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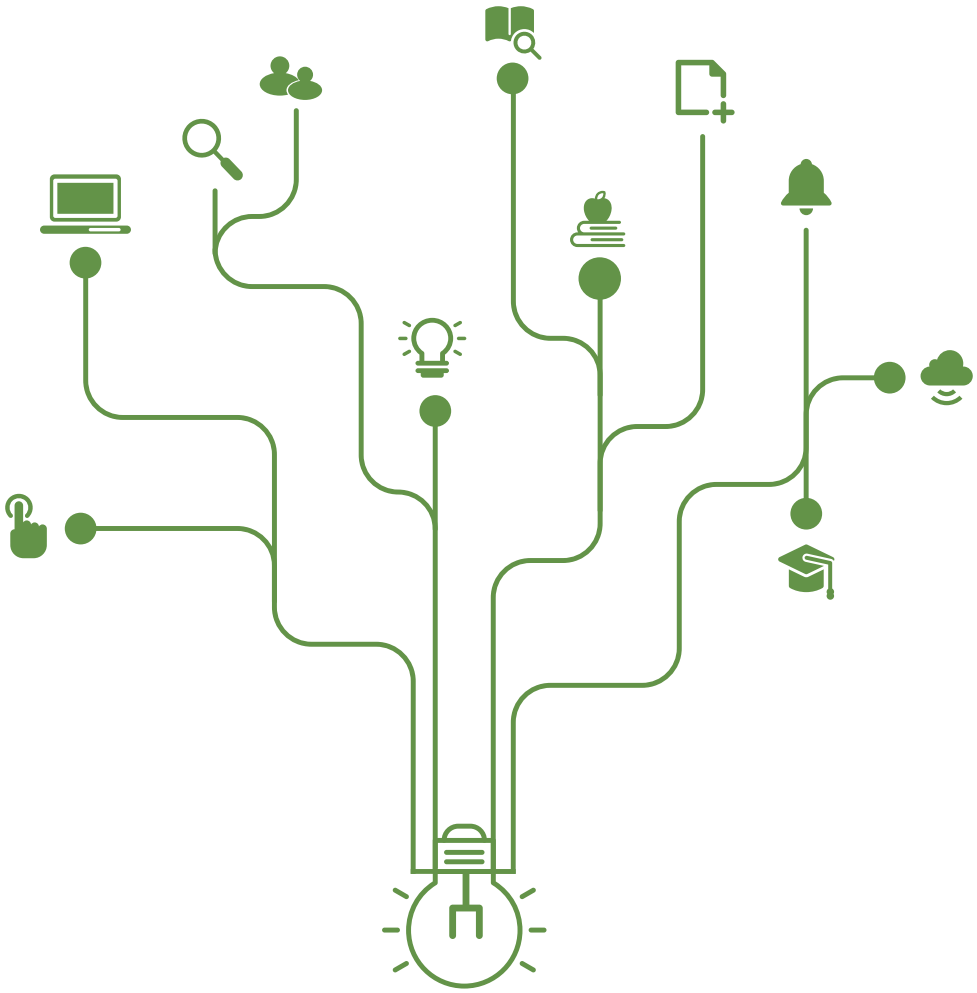
State-Society Synergy Through Social Capital in Indonesian Community-Driven Development

Jinhyun Lee (Ewha Womans University)
Thelda Pongsilurang (Ewha Womans University)



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State-Society Synergy Through Social Capital in Indonesian Community-Driven Development

Jinhyun Lee[1] and Thelda Pongsilurang[2]

Abstract

In addition to the potential efficiency gains of decentralization, community-driven development (CDD) programs were expected to empower the poor and marginalized by encouraging their participation in community decision-making. As social capital is recognized as a critical resource for the poor, CDD programs contribute to national poverty-reduction efforts through bottom-up mobilization rather than top-down state-led development initiatives. In this sense, CDD demonstrates how state-society synergy can be realized through the accumulation of social capital. This paper investigates the extent of state-society synergy at the individual/household level in Indonesia using the Indonesian Family Life Survey (IFLS). By controlling for potential selection problems using difference-in-difference methods, this study reveals that the synergetic mobilization of society leads to improved wellbeing. In particular, by controlling for community participation and its spillover effects, it finds that individual participation in the Indonesian CDD program enhanced the material and subjective wellbeing of households. However, this effect was not through the direct benefit of participation in the CDD program; rather, it stemmed from the indirect effects of increased membership in other community activities. Increased interaction among community members consolidated trust within the community and provided increased access to loans when necessary. CDD has the most significant impact on wives' empowerment within the household.

1. Introduction

In line with the popularity of localization in the development field (World Bank, 2003; Mansuri & Rao, 2004, 2007, 2012), there has been rising interest in the role of social capital and civic participation (Woolcock & Narayan, 2000; World Development Report 2000/01; Bebbington, Guggenheim, Olson, & Woolcock, 2004). Civic engagement is thought to lead to social capital

[1] PhD Candidate, Department of International Studies, Ewha GSIS

[2] PhD Candidate, Department of Public Administration, Ewha Womans University

accumulation (Putnam, 1993), which can resolve common dilemmas that come alongside collective action (Hardin 1968). However, social capital only leads to positive development outcomes if actively utilized (Krishna, 2001). Community-driven development (CDD) programs promoted by the World Bank are designed to initiate the process of development by devolving decision-making authority to local communities without relying on formally constituted local governments (Dongier et al., 2003; Mansuri & Rao, 2004; Guggemheim, 2006; Casey, 2017). CDD encourages local citizens to participate in the decision-making process of public projects.

CDD is distinct from market-driven and state-led development strategies, though it complements them (Dongier et al., 2003, pp. 304–305) by emphasizing "the role of social relations in development" (Woolcock & Narayan, 2000, p. 4). CDD, motivated by Sen's (1985, 1999) capability approach and the role of social capital in promoting collective action (Ostrom & Ahn, 2008), aims to achieve development by empowering people (Dongier et al., 2003; Casey, 2017, p. 140) through the institutionalization of repeated participation. The designers of CDD at the World Bank believe that the approach enhances the capacity of beneficiaries to hold local governments accountable and improve public services (Dongier et al., 2003). At the same time, the participation of local people in community decision-making processes can provide them with material benefits.

Thus, CDD programs may be analyzed by adopting Evans' (1996) concept of state-society synergy. Evans (1996) conceptualizes how state and society interact to achieve collective development goals. State-society synergy occurs when an active government and a mobilized society enhance each other's development efforts. Evans (1996) identifies complementarity and embeddedness as the two main conditions for synergy. The Indonesian CDD program is one example that demonstrates the critical nature of complementarity and embeddedness. CDD programs exhibit complementarity through the government's arrangement of regular meetings, where community members voluntarily gather to make decisions regarding local development

projects. This aspect of CDD embodies what Evans (1996) calls institutional "soft technologies" or "institutional entrepreneurship" (p. 1124), which generate state-society synergy. It is based on the complementarity between public and private institutions, as governments deliver collective goods in a way that complements inputs from private actors (Evans, 1996, p. 1120).

In addition, the Indonesian CDD program exhibits embeddedness—ties that connect citizens and public officials (Evans, 1996, p. 1120). Suharto's authoritarian government used to organize many activities to mobilize communities and, in turn, achieve development goals. Thus, collective development activities are familiar to the Indonesian people. The new and unique aspect of CDD is that the government allows community members to make decisions about the development projects instead of instituting firm guidelines. In contrast to past community activities, which served to control and limit the social and political spaces (Beard, 2005, 2007), CDD aims to enhance the capacity of civil society. While local elites remained influential, the Indonesian CDD program's "broad-based participation" meant that non-elite citizens could influence the decision-making process (Dasgupta & Beard, 2007, p. 241). A major point of discussion is the extent to which such state-led institutional arrangements can develop "civicness," or social capital, as an autonomous element of development capacity. For CDD to be an effective instrument of development policy, synergy must possess "constructability" (Evans, 1996, 1124). If the synergy of a development policy is not constructible—meaning it depends on socio-cultural "endowments," which take longer to accumulate—the policy may not be effective in countries with limited endowments. In line with Evans (1996), we focus on social capital as a core element of synergistic state-society relations and assess whether synergy through social capital accumulation is present in the Indonesian CDD program.

Indonesian CDD was introduced through a pilot project in 1998—immediately following the Asian Financial Crisis—as a joint venture between the Indonesian government and the World

Bank. The project was designed to develop "bottom-up accountability by strengthening the planning and management role played by civic and associational groups and by building up what has been termed bridging and linking forms of social capital" (Bebbington, et al, 2004, p. 53). Despite concerns over local elites' dominance and corruption (Bebbington, Dharmawan, Fahmi, & Guggenheim, 2004; Dasgupta & Beard, 2007; Olken, 2010), Indonesian CDD has been scaled up sequentially over time; in fact, it was formally incorporated as a local governance mechanism in 2014 (Law No. 6/2014). CDD is believed to foster social institutions that mobilize Indonesia's existing *endowed* civic culture. Furthermore, experiences in societal mobilization under authoritarian regimes have contributed to the *embeddedness* of public-private relations. Nonetheless, endowments must be capitalized on to serve as effective policy tools for development. Civic participation itself can positively influence development outcomes by fostering a sense of communal ownership; additional synergistic effects are generated if the *top-down* influence of effective governance functions alongside bottom-up citizen-led initiatives that employ community-level social capital. Therefore, policy evaluation in Indonesia, which has a tradition of social reciprocity and trust, entails an assessment of whether state-society synergy can be "constructed" further. Endowments and embeddedness may influence a society's degree of constructability.

This paper contributes to the literature by examining the constructability of synergy through social capital accumulation in Indonesian CDD. We use the Indonesian Family Life Survey (IFLS) to investigate whether and how individual/household decisions are influenced by participation in CDD programs. We assess the extent to which state-society synergy occurred in Indonesia by testing the effect of synergy on material/subjective wellbeing and other intermediate variables. In particular, we test two competing hypotheses regarding the constructability of social capital. This paper is distinct from other studies (Dasgupta & Beard, 2007; Olken, 2010; Casey, 2017) in that we examine the effects of CDD on various outcomes among the overall Indonesian population. We use

representative observational data (Deaton, 2010) and consider the facts that the use of CDD has gradually increased, not all village proposals are selected, and not all individuals in a community with a CDD program participate in the program. Based on these observations, we construct a sample for a difference-in-difference (DID) estimation to control for the potential selection problem. Using the DID method, we explore the *mechanisms* through which positive development outcomes were achieved at the household/individual level in Indonesia.

