysis, we found that the amount of *gotong royong* contribution was in line with the welfare improvement measured by Ln PCE (Table 2-6). Before the program, most contributions in both Ln PCE group (the lowest and the highest) were higher among the beneficiaries compared to non-beneficiaries. However, a different pattern was found after the program, because non-beneficiaries contributed more than program recipients. Households from the highest Ln PCE group reduced all types of contribution (only their time contribution was statistically significant), whereas the poorest group significantly reduced money contribution. The reduction in contribution among the beneficiaries compared to non-beneficiaries shows the reduction in social investment, meaning that beneficiaries have less dependency on the community.

2.5.3 CCT impact on Local Disharmony and Conflict

We did not find any indications of disharmony and conflict in the treatment community as a result of the CCT program implementation compared to the control community for the placement effect (Table 2-7). After breaking down the effect into the effect for beneficiaries and indirect effect in the treatment area compared to control households, we also found almost no effect on community disharmony except for the decrease in the sanction perception for failing *Gotong-royong* among non-beneficiaries. One possible explanation for not finding statistical significance between these relationships is how the welfare improvement effect of the poor compensates for the negative effect that may occur as a result of poor program targeting. This is because previous studies that observed the impact

of CCT on negative activities such as crime (Chioda et al., 2015), and insurgence activity (Crost et al., 2014) found that CCT reduced these kinds of activities. However, it was not the case in the CCT implementation in Indonesia as result of program mistargeting as we found in the simple exercise in the previous sub-section.

Extending our analysis on beneficiaries and indirect effects using only overlapping samples (Table A2-4), we obtained consistent results with overall sample estimation except for the manpower contribution. This type of contribution slightly but significantly increased after the program among non-beneficiaries in the treatment area was implemented compared to comparable households in the control area. The significant decrease in sanction and the increase of manpower contribution contradicted our prediction on the impact of the program on both the transfer of shifting collective act responsibility as well as the jealousy between beneficiaries and non-beneficiaries. However, these impacts were very limited to be used as evidence of a positive spillover effect of the program to community harmony.

2.5.4 CCT Impact on Local Disharmony and Conflict with Community Heterogeneity

According to Okten and Osili (2004), there are three channels that establish the negative relationship between ethnic diversity and household contribution to the community in Indonesia. They are the preference diversity, the transaction cost, and the inter-household ethnicity altruism[10]. Thus, if we associate this study with their study, our ELF index can

[10] Okten and Osili (2004) used three different indicators: 1) whether the household belong to a majority ethnic group, 2) the ethno-linguistic diversity index, and 3) the share of beneficiaries from ethnic groups to measure the diversity in preferences, the transaction cost, and the inter-household altruism.

represent the transaction cost of conducting *gotong royong*. The transaction cost occurs as a result of different norms and trust that is cultivated in each ethnic group in the community (Okten & Osili, 2004).

The estimation results on whether the CCT program has an impact on community disharmony in the presence of multi ethnicities are shown in Table 2-8. In totally homogenous communities, CCT has a positive impact on manpower contribution in all three effects that we observed. The highest increase in the time contribution effect as a result of the program in homogenous ethnicity communities is among the beneficiaries in treatment areas. Thus, on average, the program increase for time contribution from poor households to *gotong royong* activities was between 18 to 23 minutes per year in the treatment area compared to the control area with one ethnicity, with all else being equal. The program also had a positive effect on the probability of different types of conflicts occurring in treatment communities compared to controls with a single ethnicity. It reduced the probability of violent and communal conflicts by 4.1% and 2.7%, respectively.

The interaction between CCT and heterogeneity of ethnicity showed a significant negative relationship between all types of contribution on both program placement and effects on beneficiaries. These results suggest that as the probability of community increases from a single ethnicity to many ethnicities, the implementation of the program reduces households' contribution on time, money, and other types of contribution in eligible households and program beneficiaries in the treatment area compared to the control area. However, only money contribution significantly decreased among the non-beneficiaries in the treatment area compared to control households in the control area. The

general results of the program impact and contribution due to ethnicity were consistent with the finding of Okten and Osili (2004) on a negative contribution pattern and the ethnicity relationship in Indonesia.

Specifically, this interaction in terms of interpretation can be explained in detail by exercising two particular points of the ELF index. From equation (5) in the estimation strategy, the program impact on the difference in the contribution to *gotong royong* from two points of the ELF index can be expressed as:

$$d\,Y_h = d(\vartheta_2 * ELF_v) = \vartheta_2 * (ELF_2 - ELF_1) \quad (8)$$

For example we choose two points on the average of the ELF index in the treatment area and one standard deviation above that point, the calculation of different types of contribution change based on equation (5) are explained in Table 2-9. Moving from a relatively homogeneous community (0.109) to a relatively heterogeneous community (0.287), all eligible households in the treatment area reduce their contribution on manpower, money, and other kinds to *gotong royong* as much as 15 minutes, Rp.4353, and Rp.1305, respectively, in terms of the program impact. This reduction in the *gotong royong* money contribution was equal to 0.73 % of the total amount of the lowest CCT transfers per year (Rp.600,000), whereas, using the same exercise on the other kinds of contributions decreased by only approximately 0.22% from the same amount of transfer. These reductions were even higher among CCT recipients in the treatment area compared to the control households when the community increases the ethnicity heterogeneity. The decrease in the amount of contribution by the beneficiaries was 19 minutes for manpower

contribution, 0.95 % for money contribution, and 0.27% for other types of contribution per year if they received the lowest CCT transfer rate.

The diversity of community ethnicity also decreased the perception of *musyawarah* in all eligible households on the sanction of failing *gotong royong*, and beneficiaries on the participation and sanction in the treatment area compared to the control area. Moving from a homogeneous community to a diversified community, the perception of *musyawarah* regarding sanction decreased by approximately 11 % for all eligible households, and 14% for the program participants. Thus, although the program impact through the diversity of ethnicity was mostly reducing the *musyawarah* perception and the contribution indicators of beneficiaries, their participation to *gotong royong* were slightly increased. In terms of conflict, after controlling for ethnic diversity, in a homogenous community, the program reduces the probability of both violent and communal conflicts in the treatment community. Thus, using the same exercise on different types of contribution, it can be seen that as the heterogeneity of ethnicity increases in the community, the probability of conflicts and the number of violence victims also increase (Table 2-9)

Based on the results, there are two important take-home messages. First, ethnicity is an important factor that explains the program impact on community disharmony and conflict. Second, in general, the implementation of programs in a multi ethnicity community has the potential to generate community disharmony and conflict. Thus, aside from the increase of the transaction costs due to multi ethnicities, the highest reduction of *gotong royong* contribution that happens among the program beneficiaries can be explained as "replacement benefit source" effect. According to Beard (2007), households only

contribute their resources to receive benefit from community development. Without CCT, the poor might depend on the benefit from the community to help them in difficult times. However, CCT might replace this dependency because they will receive benefit from another source. Finally, we found limited evidence to support our speculation on the issue of jealousy since most of our interest indicators among non-beneficiaries in the treatment area compared to the control area were not statistically significant.

2.6 Robustness Check

We also conducted a non-parametric estimation to check the robustness of our estimation results on the community disharmony indicators. We used the strategies proposed by Heckman, et al. (1997), a difference-in-differences matching (DIDM) estimation. We used DIDM to estimate the average impact of the treatment for our interest indicators:

$$\hat{ATT}_{DID} = E[Y_{t1} - Y_{t0}|T = 1, Z] - E[Y_{t1} - Y_{t0}|T = 0, Z] \quad (9)$$

Where Y is the outcome, T is the treatment status, and Z is a set of observable conditioning variables. We denoted t_0 as our period before intervention, and t_1 as the post intervention period. The DIDM assumption based on Rosenboum and Rubin (1983) and explained by Behrman et al. (2010) becomes:

$$Y_{t1} - Y_{t0} \perp\!\!\!\perp T|Pr(T = 1|Z)$$

Or the weaker condition:

$$E[Y_{t1} - Y_{t0}|T = 1, Z] = E[Y_{t1} - Y_{t0}|T = 0, Z]$$

Along with the common support assumption that must be held:

$$0<Pr(T=1|Z)<1$$

Then, assuming these two assumptions hold, we use the propensity score matching (PSM) to estimate $\hat{ATT}_{DID}$.

We used the same propensity score that we used to trim our sample on the effect for beneficiaries and non-beneficiaries as explained in Section 2.4. We used the nearest neighborhood and the Kernel Density matching algorithm in our PSM estimation. Moreover, to estimate the effect of program placement, we used the initial or the random lottery allocation of treatment and control. We simply focused on the intention to treat (ITT), and ignored the allocation status change on 45 sub-districts for estimating this particular effect. In contrast, in estimating the effect on beneficiaries and non-beneficiaries, we only used the clean-cut sample between the initial and the changes of program allocation. To estimates this sample, we excluded 45 contaminated sub-districts.

The results both of the PSM method estimations in Table 2-10 show similar outcomes. These non-parametric estimation results, especially the one with Kernel Density type matching, were relatively robust for the placement and non-beneficiaries effect with our previous estimation in Table 2-7. However, the effect on beneficiaries in the treatment area compared to the control, the results were relatively different compared to the previous estimation results (Table 2-7). Using the nearest neighborhood estimation, the contribution of manpower and consensus on contribution were statistically significant. Using the Kernel Density type of matching, contribution on manpower and sanction were statistically significant. Although we found more significant variables using PSM estimation compared to our panel fixed effect model, the general result was similar.

We also conducted a separate PSM estimation on two groups based on the heterogeneity of ethnicity to check the consistency our previous estimation in Table 2-9. These groups consist of communities with homogenous ethnicity (ELF is equal to zero) and communities with heterogeneous ethnicity (ELF is greater than zero). However, we find that most of the results from the PSM estimations on different ethnicity groups were not consistent (Table 2-11 and Table 2-12) with our previous estimation results in Table 2-9. These inconsistent results were mostly found in the heterogeneous area, which shows that our result on the program interaction with ethnicity was not robust to changes in this specification.

2.7 Conclusion

The effects of the administration of conditional cast transfers (CCT) in Indonesia have been mixed. On one hand, it provides positive impacts especially related to the improvement of human capital through better achievement in health and education indicators (Alatas, 2011; Triyana, 2013). On the other hand, the targeting and socialization of the program have been poorly executed (Center for Health Research, 2010; Kharisma, 2009). This issue raised a concern of potential social conflict and disharmony in the community. Using the data gathered from the program evaluation and village census, we examined the CCT impact on local disharmony and the probability of conflict in the community in Indonesia. Community disharmony was measured by local mutual assistance activity or *gotong royong*. We observed three aspects of *gotong royong*: the participation, contribution, and collective decision-making process or *musyawarah*. We also evaluated the general

indicators of social tension such as conflict in the community. Finally, we explored community ethnic diversity as a possible pathway that connects the CCT program with community disharmony and conflict.

We found almost no indication of disharmony in the treatment community as a result of program implementation. However, the implementation of the program in a multi ethnicity community generates potential for community disharmony and conflict. These findings were consistent with previous studies that investigated the relationship between social capital and ethnicities (Alesina & La Ferara, 2000; Okten & Osili, 2004; Miguel & Gugerty, 2005). The impact of the program in the community with heterogeneous ethnicities will reduce all types of *gotong royong* contribution, as well as increase the probability of violent conflicts and the number of victims due to the increase of transaction costs of multiple preferences among different ethnic groups in the community.

The highest reduction of *gotong royong* contribution was found among the program beneficiaries in the presence of ethnic heterogeneity. They reduced their contribution perhaps because they no longer expect to gain benefit from the community to help them in difficult times after receiving cash from the program. Therefore, they reduced their contribution in community activities. We found limited evidence to support our speculation on the issue of jealousy since most of our interest indicators among non-beneficiaries in the treatment area compared to the control area were not statistically significant even after controlling for the ethnicity effect. In general, our results suggest that the program does not affect community disharmony and conflict. However, it is also important to consider local

criteria indicators on program targeting as suggested by Kharisma (2009) to avoid potential conflicts in multi ethnicity communities.

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List of Tables and Figures

Table 2-1. List of Interest Variables

Variables	Explanation	Level
Mutual Assistance Participation	Dummy on whether household join the mutual assistance	household
Sanction	Dummy on whether there is a sanction for non-participation	household
Contribution		
Man hour	How much man hours household contributes in Labor exchange	Household
Money	How much money that households contributes in Labor exchange	Household
Other	Value of goods that are contributed by households in Labor mobilization	Household
Perception on Musyawarah		
Decision Participation	Dummy on whether mutual assistance was decided in any level of village meeting	household
Decision Contribution	Dummy on whether contribution level mutual assistance was decided in any level of village meeting	household
Decision Sanction	Dummy on whether the sanction decision was decided in any level of village meeting	household
Conflict		
Violent Conflict	Dummy on whether there is incidents of any kind conflict that generate injury or death	Village
Communal Conflict	Dummy on whether there are conflicts between group of people in community	Village
Violence Victim	number of person who got injure or dead as conflict victims	Village

Table 2-2. Estimation Strategies

Methodology		Treatment Community (T)	Control Community (C2)
		Beneficiaries (B)	
		Control 1 (C1)	
The Impact Among the Complier (D=1 if L=1 & K=1 of D=0 if L=0 & K=0)			
Placement Effect	(Y1 - Y0|D=1)	T if D=1 vs C2 if D=0	
Beneficiaries Effect	(Y1 - Y0|D=1, CCT=1)	B if D=1 vs C2 if D=0	
Indirect Effect	(Y1 - Y0|D=1, CCT=0)	C1if D=1 vs C2 if D=0	

Note: L is the lottery assignment and K is program implementation.

Table 2-3. Summary Statistics of Baseline Data

	Treatment (T)		Control (C2)		T-C2	
	Mean	**SD**	**Mean**	**SD**	**Coeff**	**SE**
Household level						
Gotong Royong Participation and Sanction						
Mutual assistance participation	0.775	0.417	0.792	0.406	0.0179	(0.016)
Sanction	0.240	0.427	0.293	0.455	0.0537**	(0.026)
Contribution Level						
Man power (hour)	3.501	3.350	3.157	3.103	-0.340**	(0.143)
Money	5711.453	48268.610	6971.645	65535.050	1263.4	(1715.097)
Other kinds	3743.664	28433.820	3160.284	25664.080	-578.8	(916.469)
Musyawarah						
Consensus on participation	0.250	0.433	0.217	0.412	-0.0332	(0.020)
Consensus on contribution	0.230	0.421	0.213	0.410	-0.0167	(0.019)
Consensus on sanction	0.110	0.313	0.120	0.325	0.0101	(0.017)
Observations	5169		7988			
Village Level						
Violent Conflict	0.035	0.185	0.040	0.195	0.004	(0.010)
No of conflict victims	0.072	0.592	0.048	0.531	-0.024	(0.026)
Communal conflict	0.027	0.162	0.030	0.171	0.003	(0.008)
ELF Ethnics	0.110	0.183	0.109	0.178	-0.000	(0.016)
Observations	1076		1635			

Note: Standard errors in parentheses are clustered at the sub-district level, * $p<0.10$** $p<0.05$*** $p<0.010$.

Table 2-4. Summary Statistics of Baseline Household Data

			Control				Difference			
	Beneficiaries (B)		C1		C2		B-C2		C1-C2	
	Mean	SD	Mean	SD	Mean	SD	Coeff	SE	Coeff	SE
Household level										
Gotong Royong Participation and Sanction										
Mutual Assistance Participation	0.806	0.395	0.780	0.414	0.776	0.417	0.0303*	(0.016)	0.00530	(0.017)
Sanction	0.309	0.462	0.278	0.448	0.238	0.426	0.0689**	(0.028)	0.0401	(0.027)
Contribution Level										
Man Power (hour)	3.263	3.107	3.064	3.102	3.508	3.350	-0.245	(0.151)	-0.434***	(0.144)
Money	7051.354	64998.230	7080.677	67746.640	5840.148	48978.820	1155.0	(1930.888)	1189.7	(1861.951)
Other Kinds	3257.308	27547.780	3033.080	23362.000	3627.643	27488.130	-449.6	(1006.697)	-665.4	(887.083)
Musyawarah										
Consensus on Participation	0.233	0.423	0.204	0.403	0.251	0.434	-0.0199	(0.022)	-0.0473**	(0.020)
Consensus on Contribution	0.233	0.422	0.197	0.398	0.232	0.422	-0.000529	(0.020)	-0.0335*	(0.019)
Consensus on Sanction	0.138	0.344	0.105	0.306	0.110	0.314	0.0260	(0.018)	-0.00503	(0.017)
Observations	3729		4016		5014					

Note: Standard errors in parentheses are clustered at the sub-district level, * p<0.10** p<0.05*** p<0.010.

Table 2.5. CCT Beneficiaries Allocation based on Ln PCE Distribution in the Treatment Community

The Quintile of Ln PCE Per Month (%)	The Proportion Number of (%)		Ln PCE per Month	
	Non-Beneficiaries	Beneficiaries	Mean	SD
1	40.17	59.83	70724.89	14822.66
2	46.57	53.43	99560.12	5792.80
3	47.16	52.84	117663.70	4684.97
4	50.62	49.38	133324.90	4563.08
5	53.54	46.46	149455.70	4817.80
6	52.15	47.85	167690.60	5635.58
7	52.22	47.78	188217.80	6516.42
8	59.07	40.93	215025.10	9133.74
9	55.6	44.4	255881.90	15782.43
10	63.73	36.27	384766.00	131207.20
Total	52.03	47.97		

Table 2-6. The Contribution Pattern based on the Distribution of Ln PCE

Ln PCE Quintile	Contribution Type	Non-Beneficiaries (C1)						Beneficiaries (B)					
		Baseline		Follow Up		Difference		Baseline		Follow Up		Difference	
		Mean	SD	Mean	SD	Coeff	SE	Mean	SD	Mean	SD	Coeff	SE
The lowest 10%	Time	2.844	2.960	3.044	3.576	0.201	0.248	3.128	3.183	3.265	2.975	0.118	0.190
	Money	3730.519	22472.900	2068.966	11290.130	-1668.896	1472.509	3817.895	29061.210	1170.313	8068.682	-2680.407*	1397.347
	Other Kind	2137.987	13412.930	3578.370	23080.490	1414.716	1534.388	1044.211	9397.243	2008.333	13110.260	1002.141	756.742
The highest 10%	Time	3.481	3.586	3.487	3.377	-0.017	0.220	3.649	3.763	3.123	3.308	-0.544**	0.262
	Money	13862.140	82770.400	12005.110	126742.900	-2954.832	6991.635	17824.370	119165.100	6362.319	50157.630	-11819.850	7974.803
	Other Kind	5876.543	32088.540	11548.060	101721.200	5821.429	4952.737	6078.853	43815.270	2916.667	21706.100	-3275.735	2792.487

Note: * p<0.10** p<0.05*** p<0.010.

Table 2-7. CCT Impact on Local Disharmony and Conflict

	Placement Effect		Beneficiaries Effect		Indirect Effect	
	Coeff	**SE**	**Coeff**	**SE**	**Coeff**	**SE**
Household Level						
Gotong Royong Participation and Sanction						
Mutual Assistance Participation	-0.019	(0.017)	-0.018	(0.017)	-0.012	(0.019)
Sanction	-0.018	(0.022)	-0.004	(0.023)	-0.038*	(0.022)
Contribution Level on Gotong Royong						
Man Power (Hour)	0.156	(0.169)	0.192	(0.161)	0.216	(0.175)
Money	-3424.777	(2778.401)	-3286.418	(2833.688)	-3464.418	(3049.516)
Other Kinds	-3293.801	(3785.051)	-3964.943	(3646.434)	1196.840	(1188.314)
Musyawarah on Gotong Royong						
Consensus on Participation	-0.016	(0.030)	-0.024	(0.029)	0.005	(0.028)
Consensus on Contribution	-0.023	(0.026)	-0.038	(0.026)	0.008	(0.025)
Consensus on Sanction	-0.006	(0.017)	-0.006	(0.018)	-0.006	(0.015)
Village Level						
Violent Conflict	-0.027	(0.018)				
No of Conflict Victims	0.026	(0.059)				
Communal Conflict	-0.022	(0.014)				

Note: Standard errors in parentheses are clustered at the sub-district level, * $p<0.10$** $p<0.05$*** $p<0.010$, all estimations use 2SLS. Estimations at the household level were controlled using the education level of the head of the household, head of household gender and village status (urban-rural), distance to district capital (km), village population (000), and % of farm households in the village. Estimations at the village level were controled using village status (urban-rural), distance to district capital (km), village population (000), and % of farm households in the village.

Table 2-8. CCT Impact on Local Disharmony and Conflict with Heterogeneous Ethnicities

	Placement Effect				Beneficiaries Effect				Indirect Effect			
	treatment		treatment*ELF		treatment		treatment*ELF		treatment		treatment*ELF	
	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE
Household Level												
Gotong Royong Participation and Sanction												
Mutual Assistance Participation	-0.022	(0.018)	0.037	(0.047)	-0.027	(0.018)	0.093*	(0.055)	-0.009	(0.021)	-0.018	(0.068)
Sanction	-0.006	(0.022)	-0.121**	(0.057)	0.003	(0.024)	-0.066	(0.076)	-0.019	(0.023)	-0.187**	(0.074)
Contribution Level on Gotong Royong												
Man Power (Hour)	0.297*	(0.166)	-1.361***	(0.469)	0.390**	(0.163)	-1.818***	(0.520)	0.312*	(0.175)	-0.885	(0.614)
Money	-713.160	(2656.746)	-24456.281***	(8660.722)	300.229	(2478.097)	-32106.526**	(13980.927)	-1408.806	(3201.461)	-16821.948**	(8059.744)
Other Kinds	-2572.642	(3723.514)	-7331.332*	(4377.340)	-2940.483	(3502.818)	-8960.564*	(4866.381)	1616.759	(1418.851)	-4959.520	(5298.326)
Musyawarah on Gotong Royong												
Consensus on Participation	-0.001	(0.030)	-0.135	(0.088)	-0.002	(0.031)	-0.196*	(0.107)	0.013	(0.029)	-0.074	(0.115)
Consensus on Contribution	-0.015	(0.027)	-0.076	(0.073)	-0.025	(0.028)	-0.117	(0.089)	0.011	(0.026)	-0.033	(0.092)
Consensus on Sanction	0.005	(0.017)	-0.109**	(0.047)	0.009	(0.019)	-0.137**	(0.067)	0.003	(0.016)	-0.081	(0.052)
Village Level												
Violent Conflict	-0.041**	(0.018)	0.151***	(0.049)								
No of Conflict Victims	-0.021	(0.054)	0.510**	(0.200)								
Communal Conflict	-0.027*	(0.014)	0.047	(0.029)								

Note: Standard errors in parentheses are clustered at the sub-district level, * $p<0.10$** $p<0.05$*** $p<0.010$, all estimation used 2SLS. Estimations at the household level were controlled using the household education level, head of household gender and village status (urban-rural), distance to district capital (km), village population (000), and % of farm households in the village. Estimations the at village level were controlled using village status (urban-rural), distance to district capital (km), village population (000), and % of farm households in the village.