As Indonesia rolled out CDD among its entire population, incorporating it as a formal local governance mechanism in 2014, the country constitutes an effective case to examine the effects of CDD on overall society. Case studies and randomized controlled trials are excellent tools for capturing specific causal factors in specific contexts; however, they have downsides with regard to their limited generalizability. The flipside is the strengths and weaknesses of our study in using large-N, representative observational data. This paper provides results on the overall Indonesian population rather than specific features in specific contexts. How the CDD effects within the population vary with different features of individuals/households or communities may not be captured by the methodology used in this paper. While synergy and project effects are likely to vary by regional endowment, this paper focuses on the effects of CDD programs on individual/household behavior and wellbeing, leaving discussions of community-specific governance quality to future research.

2. Social Capital and Development: Can the State Consolidate Social Capital?

Since Bourdieu' (1986) and Coleman's (1988) introduction of the concept of social capital into academia, social capital has gained traction from scholars across various disciplines (Fukuyama, 1996; Knack & Keefer, 1997; Woolcock & Narayan, 2000; Adler & Kwon, 2002; Caripiano 2006; Ostrom & Ahn, 2008). Since Putnam's (1993) popularization of the concept, social capital has

broadly been perceived as the "trust, norms, and network that foster mutually beneficial cooperation in society" (Putnam, 1993, p. 167). Putnam (1993) identifies social capital as the source of differences in economic prosperity between northern and southern Italy. He argues that "membership in groups" and "voluntary associations" are necessary conditions for good governance and development. While this conceptualization of social capital intuitively explains some puzzles at the macro-level, it also receives significant criticism (e.g., Tarrow, 1996; Portes, 1998; Foley & Edwards, 1999; DeFlippis, 2001; Carpiano, 2006) for its theoretical and methodological limitations. Since the publication of Putnam (1993), various authors have used different conceptualizations and measurements in their consideration of social capital.

This lack of consensus regarding the concept's definition and measurement has led some scholars to dismiss its practicality in scientific analysis (Arrow, 2000; Durlauf, 2002). Nonetheless, it is difficult to deny the benefits of using social capital to explain anomalies in economic and political development that standard approaches fail to explain (Ostrom & Ahn 2008, pp. 17–18). The key element agreed upon among scholars of social capital is the existence of community-level features from which community members can benefit individually and collectively. For example, two individuals in different communities with the same number of memberships in similar community activities can derive different benefits from civic participation if the natures of the two communities—which are shaped by social relations—are different. Therefore, what makes social capital distinct are the system-level values of "trust, reciprocity, and social interaction that cannot be achieved at an individual level or be derived from a characterization of individuals, or be reduced to it" (Comim, 2008, p. 628).

In the field of development, in line with the argument in Putnam (1993), social capital is viewed as something that can lead to macro-level economic payoffs (Knack & Keefer, 1997). It is also recognized as a valuable resource that poor people can rely on, as it can be accumulated by

simply expanding networks without incurring high costs (Fox & Gershman, 2002). As a result, social capital has emerged as a potential policy instrument (Krishna, 2001; Bebbington, et al, 2004; Pronyk et al., 2008). However, the conceptualizations of social capital following Putnam (1993) have not helped to devise policies, as the causal links between policy interventions and desired policy outcomes have not been well understood. The existing literature on social capital is less explicit regarding whether or how social capital can be generated (Portes & Landolt, 2000; DeFilippis, 2001) and how social capital leads to beneficial development outcomes. Furthermore, the mismatch in the level of analysis between the conceptualization and measurement of social capital (Portes 2000; DeFilippis 2001)—as well as the conflation of the origins of social capital, the process of social capital accumulation, and the consequences of this process (Carpiano, 2006)—has resulted in confusion and controversies. As a result, social capital is used only as an intervening variable to achieve development goals due to the difficulty of conceptualizing the causal mechanisms of social capital accumulation through policy interventions (Dongier et al., 2003).

However, examining the effects of CDD requires an understanding of how citizen participation can generate positive outcomes. As community activities prompted by CDD are distinct from voluntary associations, the matter of whether social capital can be generated through participation in CDD programs must be addressed. There are conflicting views on the role of the state in triggering the accumulation of social capital. Some argue that the state can facilitate the accumulation of social capital (e.g., Warner, 1999; Krishna, 2001; John & Chathukulam, 2002); others emphasize the importance of the voluntary nature of citizen participation and, in turn, are skeptical of the state's role in generating social capital (Fukuyama, 1996; Harris, 2001). Scholars who advocate for the state's role highlight the fact that social capital is not the crucial factor in triggering a virtuous cycle of civic participation and good governance. They view the key ingredients as coherent and dependable public institutions and a favorable political regime (Harris,

2001, p. 62). They argue that there is complementarity among the roles of state agencies and citizens.

These conflicting views on the role of the state in encouraging the accumulation of social capital have been reconciled by Evans' (1996) state-society synergy. Highlighting the role of interactions between the state and civil society, Evans (1996) argues that development strategies that engage with civil society, which is beyond the public-private divide, should be explored, noting the potential "state-society synergy." He argues that "social capital inheres, not just in civil society, but in an enduring set of relationships that spans the public-private divide" (Evans, 1996, p. 1122). Additionally, Ostrom (1996) argues that citizen participation in the co-production process—at the merger of the public and private—can have synergistic effects on development projects.

Following the emergence of Sen's (1985, 1999) capability approach and aid donors emphasis on democratic governance, the development field saw a resurgence of participatory development (Mansuri & Rao, 2004, 2012), which is believed to empower ordinary citizens by encouraging citizen participation. CDD is one approach to development under participatory development (Casey, 2017), as it is an "approach to development that emphasizes community control over planning decisions and investment resources" (Wong & Guggenheim, 2018, p. 2). CDD was designed based on the links between social capital, civil society engagement, and citizen empowerment (Krishna, 2003). Existing empirical findings on this matter are mixed. Various papers discuss partial aspects of the virtuous cycle's three elements: social capital, civil society engagement, and citizen empowerment. Fox (1996) examines how civil society could be strengthened in the development of social capital in rural Mexico. Fukuyama (2000) discusses the associations between social capital and civil society. Fritzen (2007) tests whether CDD projects in Indonesia can reduce the risk of elite capture. Dasgupta and Beard (2007) uncover limited evidence of communities' capacity to rein in elite control of resources among Indonesian CDD projects. Labonne and Chase (2010) investigate whether CDD projects enhance social capital using data from the Philippines. Casey (2017) argues

that there is little evidence that CDD projects empower the poor.

In line with the literature, this paper focuses on a partial aspect of CDD—social capital as an intermediate variable. We examine the effect of CDD on household welfare based on Evans' (1996) framework of state-society synergy through social capital. In investigating such impacts of CDD, two separate issues must be addressed to contribute to the literature on social capital and state-society relations. First, we must test whether the CDD intervention increases social capital. Second, we must reconcile the mismatch in the level of analysis between the policy intervention and the conceptualization of social capital as an intermediate variable. Thus, we explore potential causal mechanisms behind individual participation in CDD.

There are two distinct views on whether state-led programs like CDD can trigger the accumulation of social capital. One hypothesis argues that the expansion of the state's formal organization crowds out informal networks and hinders social capital stock. Coleman (1990) highlights the "zero-sum relation between state-sponsored activities and social capital" (p. 321). In contrast, the synergy hypothesis contends that civic engagement strengthens governance, and effective state institutions create an environment in which civic engagement is more likely to thrive (Putnam 1993, p. 42; Evans 1997, p. 3). This points to the virtuous cycle between empowerment of citizens through civil participation, enhanced governance, and development. Through this cycle, the synergistic effects are expected to generate positive development outcomes by empowering both the state (governance) and society.

3. Indonesian Community-Empowerment Programs

This section details the introduction of CDD programs in Indonesia and how these programs (e.g., Kecamatan Development Program [KDP], Urban Poverty Program [UPP], National Program for Community Empowerment [*Program Nasional Pemberdayaan Masyarakat*; PNPM]) operate.

Indonesia is the world's fourth most populous state and the largest Muslim-majority nation. It is a country rich in natural resources. After three decades of strong economic growth that began in 1966, Indonesia struggled with political and economic upheaval in the wake of the Asian financial crisis in 1997. However, Indonesia has seen a return to strong economic growth in the previous two decades. According to data from the World Bank, the country's annual growth rate has remained around 5% since 2000, with poverty falling from 63% in 1998 to 2.7% in 2019.[3] From the late 1960s through the mid-1990s, Indonesia experienced a sustained decline in poverty, with the population below the national poverty line dropping from over 40% in 1976 to less than 12% in 1996. Nonetheless, the Asian financial crisis erased many of these gains. By 1998, the poverty rate had doubled to over 24. In addition to causing economic hardship, the financial crisis increased the demand for public participation in government affairs among both individual citizens and sub-national governments. The dramatic deterioration of poor households' welfare prompted students and civil society to protest against the corrupt Suharto government. These protests quickly transformed into a nationwide movement, resulting in President Suharto's resignation. This political upheaval presented an opportunity to introduce decentralization, which had long been pursued by Indonesians (Booth, 2003; Hardiz, 2004; Nordholt, 2005).

The civil aftermath of the financial crisis brought about significant institutional change in Indonesia. In 1999, the Indonesian parliament passed two new decentralization laws (Law No. 22/1999; Law No. 25/1999) set to be implemented in 2001. These laws shifted many state responsibilities to provincial and district (*kota* and *kabupaten*, respectively) governments. These sub-national governments were provided the necessary funds to implement their new responsibilities. 2001's decentralization process provided local governments with new fiscal resources, civil servants, and regulatory authorities. The central government initially appointed district heads, but a 2004 law required district heads to be

[3]Source: The World Bank, https://data.worldbank.org/indicator/SI.POV.DDAY. Poverty headcount ratio as a percentage of population below $1.90 per day [2011ppp])

directly elected (Booth, 2003; Hadiz, 2004). Furthermore, the introduction of decentralization opened new social and political space for civil society by mandating that sub-national governments support "diversity, participation, genuine autonomy, democratization, and people's empowerment" (Antlov, 2003, p. 197)

These drastic political and economic changes opened up new space for Indonesian policy experiments. Following the end of Suharto's government, community-level development programs were initiated as part of a joint project of the World Bank and the Indonesian government. When food insecurity spiked on account of the recent financial crisis, the Indonesian government expanded community-based poverty-reduction programs. The World Bank sought a new approach to development projects in the wake of the Asian financial crisis, as its neoliberal Washington Consensus was under attack. The World Bank, inspired by Putnam (1993), began to explore whether and how social capital could be leveraged in development efforts (Bebbington et al., 2004; Guggenheim, 2006; Carroll, 2009). International donors such as the World Bank perceive CDD as a consolidation of decentralization and social capital to "reach down into communities, enable informed input into public decisions, and provide incentives to local governments to empower local communities and be accountable to their inputs," and, thus, to enhance both "improved governance and greater equity" (Dongier et al., 2003, p. 30).

Against this backdrop, the KDP, a CDD project implemented in rural areas, and the UPP, a CDD project implemented in urban areas, were introduced in 1998 as joint ventures of the World Bank and the Indonesian government. The Indonesian administrative system consists of provinces, districts (*kabupaten*), sub-districts (*kecamatan*), urban neighborhoods (*kelurahan*), and villages. There are around eight villages in each *kecamatan*/*kelurahan*. An average Javanese *kecamatan* is home to about 50,000–75,000 people. An average *kecamatan* in the Eastern islands can have as few as 10,000–12,000 inhabitants (Guggenheim, 2006; Ministry of Home Affairs, 2017). The central government

introduced the CDD programs in consultation with local governments in 59 sub-districts (*kecamatan*) and 1,298 urban neighborhoods (*kelurahan*) in Northern Java, Yogyakarta, and Malang (World Bank, 1999, p. 4). The KDP was the largest CDD project, operating in more than 28,000 villages (40% of the total) across Indonesia (Guggenheim 2006) with a budget of about $700 million (Wong, 2003, p. 1). From 2001 to 2003, the KDP accounted for more than half of World Bank lending in Indonesia (Guggenheim, 2006, p. 8).

In August 2006, President Yudhoyono scaled up CDD programs through the PNPM. This decision followed a government assessment of CDD's effectiveness in poverty reduction. The KDP and UPP were found to have outperformed the others (Friedman, 2014, p. 3). The PNPM's rural projects were built upon the KDP, while the PNPM's urban projects were built upon the UPP. In 2014, the Indonesian parliament approved a new village law (Law No. 6/2014) that institutionalized these CDD programs into its budget and fiscal-transfer systems (Asian Development Bank, 2016; Wong & Guggenheim, 2018, p. 14).

Table 1. KDP/PNPM Rural Scale-up and finance

Project Phase	Period	No. of Sub-District	IBRD/IDA (US$ millions)	Closing Date
KDP 1	1998-2002	986	225.0	31 Dec 2002
KDP Supplement	2000-2002	986	48.2	31 Dec 2002
KDP 2	2000-2006	1,316	335.5	31 Dec 2007
KDP 3A	2003-2009	760	91.0	31 Dec 2009
KDP 3B+AF	2005-2009	1,800	283.0	31 Dec 2009
PNPM Rural	2008	2,600	231.2	30 Jun 2011
PNPM Rural II AF	2009	4,258	300.0	31 Dec 2011
PNPM Rural III	2010-2012	4,791	785.0	31 Dec 2012
PNPM Rural IV	2011-2013	5,020	531.19	31 Jun 2014
Total			2,830.1	

Source: World Bank, 2014

Table 1 shows how the KDP and the PNPM's rural projects have been implemented throughout the whole country over the years. Between 1998 and 2006, 34,233 villages (about half of Indonesia's total of 70,000) in 1,983 sub-districts (out of more than 5,000) across nearly every province

participated in KDP initiatives at some point (World Bank, 2014, p. 5).

The format of the three programs—the KDP, UPP, and PNPM—is the same. Indonesian CDD programs explicitly encourage civil participation by providing block grants to local communities and letting citizens dictate the selection, implementation, and financial management of projects (Guggenheim, 2006; Gilbson & Woolcock, 2008; Bebbington et al., 2004; Dasgulta & Beard, 2007; McLaughlin, Satu, & Hoppe, 2007; Syukri, Mawardi, Akhmadi, & Adrianto, 2013; World Bank, 2014). Block grants—the size of which depends on the population and poverty level of each sub-district (Syukri et al., 2013, p. 9)—are disbursed to a joint bank account at the sub-district level (World Bank, 2014, p. 10). Each village must compete for these grants by submitting project proposals. Following village meetings, each village can submit up to two proposals to the sub-district council (Guggenheim, 2006, pp. 4–5). Funding is determined at inter-village consultative meetings attended by village representatives. Therefore, villages do not necessarily benefit from CDD programs implemented in their sub-district.

The capacity of both local authorities and citizens is critical to the successful completion of CDD programs (Krishna 2001; McLaughlin et al., 2007). These programs aim to ensure transparency and bottom-up democracy by demanding accountability from both the government and its neighbors and by taking responsibility for their investments (Edstrom, 2002, p. 2). A tiered facilitation system aids in the planning process. In each chosen village, villagers elect one man and one woman as representatives, whose main job is to introduce the project to all informal and formal institutions within the village. The next level is the *kecamatan*/*kelurahan*, where the project employs social and technical facilitators. The social facilitator explains the project's rules, monitors participation, and trains the village facilitators; the technical facilitator helps the villagers assess their infrastructure quality and trains them in maintenance. District engineers supervise the quality

of physical works. A provincial management unit conducts training, supervises progress in the field, and addresses complaints received from villagers (Guggenheim, 2006, pp. 4–5).

Indonesian CDD programs are devised to relieve the marginalized from poverty and improve their access to services. They aim to involve minority groups in the decision-making process as a form of empowerment. The rules require that any village group that submits a proposal must send a delegation of at least two women and one man to the *kecamatan* decision meeting, at which villagers present their proposals and decide which proposals will be funded (Guggenheim, 2006, pp. 4–5). By encouraging participation among marginalized groups, CDD programs aid in their accumulation of social networks, which can help to improve their overall welfare.

4. Data, Methodology, Measurements, and Arguments

Data

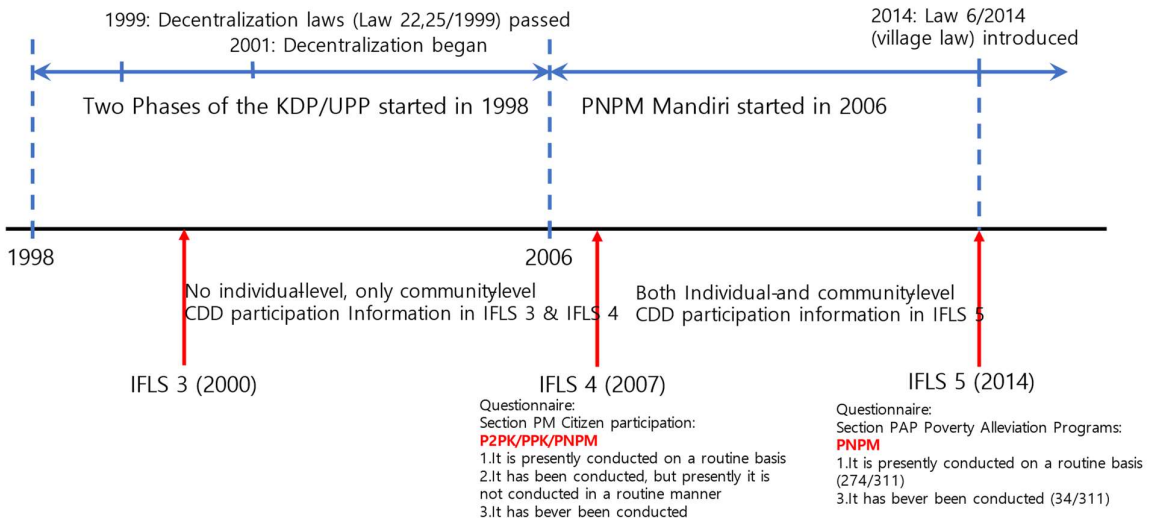
This paper uses the Indonesian Family Life Survey (IFLS). The IFLS is an ongoing longitudinal survey that has been conducted in 1993, 1997, 2000, 2007, and 2014. The 1993 base sample was stratified by provinces and urban/rural locations, then randomly sampled within these strata. The sample represents about 83% of the Indonesian population, including over 30,000 individuals in over 6,000 households across 13 of the 27 provinces in Indonesia (Strauss, Witoelar, Sikoki, & Wattie, 2009; Strauss, Witoelar, & Sikoki, 2016).

Methodologies and the Construction of the DID Sample

While CDD began in 1998, no communities in the ILFS's third wave (2000) reported that CDD programs (KDP/UPP) had been implemented. Still, not all communities in the IFLS's fifth wave (2014) reported coverage under CDD programs (PNPM). Eighty-five communities of the 303 in the IFLS's fourth wave (2007) reported that they had not experienced CDD programs

(KDP/UPP/PNPM). This reflects the gradual rollout of Indonesian CDD programs, as shown by Table 1 and Figure 1.

Figure 1. Timeline of CDD implementation and IFLS data collection



This paper focuses on the causal effects of CDD participation on individual/household welfare. Given the data features and timing of the CDD intervention discussed in Figure 1, we use the difference-in-difference (DID) method (Imbens & Wooldridge, 2009). The DID method can be applied to a case in which there are data that is collected in two separate periods and no individuals participated in the program in the initial period and part of individuals participate in the second period. The IFLS started to collect the community-level participation information since IFLS 3 (2000), so one could have use IFLS 2 (1997) and IFLS 3(2000) to construct the DID sample, if individual—level CDD participation information were collected in IFLS 3 (2000), Hosever, although it had collected community-level participation information since the third waves (2000), the IFLS did not collect individual-level CDD participation information until 2014 (the fifth wave). Thus, we use IFLS 4 (2007) and IFLS 5 (2014) and include only the communities with no CDD programs in 2007 to construct the DID sample so that no individuals in 2007 participate in CDD.