Table 2-9. CCT Impact with Different Level ELF Index

	$d\,Y_h$	
Indicators	**Placement Effect**	**Beneficiaries Effect**
Man Power (Hour)	-0.242	-0.324
Money (Rupiah)	-4353.218	-5714.962
Other kinds (Rupiah)	-1304.977	-1594.980
Violent Conflict	0.027	
No of conflict victims	0.091	
Communal conflict	0.008	

Note: The difference of Y (dY_h) was calculated using two points of ELF indexes (0.109 and 0.287).

Table 2-10. Propensity Score Matching Estimation

	Placement Effect		Beneficiaries Effect		Indirect Effect	
	Coeff	**SE**	**Coeff**	**SE**	**Coeff**	**SE**
Nearest Neighborhood						
Household Level						
Gotong Royong Participation and Sanction						
Mutual assistance participation	-0.021*	0.013	0.004	0.017	-0.011	0.017
Sanction	-0.025**	0.013	-0.022	0.017	-0.055***	0.017
Contribution Level on Gotong Royong						
Man power (hour)	0.067	0.100	0.337***	0.136	0.215	0.136
Money	-433.939	1552.747	-1009.185	1969.207	-1099.871	2246.930
Other kinds	-3556.538	6803.430	-1125.304	1069.505	495.434	1450.614
Musyawarah on Gotong Royong						
Consensus on participation	-0.019	0.013	-0.019	0.018	-0.011	0.017
Consensus on contribution	-0.018	0.013	-0.039**	0.018	0.007	0.018
Consensus on sanction	-0.011	0.010	-0.008	0.013	-0.029***	0.012
Kernel Density						
Household Level						
Gotong Royong Participation and Sanction						
Mutual assistance participation	-0.015	0.009	-0.007	0.010	-0.013	0.013
Sanction	-0.016	0.010	-0.027***	0.011	-0.052***	0.013
Contribution Level on Gotong Royong						
Man power (hour)	0.101	0.076	0.221***	0.082	0.162	0.101
Money	-2629.468	1806.863	-3489.024	2156.731	-4228.206	2555.118
Other kinds	-2885.704	3321.611	545.455	774.109	1332.624	1095.850
Musyawarah on Gotong Royong						
Consensus on participation	-0.013	0.010	-0.005	0.011	0.001	0.013
Consensus on contribution	-0.016	0.010	-0.007	0.011	0.013	0.013
Consensus on sanction	-0.008	0.007	-0.010	0.008	-0.018**	0.009

Note: * p<0.10** p<0.05*** p<0.010

Table 2-11. PSM using the Nearest Neighborhood Method in Different Ethnicity Categories

	Placement Effect		Beneficiaries Effect		Indirect Effect	
	Coeff	**SE**	**Coeff**	**SE**	**Coeff**	**SE**
Homogenous Ethnicity (ELF=0)						
Household Level						
***Gotong Royong* Participation and Sanction**						
Mutual assistance participation	-0.040**	0.018	-0.045*	0.023	-0.027	0.023
Sanction	-0.047***	0.018	-0.037	0.024	-0.081***	0.023
Contribution Level on Gotong Royong						
Man power (hour)	0.094	0.139	0.324*	0.188	0.200	0.183
Money	1263.589	1772.211	2944.373	1898.470	-931.235	2617.243
Other kinds	-1437.817	1352.489	-1316.752	1006.884	-909.811	2098.514
Musyawarah* on *Gotong Royong						
Consensus on participation	-0.001	0.019	0.024	0.025	-0.005	0.024
Consensus on contribution	-0.005	0.019	0.026	0.026	-0.003	0.025
Consensus on sanction	-0.008	0.015	0.013	0.019	-0.037**	0.018
Heterogeneous ethnicity (ELF>0)						
Household Level						
***Gotong Royong* Participation and Sanction**						
Mutual assistance participation	0.003	0.018	0.059***	0.024	0.002	0.025
Sanction	-0.012	0.019	0.003	0.025	-0.052**	0.025
Contribution Level on *Gotong Royong*						
Man power (hour)	0.144	0.145	0.278	0.197	0.214	0.198
Money	633.700	2691.184	-666.092	3959.526	-481.545	3721.252
Other kinds	-5463.764	14047.406	-160.041	2185.875	1090.499	2159.023
Musyawarah* on *Gotong Royong						
Consensus on participation	-0.047***	0.019	-0.045*	0.026	-0.032	0.025
Consensus on contribution	-0.044***	0.018	-0.072***	0.025	-0.020	0.025
Consensus on sanction	-0.019	0.013	-0.011	0.018	-0.014	0.017

Note: * p<0.10** p<0.05*** p<0.010

Table 2-12. PSM using the Kernel Density Method in Different Ethnicity Categories

	Placement Effect		Beneficiaries Effect		Indirect Effect	
	Coeff	**SE**	**Coeff**	**SE**	**Coeff**	**SE**
Homogenous Ethnicity						
Household Level						
Gotong Royong Participation and Sanction						
Mutual assistance participation	-0.040***	0.013	-0.047***	0.017	-0.025	0.017
Sanction	-0.027**	0.014	-0.020	0.018	-0.058***	0.018
Contribution Level on Gotong Royong						
Man power (hour)	0.080	0.104	0.273**	0.135	0.157	0.134
Money	-2179.296	3006.311	-2271.784	3672.263	-3760.094	4091.431
Other kinds	-217.543	931.913	-453.398	850.748	647.162	1520.025
Musyawarah on Gotong Royong						
Consensus on participation	0.000	0.014	0.007	0.019	0.009	0.018
Consensus on contribution	-0.003	0.015	-0.006	0.019	0.022	0.018
Consensus on sanction	-0.003	0.011	0.013	0.015	-0.020	0.013
Heterogeneous ethnicity						
Household Level						
Gotong Royong Participation and Sanction						
Mutual assistance participation	0.010	0.013	0.045***	0.018	0.000	0.018
Sanction	-0.006	0.014	0.013	0.019	-0.043***	0.019
Contribution Level on Gotong Royong						
Man power (hour)	0.103	0.111	0.277*	0.149	0.166	0.153
Money	-3337.976	2117.529	-3504.468	3117.195	-4434.928	2868.885
Other kinds	-5622.475	6445.067	-162.773	1362.061	2207.399	1584.947
Musyawarah on Gotong Royong						
Consensus on participation	-0.031**	0.014	-0.032*	0.019	-0.009	0.019
Consensus on contribution	-0.033***	0.014	-0.052***	0.019	0.000	0.019
Consensus on sanction	-0.015	0.010	-0.020	0.014	-0.015	0.012

Note: * p<0.10** p<0.05*** p<0.010

Figure 2-1. Impact of CCT to Community Disharmony

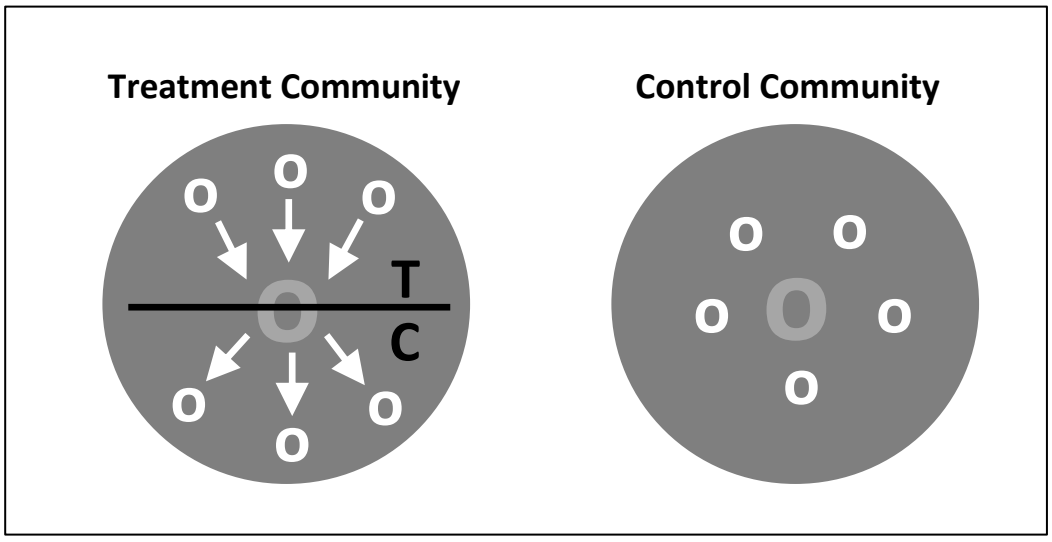
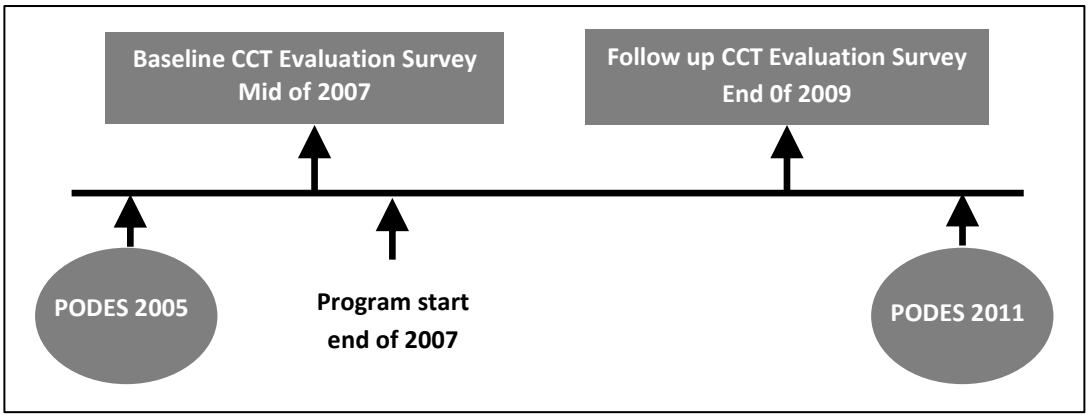


Figure 2-2. Data Timeline



Appendix

Table A2-1. Main Job Sector of the Head of Household in the Baseline Data

Job Sector	Percent
Rice and secondary crops raising	65.84
Plantation	0.48
Animal husbandry	1.96
Fishery	0.10
Industry	4.13
Trade	6.23
Transport	3.08
Services	0.03
Others	13.08
Unemployed	5.06
Total	100.00

Table A2-2. Regression for the Predicted Propensity Score in the Treatment Area

Indicators	CCT
Household Size	-0.038
	(0.027)
Education of Household head (completed primary school)	0.143
	(0.127)
Education of Household head (completed junior high school)	0.108
	(0.120)
Education of Household head (completed high school)	0.020
	(0.136)
Working status of household head	-0.044
	(0.104)
Women Household Head	0.310***
	(0.108)
Age of household head	-0.010***
	(0.003)
Number of small children (5 years and less)	0.079*
	(0.044)
Number of school age children (6 to 15 years)	0.107***
	(0.033)
Network to village head	0.094
	(0.072)
Network to village secretary	0.106
	(0.075)
Network to village consultative council	-0.151**
	(0.069)
Network to hamlet head	-0.099
	(0.076)
Network to household cluster head	0.031
	(0.077)
Asset ownership; Radio	0.110*
	(0.058)
Asset ownership: Television	-0.227***
	(0.062)
Asset ownership; Fridge	-0.440**
	(0.202)
Asset ownership: Motorcycle	-0.527***
	(0.083)

Note: Standard errors in parentheses, * $p<0.10$** $p<0.05$*** $p<0.010$; Estimation using the Logit model

Table A2-2. Regression for the Predicted Propensity Score in the Treatment Area (continued)

Indicators	CCT
Asset ownership: cell phone	-0.604
	(0.627)
Asset ownership: antenna	-0.411***
	(0.104)
Livestock ownership: Chicken	-0.392
	(0.313)
Livestock ownership: Goat	-0.218***
	(0.057)
Livestock ownership: Cow	0.193**
	(0.086)
Household Agriculture	-0.535***
	(0.102)
Safe access drink water	0.052
	(0.064)
Electricity	-0.253***
	(0.073)
Permanent house roof	-0.243**
	(0.102)
Permanent house wall	-0.996***
	(0.113)
Permanent house floor	-0.628***
	(0.106)
Permanent house type	0.245**
	(0.119)
latrine type	0.016
	(0.012)
Cooking fuel type	-0.055
	(0.073)
UCT status	0.652***
	(0.127)
Rice for poor status	0.094
	(0.114)
Ln Percapita expenditure	-0.278***
	(0.064)
_cons	4.434***
	(0.856)
N	6577

Note: Standard errors in parentheses, * $p<0.10$** $p<0.05$*** $p<0.010$; Estimation using the Logit model

Table A2-3. Test of Balancing Property for the Propensity Score

The balancing property is satisfied

This table shows the inferior bound, the number of treated, and the number of controls for each block

Inferior of block of pscore	CCT 0	1	Total
0	81	12	93
0.1	272	51	323
0.2	545	184	729
0.3	671	375	1,046
0.4	651	532	1,183
0.5	549	629	1,178
0.6	349	700	1,049
0.7	168	492	660
0.8	56	274	330
Total	3,342	3,249	6,591

Table A2-4. Effect on Beneficiaries and Non-Beneficiaries after Sample Trimming

	After trimming propensity score			
	Beneficiaries Effect		Indirect Effect	
	Coeff	**SE**	**Coeff**	**SE**
Household Level				
Gotong Royong Participation and Sanction				
Mutual assistance participation	-0.011	(0.016)	-0.006	(0.017)
Sanction	-0.008	(0.021)	-0.040**	(0.020)
Contribution Level on Gotong Royong				
Man power (hour)	0.215	(0.149)	0.277*	(0.157)
Money	-3349.312	(2632.651)	-3073.110	(2751.958)
Other kinds	-401.071	(918.410)	1498.356	(1054.637)
Musyawarah on Gotong Royong				
Consensus on participation	-0.017	(0.027)	0.009	(0.026)
Consensus on contribution	-0.031	(0.024)	0.014	(0.022)
Consensus on sanction	-0.006	(0.017)	-0.005	(0.014)

Note: Standard errors in parentheses are clustered at the sub-district level, * $p<0.10$** $p<0.05$*** $p<0.010$, all estimation used 2SLS. Estimations at the household level were controlled using the household education level, head of household gender and village status (urban-rural), distance to district capital (km), village population (000), and % of farm households in the village.

Table A2-5. Effect on Beneficiaries and Non-Beneficiaries after Sample Trimming with Heterogeneous Ethnicity

	After trimming propensity score							
	Beneficiaries Effect				Indirect Effect			
	Treatment		**treatment*ELF ethnics**		**Treatment**		**treatment*ELF ethnics**	
	Coeff	**SE**	**Coeff**	**SE**	**Coeff**	**SE**	**Coeff**	**SE**
Household Level								
Gotong Royong Participation and Sanction								
Mutual assistance participation	-0.021	(0.017)	0.098*	(0.055)	-0.003	(0.019)	-0.017	(0.068)
Sanction	-0.001	(0.022)	-0.063	(0.076)	-0.018	(0.021)	-0.194**	(0.076)
Contribution Level on Gotong Royong								
Man power (hour)	0.415***	(0.154)	-1.744***	(0.522)	0.377**	(0.160)	-0.889	(0.620)
Money	473.290	(2359.606)	-32761.338**	(14201.476)	-1087.835	(2929.389)	-15920.944**	(8109.826)
Other kinds	566.978	(748.892)	-8122.775*	(4784.649)	1907.393	(1312.673)	-4527.256	(5325.955)
Musyawarah on Gotong Royong								
Consensus on participation	0.008	(0.030)	-0.208**	(0.104)	0.018	(0.027)	-0.082	(0.115)
Consensus on contribution	-0.016	(0.027)	-0.127	(0.087)	0.018	(0.024)	-0.039	(0.091)
Consensus on sanction	0.010	(0.018)	-0.138**	(0.064)	0.004	(0.014)	-0.083	(0.052)

Note: Standard errors in parentheses are clustered at the sub-district level, * $p<0.10$** $p<0.05$*** $p<0.010$, all estimation used 2SLS. Estimations at the household level were controlled using the household education level, head of household gender and village status (urban-rural) distance to district capital (km), village population (000), and % of farm households in the village.

Table A2-6. First Stage Estimation

		Placement Effect			Beneficiaries Effect			Indirect Effect	
	Treatment	treatment	treatment*ELF	treatment	treatment	treatment*ELF	treatment	treatment	treatment*ELF
Instrument	0.762***	0.760***	-0.033***	0.871***	0.865***	-0.019***	0.836***	0.831***	-0.020***
	(0.033)	(0.033)	(0.007)	(0.023)	(0.025)	(0.004)	(0.027)	(0.028)	(0.005)
Instrument* ELF Ethnics		0.021	0.998***		0.047	0.998***		0.044	0.999***
		(0.018)	(0.001)		(0.035)	(0.001)		(0.034)	(0.002)
Dummy Year	0.230***	0.230***	0.034***	0.113***	0.113***	0.019***	0.147***	0.147***	0.020***
	(0.032)	(0.032)	(0.008)	(0.020)	(0.020)	(0.005)	(0.024)	(0.024)	(0.005)
Education of Household Head (Primary School)	0.017**	0.017**	0.004**	0.022***	0.021***	0.004*	0.008	0.008	0.002
	(0.007)	(0.007)	(0.002)	(0.008)	(0.008)	(0.002)	(0.007)	(0.007)	(0.002)
Education of Household Head (Junior High School)	0.015	0.015	0.004	0.023*	0.023*	0.006*	0.005	0.005	0.001
	(0.012)	(0.012)	(0.003)	(0.013)	(0.013)	(0.003)	(0.012)	(0.012)	(0.003)
Education of Household Head (High School)	-0.004	-0.004	-0.001	-0.001	-0.001	-0.002	-0.005	-0.005	-0.001
	(0.016)	(0.016)	(0.004)	(0.018)	(0.018)	(0.005)	(0.020)	(0.020)	(0.004)
Education of HouseholdHhead (College)	0.093	0.093	0.048*	0.096*	0.096*	0.017	0.073	0.074	0.056
	(0.062)	(0.062)	(0.026)	(0.053)	(0.053)	(0.016)	(0.085)	(0.085)	(0.037)
Gender of Household Head	-0.011	-0.011	-0.011***	-0.011	-0.010	-0.006***	-0.010	-0.010	-0.011**
	(0.014)	(0.014)	(0.004)	(0.011)	(0.010)	(0.002)	(0.018)	(0.018)	(0.004)
Urban	-0.010	-0.011	-0.007	0.002	0.002	-0.000	-0.001	-0.001	-0.011
	(0.050)	(0.050)	(0.013)	(0.062)	(0.062)	(0.010)	(0.049)	(0.048)	(0.013)
Distance to district (Km)	0.000	0.000	-0.000	-0.000	-0.000	0.000	0.001	0.001	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)
Community population (‘000)	-0.001***	-0.001***	-0.000**	-0.000**	-0.000**	-0.000*	-0.000**	-0.000**	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Farm Household	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
N	24686	24666	24666	16900	16892	16892	17432	17420	17420
F test of excluded instruments	543.679	285.509	325087.970	1405.416	984.029	576142.740	979.776	617.701	219188.220

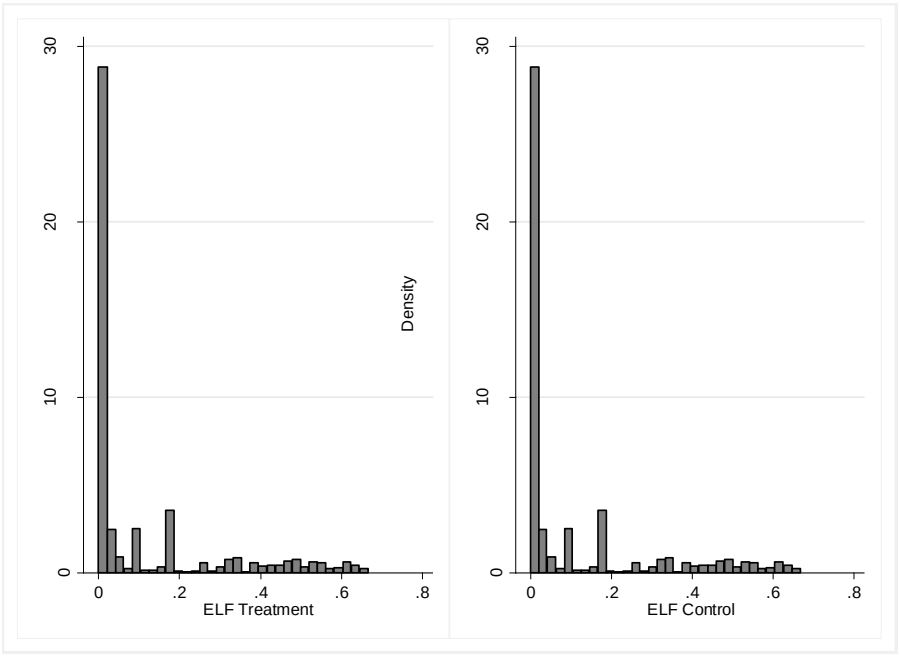
Note: Standard errors in parentheses are clustered at the sub-district level, * $p<0.10$** $p<0.05$*** $p<0.010$