As Figure 2 shows the DID sample can be categorized into three groups based on the individual (household)'s and community's CDD participation status. "T" indicates "treatment" and "C" indicates "control". Note that by restricting the DID sample into communities without CDD programs, no individuals in the 2007 DID sample participated in CDD. T1 and T2 contain individuals who participated in CDD between 2007 and 2014, and and they are from communities with CDD program implemented. C13 and C3 contain nonparticipants of CDD even though they could have participated because those lived in communities with CDD program implemented. C12 and C2 are a group of nonparticipants who lived in a community without any CDD programs implemented between 2007and 2014. Then, the DID treatment effects are defined as a double mean difference of (T2-T1)-(C2-C12). Furthermore, we could separately measure the spillover effect of CDD programs among nonparticipants in a community with CDD program, by a double mean difference of (C3-C13)-(C2-C12). Appendix A2 provides summary statistics of variables used by group categorized by individual- and community- CDD participation status.

Figure 2. Difference-in-Differences (DID) scheme

	IFLS 4 (2007)	IFLS 5 (2014)
	T1: Not participate in CDD	T2: Participate in CDD between 2007 and 2014 (CDD_i^{14}=1) When CDD is implemented in community (CDD_c^{14}=1)
	C13: Not participate in CDD	C3: Not participate inCDD (CDD_i^{14}=0) When (CDD_c^{14}=1)
	C12: Not participate in CDD	C2: Not participate in CDD (CDD_i^{14}=0) When (CDD_c^{14}=0)

T2-T1: Difference due to time trend and CDD participation, with otherthings controlled
C2-C1: Difference due to timetrend, with otherthings controlled
(T2-T1)-(C2-C12): Diff-in-Diff (DID) estimate ofCDD effect, with otherthings controlled
(C3-C13)-(C2-C12): Diff-in-Diff (DID) estimate of thespillover effectsof CDD, with other things controlled

The selection problem must be addressed when examining the causal effect of CDD programs on household welfare, as individuals with unobserved characteristics in producing positive outcomes may decide to participate in CDD programs (Okten & Osili, 2004). Our causal analyses are based on the following regression, using the household level as a unit of analysis:

$$\boldsymbol{Y_{ict} = \beta_0 + \beta_1 CDD_i^{14} + \beta_2 D_t + \beta_3 CDD_c^{14} + \beta_4 CDD_i^{14} \cdot D_t + \beta_5 (1 - CDD_i^{14}) \cdot CDD_c^{14} \cdot D_t} \\ \boldsymbol{+ \beta_6 CDD_i \cdot D_t \cdot SC_{ict} + \beta_7 SC_{ic} + \beta_8 SC_c + X_{ct}\gamma + Z_{ict}\delta + \mu_i + \rho_c + \varepsilon_{it}} \quad (1)$$

where Y_{ict} comprises dependent variables; CDD_i^{14} is an indicator for individuals' CDD program participation, taking the value of one if at least one household member participated in a CDD program between 2007 and 2014 and zero otherwise; D_t is a time indicator for the IFLS's fifth wave (2014); CDD_c^{14} is an indicator for community's CDD participation status, taking value one if CDD

εprogram is implemented in the community between 2007 and 2014; SC_{ict} is the level of social capital of household *i* in community *c* at time *t*; X_{ct} refers to a vector of community characteristics, including SC_{ct}; and Z_{it} is a vector of characteristics of household *i* in community *c* at time *t*, including SC_{ict}; $\boldsymbol{\mu_i}, \boldsymbol{\rho_c}, \boldsymbol{\varepsilon_{it}}$ are individual, community fixed effects, and error term, respectively. The DID estimates are then found by taking the differences in the above regression equation between 2007 and 2014. The regression results reported in this paper are based on the following modified version of (1)

$$\boldsymbol{\Delta Y_{ict} = \beta_2 +} \quad \boldsymbol{\beta_3} CDD_c^{14} + \boldsymbol{\beta_4} CDD_i^{14} \cdot \boldsymbol{\Delta D_t} + \boldsymbol{\beta_5} (1 - CDD_i^{14}) \cdot CDD_c^{14} \cdot \boldsymbol{\Delta D_t} + \boldsymbol{\beta_6} CDD_i^{14} \cdot \boldsymbol{\Delta SC_{ic}} \quad (2)$$
$$\boldsymbol{+ \beta_7 \Delta SC_{ic} + \beta_8 \Delta SC_c + \Delta X_c \gamma + \Delta Z_{ic} \delta + \Delta \varepsilon_{it}}$$

where Δ indicates a time difference operator. $\boldsymbol{\beta_4}$ measures the CDD effect for participants compared with nonparticipants in a community without CDD program, other things controlled, and

$\boldsymbol{\beta_5}$ measures the spillover effects of CDD among nonparticipants in a community with CDD program,[4] other things controlled.

A causal interpretation is allowed only when the identification assumption of DID holds. The identification assumption of DID is that the time-trends among participants and nonparticipants are the same (Imbens & Wooldridge, 2009). That is, β_4 is interpreted as the causal CDD program effect only if participants and nonparticipants face the same time trends. Time-invarying individual- and community- characteristics, such as rural/urban dummies, ethnicity, and religion, or household-specific heterogeneity are eliminated, as they are canceled out by taking differences in (1). This illustrates the limitations of using DID in the analysis of synergy, as the impact of endowments can depend on various cultural elements or regional features that are not likely to vary (Evans, 1996; Dasgupta & Beard, 2007). We include both individual (household)-level social capital (SC_{ict}) and community-level social capital (SC_{ct}); only the impact of *change* in social capital is identified due to the nature of DID eliminating any time-fixed characteristinc. That is, if CDD increases social capital, then $\boldsymbol{\beta_6}$ *and* $\boldsymbol{\beta_7}$ will pick up the effect of synergy through the constructability of social capital.

Measurements and Arguments

[4] $T1 = E[Y|CDD_h^{14} = \mathbf{1}, \boldsymbol{D_t} = \mathbf{0}, CDD_c^{14} = \mathbf{1}, other\ factors) = \boldsymbol{\beta_0} + \boldsymbol{\beta_1} + \boldsymbol{\beta_3} + other\ factors$
$T2 = E[Y|CDD_i^{14} = \mathbf{1}, \boldsymbol{D_t} = \mathbf{1}, CDD_c^{14} = \mathbf{1}, other\ factors\ ) = \boldsymbol{\beta_0} + \boldsymbol{\beta_1} + \boldsymbol{\beta_2} + \boldsymbol{\beta_3} + \boldsymbol{\beta_4} + otherfactors$
$C12 = E[Y|CDD_i^{14} = \mathbf{0}, \boldsymbol{D_t} = \mathbf{0}, CDD_c^{14} = \mathbf{0}, other\ factor\boldsymbol{s}) = \boldsymbol{\beta_0} + other\ factors$
$C13 = E[Y|CDD_i^{14} = \mathbf{0}, \boldsymbol{D_t} = \mathbf{0}, CDD_c^{14} = \mathbf{1}, other\ factor\boldsymbol{s}) = \boldsymbol{\beta_0} + \boldsymbol{\beta_3} + other\ factors$
$C2 = E[Y|CDD_i^{14} = \mathbf{0}, \boldsymbol{D_t} = \mathbf{1}, CDD_c^{14} = \mathbf{0}, other\ factors) = \boldsymbol{\beta_0} + \boldsymbol{\beta_2} + other\ factors$
$C3 = E[Y|CDD_i^{14} = \mathbf{0}, \boldsymbol{D_t} = \mathbf{1}, CDD_c^{14} = \mathbf{1}, \boldsymbol{o}ther\ factors) = \boldsymbol{\beta_0} + \boldsymbol{\beta_2} + \boldsymbol{\beta_3} + \boldsymbol{\beta_5} + other\ factors$
Thus, the DID effect of CDD for participants is (T2-T1)-(C2-C1)=($\boldsymbol{\beta_2} + \boldsymbol{\beta_3}$) − ($\boldsymbol{\beta_2}$) = $\boldsymbol{\beta}_3$ and the effect of CDD for nonparticipants is (C3-C13)-(C2-C12)= ($\boldsymbol{\beta_2} + \boldsymbol{\beta_5}$) − $\boldsymbol{\beta_2} = \boldsymbol{\beta_5}$. The DID effects, $\boldsymbol{\beta_3}$ and $\boldsymbol{\beta_4}$ are estimated using the difference regression equation.

Participatory approaches to development are justified in terms of the efficiency and effectiveness of investments in development projects as well as the resulting empowerment (Cleaver, 1999; Casey, 2017). Participation can serve as a means—a tool with which to achieve better project outcomes—as well as an end—a process that enhances the capacity of individuals to improve their own lives and facilitates social change (Cleaver, 1999). As depicted in Figure 3, the efficiency gains and empowerment stemming from CDD participation can lead to poverty reduction and improved local governance through various channels. While we measure the causal effect of CDD on household welfare (both material and subjective wellbeing), we also examine different channels through which CDD participation may lead to poverty reduction. In particular, we focus on the constructability of social capital (Evans, 1996) to identify the underlying causal links of state-society synergy that CDD programs are expected to generate through the accumulation of social capital.

Table 2. Operationalization of variables

Variables	Operationalization
Outcomes ($\Delta \boldsymbol{Y}_{ict}$)	Material wellbeing: time-differenced log total household expenditure Subjective wellbeing: sw
Intermediate variables ($\Delta \boldsymbol{Y}_{ict}$)	Household trust-level (tr) Household borrowing (bh) Women's empowerment in intrahousehold decision-making
Treatment	CDD_i^{14}: individual-level CDD participation status between 2007 and 2014 $\mathbf{CDD_h}$: Household indicator, taking value one if at least one member of household participates in CDD $\boldsymbol{CDD_h}$_sum: Total number of household members who participate in CDD CDD_c^{14}: community-level CDD participation status between 2007 and 2014 Opearationalized as an indicator
Social capital	ΔSC_{ict}: Household-level social capital Household-level participation in community activities: the sum of all membership in community organizations (h_SC) Household-level trust: the mean of each household member's trust level (h_tr) ΔSC_{ct}: Community-level social capital Community level participation in community activities as the (weighted) sum of all community organization (cty_SC (cty_SC_w for weighted sum) Community cognitive social capital: the sum of the trust level of each community member (cty_tr)
Control variables ($\Delta \boldsymbol{Z}_{ict}$)	Household earnings (earnings) Household wealth (wealth) Binary status of social safety net (Social Safety Net)

Δ indicates the time $-$ difference operator.

Table 2 shows the operationalization of the variables in equation (2). As the unit of analysis is households, we translate individual information into household-level variables. Household-level CDD participation status is created by coding individual participation as a binary variable. We then sum this information to construct the household-level variable ($\boldsymbol{CDD_h}$_sum) which measures the number of household members who had participated in CDD by 2014. We also employ a binary variable, $\boldsymbol{CDD_h}$, which takes on one if at least one household member participated in CDD. We use as control variables the change in log household wealth, the change in log earnings, and the poverty-alleviation program B_PBTB as dummies indicating whether a household was a beneficiary of conditional poverty-alleviation programs.

Various measures of social capital have been used in the literature. Putnam (1993) uses individual membership in voluntary community activities as a measure of social capital, and many later studies follow this approach (Van der Gaag & Webber, 2008). However, membership in community activities may not necessarily be associated with social capital. Putnam (1993) does not discuss how voluntary civic participation develops trust or a sense of reciprocity. Both Bourdieu (1986) and Coleman (1988) conceptualize social capital as an asset of "connections" from which individuals can derive economic benefits. Putnam (1993) and others view social capital as the shared property of a whole society. Bourdieu (1986) views social capital as a private asset, while Coleman emphasizes the public good nature of social capital to explain variation in human capital accumulation. Unlike Coleman and Putnam, Bourdieu incorporates power relations in the construction of social capital, distinguishing between social networks in which an individual is embedded—from which social capital emerges—and the outcomes of these social relations (DeFilippis, 2001, p. 783). Bourdieu (1986) emphasizes groups' collective resources that individual group members can draw upon to procure benefits and services in the absence of, or in conjunction

with, their own economic capital. If access to these resources is not equally distributed among members of a group, the logistics of distribution become an issue that must be addressed.

We use several different measures of social capital to reflect the design of CDD and trace the potential causal links and *constructability* of social capital. As social capital is a stock that requires investment (input) to accumulate, and the intervention adopted in CDD is citizen participation, we need a way to link how citizen participation (input) accumulates social capital (output). That is, we presume CDD implementation in a community and individual participation plays the role of investment to accumulate social capital to initiate the virtuous cycle of citizen participation, social capital accumulation and development outcomes (Krishina, 2003). So, we separate participation from the consequences of participation. Harpham (2008) suggests considering individual-level (compositional/structural) and community-level (ecological/contextual) social capital as distinct forms of social capital with different outcome associations. In line with the literature, we use individual membership in community activities as individual-level social capital (structural social capital) and define the sum of household members' social capital as household-level social capital (h_SC). We construct the variables on individual participation in community activities based on answers to the following types of questions: "During the last 12 months, did you participate in …?" We construct the household-level social capital variable SC_{ict}: h_SC as the sum of household members' number of community activity memberships.

Increased participation in community activities itself does not necessarily result in a favorable community environment for welfare improvement (Portes, 1998). Thus, we add another measure of social capital. We construct "cognitive social capital" at the community level as the mean categorical trust level among individuals in the community (Krishna & Uphoff, 2002; Pronyk et al., 2008, p. 1564; Harpham, 2008). This allows for the possibility that increased participation in community activities does not lead to increased trust or reciprocity, which Putnam (1993) identifies

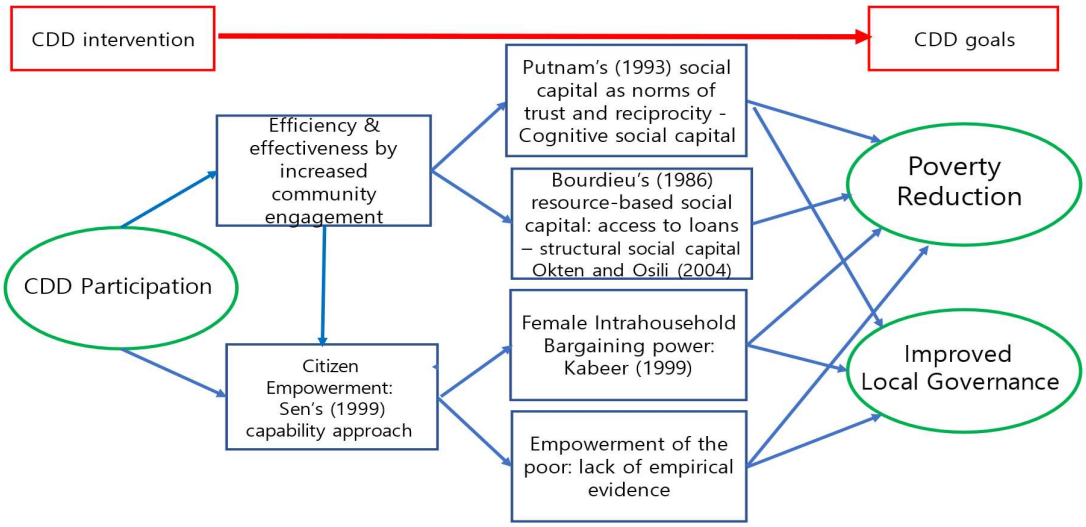
as the source of positive development outcomes. We also use two different forms of community-level social capital: the total number of community activities in each community (cty_SC) and the weighted sum by the percentage of participants (cty_SC_w).[5] This corresponds to the intensity of group membership, as used in Pronyk et al. (2008).

Household welfare improvement is measured by changes in household expenditure and subjective wellbeing. We use total household expenditure rather than household income to measure household living standards (Ravallion, 1994). Indeed, the IFLS fifth-wave dataset (2014) shows a stark difference between yearly household expenditures (routine yearly expenditures) and self-reported annual earnings. As some rural households earnings are not in monetary form, the tenth percentile of self-reported yearly income was zero, with many missing values. In contrast, expenditure exceeded income among most of the population.

In addition, we use several intermediate variables as dependent variables in equation (2) to explore potential causal channels between CDD participation and poverty reduction. Based on the existing literature, Figure 3 displays the potential causal mechanisms that this paper explores.

[5] The weight used is the percentage of participation recorded as one of three categories (0–25%, 25–75%, 75–100%) in the dataset.

Figure 3. The potential mechanisms of Development through CDD



First, as Putnam (1993) notes, voluntary civic participation can foster a sense of community and norms of trust and reciprocity, which can lead to positive development outcomes. Thus, we include various variables on the level of trust (h_tr) that individuals perceive ("cognitive social capital" [Pronyk et al., 2008, p. 1562]) at both the individual and community levels. Community-level cognitive social capital is calculated, based on Harpham (2008), by aggregating individual-level cognitive social capital for each community.

Second, as Bourdieu's (1986) conceptualization of social capital explicitly identifies, participation in community activities can expand participants networks and, in turn, the resources upon which they can draw in times of need (Rankin, 2002; Deloach & Lamanna, 2011). His conceptualization of social capital as the resources of social networks can be used in interpreting how CDD participation and increased social capital result in increased borrowing (h_bh). Bourdieu (1986) defines social capital as "the aggregate of actual or potential resources linked to possession of a durable network…" (p. 248). As DeFilippis (2001, pp. 800–802) notes, the lack of a distinction between social and economic capital limits Putnam's conceptualization of social capital. Therefore, we link CDD participation with an economic borrowing variable: access to loans. Okten and Osili

(2004a) uncover that social networks are important in this regard, as they reduce the search costs for the borrower and the monitoring and enforcement costs for the lender. Syukri, Mawardi, Akhmadi, and Adrianto (2013), in a qualitative study of the PNPM's rural programs, report that the Women′s Savings Loan (SPP) is considered to be greatly beneficial.

Third, participation can improve household welfare through empowerment. Sen's (1985, 1999) capability approach was key to the design of CDD, and we base our argument on Kabeer's (1999) view of women's empowerment as the "acquisition of an ability to make strategic choices." Kabeer (1999) conceptualizes empowerment as the exercise of choice, which comprises three dimensions: resources, agency, and achievements (pp. 436–438). Kabeer (1999) views resources and agency as elements of Sen's (1985, 1999) capabilities. When CDD participation empowers women, they may have greater access to resources and, in turn, act with greater agency. Women with agency have the power to "define one's goals and act upon them" and participate, negotiate, and bargain in decision-making processes (Kabeer, 1999, p. 438). We examine women's participation in household decision-making processes. We use variables on who decides various intrahousehold matters, such as expenditures and children's health and education. We explore whether participation in CDD or other community activities has prompted women to participate more in household decision-making processes.

Variable descriptions based on the IFLS questionaires can be found in Table 4. The variable for trust is recoded such that a higher value indicates a more trusting attitude. In all cases, we examine both the "level" and "change" of the dependent variables to illustrate how failure to control for the selection problem can result in bias. All of the regression results in the main text of this paper are based on DID analyses. Some of the corresponding (i.e., using the same dependent variables) analyses based on the "level" of the dependent variables are reported in the Appendix.

5. Results and Discussion

Previous impact evaluations have shown that Indonesian CDD has improved the lives of Indonesian people (McLaughlin et al., 2007; Voss, 2008; Syukri et al., 2014). Although there is limited evidence regarding whether marginalized voices are truly heard at such meetings, many villagers have participated in village meetings (McLaughlin et al., 2007; Syukri et al., 2014). Skukri et al. (2014) indicate that the PNPM is viewed as beneficial for all community members rather than just the poor in their focus group interview. The World Bank (2013, p. 14) shows that the PNPM's urban programs are perceived as providing crucial services.

The probit/logit analysis of PNPM participation using the 2014 dataset is reported in the Appendix (Table A3). Our findings on PNPM participation patterns align with those in Beard (2005) and Beard and Cartmill (2007) for community activities (excluding the PNPM) in Indonesia. Age has a positive impact on PNPM participation, but the effect decreases with the negative impact of the squared age term. Our results regarding education and earnings are also in line with those in Beard (2005). Education has a negative impact on the participation rate, but the effect decreases with the positive quadratic impact of education. Additionally, individuals in low-income households tend to participate more, yet this effect is not significant. Syukri et al. (2013, p. 17) relay their participants' perception that CDD resulted in a significant rise in women's participation.