Table A2-7. CCT Impact on Local Disharmony and Conflict (Full Estimation Result)

	Mutual assistance participation	Sanction	Man power (hour)	Money	Other kinds	Consensus on participation	Consensus on contribution	Consensus on sanction
Treatment	-0.019	-0.018	0.156	-3424.777	-3293.801	-0.016	-0.023	-0.006
	(0.017)	(0.022)	(0.169)	(2778.401)	(3785.051)	(0.030)	(0.026)	(0.017)
Dummy year	0.000	0.042***	-0.004	-560.144	3965.503	-0.023	0.000	0.004
	(0.012)	(0.016)	(0.125)	(2286.745)	(4039.387)	(0.022)	(0.019)	(0.013)
Education Level of Head of Household								
Primary School	-0.010	0.006	-0.010	-216.701	-298.824	0.006	-0.003	-0.001
	(0.010)	(0.010)	(0.073)	(1472.881)	(499.085)	(0.011)	(0.011)	(0.007)
Junior High School	-0.021	0.018	-0.013	-5780.746	1353.732	0.000	0.012	0.022
	(0.018)	(0.018)	(0.149)	(7551.910)	(2012.470)	(0.018)	(0.018)	(0.014)
Senior High School	-0.030	-0.050*	-0.091	3311.953	2049.875	-0.035	-0.022	-0.008
	(0.025)	(0.028)	(0.210)	(7866.472)	(2151.111)	(0.026)	(0.029)	(0.019)
College	0.026	0.019	-0.171	17370.933	6402.018	-0.001	0.022	-0.002
	(0.087)	(0.101)	(0.583)	(26696.423)	(5466.381)	(0.086)	(0.090)	(0.061)
Gender of Head of Household	-0.194***	-0.087***	-0.955***	2083.873	-532.903	-0.038*	-0.046*	-0.025
	(0.025)	(0.023)	(0.157)	(1862.755)	(1190.572)	(0.022)	(0.024)	(0.016)
Urban Dummy	0.062**	-0.045	0.439*	17085.783	628.497	-0.014	-0.000	-0.030**
	(0.026)	(0.029)	(0.236)	(16032.908)	(1416.640)	(0.032)	(0.036)	(0.015)
Distance to District Capital	0.000	0.000	0.002	-89.233	5.269	0.000	0.001*	-0.001
	(0.000)	(0.000)	(0.004)	(66.628)	(25.104)	(0.000)	(0.000)	(0.000)
Community Population	0.000**	0.001*	0.000	-389.826***	-25.100**	0.001***	0.000	0.001***
	(0.000)	(0.000)	(0.001)	(20.644)	(10.166)	(0.000)	(0.000)	(0.000)
% Farm HH in Community	0.000	0.001**	0.002	-61.306	122.654	0.000	0.000	0.001**
	(0.000)	(0.000)	(0.002)	(54.313)	(129.372)	(0.000)	(0.000)	(0.000)
N	24686	24586	24638	24638	24638	24686	24686	24686

Note: Standard errors in parentheses are clustered at the sub-district level, * p<0.10** p<0.05*** p<0.010

Figure A2-1. ELF Distribution



Treatment		Control	
Skewness	1.630568	Skewness	1.662345
Kurtosis	4.378966	Kurtosis	4.448451

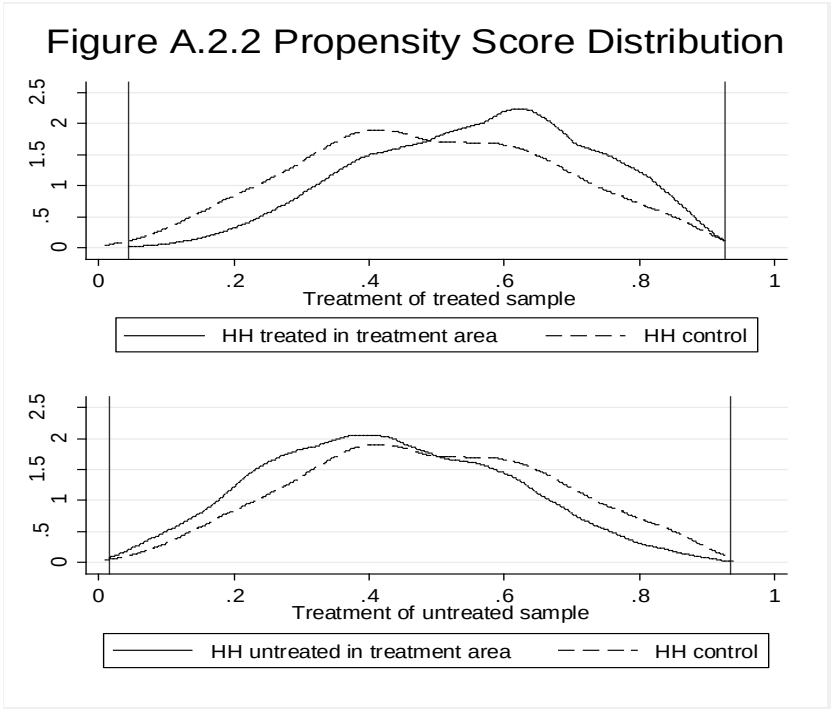
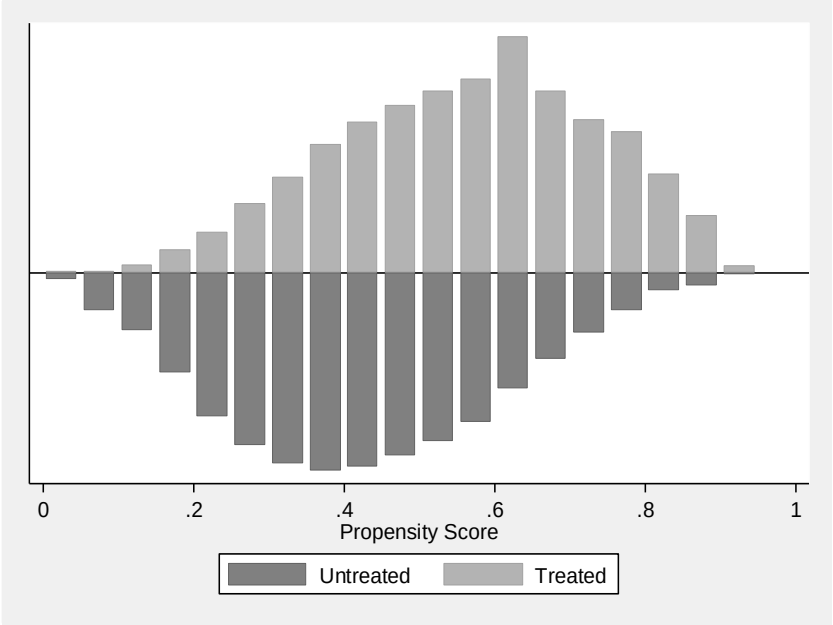


Figure A2-3. Distribution of Propensity Scores across Treatment and Comparison



CHAPTER 3 CLOSENESS TO LOCAL POWER, LESSON FROM COMMUNITY INTERVENTION IN INDONESIA

3.1 Introduction

In the absence of well-established social protection program, local leaders can be viewed as an alternative for both monetary and non-monetary resources for the poor. Due to leader significance for the poor, the pro-poor policy intervention is needed not only to improve the welfare of the poor, but also to help them interact better with their leaders. Then, if the poor think of leaders as elites in the community, a study by Fritzen (2007) found that a community driven development (CDD) program provides an opportunity for the elite and non-elite members of a community to blend. However, he highlights that the process requires accountability on the arrangement of the programs' initial stage. That is, it requires a project leader to be selected through a democratic process.

However, the impact of leaders' or elites' involvement in the policy intervention is debatable. On one side, it raises a concern on policy inefficiency due to potential power abuse behavior where elites extract the program benefit for themselves and people around them. For example, a study in India shows that having a connection to a local political executive raises the probability for households to receive access to major poverty alleviation entitlements (Panda, 2015). To address this potential negative problem of elite captures, many subsequent policy interventions in Indonesia were then designed to limit or even eliminate the existence role of local leader (Alatas et al., 2013).

However, the elites' involvements are not always associated with negative policy outcomes. Even in a relatively corrupt country like Indonesia, the evidence of elite capture problems in poverty alleviation programs was limited (Yamauchi, 2010; Alatas et al., 2012; Alatas et al., 2013). The presence of these problems only generated relatively small welfare loss (Alatas et al., 2013). Moreover, their role in improving program effectiveness is also needed for several reasons. First, no one has better knowledge and information on local conditions than a community's own elites or leaders (Alderman, 2002). Second, in terms of cost effectiveness, it will be cheaper to collect information from these leaders compared to conducting massive data collection on poor households. Third, some skills that are needed in supporting technical aspects of community driven development program may only be owned by the elites (Khwaja, 2009).

Thus, rather than discussing the elite capture in CDD, we want to take another route to explain the connection between local leader as one of the elites with the non-elites or the community members as part of community intervention. We are particularly interested in how this community intervention improves the relationship quality of the leader with the rest of community members. This issue is important for several reasons. First, the interaction with leaders can improve the impact of the program. Macours and Vakis (2014) found that social interaction between beneficiaries and their leaders during the cash transfer program implementation improved the program impacts on education, nutrition and productive investment, and attitudes towards the future in Nicaragua. Second, if it is true that power leads to corrupt actions, then reducing the gap between leaders and villagers could be a kind of informal monitoring system that reduced leaders' preference for serving

a particular group only and thus reduces their tendency to act corruptly. Third, closeness is associated with trust, cooperation and social network, which are typically referred to as social capital. Woolcook (2001) calls this kind of social capital as linking type. According to him, linking social capital captures vertical connections between different hierarchical positions. Thus, linking ties allow people to access both information and resources beyond their typical social network (Field, 2003). Connecting this concept to the villager-leader context, villagers can gain access to more information and resources as they improve their network relation to their leader.

Using evaluation data on the new type of CDD that combines block grants and performance incentives, we want to investigate whether the introduction of performance bonuses will increase the closeness between households and different level of local leaders or their spouses in the community. We assume that having closer relationships with the leaders' spouses is as important as having relationships with the leaders themselves because being close to a leader's spouse can also enable a household receive benefits from their leader. For example if a household knows village head's wife closely it might be easier for them to get information about social assistance programs that are available in the village. Then, narrowing analysis only to the poorest households (the lowest expenditure decile in our sample), we want to know whether the program actually benefited the poorest ones in the community in improving their linking social capital. We also explore heterogeneity of ethnicity as a possible source of interaction costs to explain how the program affects the closeness between community leaders and the households. Finally, to check different

mechanisms that can generate households' and local leaders' interaction, we estimate the program impact on the different types of participation in which each of them is involved.

What we find is that the implementation of program with or without incentive does not give any impact on the local leader-household relationship in treatment areas relative to their controls for both overall sample and the poorest households considered in isolation. Moreover, in the presence of ethnic diversity, the non-incentive type intervention is only positively associated with the household and village consultative council member relationship for overall and the poorest sample. On the other hand, most of household-leaders relationship are significantly improved by the implementation of incentive type programs, particularly among the poor. These findings show that additional bonus performance is improving linking type of social capital better than intervention based on community grants alone in multi-ethnic villages.

In assessing the mechanism of interaction between household and leaders through health and education discussion participation, we find that the program increased the leaders' participation in community activity but not the household. The incentive type of program only affected the poor household in terms of time contributed to mutual assistance activity. Moreover, unlike some closeness between households and leaders that improves by program in heterogeneous ethnicity communities, both officials and poor household participation are relatively not affected in such an environment. We speculate the mechanism that explains household-leaders closeness in multi-ethnic communities is through the interaction on program related activities which cannot be observed in the existing data.

We contribute to the literature by measuring the impact of community intervention on the indicator of rarely observed social capital type, the linking social capital. Moreover, as a relatively new type of community intervention which combines CDD and conditional cash transfer (CCT) intervention, the studies on program relevance are still limited. Therefore, this study can provide additional program impact understanding. This study will be organized as follows. Section 2 and 3 describes the program and the study framework. This is followed by section 4 that explains the data source. Section 5 and 6 discuss the estimation strategies, summary statistics for variables of interest and discussion of the estimation results. The last section summarizes and discusses the implication of the results.

3.2. The Program

The Community CCT program implemented by the Government of Indonesia (GoI) was called the National Community Empowerment Program—Healthy and Smart Generation (*Nasional Pemberdayaan Masyarakat—Generasi Sehat dan Cerdas* or *PNPM Generasi*) program. There are two program objectives that are stated in the program technical guideline: to improve the health status of mothers and children under five years old and to ensure that school age children are able to finish their basic education level, primary and junior high school (Government of Indonesia, 2008). To achieve these program objectives, a community receives a block grant to address 1 out of 12 health and education indicators[1] that they feel are inadequate in their community (Olken et al., 2014).

[1] The list of indicators is listed in the appendix. For details on program intervention and how the performance bonus is set up see Olken et al. (2014).

There are two types of intervention that vary at sub-district level: with and without the incentives component (Olken et al., 2014). The difference between these two interventions was solely based on the amount of fund that villages would receive on the second year of its disbursement. For villages under the non-incentive type intervention, the amount of funding was fixed for two years, whereas for incentive type villages the amount on second year was dependent on their performance. These villages under the incentive regime received only 80% of the grant and the remaining 20% of it was set as the sub-district common bonuses pool that was distributed based on villages' performance to the minimum requirement of 12 indicators. Under this type of treatment, villages competed at the sub-district level to receive grants from the bonus pool. This mechanism is what distinguishes this program from the usual types of CDD. Moreover, since the way the incentive system works is similar to the conditionality that is used in CCT, this program can be categorized as community conditional cash transfer.

According to Olken et al. (2014), there are two general rules of grant disbursement. First, at the sub-district level, it is allocated based on the population of the sub-district and province. Second, in each of the sub-district levels, the grants were allocated to villages according to the number of target beneficiaries such as number of children at school age, children under five years old and pregnant women. On average, the village received US$8,500 and US$13,500 in the first year and the second year of the program, respectively (Olken et al., 2014).

Sparrow et al. (2008) explained the process on how the allocation of funds was decided. First, there was intensive social mapping, focus group discussions, and a series of

discussions at hamlet to sub-district level for problem identification between villagers and officials with the help of trained facilitators. Second, there was a selection of 11 village management team members that finalized the budget allocation by villagers with the help of facilitators. Thus, according to them, there are four stages in the implementation of the program which started with the socialization, then followed by planning and implementation at the village level, then ended with performance measurement. To complete all the stages requires 12-14 months with 9 months of program implementation (Sparrow et al., 2008).

For the reasons of experience and infrastructure readiness, the program gave priority to the districts that were already in the previous village planning program, *Kecamatan Development Program* (KDP) (Sparrow et al., 2008). Moreover, according to them, the program only allowed the sub-districts to be a part of it if they contained at least 30% villages that were categorized as "rural". Based on these criteria, the first year of the program was implemented in over 129 sub-districts in 5 provinces.

3.3 Framework and Pathway

Village is the lowest level of administrative government in Indonesia. There are two types of village in Indonesia depending on their location. In rural areas, a village is called a *desa* and is headed by a head who is directly elected by the citizens. In urban areas, a village is called a ward or *kelurahan*, and it is headed by a civil servant who is appointed by district's government. In conducting the administrative and leadership role, a village head is assisted by the village secretary and some staff. The village head, village secretary and staff are

commonly referred to as village officials (Sutiyo & Maharjan, 2013). According to Marx and Ghosh (2014), the village officials, and especially the village head, have a very important role for both formal and informal matters. According to them, the village head has formal responsibilities that include developing local legislation, generating sources of revenue, preparing the village budget, and coordinating with higher levels of government on transfer and development plans. In addition to this, the officials also have informal responsibility, mostly related to disputes that happened in the community.

Inside the village, there are also several other government structures. The first one is the village consultative council or *Badan Perwakilan Desa* (BPD). BPD is an institution that was established as the result of decentralization in Indonesia in 2001. A BPD usually consists of 5 to 11 individuals to be elected every six years by the community to help them channel their aspirations as well as to monitor the village officials (Sutiyo & Maharjan, 2013). The other village institutional structure is relatively informal in terms of responsibility and election mechanism. This less informal structure can be different in each province and it could be formed of one or two structural units. However, the most common form consists of two structures, the hamlet or *Rukun Warga* (RW) or *Dusun* and household cluster or *Rukun Tetangga* (RT). A typical household cluster has around 50 households, while a typical hamlet has two to five nearest household clusters (Sutiyo and Maharjan, 2013). These village structures play an important role in supporting and linking the villagers and village officials.

In terms of the Community CCT implementation, there are two roles of village officials and BPD that are mentioned in the program technical guidelines (Government of

Indonesia, 2008). First, they need to sign the village consent letter on program participation. Second, they were required to organize and facilitate the program related discussion at village level. However, there is no written requirement for them to monitor the implementation of the program. Thus, based on these roles and village structure, we want to investigate the program's impact on the quality of households' relationship with five different levels of village leaders (village head, village secretary, village consultative council member, hamlet head and household cluster head)[2]. In establishing program impact, we expect the program will reduce the gap between the local leader and community members due to an increase of interaction between the two through all program implementation processes, such as the community meetings on grant allocation selection or the selection of village management team members. We also expect that the impact is stronger on the programs with incentive schemes. This is because people in community, including the local leaders, may have greater incentive to work together to achieve the target and receive bonus funds. As an implication of this, more interaction is expected in incentive type intervention than in the non-incentive type. If we view local leaders as the resource, the connection to these leaders is needed mostly by the most marginalized groups in society. Therefore, to ensure the program benefit those that most needed it, we also extend our analysis on the poorest households in the community.

To analyze the underlying mechanism on how the connection between household and the leaders is made, we use two approaches. First, we look at the possibilities of

[2] We do not take account what kind of relationship that household and leaders might have, e.g. family or friend.

interaction cost between household and leaders that affected their relationship and whether the program gives more benefit than cost for them to interact with each other and improve their closeness. For the purposes of this study, we observe ethnic diversity in the village as a representative of interaction cost between households and their leader. According to Collier (2002), heterogeneity of ethnicity is one of the costs of social interaction. This is because ethnicity represents norm and value that is typically used as reference for people to guide them on how to interact with each other. People also tend to prefer to interact with others who have similar socio-economic characteristics to them, including ethnicity (Alesina & La Ferrara, 2000). Thus, if community members and their local leader are from different ethnic groups, the possibility for them to trust each other will be lower, which may generate distance between them.

In the case of Indonesia in particular, ethnicity plays an important role in explaining people's interaction in the country because the nation consists of over 1000 ethnicities and it experiences some ethnic conflicts. In term of Generasi program sites, two out of five provinces are located in Java Island where the majority of the Indonesian populace lives. The ethnic diversity in Java is also more heterogeneous compared to provinces outside of Java, due to migration. However, since the program focuses more on rural areas, the issue of having too many ethnicities in one area is relatively less concerning.

The second approach to explain the closeness of households and leaders is by analyzing the potential way in which households meet and interact with their leaders after the implementation of the program. We will investigate this mechanism by observing the change of both community members' and leaders' participation in both general and

program related activities[3]. The household general participation consists of the total number of organizations in which they participate, mutual assistance participation and time they spent on mutual assistance participation in the last year before each round of surveys[4]. Then, for both household leaders and households, we observe their participation in health and education discussions that took place after the program. The hypothesis is that higher participation generated higher probability to meet and to interact, which led to closer relationships. The two potential mechanisms on how community members and local leaders built connectivity due to the program is explained by Figure 3-1.

3.4 Data

Our main data source is gathered from survey of health and education services that were conducted by World Bank[5]. This data was collected with specific purpose of program evaluation. The survey was conducted in five provinces that cover 264 eligible sub-districts. From each of the sub-districts, 8 villages were selected and from each of these, 5 households were randomly selected (Sparrow et al., 2008). A total of three rounds of data collection were conducted: the baseline survey in mid-2007 and two follow-up surveys at the end of 2008 and 2009. In each round, around 10,000 households were interviewed.

[3] Several indicators on household participation are overlapped with variable that used by Olken et al. (2011) to measure Generasi spillover impact, particularly on household mutual assistance time spent and participation on health and education meetings. We find the same result on health and education participation but not on household mutual assistance time spent. This difference might generate because of different choice of estimation method use.

[4] We define mutual assistance as community activities in repair or cleaning or building village infrastructure and facilities during the last 12 months.

[5] Data that used in this study is available at http://microdata.worldbank.org or http://economics.mit.edu/faculty/bolken/data

However, only 50% of randomly selected households in the village were re-interviewed in the follow up surveys and new households were introduced to make up for the other 50% (Olken, et al., 2014). These surveys consist of rich information on socio-economic and demographic characteristics at the individual, household, and community level. They also collect information on selected education and health service providers in the sample location.

The randomization is conducted at sub-districts which consist of three groups: treatment 1 is the sub-districts that received program with incentive bonus; treatment 2 is sub-districts that received program without incentive, and sub-districts control without any intervention. All villages in each of type intervention sub-district were receiving the same kind of intervention. The composition of each group at the sub-districts level is explained in Table 3-1. The implementation of the intervention was phased in two years; the first year of program covered more than 80% of all targeted sub-districts (Table 3-2). Due to some unexplainable reasons, the implementer switched the 7 sub-districts into other community intervention recipient (Regular PNPM) (Olken et al., 2014). Three out of these sub-districts were supposed to receive incentivized PNPM Generasi and the rest of them were supposed to receive the non-incentivized type of program.

At the household level, the data provides us with dummy indicators that measure the household-leader relationship closeness or whether household knows five different levels of village leaders or their spouse closely. The data also provides the details on the number of different of social group activities that household participated in. At the village

level, the data provides us with a measure of social interaction costs and the village head participation in health and education meetings.

We face some challenges on measuring the different mechanism by which the program affected the household-leader quality relationship. First, on the ethnicity measurement, the data only provides us with the proportion of its three biggest groups in the village. Therefore, we probably cannot capture the whole ethnic heterogeneity in the community. Second, we do not have data on the participation related program by both household and village leaders. Therefore, as a proxy for this participation, we use the general organization, community activity and health and education meeting participation[6]. The details of our variables and survey questions of our indicators of interest are provided in the appendix of this paper.

3.5 Estimation Strategy

As explained in the previous section, seven sub-districts in treatment area received different type of intervention. However, since the nature of the other type of intervention is also a community grant, we will simply ignore the change and focus our estimation on measuring intention to treat (ITT) effect. Moreover, the data does not allow us to analyze the impact using panel estimation at the household level because the sampling strategy of the data only involves following 50% of the same household sample in three rounds of surveys. Therefore, to examine the causal relationship between program impact and household-

[6] Both household and officials participation on health and education meeting questions are only available in the last survey round. Therefore for these indicators, we analyze use single year observation.

leaders quality relationship, we estimate our model using pooled panel fixed effect at the village level. Our estimation model is:

$$Y_{vt} = \beta_1 N_{st} + \beta_2 I_{st} + \gamma' X_{vt} + \eta_v + \varepsilon_{vst} \quad (1)$$

where *N* and *I* are dummy variables on the Community CCT program allocation status without incentive and with incentive, respectively. Then, Y is a set of our variables of interest that capture five different levels of local leaders and X is a set of control variables that includes survey round dummies, average household characteristics at village level, and village characteristics. The subscripts denote village (*v)*, sub-district (*s*) and survey time (*t*) with t equal to 0 for baseline and 1 and 2 for follow up surveys. The composite error consists of η_v and ε_{vst} which explain the unobservable variables in all periods but constant overtime and time-varying idiosyncratic error, respectively. Furthermore, to avoid incorrect inference due to probability of correlated errors among observations within the survey randomization level, we clustered our standard error at the sub-district level.

Then, expanding our analysis to investigate one possible pathway that might create interaction cost between leader and household, we include the ethno linguistic fractionalization index to measure the heterogeneity of ethnicity in the community (ELF)[7]. We calculated ELF based on Taylor and Hudson (1972) calculation. The ELF index formula is:

$$ELF = 1 - \sum_{i=1}^{n} s_{iv}^2 = \sum_{i=1}^{n} s_{iv} (1 - s_{iv}) \quad (2)$$

[7] We use this index as the proxy of chance that leaders and household are from different ethnicities because the data does not provide us with leader ethnicity.

Where s_{ij} shows the share of group *i* ethnicity (i = 1,2,3) in community *v*. This index can be interpreted as a measure of two individuals' probability to belong to different ethnic groups in the community, which in our case represents the probability of villagers and the leaders to belong to different ethnic group. Thus, our new panel fixed effect equation at village level becomes:

$$Y_{vt} = \beta_1 N_{st} + \beta_2 I_{st} + \gamma_3 N_{st} * ELF_v + \gamma_4 I_{st} * ELF_v + \gamma' X_{vt} + \eta_v + \varepsilon_{vst} \quad (3)$$

Lastly, to observe the program impact on the poorest households in the community, we estimate equation (1) and (3) on a sub-sample that consists of households in the bottom (10%) Ln per-capita expenditure (Ln PCE) distribution. To avoid the possible contamination in Ln PCE change due to program implementation, the sub-sample needed to be selected based on the baseline value. However, not all households in our data have baseline values. Therefore, to be able to distinguish the poor households using Ln PCE, we need to calculate predicted Ln PCE value that similar with its baseline value for new households in second and third round of survey.

We follow Suryadarma and Yamauchi (2013) on how we constructed our predicted value of Ln PCE in the two last subsequent rounds of the survey. The first step is by estimating Ln PCE using OLS with household characteristics that are less likely to be affected by program as well as districts' dummies on baseline value. Then, the second step is to use those coefficients that were produced in OLS estimation and to combine them with the data from second and third round to derive predicted Ln PCE for second and third round data. Finally, we selected the lowest 10% Ln PCE household based on the actual Ln PCE

value on the baseline value and the predicted value of it on the two subsequent rounds. We applied the predicted value of Ln PCE for both with and without baseline value samples in the last two rounds of data instead of applying it only for those who do not have the baseline to simplify the procedure. The detail of estimation and the predicted value distribution are in the appendix.

3.6 Results and Discussion

3.6.1 Baseline Statistics Descriptive

The explanation of the definition of each of the variables of interest is available in the Table A3-2 in the appendix. Table 3-3 and Table 3-4 provide the summary statistics of the variables of interest baseline values. On average, over 50 percent of households feel close to their local leaders. The closest connection is the connection to hamlet head among the household in the community that receive incentive type intervention. Moreover, in general, households feel closer to the two lowest administration heads compared to the three highest types of leaders. This is not only because the hamlet head and household cluster head are probably living closer to the household compared the other three leaders but also because their role as an extension between villagers and the other three village leaders. For example, if people want to renew their personal identification card, they will need a letter of recommendation from the head of household cluster before they go to their village office. Sometimes a household does not even need to go to the village office because the head of their household cluster will perform this administrative function for them. Among the closeness to five types of leaders, only the closeness to the head of household cluster are

significantly different between treatment and control in each type of intervention. Moreover, the data shows no differences the average ethnic fractionalization index between groups.

Three out of five "closeness to leader" indicators are significantly different among the poor in the community that receives incentive type intervention compared to their control[8]. In general, poor households in the communities with incentive type intervention are less close with their leaders compared to the communities that received only grant and communities control. Moreover, on average, the poor households have lower participation rates on both organization and mutual assistance than the overall sample of households. They also live in the more heterogeneous communities than the overall sample. Finally, the figure on the overall distribution of ELF index is included in the appendix.

3.6.2 Discussion

Table 3-5 details the estimation results of the Generasi program impact on the household-local leaders' closeness. In general, the program has no impact on the connectivity improvement between households with different type of leaders in the community for both types of intervention compared to their control community. As we regard this closeness as one type of social capital indicator, our finding is consistent with previous studies that also failed to establish a relationship between CDD interventions with various social capital

[8] These differences might probably by chance because the data were gathered from RCT study. However, we are also aware that these differences might cause the results of this study is not only reflecting program impact but also due baseline differences.

indicators (Wong, 2012; Avdeenko & Gilligan, 2014). Moreover, the same result is also found on the poorest household in the community sub-sample estimation.

Taking into account ethnic heterogeneity as a possible source of interaction costs in our model, we find that program improved the quality relationship between household and leaders especially on intervention with performance bonus (Table 3-6). In the overall sample, the incentive type intervention increases the probability of households to be closer with the village head, village secretary and household cluster head. In contrast, the non-incentive intervention is only positively associated with household-village consultative council member relationships.

Focusing on the poorest households, the relationship with all types of leaders is significantly improved when the program was implemented in ethnically heterogeneous communities that received incentive type intervention. One possible explanation of why ethnicity is affecting the poor more than the overall sample is because on the average the poor live in more heterogeneous communities (Table 3-4). Therefore, the cost for them to invest in social networking tends to be higher than the cost for households in other income groups. Thus, the implementation of the program that targeted the poor with ethnic heterogeneity is generated possibilities for them to interact more with their leaders. The highest improvement is found on the relationship between households and village heads. This is probably because the program requires village head involvement more than it requires the involvement of other types of leaders. As mentioned previously, based on the program technical module, the village head should sign the consent letter for village

participation and agree to facilitate discussion at the village level (Government of Indonesia, 2008).

In order to be able to interpret the program impact in the existence of interaction terms, we will account for these by taking average point of ELF index and observing impact change as ELF index increased by its standard deviation (Table 3-7). In particular, in this exercise we only focus on poor households in the community with incentive type intervention. From equation (2), programs with performance bonus impact to household-leader relationship can be expressed as:

$$dY_v = d(\gamma_4 ELF_v) = \vartheta_2 * (ELF_2 - ELF_1)$$

Then, moving from a relatively homogeneous community (0.236) to a relatively more heterogeneous community (0.489), the program with the incentive of performance bonuses will improve poor household probability to become close with their leaders by 6% to 13.5%. The highest closeness improvement is with the village head and the lowest improvement is with the household cluster head. Thus, the general improvement of closeness is better for the highest rank of officials (village head and village secretary) compared with the other three types of leader. This result is expected because the connection with hamlet and cluster head had probably already been established due to daily interaction concerning administration arrangement.

In general, our findings showed that the program in ethnically heterogeneous communities helps the poor to be connected with their local leader in two alternative ways. First, program might give more benefit than the cost needed to bear by poor households in order to interact with their leaders. Second, at the same time, the program might provide

incentive for the leaders to reach out to their villagers. Which mechanism has a stronger influence on the quality of their relationship will be discussed in the next section.

3.6.3 The Second Mechanism: the Leader and Household Participation

3.6.3.1 The Leaders' Participation

Measuring the participation of both households and leaders will explain how the relationship might be built among them, particularly in the presence of ethnic diversity in the community. It will also allow us to observe their behavioral change as a result of the program. In term of the leaders, the data only allows us to observe at the level of village officials and not all types of leaders. In the second round of surveys the village officials were asked whether any of them attended the meeting on the grant allocation decision at the hamlet level and the village level. These meetings were one of the events that provided opportunities for village leaders to interact and outreach to his or her constituents. Thus, based on Figure 3-2, the participation rate of official in attending these meeting in treatment village is high especially when it was conducted at village level.

Moreover, the data also allows us to measure program impact on officials' participation in general health and education (non-specific program related) meetings at three location that are hamlet level, village level and in either health or education facilities. The estimation results in Table 3-8 show that both types of intervention have significantly improved the participation of village officials on health and education meetings at the hamlet and village level. However, the program failed to improve the officials' meeting participation in health or education service provision. These results suggest that although

the program has improved the participation of the officials in the scope of their role, it has not expanded their participation beyond their power domain.

In presence of ethnic diversity, official participation is not affected by the program except for participation in health meetings at health facilities on the community that received only grants while impact of the program in homogenous ethnicity communities remain the same. There are two possible explanations for this finding. First, it might be because leaders' participation changed with no regard for the ethnic diversity of the community (Table A3-5). Second, ethnic diversity might not be a good pathway to explain the leaders' participation in health and education discussions. Therefore, leaders' meeting participation in this case is probably not the right measurement of leader participation to capture the mechanism in explaining how poor households improve their connection with leaders in ethnically-heterogeneous communities.

3.6.3.2 Household Participation

On household participation, we observe two types of participation, the general participation and the specific participation in health and education meetings. Most indicators that represent general participation show no significant program impact for both overall and poor households except for time spent on mutual assistance activity among poor households in communities with incentive type intervention (Table 3-9). The time spent on mutual assistance participation by poor households increases by around 54 minutes per year after the implementation this type of program in their community. Then, moving from a totally ethnically-homogenous community to a heterogeneous one, the program with a

performance bonus also improves a household's probability of participating in mutual assistance activity as well as increasing the amount of time they spend on it.

In term of health and education related participation, the program is not significantly improving household attendance for the overall household sample or the poorest households (Table 3-10 and Table 3-11). However, the non-incentive type or the block grant only intervention type does improve the level of involvement of poor households during these two types of meetings. It raises the probability of poor households sharing their opinion during health and education discussions by about 0.16 and 0.19 times, respectively.

There is no significant program impact on poor household participation in the presence of ethnic diversity except for mutual participation in total sample and time contribution in poor households. This result is generally in line with the leader participation results in the previous section. These do not allow us to explain how poor households improve their connection with leader in an ethnically-heterogeneous community. These results suggest that there are other types of meetings in which both poor households and village leaders participate and interact. Probably, these meetings are related to participation in the initial program establishment or during program monitoring by the officials or other informal meetings which cannot be captured in this study due to lack of data. The same limited evidence on social participation as CDD impact is also found by Avdeenko and Gilligan (2014) in Sudan. According to their speculation, the reason behind the failure of CDD to improve participation or other social capital indicators is that the typical program usually rather "telling than creating" social capital. The nature of existing CDD is putting

too much stress on classroom social capital importance but forgetting to generate an environment that makes citizens' interaction become enjoyable. This is probably something that also happened on the implementation of the Generasi program.

Another possible explanation of why there is no significant increase in most household participation indicators is due to time constraints that are faced by households. There are two possible explanations of the relationship between time allocation and social participation. First, as explained by Olken (2009), the social capital in Indonesia is decreased as the result of television broadcast expansion. Therefore, it could be possible that the program is not giving enough incentive for households to substitute their leisure time like watching television with participation in health and education discussions in their village or other general social activities. Second, households already used all the time they have on program related activity participation, e.g. participation in health and education counseling (Soares, et al., 2010). Therefore they do not have any more time to participate in other social activities.

3.7 Conclusion

In the spirit of improving the supply side of health and education constraint, Government of Indonesia launched Generasi program that combines CDD and CCT intervention. This hybrid program provides grants to communities with or without incentive of performance bonus if they reach the target level of selected indicators. Despite its success in achieving some targeted health and education indicators, the program had limited impact on community efforts (Olken et al. 2014). The lack of evidence on community effort raises a

question on how the program actually affected the behavior change among the stakeholders that were involved. Thus, using three rounds of data that were used to evaluate the program, we want to explore one of these changes. We are particularly interested in the community members' and their leaders' interaction quality as the result of the program. We also extended our analysis to examine the most marginalized members in the communities. We examine whether the poor actually received benefit from the program by improving their networking with their community leaders and elites. Then, to understand how the connection among them is built, we analyze two pathways, by acknowledging the possible interaction cost and assessing the participation of each party on possible way they can interact.

We find no direct impact of the program on household connectivity with five different types of leaders for any type of sample, the overall or the poorest one. This finding suggests that community intervention does not impact the linking type of social capital. This general result is consistent with many others studies that observe CDD intervention with various social capital indicators.

In the presence of ethnic diversity as the interaction cost, the program with performance bonus has significantly helped the poor to be connected with all types of leaders. This type of program provides incentive for the poor to overcome the interaction cost with their leaders. However, we could not establish whose behavioral changes led to the formation of closer relationships between poor households and leaders through their participation in multi-ethnic communities. This result suggests there are other mechanisms or activities that facilitate the household and leader interaction. We speculate that this

happened on program related activities or informal activities which cannot be observed using our data.

In general, our results show that the program with an incentive system has more impact than the grant only intervention on household-leader closeness in the presence ethnically-heterogeneous communities. However, each type of intervention has its own advantages in term of participation improvement. The incentive type intervention improved poor households' time contribution on mutual assistance, whereas the grant only intervention increased household involvement and village officials' participation in health and education meetings. Regardless of the type of intervention chosen, the implementers are still required to improve the program. They are not only have to reach the program objective but also must consider the social capital impact of the program.

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Table 3-1 Evaluation Design

Placement	Sub Districts
Treatment 1 (Incentivized)	93
Treatment 2 (Non-Incentivized)	88
Control	83
Total	264

Source: Olken et al. (2014)

Table 3-2 Program Phased in

Generasi Intervention	Treatment 1 (Incentivized)	Treatment 2 (Non-Incentivized)	Total
First Year Intervention (2007)	67	60	127
Second Year Intervention (2008)	23	24	47
Total	90	84	174

Source: Olken et al. (2014)

Table 3-3 Summary Statistics of Baseline Data

	Non-Incentive (1)		Incentive (2)		Control (3)		Different (1)-(3)		Different (2)-(3)	
	Mean	SD	Mean	SD	Mean	SD	Coeff	SE	Coeff	SE
Village Head	0.677	0.468	0.666	0.472	0.683	0.465	-0.008	(0.030)	-0.017	(0.031)
Village Secretary	0.615	0.487	0.595	0.491	0.628	0.483	-0.014	(0.031)	-0.030	(0.033)
Village consultative council member	0.531	0.499	0.531	0.499	0.548	0.498	-0.019	(0.030)	-0.014	(0.034)
Hamlet Head	0.878	0.327	0.885	0.320	0.865	0.342	0.010	(0.018)	0.019	(0.018)
Household Clusters Head	0.821	0.383	0.825	0.380	0.739	0.439	0.085*	(0.051)	0.090*	(0.052)
Total Organizations Participation	1.927	1.658	1.980	1.646	1.957	1.729	-0.034	(0.118)	0.033	(0.122)
Mutual Assistance Participation	0.857	0.350	0.843	0.364	0.840	0.366	0.018	(0.017)	0.002	(0.018)
Mutual Assistance Time Spent	3.725	3.082	3.824	3.360	3.690	3.298	0.035	(0.163)	0.128	(0.182)
ELF	0.126	0.206	0.138	0.208	0.138	0.207	-0.014	(0.027)	-0.001	(0.028)
Observations	3148		2964		2744					

Note: Standard errors in parentheses are clustered at sub-district level, * p<0.10** p<0.05*** p<0.010

Table 3-4 Summary Statistics of 10% Poorest Household Baseline Data

	Non-Incentive (1)		Incentive (2)		Control (3)		Different (1)-(3)		Different (2)-(3)	
	Mean	SD	Mean	SD	Mean	SD	Coeff	SE	Coeff	SE
Village Head	0.682	0.466	0.596	0.492	0.723	0.448	-0.047	(0.053)	-0.129**	(0.055)
Village Secretary	0.653	0.477	0.512	0.501	0.716	0.452	-0.063	(0.050)	-0.198***	(0.052)
Village consultative council member	0.544	0.499	0.432	0.496	0.584	0.494	-0.042	(0.056)	-0.143**	(0.060)
Hamlet Head	0.888	0.316	0.860	0.348	0.882	0.323	0.008	(0.036)	-0.017	(0.038)
Household Clusters Head	0.829	0.377	0.792	0.407	0.750	0.434	0.079	(0.071)	0.042	(0.071)
Total Organizations Participation	1.268	1.381	1.356	1.310	1.443	1.374	-0.164	(0.191)	-0.046	(0.177)
Mutual Assistance Participation	0.818	0.387	0.820	0.385	0.851	0.356	-0.031	(0.036)	-0.030	(0.037)
Mutual Assistance Time Spent	3.182	2.764	3.644	3.560	3.858	3.578	-0.663*	(0.353)	-0.199	(0.424)
ELF	0.271	0.273	0.236	0.253	0.229	0.249	0.036	(0.060)	0.003	(0.060)
Observations	340		250		296					

Note: Standard errors in parentheses are clustered at sub-district level, * p<0.10** p<0.05*** p<0.010

Table 3-5 Program Impact on Household- Local Leaders Quality Relationship

	Village Head		Village Secretary		Village consultative council Member		Hamlet Head		Household Cluster Head	
	Total sample	10% the poorest	Total sample	10% the poorest	Total sample	10% the poorest	Total sample	10% the poorest	Total sample	10% the poorest
Non-Incentive	-0.004	0.032	-0.013	0.122	-0.018	-0.029	-0.015	-0.012	-0.010	-0.001
	(0.021)	(0.065)	(0.021)	(0.077)	(0.021)	(0.064)	(0.016)	(0.048)	(0.011)	(0.049)
Incentive	-0.013	0.038	-0.012	0.031	0.003	0.075	-0.016	-0.001	-0.004	-0.036
	(0.022)	(0.079)	(0.022)	(0.082)	(0.021)	(0.071)	(0.017)	(0.047)	(0.012)	(0.042)

Note: Standard errors in parentheses are clustered at sub-district level, * p<0.10** p<0.05*** p<0.010, all estimation using pooled panel fixed effect at Village level. Estimation are control with household education level, age of household head, household size, household agriculture status and village status (urban-rural).

Table 3-6 Program Impact on Household- Local Leaders Quality Relationship with Heterogeneity Ethnicity

	Village Head		Village Secretary		Village consultative council Member		Hamlet Head		Househol Cluster Head	
	Total sample	10% the poorest	Total sample	10% the poorest	Total sample	10% the poorest	Total sample	10% the poorest	Total sample	10% the poorest
Non-Incentive	-0.011	0.059	-0.021	0.094	-0.033	-0.116*	-0.017	-0.000	-0.011	-0.039
	(0.024)	(0.077)	(0.024)	(0.082)	(0.024)	(0.068)	(0.018)	(0.062)	(0.013)	(0.071)
Incentive	-0.034	-0.174*	-0.032	-0.143	-0.008	-0.069	-0.024	-0.113*	-0.012	-0.128**
	(0.024)	(0.094)	(0.023)	(0.089)	(0.022)	(0.077)	(0.019)	(0.065)	(0.013)	(0.055)
Non-Incentive *Elf	0.046	-0.117	0.061	0.122	0.115**	0.336**	0.014	-0.036	0.008	0.132
	(0.058)	(0.183)	(0.064)	(0.163)	(0.050)	(0.146)	(0.049)	(0.138)	(0.034)	(0.166)
Incentive *Elf	0.163**	0.533***	0.160**	0.461**	0.090	0.380**	0.064	0.282**	0.066**	0.239***
	(0.075)	(0.205)	(0.073)	(0.197)	(0.075)	(0.160)	(0.053)	(0.114)	(0.032)	(0.088)

Note: Standard errors in parentheses are clustered at sub-district level, * p<0.10** p<0.05*** p<0.010, all estimation using pooled panel fixed effect at Village level. Estimation are control with household education level, age of household head, household size, household agriculture status and village status (urban-rural)..