5.1 The Effect of CDD (PNPM) Participation on Social Capital

Indonesia's communal traditions have led the developers of Indonesian CDD at the World Bank to believe that these programs have been implemented successfully (Guggenheim, 2006). However, it is disputed whether Indonesia's communal spirit remains in the modern era and whether effective voluntary association is still possible after three decades of authoritarian rule. Following Indonesian independence in 1945, the state's role under the "Old Order" government (1959–1966) was very strong. The

participation of civil society and the business sector was minimal, and the state largely controlled the media. The situation worsened under Suharto's "New Order" regime (1966–1998). Civil society was actively repressed by the state, and the government maintained full control over the media. The New Order regime began with the mandate to minimize the resurgence of the regional movements that were rampant during the 1940s and 1950s and to maintain the political stability required to facilitate economic development (Booth, 2003; Hidayat & Antlov, 2004; Beard, 2005, p. 23) During this period, the central government organized community groups and mobilized members in national development efforts by enforcing participation in community organizations.

Although the government created many national associations with mandatory membership (Grootaert, 1999b), the country's long tradition of mutual assistance and associational life explains the apparent success of Indonesia's CDD programs. Since it achieved independence in 1945, Indonesia has held a tradition of *"gotong royong,"* which refers to a "general ethos of mutual assistance (the spirit of the community)" (Bowen, 1986). Bowen (1986) argues that *gotong royong* has been employed in "political discourse" to advocate for "state intervention in rural society." *Gotong royong* can manifest in the form of labor or "*dana gotong royong or dana swadaya*" (mutual assistance funds). *Dana swadaya* are funded by various sources, including individuals, community organizations, and local governments. Under Suharto's centralized system of community organization, "communities were expected to provide volunteer labor, building materials, and money" (Okten & Osili, 2004b, p. 605).

Citizen participation in non-mandatory community activities implies that Indonesians remain willing to contribute their time and money to collective development efforts. In other words, communities have long played a complementary role to the state and the market in Indonesia. Community contributions to development depend on community members' contributions to community efforts, which, in turn, depend on social capital—"trust, norms, and network that foster

mutually beneficial cooperation in society" (Putnam, 1993, p. 167). Therefore, the use of total community-organization memberships as a measure of social capital is certainly justified in the context of Indonesia.

The IFLS contains information on individuals' memberships in community activities. While *arisan* (rotating credit schemes) are organized voluntarily, most other community activities were established under the authoritarian government with initially mandatory membership. However, we do not consider such memberships in the modern era to constitute state-enforced participation, as Grootaert (1999a) shows that only 17% of households reported mandatory membership as their reason for participation. Other reasons for participation include improvements in household livelihood, benefits for the community, and safeguards for future emergencies (Grootaert, 1999a).

As this paper focuses on whether and how the implementation of CDD influences the "constructability" of social capital via state intervention (Evans, 1996), social capital is measured by counting the number of memberships or community actvities, excluding the CDD program. Figures 4, 5, and 6 illustrate individual-, household-, and community-level social capital changes, respectively, between 2007 and 2014 by drawing the distributions of the change in social capital through CDD participation status. The green bars constitute the histogram for participants (CDD_1), in contrasts the transparent bars for nonparticipants (CDD_0).

Figure 4 shows that both men and women who participated in the CDD tend to participate in more community activities. Figure 5 shows that households with at least one member participating in the CDD programs possessed higher total membership numbers than those with no members participating in the CDD programs. These results demonstrate that there is no crowding-out effect from introducing CDD at the individual and household levels. The same is true at the community level.

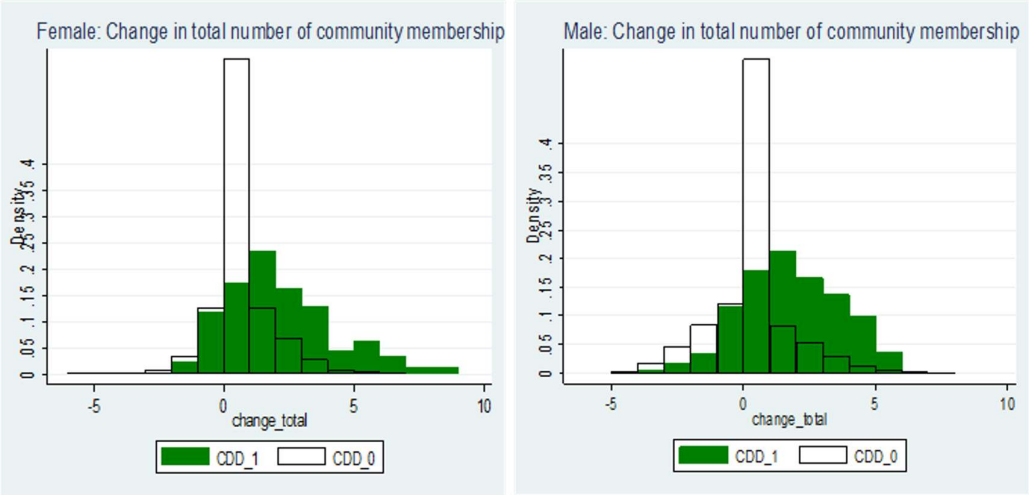


Figure 4. Change in the total number of community membership by gender

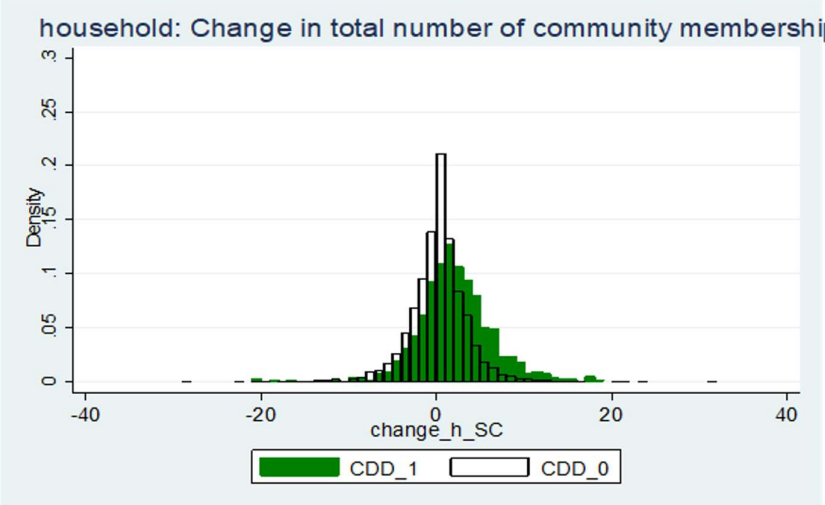


Figure 5. Change in the total number of community membership within household

Figure 6, drawn using weighted community activities (cty_SC_w [excluding the PNPM]), shows the distributions of change in each community's total number of communityactivities through CDD (PNPM) participation status. The green bars indicating communities that implemented the CDD programs between 2007 and 2014 (CDD_1) tend to increase the weighted sum of community activities. Although the total number of community organizations in each community may not be

affected by the level of social capital or individual members' participation in community activities, the weighted total number of community activities is affected by individual participation, as it is weighted by the proportion of participants.

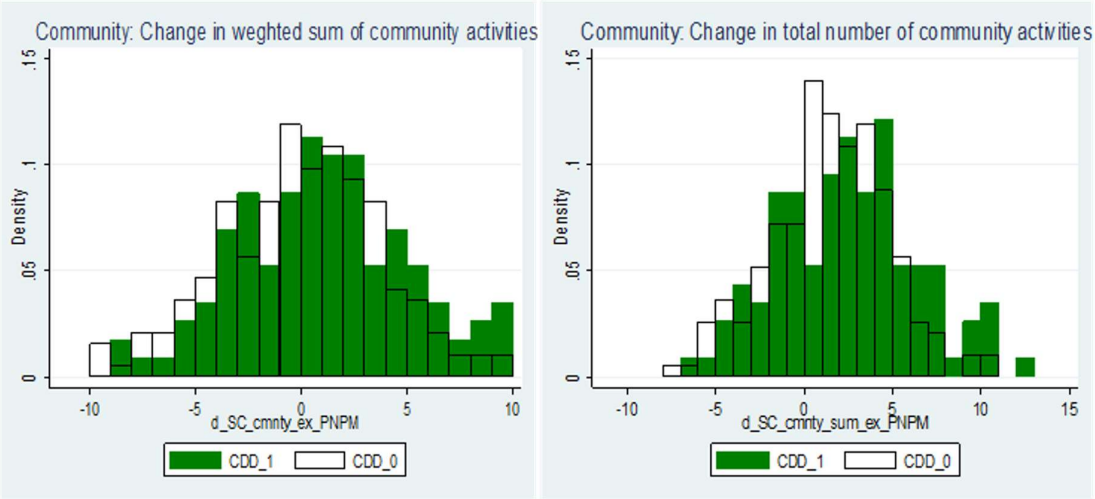


Figure 6. Change in community activities by community: change in weighted (vs. nonweighted) sum

Table A4 in the Appendix shows the change in memberships between 2007 and 2014 of the community organizations listed in the IFLS. The number of participants in each community organization is based on CDD (PNPM) status from the 2014 dataset. We calculate the change by taking the mean of the difference of individuals' binary participation status in each community activity. Thus, a positive mean value for a community activity indicates that more people participated in 2014 than in 2007. The mean values are found by CDD (PNPM) status and gender. For both men and women, CDD (PNPM) participants tend to be involved in more community activities. Importantly, the differences are statistically significant for all community activities except for *arisan*.

Here, we must detail a few caveats regarding causal interpretation. The association between

CDD participation and change in social capital is not necessarily causal as there can be confounding factors or selection problems. Thus, we use DID analysis to assess whether CDD participation causes increases in household social capital. Table 3 shows the DID regression results with various combinations of independent variables. In all cases, participation in the CDD ($\boldsymbol{CDD_h}$_sum or $\boldsymbol{CDD_h}$) increases household social capital (d_h_SC) at all significance levels. The influence of weighted community activities (cty_SC_w) is positive, but the impact of the total number of community activities (cty_SC) is negative. This implies that the number of community members participating in community organizations—rather than the total number of community activities—increases household social capital. The Variance Influence Factor (VIF) between all of the explanatory variables is less than ten, suggesting that the multicollinearity problem is not severe.