Table 3-7 Program Impact on Different Level of ELF Index

Poor HH	Village Head	Village Secretary	Village consultative council Member	Hamlet Head	Household Cluster Head
ELF=0.236					
Incentive	-0.174	-0.143	-0.069	-0.113	-0.128
Incentive *ELF	0.126	0.109	0.09	0.067	0.056
Y_v	-0.048	-0.034	0.021	-0.046	-0.072
ELF=0.489					
Incentive	-0.174	-0.143	-0.069	-0.113	-0.128
Incentive *ELF	0.261	0.225	0.186	0.138	0.117
Y_v	0.087	0.082	0.117	0.025	-0.011
d Y_v	0.135	0.116	0.096	0.071	0.061

Table 3-8 Program Impact on Officials Participation on Health and Education Meeting[9]

	Health Meeting Participation						Education Meeting Participation					
	at Hamlet		at Village		at Health Facilities		at Hamlet		at Village		at Education Facilities	
Non-Incentive	0.091***	0.078**	0.131***	0.128***	0.009	-0.028	0.142***	0.142***	0.126***	0.111***	0.010	0.004
	(0.033)	(0.038)	(0.035)	(0.042)	(0.028)	(0.032)	(0.035)	(0.040)	(0.031)	(0.036)	(0.014)	(0.016)
Incentive	0.073**	0.068*	0.086**	0.083*	0.042	0.017	0.133***	0.146***	0.121***	0.109***	0.013	0.008
	(0.033)	(0.037)	(0.037)	(0.044)	(0.026)	(0.029)	(0.036)	(0.042)	(0.031)	(0.036)	(0.014)	(0.016)
Non-Incentive *Elf		0.087		0.019		0.267*		0.001		0.105		0.041
		(0.144)		(0.151)		(0.143)		(0.151)		(0.129)		(0.059)
Incentive *Elf		0.035		0.025		0.180		-0.098		0.091		0.040
		(0.136)		(0.150)		(0.145)		(0.149)		(0.125)		(0.066)

Note: Standard errors in parentheses are clustered at sub-district level, * p<0.10** p<0.05*** p<0.010, all estimation using pooled panel fixed effect at Village level. Estimation are control with number of hamlet, distance to sub-district, distance to district, distance to market and village status (urban-rural)..

Table 3-9 Program Impact on Household General Participation

	Total Organizations Participation				Mutual Assistance Participation				Mutual Assistance Time Spent			
	Total sample		10% the poorest		Total sample		10% the poorest		Total sample		10% the poorest	
Non-Incentive	0.028	0.092	-0.054	0.171	-0.003	0.004	-0.049	-0.029	-0.015	0.057	-0.334	0.001
	(0.084)	(0.089)	(0.232)	(0.283)	(0.013)	(0.015)	(0.054)	(0.105)	(0.142)	(0.138)	(0.537)	(0.761)
Incentive	0.094	0.043	0.204	0.229	-0.006	-0.018	-0.018	-0.042	0.056	-0.117	0.891**	0.321
	(0.086)	(0.090)	(0.227)	(0.322)	(0.014)	(0.015)	(0.046)	(0.060)	(0.136)	(0.152)	(0.382)	(0.626)
Non-Incentive *Elf		-0.464		-0.533		-0.061		-0.075		-0.649		-1.091
		(0.338)		(0.683)		(0.042)		(0.197)		(0.737)		(1.523)
Incentive *Elf		0.349		-0.049		0.085*		0.063		1.307***		1.439
		(0.327)		(0.622)		(0.047)		(0.145)		(0.407)		(0.983)

Note: Standard errors in parentheses are clustered at sub-district level, * p<0.10** p<0.05*** p<0.010, all estimation using pooled panel fixed effect at Village level. Estimation are control with household education level, age of household head, household size, household agriculture status and village status (urban-rural)..

[9] Due to unavailability of baseline and second round data on the official participation, we only estimate this using data from third round of survey

Table 3-10 Program Impact on Household Participation on Health Meeting[10]

	No of Attendance				No of Speaking			
	Total sample		10% the poorest		Total sample		10% the poorest	
Non-Incentive	0.199	0.781	0.236	0.781	0.153*	0.421*	0.045	0.421*
	(0.181)	(0.608)	(0.534)	(0.608)	(0.091)	(0.248)	(0.253)	(0.248)
Incentive	0.032	0.330	-0.093	0.330	0.041	0.264	0.037	0.264
	(0.175)	(0.431)	(0.436)	(0.431)	(0.082)	(0.246)	(0.218)	(0.246)
Non-Incentive *Elf		-1.702		-1.702		-1.176		-1.176
		(1.681)		(1.681)		(0.719)		(0.719)
Incentive *Elf		-1.285		-1.285		-0.693		-0.693
		(1.453)		(1.453)		(0.711)		(0.711)

Note: Standard errors in parentheses are clustered at sub-district level, * p<0.10** p<0.05*** p<0.010, all estimation using pooled panel fixed effect at Village level. Estimation are control with household education level, age of household head, household size, household agriculture status and village status (urban-rural)..

Table 3-11 Program Impact on Household Participation on Education Meeting

	Education Meeting Participation							
	No of Attendance				No of Speaking			
	Total sample		10% the poorest		Total sample		10% the poorest	
Non-Incentive	0.179	0.402	0.099	0.402	0.183*	0.351	0.088	0.351
	(0.147)	(0.451)	(0.359)	(0.451)	(0.102)	(0.294)	(0.260)	(0.294)
Incentive	0.064	0.083	-0.289	0.083	0.003	0.246	0.015	0.246
	(0.143)	(0.461)	(0.319)	(0.461)	(0.092)	(0.350)	(0.246)	(0.350)
Non-Incentive *Elf		-0.941		-0.941		-0.820		-0.820
		(1.123)		(1.123)		(0.730)		(0.730)
Incentive *Elf		-1.116		-1.116		-0.700		-0.700
		(1.126)		(1.126)		(0.772)		(0.772)

Note: Standard errors in parentheses are clustered at sub-district level, * p<0.10** p<0.05*** p<0.010, all estimation using pooled panel fixed effect at Village level. Estimation are control with household education level, age of household head, household size, household agriculture status and village status (urban-rural).

[10] Due to unavailability of baseline and second round data on the household participation on health and education meeting, we only estimate this using data from third round of survey.

Figure 3-1 The Underlying Mechanism Household- Local Leader Quality Relationship

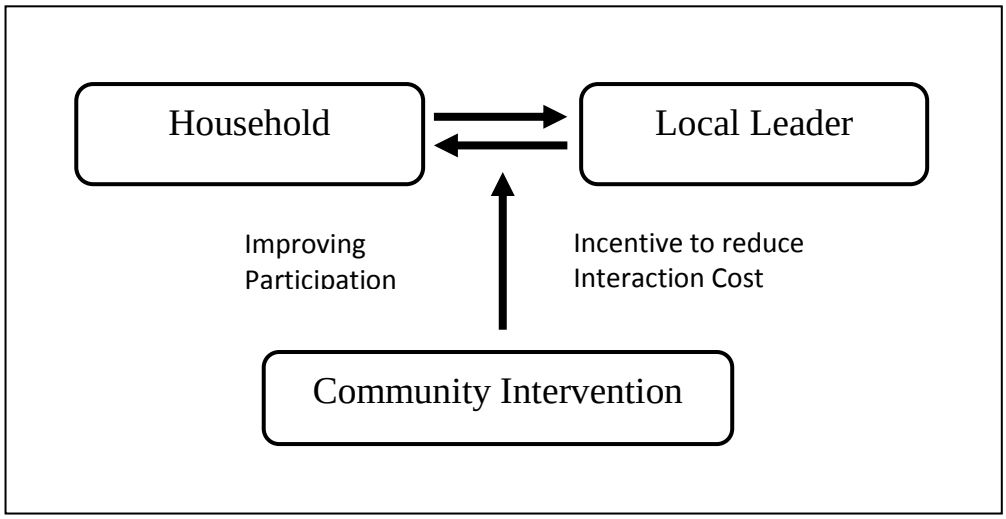
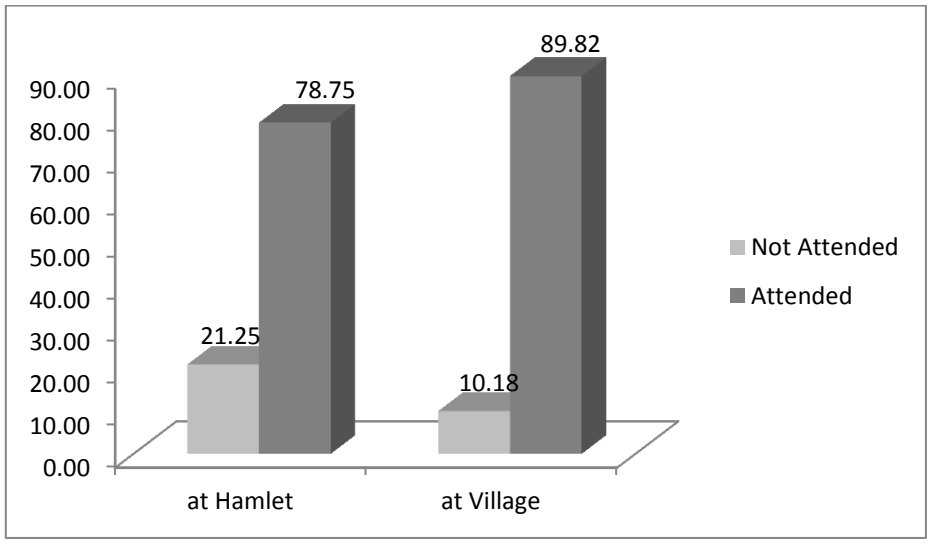


Figure 3-2 Officials Participation on Generasi Grant Allocation Meeting (%)



Appendix

Table A3-1 Program Performance Indicators

Performance indicators
1. Prenatal care visit
2. Iron tablets (30 pill packet)
3. Childbirth assisted by trained professional
4. Postnatal care visit
5. Immunizations
6. Monthly weight increases
7. Weight check
8. Vitamin A pill
9. Primary enrollment
10. Monthly primary attendance >= 85%
11. Middle school enrollment
12. Monthly middle school attendance >= 85%

Source: Olken et al. (2014)

Table A3-2 List of Main Interest Variables

Variables	**Explanation**
Village Head	Dummy on relationship quality with head of village or his/her spouse
Village Secretary	Dummy on relationship quality with village sectary or his/her spouse
Village consultative council Member	Dummy on relationship quality with village consultative council member or his/her spouse
Hamlet Head	Dummy on relationship quality with hamlet head or his/her spouse
Household Cluster Head	Dummy on relationship quality with head of household cluster or his/her spouse

Table A3-3 Detail Questions of Main Dependent Variables

Q:Next we would like to us you about people you know closely A: 1. Yes 3. No 6. NOT APPLICABLE
a. Village/Ward Head or Spouse
b. Village/Ward Secretary or Spouse
c. Chairman/Members of Village/Ward Council
d. Hamlet/Sub-Ward Head or Spouse
e. Household Cluster Head or Spouse

Table A3-4 The Ln Per Capita Expenditure Estimation

	Ln PCE
Household Size	-0.123***
	(0.004)
Head Household Education	
Completed Primary School	0.130***
	(0.017)
Completed Junior High School	0.238***
	(0.022)
Completed Senior High School	0.392***
	(0.023)
Completed at Least Two Years of College	0.672***
	(0.034)
Head Household Gender	-0.074***
	(0.025)
Age of Household Head	0.020***
	(0.003)
Age Sqr of Household Head	-0.000***
	(0.000)
Agriculture Household	-0.158***
	(0.014)
Urban	0.104***
	(0.033)
Districts	
District2	-0.001
	(0.024)
District3	0.014
	(0.027)
District4	-0.113***
	(0.026)
District5	0.279***
	(0.039)
District6	-0.247***
	(0.031)
District7	-0.121***
	(0.028)
District8	-0.385***
	(0.028)
District9	-0.051*
	(0.030)
District10	0.042
	(0.032)
District11	-0.215***
	(0.030)
District12	-0.440***
	(0.035)
District13	-0.051
	(0.038)

Note: Standard errors in parentheses, * p<0.10** p<0.05*** p<0.010

Table A3-4 The Ln Per Capita Expenditure Estimation Cont

	Ln PCE
District14	-0.042
	(0.043)
District15	-0.432***
	(0.034)
District16	-0.706***
	(0.042)
District17	0.050
	(0.038)
District18	-0.040
	(0.039)
District19	-0.179***
	(0.030)
District20	-0.064
	(0.039)
Constant	12.326***
	(0.070)
N	8987
R-sq	0.286

Note: Standard errors in parentheses, * p<0.10** p<0.05*** p<0.010

Table A3-5 Officials Participation on Health and Education Meeting in Different ELF Categories (Last Round of Data)

ELF<=0.0198	Non-Incentive (1)		Incentive (2)		Control (3)		(1)-(3)		(2)-(3)	
	Mean	SD	Mean	SD	Mean	SD	Coeff	SE	Coeff	SE
Health Meeting Participation										
at Hamlet	0.422	0.494	0.433	0.496	0.343	0.475	0.079*	(0.041)	0.090**	(0.042)
at Village	0.588	0.493	0.627	0.484	0.482	0.500	0.106**	(0.047)	0.145***	(0.044)
at Health Facilities	0.825	0.381	0.782	0.413	0.822	0.383	0.003	(0.032)	-0.039	(0.035)
Education Meeting Participation										
at Hamlet	0.551	0.498	0.523	0.500	0.390	0.488	0.161***	(0.049)	0.133***	(0.046)
at Village	0.797	0.403	0.813	0.390	0.699	0.459	0.098**	(0.041)	0.114***	(0.041)
at Education Facilities	0.055	0.229	0.034	0.181	0.047	0.213	0.008	(0.016)	-0.014	(0.015)
Observations	434		386		359					
ELF>0.0198	Non-Incentive (1)		Incentive (2)		Control (3)		(1)-(3)		(2)-(3)	
	Mean	SD	Mean	SD	Mean	SD	Coeff	SE	Coeff	SE
Health Meeting Participation										
at Hamlet	0.406	0.492	0.438	0.497	0.341	0.475	0.066	(0.051)	0.098*	(0.050)
at Village	0.601	0.491	0.643	0.480	0.536	0.500	0.064	(0.051)	0.107**	(0.049)
at Health Facilities	0.831	0.375	0.816	0.388	0.739	0.440	0.092**	(0.043)	0.077*	(0.043)
Education Meeting Participation										
at Hamlet	0.525	0.500	0.601	0.491	0.431	0.496	0.094*	(0.050)	0.170***	(0.050)
at Village	0.853	0.355	0.841	0.366	0.696	0.461	0.157***	(0.043)	0.145***	(0.044)
at Education Facilities	0.079	0.270	0.099	0.299	0.062	0.241	0.018	(0.022)	0.037	(0.025)
Observations	278		283		276					

Note: Standard errors in parentheses are clustered at sub-district level, * p<0.10** p<0.05*** p<0.010

Table A3-6 Program Impact on Household- Local Leaders Quality Relationship (Full Estimation Result)

	Village Head		Village Secretary		Village Council Member		Hamlet Head		Household Cluster Head	
	Total sample	10% the poorest	Total sample	10% the poorest	Total sample	10% the poorest	Total sample	10% the poorest	Total sample	10% the poorest
Non-Incentive	-0.004	0.032	-0.013	0.122	-0.018	-0.029	-0.015	-0.012	-0.010	-0.001
	(0.021)	(0.065)	(0.021)	(0.077)	(0.021)	(0.064)	(0.016)	(0.048)	(0.011)	(0.049)
Incentive	-0.013	0.038	-0.012	0.031	0.003	0.075	-0.016	-0.001	-0.004	-0.036
	(0.022)	(0.079)	(0.022)	(0.082)	(0.021)	(0.071)	(0.017)	(0.047)	(0.012)	(0.042)
Education Level of Head of Household										
Primary School	0.072***	0.050**	0.079***	0.014	0.093***	0.088***	0.018***	0.046***	0.005	0.001
	(0.010)	(0.021)	(0.009)	(0.024)	(0.009)	(0.026)	(0.007)	(0.013)	(0.005)	(0.013)
Junior High School	0.145***	0.086**	0.168***	0.061	0.176***	0.151***	0.023***	0.045*	0.018***	0.027
	(0.012)	(0.036)	(0.013)	(0.038)	(0.013)	(0.040)	(0.008)	(0.025)	(0.006)	(0.021)
Senior High School	0.177***	0.106**	0.195***	0.148**	0.248***	0.253***	0.037***	0.014	0.015**	0.031
	(0.012)	(0.043)	(0.013)	(0.059)	(0.013)	(0.061)	(0.010)	(0.033)	(0.006)	(0.019)
College	0.234***	0.064	0.270***	0.250***	0.341***	0.173**	0.076***	0.120*	0.023***	-0.187
	(0.018)	(0.129)	(0.019)	(0.059)	(0.020)	(0.084)	(0.013)	(0.062)	(0.009)	(0.192)
Household Size	0.002	0.010*	0.000	-0.002	0.004**	0.005	-0.002	-0.002	-0.002*	-0.001
	(0.002)	(0.006)	(0.002)	(0.005)	(0.002)	(0.007)	(0.001)	(0.005)	(0.001)	(0.004)
Age of Household Head	0.005***	0.002*	0.005***	0.003**	0.004***	0.001	0.001***	-0.001	0.000***	-0.000
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)
Agriculture Household	0.010	0.023	0.008	0.080*	0.014*	0.096**	0.024***	0.001	0.003	0.001
	(0.007)	(0.038)	(0.007)	(0.043)	(0.008)	(0.048)	(0.006)	(0.031)	(0.004)	(0.020)
Urban	-0.159***	0.055	-0.189***	-0.253**	-0.182***	-0.253***	0.026	-0.096	0.030**	0.138***
	(0.035)	(0.074)	(0.041)	(0.126)	(0.037)	(0.046)	(0.023)	(0.092)	(0.015)	(0.031)
Dummy Survey Round										
First	-0.030*	0.031	-0.037**	-0.014	-0.056***	-0.025	0.017	0.027	0.025***	0.063**
	(0.016)	(0.053)	(0.016)	(0.055)	(0.015)	(0.049)	(0.011)	(0.035)	(0.008)	(0.032)
Second	-0.046**	0.034	-0.056***	-0.017	-0.056***	0.054	-0.021	0.019	0.011	0.044
	(0.018)	(0.055)	(0.017)	(0.058)	(0.017)	(0.052)	(0.013)	(0.035)	(0.010)	(0.035)
Constant	0.362***	0.501***	0.305***	0.479***	0.208***	0.354***	0.813***	0.914***	0.774***	0.810***
	(0.021)	(0.076)	(0.021)	(0.087)	(0.020)	(0.081)	(0.014)	(0.047)	(0.010)	(0.043)
N	26650	2662	26650	2662	26650	2662	26650	2662	26650	2662

Note: Standard errors in parentheses are clustered at sub-district level, * p<0.10** p<0.05*** p<0.

Figure A3-1 The Distribution of Ln Per Capita Expenditure and Its Predictive Value

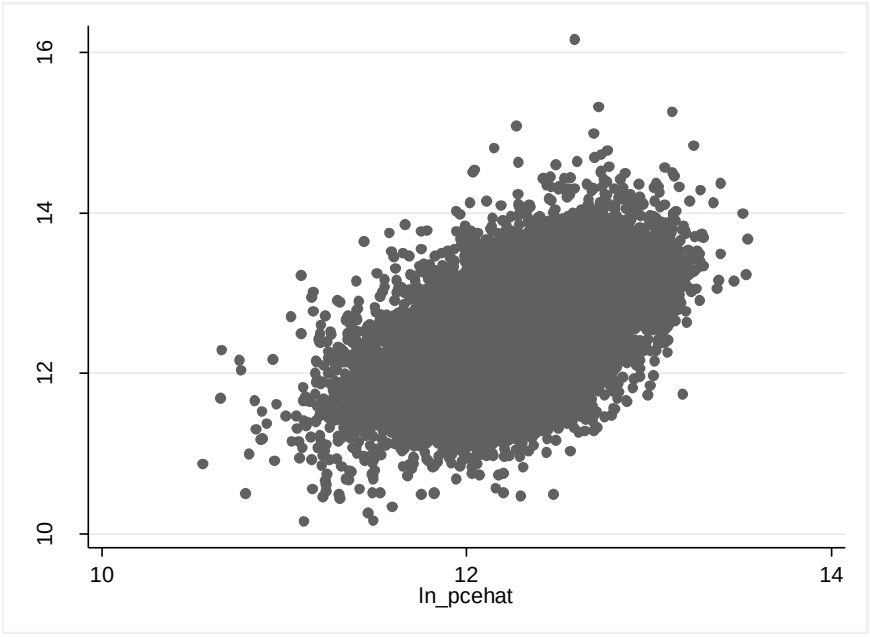
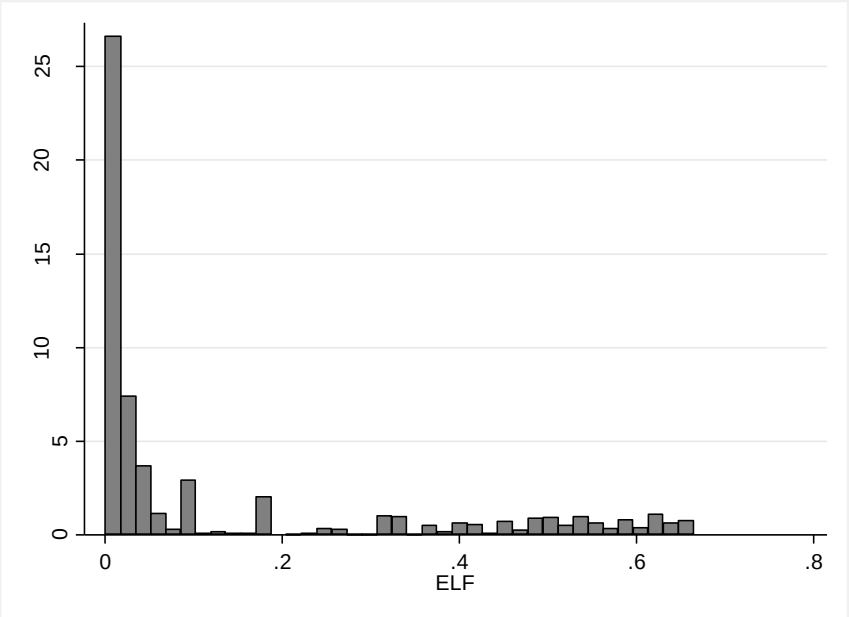


Figure A3-2 The ELF Distribution



Skewness	1.361536
Kurtosis	3.278284

CHAPTER 4 CASH TRANSFERS AND THEIR UNINTENDED IMPACTS ON WOMEN IN INDONESIA

4.1 Introduction

To achieve the Millennium Development Goal (MDG) that targets on health and education, in 2007 the Government of Indonesia (GOI) launched two conditional cash transfer programs. These two programs' objectives are to reduce constraints on the demand and supply side of health and education services as well as to improve the welfare of the poor. The program on the demand side of improvement is a household conditional cash transfer (CCT), whereas to improve the supply side, a cash transfer and an incentive of bonus performances are given to communities so they can decide what is best for them in order to reach several education and health targets. This supply side approach can be categorized as Community CCT.

The implementation of these two types of CCT in Indonesia has given positive impact particularly on health aspects (Alatas, 2011; Triyana, 2013a and Olken et al., 2014). These findings are consistent with the impact of CCT around the world that were reportedly improved health and education outcomes as well as helping these countries to reduce poverty and inequality (Fiszbein, et al., 2009). Theoretically, the positive achievements of CCT are the result of conditionality that bound the cash that is given to women. This mechanism highlights the importance of women's role in determining the program's impact. Moreover, evaluation on three CCT programs in Latin America, *Bolsa Família*, *Familias en Acción* and *Chile Solidario* showed some improvements in women's

empowerment through increasing in their household bargaining power as well as improvements in their community social status (Soares & Silva, 2010).

However, whether the cash from CCT is actually retained under women's control or is enjoyed by someone else (e.g. husband) is still unclear. This is what called by Roy et al. (2015) as the fly paper effect. They found the program randomization of BRAC's CFPR-TUP in Bangladesh – which provided very poor women in rural area livestock and training – gave women the ownership of assets transferred from the program, but the new investments that resulted from these mobilized resources were mostly owned by men. Moreover, Soares and Silva (2010) also noted that CCT actually created a trade-off between addressing women's needs and children's wellbeing. For example, after the program, in addition to their regular activities, they needed to attend a meeting every month to verify that they still met the eligibility conditions for the program. The role of women in the program was also being criticized because it actually cast women in their traditional roles as mothers and children's main caregivers (Tabbush, 2010). According to Tabbush, the actual program's objective somehow failed to accommodate women's needs and put them only as "conduit", not as the beneficiaries of the program. As an example of this was the implementation of a CCT program in Chile. Even after the addition of the *Puente scheme* that ensured that beneficiaries would get access to education, training and work, still the effect on labor market outcomes favored men over women among recipient households (Scarlato et al., 2014).

Due to importance of women to CCT, we want to explore this issue in Indonesia's context. Using unique evaluation design that captures randomization of two kinds of CCT

interventions that target households or communities, we want to investigate the program's impacts on women, particularly on the non-program objective ones. We are assessing both programs' impacts together as a joint estimation using the overlap region based on their propensity score. Particularly, we will observe the unintended program's impacts on five indicators that consist of two women's autonomy indicators on decision making and freedom to buy, family planning participation and health and education counseling participation[1]. We will also extend our analysis by capturing the heterogeneity in different level of supply side in health and education facilities readiness. The supply side readiness is very important as a key indicator for each program allocation (Sparrow et al., 2008).

Our results provide mixed results regarding our hypothesis, even though still favor household intervention than community ones. This is because in general more positive impacts on women's indicators are generated by CCT compared to community intervention. However, on health counseling participation, Community CCT improved them better than household CCT's intervention. In terms of women's autonomy to buy their own needs, both programs increased this at the same rate. Thus, extending the analysis on the heterogeneity of supply side in health and education facilities in community, we find that health counseling participation always increases significantly among the Community CCT in both low and high quality of these facilities. In terms of second autonomy indicators, they seem only mater on the low supply side sub-district. Finally, we do not find any impact in either program on the family planning usage among women.

[1] Using multiple indicators in the study can generate an issue because as we increase the number of hypotheses being tested, we also increase the probability of incorrectly rejecting a null hypothesis.

Our contribution to the literature on the impact of CCT on women is made by providing evidence on the comparison of two types of CCT as multiple treatments. We also extend the previous study on both programs' impact comparison by Triyana (2013b) by taking into account the overlapping control area for both interventions in our estimation. Furthermore, this study will proceed as follows. Section 2 reviews the theoretical framework and section 3 describes the different features of two CCT interventions and reviews the targeted objective achievement on women based on the impact evaluation in each intervention. Then it will be followed by sections 4, 5 and 6 on the data source, the estimation strategies, and the estimation results discussion, respectively. The last section summarizes and discusses the policy implications of the results.

4.2 Theoretical Framework

There are significant developments of economic modeling in the area of household's decision making. The focus on how the resources are distributed within the household are shifting over the past decades from maximizing a single representation of household utility to cooperating different preference of utilities of each of its member. These growing studies can be grouped in to two broad categories: the unitary models (Becker, 1991), and the collective models (Chiappori, 1988 & 1992). The latter model is challenging some assumptions of the first model especially in the context of control over resources and the outcome relation. The adjustment of this part of assumptions is very important in explaining what actually happened if the power to distribute resources is shifted from one member to others in the household.

The theoretical framework of household bargaining is important not only because it explain how different utility preference can cause different policy achievement. It also analyzes how males and females interact in addressing different structures and roles in the household (Himmelweit et al., 2013). An example of this is presented by Lundberg et al. (1997), demonstrating how children's welfare improves as the arrangement of a children's allowances scheme moved from fathers' to mothers' control. Duflo (2003) also found that girls' anthropometric status was improved due to the allocation of a social pension program that was received by their grandmothers. These positive findings suggest that if resources fall under the control of women, the resources tend to be allocated to goods and services that benefit children. This is one reason why women are the main recipients of the CCT program. Thus, women are expected to induce households to allocate more resources to children's health and schooling.

Besides positive impact to children welfare, giving women control over resources is also improves the unbalanced distribution of power at home. Thus, as the possibility of inequality within households reduces, we are interested in exploring the distribution of power rather than the allocation of resources in the bargaining process, which is closely related to the issue of women's empowerment. We are particularly interested to investigate the impact of two CCT programs on women autonomy and participation. Moreover, to test these causal relationships, we will conduct joint estimation which allows us to not only investigate the programs impact but also to check which program is more effective in improving women's roles. Our hypothesis on this issue favored CCT over community intervention because Community CCT does not provide women with direct power over

resources. Moreover, this hypothesis is also built based on the result of previous studies that evaluated these two programs' impact evaluations (Alatas, 2011, Triyana, 2013a and Olken et al., 2014) that found that CCT had greater impact than Community CCT. This is because beside of providing cash, CCT requires monthly meeting of its beneficiaries that allows women to interact with other women and facilitators, which might not occur in the case of community intervention. Thus, this kind of meeting might help women to get out of the house and to gain knowledge that might empower them. Therefore, CCT intervention might give more impact to women than community intervention.

4.3 Features of Two Cash Transfer Interventions

The first intervention is a CCT program called *Program keluarga harapan* (PKH). The second program provides a block grant to the community to increase the quality of ones' health or education services that they choose to be improved. This second intervention is called *PNPM Generasi Sehat and Cerdas* (Generasi). These two programs have some similar features. First, both programs' objectives are to improve the health and education of future human capital using the 12 indicators[2]. These indicators consist of 8 health indicators and 4 education indicators. Second, these two programs have almost the same mechanism in providing cash for their targeted beneficiaries. For CCT, household needs to follow certain rules in order to receive the money periodically. Then for Generasi, one type of intervention is to provide an incentive or bonus performance if the community meets the

[2] The list of indicators provide in the appendix.

target of their selected indicators. Third, both of the programs were launched at the same time and randomized at the same level but at different locations.

The selection of program location for both programs was randomized at sub-districts level. The process of randomization in each program was described by Sparrow et al. (2008) as follow. From seven Provinces that agreed to participate in the program, based on school transition rates, malnutrition and poverty, 20 percent of the richest districts were cut from potential sample for both interventions. Then, districts that previously received other community interventions called *Kecamatan Development Projects* (KDP) were considered for receiving Generasi. One reason for this rule is to ensure that the community has some exposure to village level planning (Sparrow et al., 2008). From this elimination process, 20 sub-districts were selected in 5 provinces. From these selected districts, only sub-districts that consisted of more than 30% rural sub-district were eligible for the community intervention. Thus, the rest of remaining districts in sample are those who are not eligible for PNPM Generasi and considered as more adequate in terms of existing health and education facilities that were selected to be part of PKH randomization. Some of the different features of the program that we summarized from Sparrow et al. (2008) are shown in Table 4-1.

4.3.1 What We Know about the Impact of Both Interventions So Far

Both CCT and Community CCT evaluation have been conducted to measure the program's impacts on their targeted indicators. Alatas (2011) found that CCT improved the monthly household expenditure by around 10 percent as well as increased the usage of health care

facilities. However, they did not find any evidence on the improvement of long-term health outcomes and limited impact on education indicators. Then, the CCT supply side's impact was evaluated by Triyana (2013a). She found that health care providers actually responded to the increase of facilities' utilization by program participants by increasing by 10% both the number of midwives and their delivery fees charges. According to Triyana, the participants did experience higher quality of prenatal care due to program requirements but not because the midwives improved the quality of their services.

On community intervention evaluation, Olken et al.(2014) reported that there was difference in health impact between incentive and non-incentive types of program but not in impact on education. According to them, a program with incentives is the most effective program to improve the low performance of sub-districts in the areas of preventive health and malnutrition. Then, to see the effectiveness of both programs, Triyana (2013b) compared their impacts on birth outcomes. According to her findings, even though both programs improved the usage of trained attendants and delivery facilities, household intervention was more effective than community intervention in improving birth outcomes such as lower incidence of preterm birth and higher z-score among small children.

Focusing on the impact of the programs on women, we summarize the findings by Alatas (2011) and Olken et al.(2014) on 4 out of 12 program objectives' indicators (Table 4-2). These indicators were addressing the pregnancy- and birth-specific women's health issues. Based on the evaluation results of these two studies, CCT intervention was improved women's pre-natal and post-natal indicators better than community intervention. In one of the indicators that was significantly improved by the program, the requirement of

four pre-natal visits, CCT raised the probability of mother to complete the requirement almost 5% higher than Community CCT. However, the higher return seemed to correlate with amount of resources expended. According to Triyana (2013b), the cost per targeted indicator in the community intervention was less than half of the cost in household CCT.

4.4 The Evaluation Design and Data

The data that we use in this study is from the survey of health and education services that conducted by World Bank to evaluate both PKH and Generasi[3]. The survey covered 360 sub-districts for household CCT and 264 sub-districts for Community CCT. From each sub-district, 8 villages with 5 households each were sampled (Sparrow et al., 2008). A total of three rounds of data collection were conducted in mid-2007 and at the end of 2008 and 2009 for Community CCT. Three rounds of surveys were also conducted for CCT in mid-2007 and at the end of 2009 and 2013. For the purposes of this study, we only use the two rounds of surveys that overlap for both programs.

The surveys collect information at the level of individual, household, village and both health and education services provider. For this particular study, we will use household data, village data and women who have ever been married data. The sampling strategies based on Sparrow et al. (2008) are explained as below. At the household, both interventions' samples are stratified based on whether the household contains a pregnant or lactating mother or has small children or school age children. However, the sampling

[3] Data that is used in this study is available at http://microdata.worldbank.org or http://economics.mit.edu/faculty/bolken/data

strategies of those are slightly different. The household sample for CCT evaluation captures only the poor households that are eligible for the program and the survey visits almost all the households in each round. On the other hand, the Community CCT samples are randomly selected and the survey only follows half of its sample in each survey round.

In each round of surveys, information is collected on almost 26,000 women who have been married from the age of 15 to 49 years old. It covers information on birth and pregnancy history, family planning participation and questions regarding health and education knowledge and decision making process. In the follow up round, the survey also provides information on women's participation in health and education counseling for the past 12 months. Using this data, we develop several interest indicators[4]. These indicators capture two autonomy indexes and women's participation in family planning programs or health and education counseling. The detail of our autonomy indicators will be explained in the next section.

The other important variables that we use in this study are the variables on the supply side of health and education facilities in the community. These variables are constructed from the head village survey. The indicators are ranging on the availability of the health facilities and the number of midwives, doctors and schools. The detail of the variables used is in the appendix.

[4] Some indicators such as family planning participation and decision making indicators (that represent our two autonomy indicators) were also used by Olken et al. (2011) on the evaluation of non-program objective impact. We find the same result with their study of no impact on family planning participation. However, different results are applied on two autonomy indicators, which we find some program impact, whereas, they were not. These differences are due to different way on constructing these variables and different estimation method applied. Moreover, our results in this particular chapter stand not only as program impact but also as comparison to other type intervention impact.

4.5 Methodology

4.5.1 Autonomy Measurement

Dyson and Moore (1983) describe autonomy as how the decisions about personal affairs was made based on information gathered on the mix of technical, social and psychological capacity. In terms of gender relations, their definitions imply that autonomy is an equal ability to make decisions between men and women. Even though empowerment and autonomy put the focus on the ability to make decisions, they are different concepts that are slightly overlapping. Empowerment is a process whereas autonomy is the outcome or sometimes part of the process (Alfano et al., 2011). On the other hand, Braunstein (2008) describes autonomy as the static version of empowerment. Since the orientation of our study is on the outcome, we will focus on autonomy rather than empowerment.

There were two different ways to measure female autonomy applied in most studies. One was using women's characteristics and the other was using perceptions related to their status and decision making choices as its proxy (Alfano et al., 2011). According to Alfano et al., one example of the use of women's characteristics as an autonomy indicator was the study by Abadian (1996). Abadian measured the impact of female autonomy on fertility using female marriage age, spouse's age gap and female secondary education. Then, Alfano et al. (2011) also distinguished between two approaches in analyzing the perception data regarding female autonomy and provided example in each of this approach. The first approach was autonomy research that focuses on a particular aspect of female autonomy. A study by Jejeebhoy and Sathar (2001) was a perfect example of this kind of approach. In their study, they represented female autonomy as four dimensions that consist of economic

decision making, mobility, freedom from husband threat and access to and control over economic resources. The second approach was constructing an autonomy index of responses summarization as studied by Chakraborty and De, (2011). This second approach will be the one that is used in this study.

We will develop two simple autonomy indexes. First, we will use the questions about who makes decisions regarding children's matters in the household. The questions on decision making consist of four questions on who makes decisions on education, health and disciplinary actions pertaining to the children, and whether to have more children or not. The structure of these questions allows multiple combinations of answers between four options on who make the decision: the women, their husbands, other people in the household or other people outside the household. The distribution of who makes decision making in the household based on women's involvement is explained in Figure 4-1 and 4.2. Based on those figures, we know that women have most autonomy power on making decision related to child health, whereas most women (61-76%) said that these decisions are the joint decisions with their husbands. In general, the autonomy is higher on both CCT sub-districts treatments and controls compares to Community CCT sub-districts study samples.

However, in the case of joint decisions, we are unable to observe the underlying process of decision making between women and other members of household. It can be representation of equal sharing of 50-50 or less bargain power of women of 25-75 or other possible combinations. To simplify the index, we will followed the method proposed by Wu (2011) to generate categorical variable on joint decision making that assume women

have equal sharing proportion with number of person they decided with. Thus, the combination of each question's scoring will be:

$$\text{Score1}\begin{cases} 1\ if\ women\ decide\ alone \\ 0.5\ if\ women\ joinly\ decide\ with\ one\ other\ person \\ 0.33\ ifwomenjointlydecidedwithtwoothersperson \\ 0.25\ if\ women\ jointly\ decided\ with\ three\ others\ person \\ 0\ if\ women\ donot\ involve\ in\ decision\ making\ process \end{cases}$$

Then, we will sum all of the score from these four questions and divide it by the number of questions, or 4, to get the proportion:

$$Autonomy1 = \frac{\sum Score1_i}{numberofquestions}$$

This autonomy index will range from zero if woman is not involved in any decision making to 1 if she is the only decision maker.

The second autonomy index concerns women's freedom to make purchases for their own needs. This autonomy indicator is constructed from questions on whether women need to ask permission from other household members to buy their own food, clothing, medicine and personal need. Since these are binary yes/no questions, the scoring is 1 if they did not need to ask permission from other household members and zero if they did need to ask others. Then, using the same way as autonomy1, we construct our second autonomy indicator:

$$Autonomy2 = \frac{\sum Score2_i}{numberofquestions}$$

The detailed list of questions and their optional respond is in the appendix.

4.5.2 Estimation Strategy

The main objective of this study is to be able to compare directly the effectiveness of two cash transfer interventions on their unintended impact on women. One way to measure the effectiveness of different kinds of interventions is by conducting evaluation for different programs at the same time. For example some studies focus on the comparison between cash and in-kind transfer, particularity on food assistance program (Aker, 2012; Hidrobo et al., 2014 and Hoddinott et al., 2014). In particular to Indonesia case, recent work by Afkar and Matz (20015) also compared cash (CCT) and in-kind (rice for poor or Raskin) transfer programs on food and nutrition security. They found that cash transfer impacted more than the in-kind program but that there was no significant benefit for those who received both programs. Thus, following Triyana (2013b) who evaluated the effectiveness of both programs on some birth outcomes, we will also conduct joint estimation among these two interventions.

Before conducting joint estimation, we need to apply some strategies to adjust the sample differences. First, to accommodate the randomization that was conducted at the sub-district level, we aggregate all of our data at this level. Second, due to some contaminations on randomization for both programs, we will focus our analysis on the intention to treat (ITT) and will use the initial of each program allocation status as the reference. What we mean by contamination is the change of treatment-control status of selected sub-districts as well as the change of program given to them. These contaminations occur in 45 PKH sub-districts and 7 Generasi sub-districts (Alatas, 2011; Olken et al., 2012). In PKH sub-districts, 39 sub-districts changed the status from control to treatment and 6 sub-districts

from control to treatment. Then in Generasi sub-district, 7 sub-districts receive different type of community intervention (PNPM Mandiri) [5].

Third, the initial allocation of both programs is based on the supply side of health and education facilities readiness. The areas that met the supply-side criteria or were relatively ready in terms of health and education facilities received CCT, whereas the ones with relatively poor facilities received Community CCT to "catch up" with regard to those facilities (Alatas, 2011). Due to the importance of the pre-condition of health and education facilities on the allocation between these two programs, we will use their indicators as our key point of analysis. Using these indicators, we predict the probability of a sub-district to be part of CCT evaluation sub-districts or part of Community CCT, regardless of their status as treatment or control in each intervention. Then, we will focus our estimation only on the overlap region by trimming the one that is outside the range. Then our parameter of interest βwill be:

$$\beta_k \equiv \beta_k(S) = E[Y_k|X \in S \qquad (1)$$

Where Y is the interest outcome, X is supply side readiness indicators at baseline survey, S is the overlap region and k is the sub-districts. The detail of Y and X is explained in the appendix.

After we limit our sample on the overlap region, we will estimate our interest variables in joint estimation. Some of our interest indicators such as autonomy indicators and family planning participation are collected in both baseline and in the follow up survey.

[5] PNPM Mandiri is also a CDD model that provides with a grant but the focus is on different types of infrastructure

However, the participation in health and education counseling is only available on the second round of survey. Therefore, our strategy will depend on the data availability. For the one without baseline, we combine our set of interest variables from the follow up survey and use the explanatory variables from the baseline survey. Thus, for the indicators with panel data, we will take difference between the follow up survey and baseline value on the dependent variables but use baseline data as the source for its independent variables.

To get the joint estimation on the average treatment for treated (ATET) for both programs, we arrange the assignment status of sub-districts on the overlap region into:

$$T\begin{cases}0\\1\\2\end{cases}$$

Where 0 is for both CCT and community CCT control sub-districts, 1 is for CCT sub-districts and 2 is for community CCT sub-districts. Thus, as explained previously in the data section, the sampling strategies are different between these two programs at household level data collection. PKH samples only focus on the poorest households in the village whereas Generasi samples are selected randomly at the village level. Therefore, to take into account the sampling difference we use semi-parametric estimation called inverse probability weight (IPW) method on our household related indicators estimation. This method was firstly introduced by Hirano et al. (2003). Furthermore, According to Handouyahia, et al. (2013), intuitively the weight that is produced by IPW estimation is just

like the weight that is calculated in a typical survey to compensate for response rates variation. The assumptions that must hold on the IPW estimation[6] are:

1. The conditional-independence assumption or conditional on X, the treatment T is independent of potential outcomes.
2. The overlap assumption or any kind of treatment could be received by each of sample individual.
3. The independent and identically distributed (i.i.d) or no relation between each individual potential outcomes and their treatment status in population.

The combination of the first two assumptions is what is called as Rosenbaum and Rubin (1983) strong ignorability assumption. The last one is part of stable unit treatment value assumption or SUTVA.

Since we cannot observe the potential outcome when T=0, intuitively with T∈ {0, 1, 2…t}, IPW estimates:

$$E(Y_t) = \frac{1}{N}\sum_{k=t}^{N} Y_k\, T_k / P\,(X_k) \qquad (2)$$

Where $P(X_i)$ is the probability receiving treatment and a function of covariatesX_k and the other notation is the same as previously. Then, to obtain the probability on the present of multiple treatments, the estimation used the multinomial logit.

[6] These are the assumptions of teffects IPW estimation method that available at Stata statistical software (StataCorp, 2013).

4.6 Result and Discussion

4.6.1 Baseline Summary Statistic

As explained in the estimation strategy, we limit our sample only on the overlap region based on the propensity score prediction on supply side health and education facilities for both interventions. The estimation result and the propensity score distribution are on the appendix. We lose 12 sub-districts on our sample after we trim the propensity score that is outside the overlap region range. Among those 12 sub-districts, 8 of them are control sub-districts, one is for CCT and 3 are for community CCT.