Table 3. DID sample - Dependent Variable: Change in household social capital between 2007 and 2014 (h_SC)

VARIABLES	Dependent variable: Time-differenced household-level social capital (d_h_SC)							
CDD participation								
$\boldsymbol{CDD_h}$_sum	1.309***		1.319***		1.313***		1.320***	
	(0.134)		(0.134)		(0.134)		(0.134)	
$\mathbf{CDD_h}$		1.603***		1.608***		1.594***		1.613***
		(0.195)		(0.196)		(0.195)		(0.195)
Community								
d_ cty_SC_w			-0.0175	-0.0114			0.0732**	0.0847**
			(0.0195)	(0.0197)			(0.0354)	(0.0356)
d_cty_SC					-0.0456**	-0.0427**	-0.104***	-0.110***
					(0.0187)	(0.0188)	(0.0339)	(0.0341)
Observations	2,157	2,157	2,157	2,157	2,157	2,157	2,157	2,157
R-squared	0.043	0.031	0.044	0.031	0.046	0.033	0.048	0.035

The prefix "d" in variable names indicates "time-difference" that corresponds to the time-difference operator, Δ.

Standard errors in parentheses

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

5.2 The Effect of CDD (PNPM) Participation on Intermediate Variables

Next, we explore why and how participation in community activities improves household welfare and discuss the impact of CDD participation on the intermediate variables listed in Figure 3: trust, borrowing, and women's role in intrahousehold decision-making. Table 5 shows the DID results of

the investigation of CDD participation's effect on trust (tr) and borrowing (bh). Table 4 contains the questionnaires on which the variables are based. Our DID analyses of trust (tr01 and tr02) indicate that the effects of neither social capital nor CDD participation are statistically significant.

Table 4. Relevant IFLS questionnaires

Variables	Questionnaire	
Trust		
tr01	I am willing to help people in this village if they need it	Strongly disagree (1) – Strongly agree (4)
tr02	In this village I have to be alert or someone is likely to take advantage of me	Strongly agree (1) – Strongly disagree (4)
Borrowing		
bh00	Do you or any other household member know of a place where you can borrow money?	Yes (1) – No (0)
bh04	Were you or other member of the household turned down in your efforts to secure a loan over the past 12 months?	Yes (1) – No (0)
bh07	Were you or other member of the household successful in securing a loan in the past 12 months?	Yes (1) – No (0)
Subjective wellbeing		
sw01	On which step out of six (1:poorest and 6:richest) steps do you stand today?	Poorest (1) – Richest (6)
sw03b	Concerning your current family life, which of the following is true?	Less than adequate (1) – more than adequate (3)

In addition, we examine the effect of community participation on borrowing. Both CDD participation and engagement with other community activities significantly improve access to funds and loan opportunities (dependent variables: bh00 and bh07) in both level information in 2014 (Table A5) and DID estimation (Table 5). We conducted DID analyses of borrowing among households that tried to borrow in both 2007 and 2014, leading to a substantial drop in relevant observations (n = 146). When the binary borrowing variables (bh00, bh04, bh07) are used for the probit/logit analysis, both the PNPM participation status and the social capital variables are significant (Table A5). However, according to our DID analyses, PNPM participation is not significant. The social capital variables are significant in expanding contacts in times of need (bh00); however, when it comes to actually securing funds (bh07), social capital variables are not significant, while households' financial assets are significant.

Table 5. DID sample - Dependent Variable: change in trust (tr01, tr02) and borrowing (bh00, bh04, bh07)

VARIABLES	Willing to help others (1: strongly disagree 4: strongly agree)		Need to be alert not to be taken advantage of (1: strongly agree 4: strongly disagree)		Knowledge of where to borrow (1: Yes 0: no)		Given the attempt to borrow, experienced rejection (1: Yes 0: No)		Loans were secured given the attempt to borrow (1: Yes, 0: No)	
	tr01	tr01	tr02	tr02	bh00	bh00	bh04	bh04	bh07	bh07
Social Capital (time-differenced)										
Household SC (h_SC)	-0.00295	-0.00403	0.00726	0.00785*	0.0108***	0.0104***	0.00141	0.00172	0.00894**	0.00756*
	(0.00372)	(0.00354)	(0.00482)	(0.00459)	(0.00389)	(0.00372)	(0.00132)	(0.00126)	(0.00416)	(0.00398)
Weighted Community SC (cty_SC_w)	0.0121**	0.0127**	-0.0103	-0.0105	0.00570	0.00587	0.00254	0.00269	0.00116	0.00129
	(0.00546)	(0.00546)	(0.00707)	(0.00708)	(0.00565)	(0.00566)	(0.00191)	(0.00192)	(0.00604)	(0.00606)
Community SC (sum) (cty_SC)	-0.00945*	-0.00944*	0.0125*	0.0125*	-0.00701	-0.00659	-0.00221	-0.00212	0.00186	0.00263
	(0.00555)	(0.00550)	(0.00719)	(0.00714)	(0.00589)	(0.00586)	(0.00200)	(0.00199)	(0.00631)	(0.00627)
Community Cognitive SC										
tr01					-0.130	-0.130	0.0356	0.0354	0.138	0.138
					(0.0830)	(0.0830)	(0.0281)	(0.0281)	(0.0888)	(0.0888)
tr02					0.0977	0.0987	0.00898	0.0111	-0.0423	-0.0398
					(0.0714)	(0.0714)	(0.0242)	(0.0242)	(0.0764)	(0.0763)
tr03					-0.170***	-0.170***	0.00562	0.00574	0.0710	0.0725
					(0.0519)	(0.0520)	(0.0176)	(0.0176)	(0.0556)	(0.0556)
CDD participation (between 2007 and 2014)										
CDD_h (binary)	-0.0544		0.106		0.0351		0.0127		0.0711	
	(0.0735)		(0.0953)		(0.0823)		(0.0279)		(0.0881)	
CDD_h_sum		-0.0387		0.0671		0.0105		-0.00974		0.0144
		(0.0399)		(0.0518)		(0.0422)		(0.0143)		(0.0452)
CDD_c^{14} (community)	0.0976	0.0946*	-0.0220	-0.00329	0.0654	0.0918	0.0158	0.0420**	-0.0321	0.0268
	(0.0756)	(0.0536)	(0.0979)	(0.0695)	(0.0850)	(0.0573)	(0.0288)	(0.0194)	(0.0909)	(0.0613)
Spillover	-0.0628	-0.0589	0.0610	0.0397	-0.0289	-0.0589	-0.00495	-0.0344*	0.0411	-0.0250
(1—CDD_h) X CDD_c^{14}	(0.0808)	(0.0530)	(0.105)	(0.0688)	(0.0897)	(0.0566)	(0.0304)	(0.0192)	(0.0960)	(0.0606)
Interactions (Treat X Social capital (time-differenced)										
CDD_h · h SC	-0.00220		-0.00399		-0.00981		0.00127		-0.00102	
	(0.00675)		(0.00874)		(0.00737)		(0.00249)		(0.00788)	
Treat_sum · h_SC		0.00182		-0.00422		-0.00493		0.000392		0.00259
		(0.00342)		(0.00444)		(0.00370)		(0.00125)		(0.00396)
CDD_h · cty_SC_w	-0.0106		-0.00462		0.00606		0.00169		0.00107	
	(0.00814)		(0.0106)		(0.00871)		(0.00295)		(0.00932)	
Treat_sum · cty_SC_w		-0.0100*		-0.00272		0.00168		0.000288		-0.00443
		(0.00533)		(0.00692)		(0.00574)		(0.00194)		(0.00614)
Control variables (time-differenced)										
Log (earnings)	-0.00664***	-0.00665***	0.00382*	0.00382*	-0.00224	-0.00221	-0.000257	-0.000250	0.00421**	0.00428**
	(0.00162)	(0.00162)	(0.00211)	(0.00210)	(0.00162)	(0.00162)	(0.000548)	(0.000548)	(0.00173)	(0.00173)
Log (wealth)	-0.00970**	-0.0101**	0.00148	0.00167	0.0105***	0.0105***	0.000702	0.000693	-0.000241	-0.000259
	(0.00415)	(0.00415)	(0.00538)	(0.00539)	(0.00379)	(0.00380)	(0.00129)	(0.00129)	(0.00406)	(0.00406)
Observations	1,610	1,610	1,610	1,610	2,150	2,150	2,150	2,150	2,150	2,150
R-squared	0.021	0.024	0.009	0.010	0.019	0.019	0.008	0.008	0.009	0.009

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Finally, we investigate the impact of CDD (PNPM) participation on women's empowerment. There is a lack of evidence that Indonesian CDD empowers the poor (Syukri et al., 2013). Tables 6-1–6-3 illustrate our DID analyses of intrahousehold decision-making processes. The IFLS asks about who makes decisions regarding certain household matters. We code a binary variable indicating wives' participation in intrahousehold decision-making processes. DID analysis uses the change in binary variables over time (with -1, 0, and 1 as possible values). Tables A6-1–A6-3 contain summary statistics on intrahousehold decision-making processes over time among male- and female-headed households. Interestingly, the answers vary to some degree based on whether husbands or wives responded to the questionnaire.

Our DID analyses (Tables 6-1–6-3) show that wives' CDD (PNPM) participation, in contrast with household members' participation in CDD ($\boldsymbol{CDD_h}$_sum) which has negative effect, led to increased participation in household decision-making processes regarding most of the assessed matters. The only matters that saw no significant change are food expenditure, food eaten at home, wives' clothes, and children's clothes—matters that wives likely handled in the first place. This suggests that women's participation in the CDD programs (PNPM) empowered them to have control over matters that they did not previously influence control previously, according to Kabeer's (1999) idea of empowerment. Interestingly, wives who participated in the PNPM tend to participate more in matters regarding their children's health and education. This could benefit children's human capital accumulation, as previous findings suggest that mothers spend more on their children when given more resources. When it comes to household decisions that are likely to be influenced by community norms, community social capital—which does not always work to empower women—is more significant than individual social capital. Possibly in the same vein, the spillover effects are mostly insignificant. This reflects the reality that social capital does not necessarily produce positive outcomes.