The summary statistics for both CCT and community CCT baseline value are shown in Table 4-4 and 4.5, respectively. We also break down the mean and standard deviation for each variable that we use to construct our two autonomy indicators. In general, for both interventions the indicators of our first autonomy index is lower than the second one. The reason of lower average in autonomy indicator one is because the typical decisions regarding children are usually a joint decision between husband and wife. Therefore, there is only a small number of women who make these decisions on their own. Thus, for both control and treatment, family planning usage on average is higher on the CCT sub-district compared to Community CCT but in contrast, the second autonomy index is highest among women in Community CCT control.

The difference between control and treatment is only significant on whether woman must ask permission before buying clothing in Community CCT. The women in the control sub-district have more autonomy than the treatment sub-district. Then, in Community CCT sub-district, women in the control sub-district are significantly higher on the average of

independency to decide whether they want to buy food and their personal needs compared to women in the treatment sub-district. These two significant differences make the average of our second autonomy indicators significantly different between treatment and control sub-districts. The break down summary statistics based on the level of health and education facilities in the community is provided in the appendix.

4.6.2 Discussion

Based on joint estimation results shown in Table 4-6, community CCT has negative impact on women's autonomy in decision making. We speculate that a potential reason why community intervention could reduce our first autonomy indicator is because the program provides a forum to meet and discuss children's health and education problems intensively in the beginning of program, which might raise awareness of these issues not only among women but also among the wider community. As written in the program technical guideline that most of the program meetings are open to anyone in the community even though they emphasize the importance of targeted program beneficiaries or mother participation (Government of Indonesia, 2008). As the result of this process, it also increases the involvement of all family members in decision making processes related to children's matters, resulting in the reduction in women's autonomy.

The involvement of other family members on decision making regarding children's matters is probably not always negative for women because it may show that the other family actually care, which is good for children. However, there are two concerns regarding this autonomy measurement. First, this indicator captures the involvement of others on the

decision on the number of children which is very important to women's reproductive health. Moreover, some studies also show that the higher women's autonomy becomes, the fewer children they have (Balk, 1994 and Basu, 2002). The fewer children that women have is good in the context of this study because we mainly focus on poor households that find it relatively difficult to provide for the household's daily needs. However, this concern might not be a problem because women's autonomy on deciding the number of children they have is not significantly reduced after the program if we estimate the model using separate autonomy variables (Table 4-7).

Second, our assumption on this autonomy indicator reflects equal bargaining power from each party involved in the decision making process. Therefore, we cannot really observe the dynamic of women's involvement in decision making processes. What we know is only that the more parties involved in decision making, the less power women have. Thus, it is very difficult to conclude whether the involvement of others in decision making is a good thing for women. Furthermore, the party who actually increases their involvement in decision making processes and reduces women's autonomy due to the implementation of the program is not always the husband, but can be other family members in the household such as parents or siblings (Table 4-8).

In terms of the second women's autonomy indicator, or the freedom to buy, the results show that the indicator significantly increased for more than 50% (on average) of women who live in the sub-districts and received either CCT or Community CCT from their average potential outcome or 0.057 (Table 4-6). If we break down our autonomy indicators variables, for CCT, buying the personal needs is the freedom that mostly

improved from three indicators and significantly increased as a result of the program (Table 4-7). Then, for Community CCT, the program impact is from the improvement on women's freedom on buying their own clothing. The program improves women's freedom to buy their own clothing to almost twice the level of one who lives in a control sub-district.

The significant improvement in more number of variables on the second autonomy indicator on CCT compared to community intervention is expected because the cash from CCT is allowing women to buy their personal needs. In term of the first autonomy index, the break down of its variables showed consistently insignificant change after the household intervention, whereas three out of four variables of this index decrease as the impact of community CCT (Table 4-7).

Aside from improving the second autonomy indicator, Community CCT also improves women's participation in health counseling on the average for about 0.36 times or 51% compared to the average of their potential outcomes if they receive no intervention or 0.699 times (Table 4-6). Finally, the general results on two autonomy indicators suggest that the Community CCT intervention that is ensuring women's representation in each meeting and in the program village management team as well as having a women's focus group discussion component only improves women's freedom to buy but not their autonomy to decide on children's matters.

4.6.3 Different Level Supply Side of Health and Education Facilities

We also extend our analysis based on the heterogeneity of health and education facilities or the supply side readiness. We categorize the supply side readiness into two groups based on

the distribution of the propensity score, high (if the score is higher than its median value) and low (if the score is lower and equal to median value). In the high supply side, the joint estimation between the two interventions on Table 4-9 shows that CCT improves women's participation in health and education counseling on average for about 35% and 34% than their average potential outcome of 0.497 and 0.163, respectively. However, the community intervention only improves women's participation in health counseling but also it improves the women's participation three times higher than Household CCT. Thus, Community CCT also improves women's health counseling participation in low supply side communities with a slightly lower rate than the improvement in high supply side areas. The findings of women's counseling participation suggest that the more ready facilities that are available and accessible to women, the easier it is for women to participate.

The first autonomy index is significantly reduced by Community CCT in both high and low supply side areas. This confirms our proposition reason on the impact Community CCT on women autonomy on decision making. The community intervention raises the awareness of the other family members on child related issues through intensive health and education discussion before program implementation. Moreover, the readiness of supply side health and education facilities is matter in improving this awareness as shown by higher reduction of first autonomy index among women who live in high supply side areas compare to those who live in low supply side areas (Table 4-9). Furthermore, in high supply side areas, the other family member at home are increased their involvement on child health decision making if we break down on who involve on this type decision after the program (Table 4-10). However, in low supply side area, the program reduced the

involvement of people outside of the home on the child health and education decision making. We speculate this is probably because in the low supply side area the number of people outside of house that might concern about child welfare such as midwives or teacher is very limited with job responsibility that increased due to program implementation. As the result of this condition, their involvement on the household decision making regarding children health and education might significantly reduce.

On the other hand, the second autonomy indicators for both programs are only positively affected by both CCT and Community CCT in low supply side sub-district (Table 4-9). The improvement of women's freedom is higher in the CCT compared to Community CCT. This is because all four variables under this indicator are improved by CCT, whereas Community CCT only increases women's freedom on buying their own clothes (Table 4-11). Comparing with the high supply side sub-district, the programs seem only to increase women's freedom in relatively less developed sub-districts. One possible explanation is because probably the awareness and involvement of other family members in higher supply side readiness is higher compare to the low supply side areas. Their awareness is high in supply side area because it is easy for them to access and to get information from health and education service providers. Finally, the same as the overall sample, we cannot find any impact of either program on family planning usage.

4.7 Conclusion

As part of commitment to invest on future human capital as well as to reduce the current poverty rate, the Government of Indonesia (GOI) launched two pilot programs to improve

the demand and supply side of health and education constraints. Providing cash for poor households under certain conditions is part of the demand side of improvement. On the supply side of improvement, GOI is giving communities block grants to improve the quality of health and education services in their sub-districts. These two interventions share the same objectives that require women to assume the role of a mother to achieve them.

Due to the importance of women as part of these two programs, we want to explore the impact of the programs on women. The previous studies' evaluations on both programs suggest that the impact of household intervention on women is superior to the community intervention (Alatas, 2011; Olken, 2014; Triyana, 2013b). Thus, using the same data that is used by these studies, we want to extend the analysis on the non-objective impact of both programs on women. We want to explore whether the programs also affected women beyond their roles as mothers. Whether, the CCT intervention also improves program non-objectives on women better than community intervention.

Our joint estimation on the overlapped region's results show that both programs impacts women's autonomy in terms of freedom to buy. However, the community intervention does reduce the women's autonomy in decision making. We speculate that the socialization and community meeting raises concern for children capital investment among all community members. This awareness improvement results in more joint decision making on children related issues which reduces women's power to decide on their own. The Community CCT also raises women's health counseling participation by up to 51%. Thus, if we take into account the heterogeneity of health and education facilities among the community, we find that health counseling participation is always significant and high

among the Community CCT no matter what the quality of these facilities. In terms of second autonomy indicators, they seem only to matter in the low supply side sub-districts. Finally, we do not find any impacts of both programs on the family planning usage among women.

In general agreement with the previous studies that evaluate the program's objectives, we also find that household intervention gives relatively more impact to women than Community CCT, except for the issue of health counseling participation. However, if we take into consideration the cost effectiveness of program as discuss by Triyana (2013b), the superiority of household intervention might slightly reduce due to relatively higher implementation cost compared to community intervention. Therefore, careful analysis on both objective and non-objective's impacts might be needed before the implementer selects which intervention should be implemented. Finally, regardless of the type of intervention that will be chosen, women's empowerment seems difficult to achieve without special attention the program's objective that highlights the issue.

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List of Tables and Figures

Table 4-1 Different features of PKH and PNPM *Generasi*

	PKH	PNPM *Generasi*
Coverage	48 Districts in 7 Provinces and 500,000 households	20 Districts in 5 Provinces
Eligibility	Very poor household with at least one of this condition: 1. pregnant or lactating mother 2. very small children (0-6 years) 3. School age children.(6-15 years) 4. Less than 18 years old children but not yet completed basic education	Community with poor supply of health and education facilities, priority is given to the sub-district that already received at least two years with previous community intervention (Kecamatan Development Project or KDP)
Amount of cash/grant[7]	Ranging between $60 to $220 per year depends on the conditionality they have	Depends on the population size in each sub-districts, the average amount that community receive is $8500 in the first year and $ 13,500 on second year.

Source: Sparrow et al.(2008)

Table 4-2 Review Program Impact on Four Targeted Indicators for Women

Indicators	CCT	Community CCT
1. Four pre-natal visits	CCT increased probability of mother to complete 4 pre-natal visits for more than 13%.	Adding the incentive on community, grant increases about 8.2% the probability of mother to do four pre-natal visits
2.Iron tablet during pregnancy	No significant impact	No significant impact
3.Delivery assisted or delivery at health facility	No significant impact	No significant impact
4. Two post natal visits	CCT raised the probability of postnatal visits up to 21%	No significant impacts

Source: Alatas , 2011 and Olken et al., 2014

Table 4-3 Evaluation Design

Intervention types	Placement	Sub districts
PKH	Treatment	180
	Control	180
Generasi	Treatment	181
	Control	83

Source: Sparrow et al.(2008)

[7] The amount calculated on US Dollar with assumption 1$ is equal to Rp. 10.000

Table 4-4 Summary Statistics of Baseline Data on CCT Intervention

	Control		Treatment		Difference	
	Mean	SD	Mean	SD	Coeff	SE
Decision						
Child Education	0.439	0.068	0.447	0.069	0.008	(0.007)
Child Health	0.504	0.093	0.519	0.084	0.015	(0.009)
Child Punishment	0.493	0.088	0.509	0.080	0.016*	(0.009)
More Children	0.432	0.077	0.437	0.076	0.005	(0.008)
Autonomy 1	0.467	0.069	0.478	0.063	0.011	(0.007)
Permission						
Buying Food	0.616	0.144	0.606	0.153	-0.010	(0.016)
Buying Cloth	0.406	0.161	0.370	0.150	-0.036**	(0.017)
Buying Medicine	0.506	0.161	0.488	0.160	-0.018	(0.017)
Buying Personal Needs	0.649	0.154	0.628	0.167	-0.022	(0.017)
Autonomy 2	0.544	0.137	0.523	0.141	-0.021	(0.015)
Family Planning Usage	0.632	0.168	0.628	0.162	-0.004	(0.018)
Observations	174		179			

Note: Standard errors in parentheses are clustered at sub-district level, * p<0.10** p<0.05*** p<0.010

Table 4-5 Summary Statistics of Baseline Data on Community CCT Intervention

	Control		Treatment		Difference	
	Mean	SD	Mean	SD	Coeff	SE
Decision						
Child Education	0.436	0.063	0.434	0.064	-0.003	(0.008)
Child Health	0.505	0.068	0.504	0.072	-0.000	(0.009)
Child Punishment	0.503	0.073	0.502	0.071	-0.001	(0.010)
More Children	0.448	0.065	0.444	0.062	-0.004	(0.009)
Autonomy 1	0.473	0.057	0.471	0.057	-0.002	(0.008)
Permission						
Buying Food	0.654	0.151	0.613	0.159	-0.041**	(0.021)
Buying Cloth	0.413	0.139	0.386	0.149	-0.027	(0.019)
Buying Medicine	0.530	0.159	0.501	0.172	-0.029	(0.022)
Buying Personal Needs	0.678	0.142	0.633	0.183	-0.046**	(0.021)
Autonomy 2	0.569	0.132	0.533	0.152	-0.036*	(0.019)
Family Planning Usage	0.593	0.149	0.583	0.156	-0.010	(0.020)
Observations	81		178			

Note: Standard errors in parentheses are clustered at sub-district level, * p<0.10** p<0.05*** p<0.010

Table 4-6 Joint Estimation of Two Interventions

	Autonomy 1	Autonomy 2	Family Planning	Health Counseling Participation	Education Counseling Participation
CCT vs Control	0.004	0.030**	0.006	0.071	0.028
	(0.008)	(0.014)	(0.010)	(0.081)	(0.022)
Community CCT vs Control	-0.025***	0.030**	-0.014	0.358***	0.032
	(0.008)	(0.015)	(0.013)	(0.090)	(0.030)
Potential outcome means	-0.001	0.057***	0.029***	0.699***	0.187***
	(0.005)	(0.010)	(0.007)	(0.056)	(0.013)

Note: Standard errors in parentheses are using robust standard error, * p<0.10** p<0.05*** p<0.010, all estimation using IPW on the Sub-district average value indicators on the overlap region. Estimations are control with supply side readiness variables.

Table 4-7 Joint Estimation of Two Interventions on Autonomy Variables[8]

	Autonomy 1				Autonomy 2			
	Child Education	Child Health	Child Punishment	More Children	Buying Food	Buying Cloth	Buying Medicine	Buying Personal Needs
CCT vs Control	0.006	0.007	0.008	-0.006	0.027*	0.032*	0.025	0.035**
	(0.009)	(0.011)	(0.010)	(0.010)	(0.016)	(0.017)	(0.017)	(0.016)
Community CCT vs Control	-0.021**	-0.028***	-0.034***	-0.015	0.019	0.070***	0.020	0.012
	(0.009)	(0.010)	(0.011)	(0.010)	(0.017)	(0.020)	(0.018)	(0.018)
Potential outcome means	0.004	-0.005	-0.003	0.000	0.071***	0.037***	0.072***	0.047***
	(0.006)	(0.007)	(0.007)	(0.006)	(0.011)	(0.011)	(0.011)	(0.011)

Note: Standard errors in parentheses are using robust standard error, * p<0.10** p<0.05*** p<0.010, all estimation using IPW on the Sub-district average value indicators on the overlap region. Estimations are control with supply side readiness variables.

[8] The variables used in this table are the breakdown of the index calculated in Table 4.6

Table 4-8 Joint Estimation of Two Interventions on Family Members Involvement on the Decision Making[9]

		CCT vs Control		Community CCT vs Control		Potential outcome means	
	Child Education	0.006	(0.012)	0.008	(0.013)	-0.030***	(0.007)
	Child Health	-0.013	(0.015)	0.015	(0.015)	-0.004	(0.010)
	Child Punishment	-0.006	(0.014)	0.016	(0.016)	-0.013	(0.010)
Husband	More Children	-0.015	(0.013)	0.002	(0.013)	-0.004	(0.009)
	Child Education	-0.007	(0.005)	0.008*	(0.005)	-0.006*	(0.003)
	Child Health	-0.003	(0.004)	0.010***	(0.003)	-0.007***	(0.003)
	Child Punishment	0.002	(0.004)	0.009***	(0.003)	-0.008***	(0.002)
Other Family member at Home	More Children	-0.001	(0.003)	0.004**	(0.002)	-0.003**	(0.002)
	Child Education	-0.001	(0.002)	-0.004**	(0.002)	0.000	(0.001)
	Child Health	-0.000	(0.001)	-0.003*	(0.002)	-0.000	(0.001)
	Child Punishment	0.001	(0.001)	-0.000	(0.002)	-0.001	(0.001)
People Outside Home	More Children	-0.000	(0.001)	-0.001	(0.001)	0.000	(0.001)

Note: Standard errors in parentheses are using robust standard error, * p<0.10** p<0.05*** p<0.010, all estimation using IPW on the Sub-district average value indicators on the overlap region. Estimations are control with supply side readiness variables

Table 4-9 Joint Estimation of Two Interventions based on Supply Side Readiness

	Autonomy 1	Autonomy 2	Family Planning	Health Participation	Educ Participation
High Supply Side					
CCT vs Control	-0.009	0.014	0.000	0.175**	0.055*
	(0.011)	(0.019)	(0.012)	(0.087)	(0.028)
Community CCT vs Control	-0.032**	0.035	-0.028	0.431***	0.098
	(0.013)	(0.024)	(0.025)	(0.119)	(0.080)
Potential outcome means	0.007	0.068***	0.032***	0.497***	0.163***
	(0.008)	(0.014)	(0.009)	(0.052)	(0.015)
Low Supply Side					
CCT vs Control	0.020	0.050**	0.019	-0.090	-0.004
	(0.014)	(0.021)	(0.016)	(0.158)	(0.032)
Community CCT vs Control	-0.021*	0.036*	0.005	0.403**	0.013
	(0.012)	(0.019)	(0.016)	(0.197)	(0.035)
Potential outcome means	-0.009	0.045***	0.018*	1.016***	0.216***
	(0.009)	(0.014)	(0.010)	(0.121)	(0.023)

Note: Standard errors in parentheses are using robust standard error, * p<0.10** p<0.05*** p<0.010, all estimation using IPW on the Sub-district average value indicators on the overlap region. Estimations are control with supply side readiness variables

[9] The involvement of other family members in this table is calculated only whether any of them were involved or not in that process. The number of people involved in that process is irrelevant for the calculation of these variables.

Table 4-10 Joint Estimation of Two Interventions on Family Members Involvement on the Decision Making based on Supply Side Readiness[10]

		CCT vs Control		Community CCT vs Control		Potential outcome means	
High Supply Side							
Husband	Child Education	0.010	(0.017)	0.020	(0.024)	-0.029***	(0.011)
	Child Health	0.009	(0.022)	0.020	(0.025)	-0.013	(0.016)
	Child Punishment	0.002	(0.021)	0.002	(0.026)	-0.017	(0.015)
	More Children	-0.008	(0.019)	0.000	(0.018)	-0.002	(0.014)
Other Family member at Home	Child Education	-0.009	(0.007)	0.009	(0.007)	-0.009*	(0.005)
	Child Health	-0.006	(0.006)	0.012**	(0.005)	-0.011***	(0.004)
	Child Punishment	-0.004	(0.006)	0.007	(0.005)	-0.008**	(0.004)
	More Children	-0.001	(0.004)	0.006*	(0.003)	-0.006**	(0.003)
People Outside Home	Child Education	0.001	(0.002)	-0.005	(0.005)	-0.002	(0.002)
	Child Health	0.001	(0.002)	-0.005	(0.005)	-0.001	(0.001)
	Child Punishment	0.002	(0.002)	-0.003	(0.005)	-0.002	(0.001)
	More Children	0.000	(0.001)	0.001	(0.001)	0.000	(0.001)
Low Supply Side							
Husband	Child Education	-0.001	(0.015)	0.018	(0.016)	-0.032***	(0.010)
	Child Health	-0.039*	(0.021)	0.018	(0.018)	0.003	(0.011)
	Child Punishment	-0.010	(0.020)	0.036**	(0.017)	-0.012	(0.012)
	More Children	-0.023	(0.016)	0.016	(0.017)	-0.008	(0.011)
Other Family member at Home	Child Education	-0.006	(0.007)	0.004	(0.006)	-0.000	(0.005)
	Child Health	0.002	(0.006)	0.004	(0.005)	-0.001	(0.004)
	Child Punishment	0.011*	(0.006)	0.009*	(0.005)	-0.008*	(0.004)
	More Children	-0.001	(0.003)	0.002	(0.002)	0.000	(0.002)
People Outside Home	Child Education	-0.004**	(0.002)	-0.004**	(0.002)	0.002*	(0.001)
	Child Health	-0.001	(0.001)	-0.003**	(0.001)	0.000	(0.001)
	Child Punishment	0.001	(0.001)	0.000	(0.001)	-0.001	(0.001)
	More Children	-0.000	(0.001)	-0.001	(0.001)	-0.000	(0.001)

Note: Standard errors in parentheses are using robust standard error, * p<0.10** p<0.05*** p<0.010, all estimation using IPW on the Sub-district average value indicators on the overlap region. Estimations are control with supply side readiness variables

[10] The involvement of other family members in this table is calculated only whether any of them were involved or not in that process. The number of people involved in that process is irrelevant for the calculation of these variables.

Table 4-11 Joint Estimation of Two Interventions on Autonomy 2 Variables on Low Supply Side Readiness

	Autonomy 2			
	Buying Food	Buying Cloth	Buying Medicine	Buying Personal Needs
Low supply side				
CCT vs Control	0.049**	0.057**	0.045*	0.049**
	(0.023)	(0.026)	(0.026)	(0.024)
Community CCT vs Control	0.028	0.062***	0.021	0.034
	(0.021)	(0.023)	(0.025)	(0.023)
Potential outcome means	0.049***	0.025	0.067***	0.037**
	(0.015)	(0.017)	(0.017)	(0.016)

Note: Standard errors in parentheses are using robust standard error, * p<0.10** p<0.05*** p<0.010, all estimation using IPW on the Sub-district average value indicators on the overlap region. Estimations are control with supply side readiness variables

Figure 4-1 Who Makes Decision on Child Issues on CCT Sub-Districts

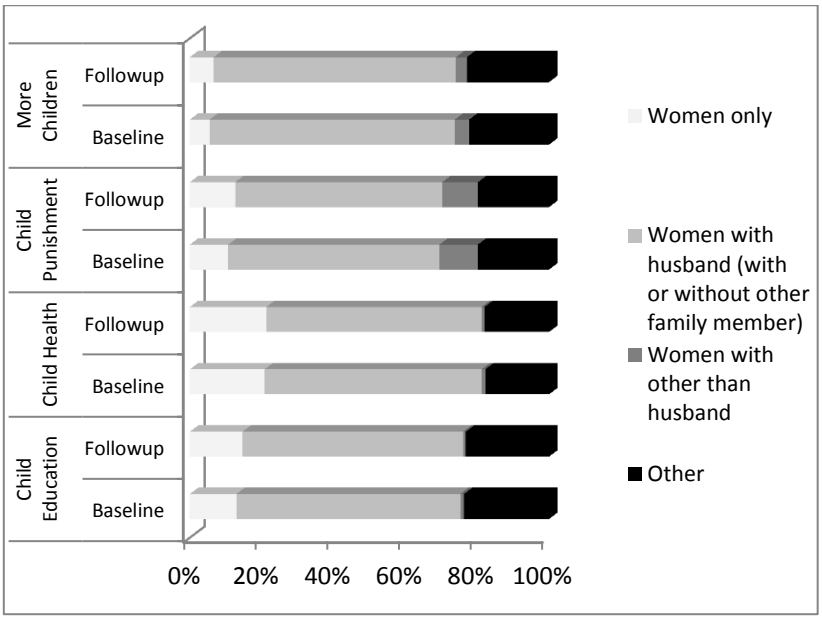
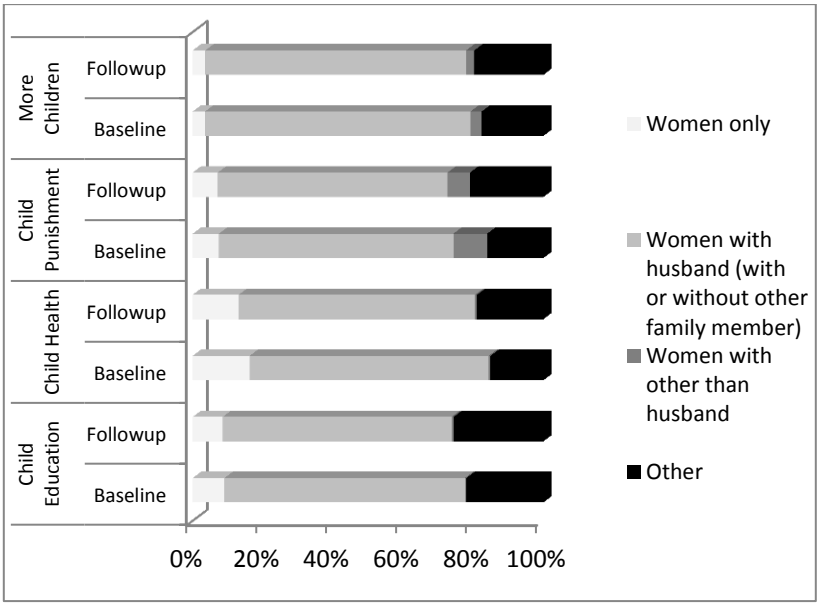


Figure 4-2 Who Makes Decision on Child Issues in Community CCT sub-districts



Appendix

Table A4-1 Programs Performance Indicators

Performance indicators
1. Prenatal care visit
2. Iron tablets (30 pill packet)
3. Childbirth assisted by trained professional
4. Postnatal care visit
5. Immunizations
6. Monthly weight increases
7. Weight check
8. Vitamin A pill
9. Primary enrollment
10. Monthly primary attendance >= 85%
11. Middle school enrollment
12. Monthly middle school attendance >= 85%

Source: Olken et al. (2014)

Table A4-2 Summary Statistics of Baseline Value on CCT High Supply Readiness

	CCT					
	Control		Treatment		Difference	
	Mean	SD	Mean	SD	Coeff	SE
Decision						
Child Education	0.439	0.070	0.451	0.069	0.012	(0.009)
Child Health	0.506	0.093	0.528	0.078	0.022*	(0.012)
Child Punishment	0.497	0.093	0.516	0.077	0.020*	(0.012)
More Children	0.428	0.077	0.434	0.074	0.007	(0.010)
Autonomy 1	0.467	0.069	0.482	0.060	0.015*	(0.009)
Permission	0.633	0.129	0.635	0.144	0.001	(0.019)
Buying Food	0.423	0.168	0.386	0.153	-0.037*	(0.022)
Buying Cloth	0.541	0.152	0.522	0.153	-0.020	(0.021)
Buying Medicine	0.676	0.132	0.664	0.157	-0.013	(0.020)
Buying Private Nececities	0.568	0.126	0.551	0.133	-0.017	(0.018)
Autonomy 2	0.639	0.153	0.659	0.133	0.020	(0.019)
Family Planning Usage	0.596	0.145	0.614	0.133	0.018	(0.019)
Observations	107		110			

Note: Standard errors in parentheses are clustered at sub-district level, * p<0.10** p<0.05*** p<0.010

Table A4-3 Summary Statistics of Baseline Value on Community CCT High Supply Readiness

	Generasi					
	Control		Treatment		Difference	
	Mean	SD	Mean	SD	Coeff	SE
Decision						
Child Education	0.433	0.050	0.441	0.054	0.008	(0.012)
Child Health	0.507	0.071	0.519	0.062	0.013	(0.015)
Child Punishment	0.508	0.077	0.515	0.065	0.007	(0.017)
More Children	0.435	0.064	0.450	0.053	0.015	(0.014)
Autonomy 1	0.470	0.053	0.481	0.047	0.011	(0.012)
Permission	0.679	0.129	0.639	0.143	-0.040	(0.030)
Buying Food	0.407	0.120	0.406	0.130	-0.000	(0.028)
Buying Cloth	0.533	0.137	0.535	0.153	0.002	(0.032)
Buying Medicine	0.702	0.104	0.681	0.169	-0.021	(0.029)
Buying Private Nececities	0.580	0.109	0.565	0.134	-0.015	(0.027)
Autonomy 2	0.609	0.149	0.623	0.133	0.015	(0.032)
Family Planning Usage	0.578	0.159	0.597	0.125	0.019	(0.034)
Observations	29		60			

Note: Standard errors in parentheses are clustered at sub-district level, * p<0.10** p<0.05*** p<0.010

Table A4-4 Summary Statistics of Baseline Value on CCT Low Supply Readiness Community

	Control		CCT Treatment		Difference	
	Mean	SD	Mean	SD	Coeff	SE
Decision						
Child Education	0.440	0.065	0.441	0.069	0.002	(0.012)
Child Health	0.500	0.093	0.504	0.091	0.004	(0.016)
Child Punishment	0.486	0.082	0.497	0.084	0.011	(0.014)
More Children	0.438	0.077	0.442	0.079	0.003	(0.013)
Autonomy 1	0.466	0.068	0.471	0.068	0.005	(0.012)
Permission	0.588	0.163	0.561	0.156	-0.027	(0.027)
Buying Food	0.379	0.146	0.343	0.144	-0.035	(0.025)
Buying Cloth	0.449	0.160	0.434	0.156	-0.015	(0.027)
Buying Medicine	0.606	0.176	0.571	0.168	-0.035	(0.030)
Buying Private Nececities	0.505	0.146	0.477	0.142	-0.028	(0.025)
Autonomy 2	0.621	0.192	0.578	0.190	-0.043	(0.033)
Family Planning Usage	0.577	0.191	0.544	0.187	-0.033	(0.032)
Observations	67		69			

Note: Standard errors in parentheses are clustered at sub-district level, * p<0.10** p<0.05*** p<0.010

Table A4-5 Summary Statistics of Baseline Value on Community CCT Low Supply Readiness

	Control		Generasi Treatment		Difference	
	Mean	SD	Mean	SD	Coeff	SE
Decision						
Child Education	0.439	0.070	0.430	0.068	-0.008	(0.012)
Child Health	0.503	0.066	0.496	0.075	-0.007	(0.012)
Child Punishment	0.501	0.072	0.496	0.074	-0.005	(0.012)
More Children	0.456	0.065	0.441	0.066	-0.015	(0.011)
Autonomy 1	0.475	0.059	0.466	0.061	-0.009	(0.010)
Permission	0.639	0.162	0.599	0.166	-0.040	(0.027)
Buying Food	0.417	0.149	0.376	0.158	-0.041	(0.025)
Buying Cloth	0.529	0.171	0.484	0.179	-0.044	(0.029)
Buying Medicine	0.665	0.158	0.608	0.186	-0.057**	(0.028)
Buying Private Nececities	0.563	0.144	0.517	0.158	-0.046*	(0.025)
Autonomy 2	0.585	0.149	0.563	0.163	-0.022	(0.026)
Family Planning Usage	0.562	0.156	0.540	0.172	-0.022	(0.027)
Observations	52		118			

Note: Standard errors in parentheses are clustered at sub-district level, * p<0.10** p<0.05*** p<0.010

Table A4-6 The Propensity Score Estimation

	Type Intervention
Availability	
Puskesmas	-0.496
	(0.973)
Pustu	-1.785***
	(0.468)
Clinics	1.778***
	(0.576)
Public Hospital	-0.236
	(2.412)
Private Hospital	0.809
	(1.734)
Number of Doctor	0.272*
	(0.156)
Number of Midwives	1.009***
	(0.249)
Number of School	-0.024
	(0.046)
Constant	0.132
	(0.228)
N	624

Note: Standard errors in parentheses, * p<0.10** p<0.05*** p<0.010

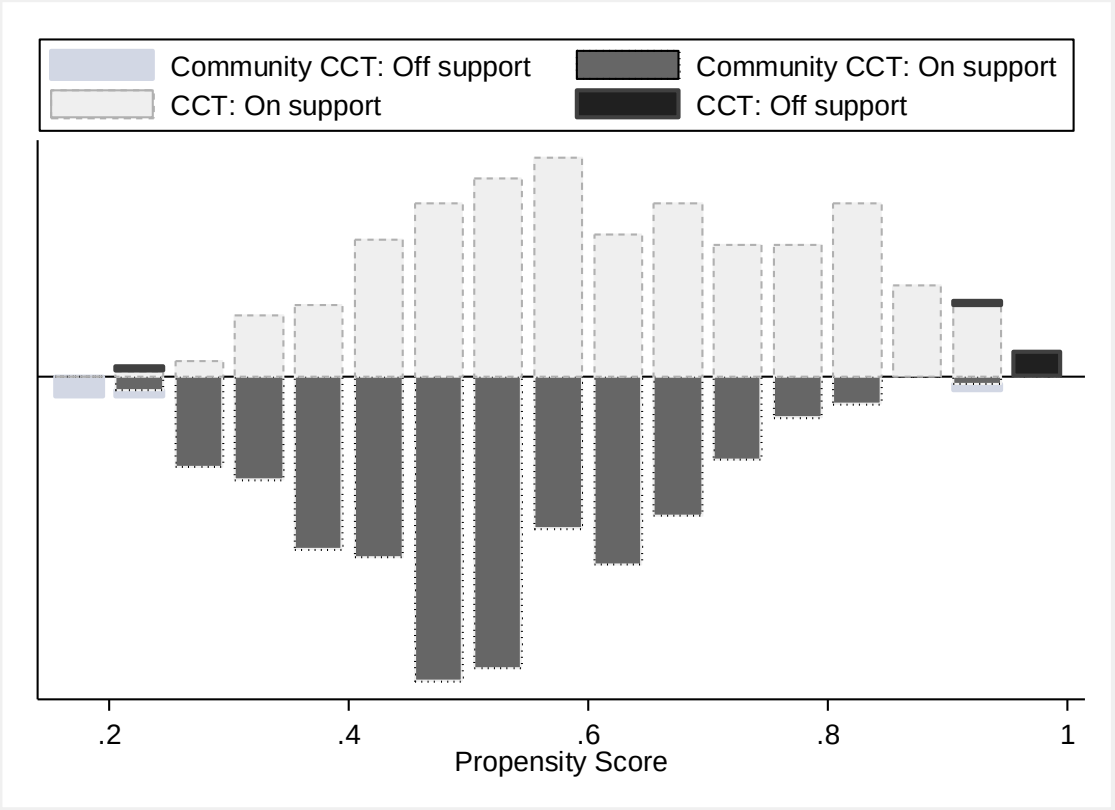
Table A4-7 The List of Variables

Variable	
Dependent Variables	
Autonomy 1	Sum of four dummy on whether women making decision by their own on child education, health, punishment and having more children
Autonomy 2	Sum of four dummy on whether women need permission of other household member to buy food, cloth, medicine and personal need
Family Planning usage	Dummy variable 1 if the use contraceptive and 0 if not
Health Counseling Participation	Number Education counseling attended by women
Education Counseling Participation	Number health counseling attended by women
Supply Side Readiness	
Puskesmas	Availability of Community Health Facility
Pustu	Availability of Auxiliary community health Facility
Clinics	Availability of Clinics Facility
Public Hospital	Availability of Public Hospital Facility
Private Hospital	Availability of Private Hospital Facility
Number of Doctor	Number of Doctors
Number of Midwives	Number of Midwives
Number of School	Number of school

Table A4-8 Detail question on Autonomy Variables

Autonomy Indicators Questions
Q1. In this household, who makes decision on [...] in relation to your kids? a. Education (which school to enter, stop GOIng to school, etc.) b. Health (such as which health service facility to bring the kids to, etc.) c. Disciplinary enforcement d. To have another baby Respond option (Could be multiple): A. Respondent B. Respondent spouse C. Other household member D. Person living outside the household W. NOT APPLICABLE
Q2. Do you have to ask the permission of other household member to buy [...]? a. Vegetables and fruits b. Clothing for your own c. Medicines for your own d. Personal needs (soap, shampoo, dental paste, sanitary napkins, etc.) Respond option: 1. Yes 3. No 6. HAVE NEVER BOUGHT

Figure A4-1 The Propensity Score Distribution



CHAPTER 5 CONCLUSION

5.1 Discussions

This section provides some general conclusions that have been gathered from the analysis of three empirical studies' findings that are fundamental for this thesis.

There is growing literatures on the impact of conditional cash transfer (CCT) since its first introduction in Latin America countries in the end of 90s. These studies focus not only on the broad range of health and education issues as part of program objectives but also the unintended and the spillover effect of it such as social capital, social tension and gender vulnerability issues. As the CCT in Indonesia just started in 2007, the study on program impact is still very limited. At the same time Government of Indonesia has also launched a new type of CCT that provides cash grants to communities under similar conditions to household intervention. This program is the first Community CCT in the world. Thus, the implementation of these two interventions is giving us opportunity to observe their non-objective impacts as well as to contrast their effectiveness.

There are three broad questions with their extensions that we try to answer and relate them to these two programs impacts. First, in Chapter 2, we want to investigate whether the household intervention is affected the local disharmony such as the practice of mutual assistance and collective decision making in the presence of mistargeting beneficiaries selection. Then, whether this disharmonies escalated to a bigger conflict in community. Second, in Chapter 3, we observe the impact of community intervention on the household-local leaders' connections. Thus, whether the poorest households in the

community received this benefit more than the overall community members and what kind of mechanism enables this connection to occur. Finally, on Chapter 4, we address different program effectiveness in improving women autonomy and participation. We also extend our analysis on whether different health and education facilities influence the program effectiveness on women's empowerment.

In Chapter 2, our results suggest almost no impact of CCT on community disharmony and conflict, except for the decreasing of mutual assistance sanction perception among the non-beneficiaries in treatment area compare to households in control area. As the consequence of this finding, our suspicion on the "burden shifting" or moving the responsibility on mutual assistance between non-beneficiaries to beneficiaries as well as social jealousy of non-beneficiaries as the result of program implementation cannot be supported. However, in the presence of ethnic diversity in the community, we find some evidence that the program might generate both local disharmony and conflict in the community. The evidence is manifested by a decrease in mutual assistance contribution (of any type) and by an increase in violent and communal conflicts incidence probability in treatment areas compare to control areas.

In Chapter 3, we find that the presence or absence of incentives does not give any impact on the local leader-household relationship in treatment areas relative to their controls for either the overall sample or the poorest 10% of households. Thus, the program in general improves the connection between the poor and the local leaders in the presence of ethnic heterogeneity as interaction costs, especially the incentive type program. Furthermore, in assessing the mechanism of interaction between household and leaders

after the program, we find that the program is effectively improving village officials' participation in health and education discussion but no evidence of program impact on household participation. We are also found no evidence on how the program impacted poor households or village officials participation in the presence of ethnic diversity. These results suggest other potential mechanisms, probably program related that cannot be observed in our data, may explain how the relationship between poor households and their leaders improve in communities with heterogeneous ethnicity.

In Chapter 4, the joint estimation result shows that, in general, CCT gives more positive significant impact than Community CCT on women. However, both programs improved women's autonomy on freedom to buy as well as health counseling participation. Moreover, the improvement of health counseling participation is much higher in the case of Community CCT improvement than Household CCT intervention. Thus, if we take into account the heterogeneity of health and education facilities among community, we find that health counseling participation is always significant and high among the Community CCT no matter the quality of these facilities. On the other hand, the autonomy indicator on women's freedom to buy is only significant on low supply side readiness.

Based on the summary of findings from these three chapters shown in Table 5-1, we can conclude that both programs have limited effect on households' general or social participation. One possible explanation on why both programs gave no impact on participation is due to possibility of time constraint that is faced by households. They experience tradeoff between participation in general and social activities or in program related activities, such as taking their children to health facilities (Soares et al., 2010). Thus,

in the presence of ethnic diversity, community intervention probably gives more positive impact than household intervention. This is because community intervention could facilitate people from different ethnic groups meeting and working together in order to reach common goals in achieving the bonus performance. Finally, heterogeneity between the communities like availability of health and education facilities is affecting the program's impact.

5.2 Policy Implications

This section discusses the policy implications that are generated from three empirical studies' findings that are analyzed in previous chapters.

In Chapter 2 and Chapter 3, our findings on CCT and Community CCT's impact on local disharmony and conflict as well as the quality relationship of household-local leaders, respectively, do not appear to have major negative unintended effect that might undermine programs' cost-benefit analysis. Particularly to our result on chapter 3, a person might think that if individuals have stronger links with the local elites, then probability of elites' misconduct during program implementation will become less, such as corruption on community grant. However, our paper does not show that the community intervention does strengthen these links; therefore we cannot expect this kind of positive spillover effect.

However, for an ethnically-diverse country, Indonesia, it is important to take into account the potential of social disharmony and conflicts as the result of implementation of an individual or household program. Moreover, as mentioned by Kharisma (2009), it is also important to use of set local criteria indicators on the participation selection. Thus, in the

community with relatively diversity in ethnicity, the community intervention has some positive impact on social capital. This result is contrasting with our finding in Chapter 2, which suggests in the presence such environment community intervention might more effective than household intervention.

In Chapter 4, we find that both programs improve women's autonomy in freedom to buy their own needs but not the autonomy on decision making. Thus, not all women's participation indicators show positive association with both programs. These moderate results suggest that the program does have some impact; however, it is probably not enough to say that programs already empowered women other than their title as mother. To ensure that the program empowers women, an extra program component that connects women with economically productive activities and job creation might also needed. This extra component could be in the form of training, access to capital or other thing that should be tailor-made based on their needs and availability resources in the community.

5.3 Further Studies

This section explores some extension of thoughts that are built based on this thesis results. The findings and limitations presented here on the evaluation of conditional cash transfer on the unintended impacts offer some possibilities to investigate in future research.

Regarding Chapter 2 and 3, our main limitation is on the availability of proxy variables that we intended to represent the program's pathways. Our ethnic heterogeneity for both of these chapters only represents three biggest ethnics in the community. Alternative data like Indonesian Census can be used to produce a better ethno-linguistic

fractionalization index in further research. Thus, exploration on alternative pathways might also important to be conducted in further study to help explaining the unintended program's impacts.

In chapter 4, we use most indicators to represent the program impact on women, however still two possible issues left to be explored in the future studies. First, we can investigate the impact of both programs on birth spacing because having more children will affect women more than men. There is also a possibility of capturing the long run effect on birth spacing issue by including the last round of household intervention evaluation survey that being conducted 6 years after CCT firstly launched. Second, as mentioned in the introduction that the GOI also launched a hybrid program that provides cash grants to women who are also CCT recipients. It will be interesting to see whether this kind of intervention actually improves women's empowerment in Indonesia.

References

Kharisma, D. (2009). Case study of PKH (CCT Indonesia) in Sumba Barat and Kediri, *Paper presented at the Asian Social Protection in Comparative Perspective Conferenc*e, Singapore, 7–9 January

Soares, F., Perez Ribas, R., & Issamu Hirata, G. (2010). Impact evaluation of a rural conditional cash transfer programme on outcomes beyond health and education. *Journal of development effectiveness*, *2*(1), 138-157.

List of Table

Table 5-1 The Summary of Studies Hypotheses and Findings

	Unintended Program Impacts		
	Chapter 2 (Household Intervention)	Chapter 3 (Community Intervention)	Chapter 4 (Both Intervention)
Hypothesis	CCT will raise the potential of disharmony and conflict in community due to program mistargeting	Community CCT will improve the quality relationship between household and the local leaders because the program provides incentive for both of them to interact.	CCT intervention is more effective in improving women's autonomy and participation than Community CCT.
General Results	Almost no CCT impact on both local disharmony and conflict in the community.	No community CCT impact in improving the household closeness to different type of leaders in community.	CCT increased women's autonomy more than Community CCT but it was not the case for women's health counseling participation.
Program Impact on Participation and Other Related Indicators	No impact on households' mutual assistance participations and contributions.	No impact on households' total organizations and mutual assistance participation as well as their health and education discussion participation. However, program improved the participation of village officials on health and education discussions in the community and increased poor households' time contribution on mutual assistance.	Both programs improved women's health counseling participation but only household CCT increased their participation on education counseling. Also, no impact generated on family planning participation for both programs
Program Impact with Heterogeneity Ethnicity Communities	CCT increased the possibility of disharmonies and conflicts.	Community CCT with incentive improved the local leaders-household relationship quality particularly among the poorest households.	Was not observed
Other Heterogeneity Effects	No other heterogeneity effect was observed.	No other heterogeneity effect was observed	The difference in health and education readiness across observation areas affected women's autonomy and their participation after the implementation of both programs. Participation in health and education counseling improved better in high supply communities. However, women's autonomy improved more in low supply side areas.