Table 6-1. DID sample - change in female decision with wife's PNPM participation controlled

	Food expenditure (A1)		Own clothes (C)		Spouse's clothes (D)		Children's education (F)		Children's health (G)	
VARIABLES	Change_A1	Change_A1	Change_C	Change_C	Change_D	Change_D	Change_F	Change_F	Change_G	Change_G
Social Capital (time differenced)										
Household SC (h_SC)	-0.00145	0.00323	-0.00337	-0.00375	0.000845	0.00491	0.00360	0.00440	0.00250	0.00506
	(0.00606)	(0.00470)	(0.00584)	(0.00452)	(0.00579)	(0.00449)	(0.00599)	(0.00464)	(0.00584)	(0.00454)
Wife's SC	0.0131		-0.00108		0.0114		0.00230		0.00724	
	(0.0107)		(0.0103)		(0.0103)		(0.0106)		(0.0103)	
Weighted Community SC	0.0200**	0.0203**	-0.00970	-0.00966	0.00388	0.00430	0.0104	0.0107	0.0110	0.0116
(cty_SC_w)	(0.00837)	(0.00838)	(0.00806)	(0.00806)	(0.00800)	(0.00801)	(0.00827)	(0.00827)	(0.00807)	(0.00810)
Community SC (sum)	-0.0113	-0.0117	0.00532	0.00526	-0.00409	-0.00453	-0.0101	-0.0104	-0.0124	-0.0131
(cty_SC)	(0.00842)	(0.00843)	(0.00811)	(0.00810)	(0.00804)	(0.00806)	(0.00831)	(0.00832)	(0.00811)	(0.00814)
Community Cognitive SC										
tr01	-0.103	-0.0987	0.0419	0.0411	0.0401	0.0432	-0.108	-0.109	-0.0693	-0.0692
	(0.119)	(0.120)	(0.115)	(0.115)	(0.114)	(0.114)	(0.118)	(0.118)	(0.115)	(0.115)
tr02	-0.231**	-0.222**	-0.226**	-0.225**	-0.159	-0.150	-0.195*	-0.191*	-0.0959	-0.0860
	(0.104)	(0.104)	(0.1000)	(0.0998)	(0.0992)	(0.0993)	(0.103)	(0.103)	(0.100)	(0.100)
tr03	0.121	0.120	0.0598	0.0602	0.0959	0.0945	0.106	0.106	0.0613	0.0616
	(0.0771)	(0.0772)	(0.0743)	(0.0742)	(0.0737)	(0.0738)	(0.0761)	(0.0762)	(0.0743)	(0.0745)
CDD participation (between 2014 and 2007)										
CDD_h_sum	-0.0811	-0.00454	0.0578	0.0660	-0.0992*	-0.0159	0.0224	0.0845*	-0.131**	-0.0117
	(0.0579)	(0.0496)	(0.0558)	(0.0477)	(0.0553)	(0.0474)	(0.0572)	(0.0490)	(0.0558)	(0.0479)
Wife's participation in CDD	0.205**		0.0267		0.229***		0.182**		0.345***	
	(0.0909)		(0.0875)		(0.0868)		(0.0898)		(0.0876)	
CDD_c^{14} (community)	0.0254	0.000379	-0.102	-0.103	0.0637	0.0381	-0.0654	-0.0809	-0.0107	-0.0422
	(0.0793)	(0.0789)	(0.0764)	(0.0758)	(0.0758)	(0.0754)	(0.0784)	(0.0779)	(0.0764)	(0.0762)
Spillover	-0.0594	-0.0303	0.110	0.111	-0.0425	-0.0129	0.0805	0.0982	0.00880	0.0448
$(1-CDD_h) \times CDD_c^{14}$	(0.0784)	(0.0777)	(0.0755)	(0.0747)	(0.0749)	(0.0743)	(0.0775)	(0.0767)	(0.0756)	(0.0751)
Observations	1,898	1,898	1,898	1,898	1,898	1,898	1,898	1,898	1,898	1,898
R-squared	0.013	0.009	0.006	0.006	0.008	0.003	0.010	0.007	0.014	0.005

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6-2. DID sample - change in female decision with wife's PNPM participation controlled

	Expensive purchases for the household (e.g. refrigerator) (H)		Time the husband spends socializing (N)		Time the wife spends socializing (O)		Whether you/your spouse works (P)	
VARIABLES	Change_H	Change_H	Change_N	Change_N	Change_O	Change_O	Change_P	Change_P
Social Capital (time differenced)								
Household SC (h_SC)	0.00277	0.00646	0.00302	0.00521	0.00373	0.00793*	0.00856	0.00850**
	(0.00581)	(0.00451)	(0.00596)	(0.00462)	(0.00588)	(0.00455)	(0.00549)	(0.00425)
Wife's SC	0.0104		0.00619		0.0118		-0.000116	
	(0.0103)		(0.0105)		(0.0104)		(0.00971)	
Weighted Community SC	0.0155*	0.0159**	0.00860	0.00905	0.00879	0.00909	0.0159**	0.0162**
(cty_SC_w)	(0.00803)	(0.00804)	(0.00823)	(0.00824)	(0.00811)	(0.00812)	(0.00758)	(0.00758)
Community SC (sum)	-0.0136*	-0.0140*	-0.00193	-0.00247	-0.000573	-0.000865	-0.00907	-0.00949
(cty_SC)	(0.00807)	(0.00808)	(0.00827)	(0.00829)	(0.00816)	(0.00816)	(0.00762)	(0.00762)
Community Cognitive SC								
tr01	-0.167	-0.164	0.217*	0.217*	0.0620	0.0659	-0.269**	-0.271**
	(0.115)	(0.115)	(0.117)	(0.118)	(0.116)	(0.116)	(0.108)	(0.108)
tr02	-0.137	-0.129	-0.213**	-0.205**	-0.337***	-0.330***	0.0788	0.0828
	(0.0995)	(0.0996)	(0.102)	(0.102)	(0.101)	(0.101)	(0.0939)	(0.0939)
tr03	-0.117	-0.118	0.0646	0.0647	0.0573	0.0555	-0.136*	-0.135*
	(0.0739)	(0.0740)	(0.0758)	(0.0759)	(0.0747)	(0.0747)	(0.0697)	(0.0698)
CDD participation (between 2014 and 2007)								
CDD_h_sum	-0.0722	0.0105	-0.0594	0.0320	-0.111**	-0.0515	-0.0585	0.00705
	(0.0555)	(0.0476)	(0.0569)	(0.0488)	(0.0561)	(0.0481)	(0.0524)	(0.0449)
Wife's participation in CDD	0.229***		0.263***		0.157*		0.197**	
	(0.0871)		(0.0893)		(0.0881)		(0.0822)	
CDD_c^{14} (community)	-0.0393	-0.0642	-0.0875	-0.112	-0.00353	-0.0239	-0.0344	-0.0493
	(0.0761)	(0.0757)	(0.0780)	(0.0776)	(0.0769)	(0.0764)	(0.0718)	(0.0713)
Spillover	0.00945	0.0382	0.0835	0.112	-0.00709	0.0167	0.0232	0.0401
$(1-CDD_h) \times CDD_c^{14}$	(0.0752)	(0.0746)	(0.0771)	(0.0765)	(0.0760)	(0.0753)	(0.0710)	(0.0703)
Observations	1,898	1,898	1,898	1,898	1,898	1,898	1,898	1,898
R-squared	0.011	0.006	0.014	0.008	0.014	0.012	0.013	0.010

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5.3 The Effect of CDD (PNPM) Participation on Household Wellbeing

Finally, we examine the effect of CDD participation on poverty reduction, as measured by total household expenditure. In line with Deaton's (1997) demand analysis, we employ the log transformation of household expenditure,earnings, and wealth.Table A7 (level analysis) reports the regression results of material and subjective wellbeing using the 2014 "level" data. CDD participation is significant in explaining variations in material wellbeing, but this significance disappears when community participation status, spillover effects, and social capital variables are included. Interestingly, neither CDD participation nor social capital is consistently significant in determining subjective wellbeing. The "level" analysis using the 2014 data shows the importance of controlling for community participation status correcting potential bias, as individual and community CDD particiation status ($\boldsymbol{CDD_h}$_sum and CDD_c^{14}) are correlated. The effects of different measures of social capital do not show a consistent pattern as different combinations of community characteristics are included in the regerssion. This can be explained by variation in "constructibility" of social capital with communities' endowments, which cannot be estimated by the DID method.

The DID analysis in Table 7 further demonstrates the level analysis can have bias as time trends are not controlled for. Table 7 show that CDD (PNPM) participation status—both $\boldsymbol{CDD_h}$ and $\boldsymbol{CDD_h}$_sum—have negative but insignificant impacts on material wellbeing. The community participation is also insiginificant and there does not seem to be spillover effects when it comes to material wellbeing among nonparticipants in a community with CDD program. The results for subjective wellbeing show that community participation needs to be controlled as individual participation—both $\boldsymbol{CDD_h}$ and $\boldsymbol{CDD_h}$_sum—turns insignificant once community participation status is controlled. This shows omitting community participation status causes bias in the CDD effect. Significantly negative spillover effects on subjective wellbeing among

nonparticipants in a community with CDD programs also turned insignificant once community CDD participation is controlled.

Social capital appears to be a more significant variable, all else being equal. Household-level social capital is significant in determining total household expenditure but insignificant in determining subjective wellbeing. Neither the number of community activities (cty_SC) nor the number of participants in these community activities (cty_SC_w) is significant in determining material or subjective wellbeing. However, community membersperceptions—their cognitive social capital—is significant in determining the community's standard of living.

Table 7. DID sample - Dependent Var: Material/subjective wellbeing

	Material wellbeing			Subjective wellbeing					
				Time difference of subjective wellbeing					
	Time difference of log household total expenditure			Perceived current step (1: poorest – 6: richest) sw01			Current family life (1: less than adequate – 3: more than adequate) sw03b		
VARIABLES									
Social Capital (time differenced)									
Household SC (h_SC)	0.0375***	0.0375***	0.0369***	0.00126	0.00127	0.000573	0.00240	0.00127	0.00260
	(0.00617)	(0.00617)	(0.00589)	(0.00649)	(0.00649)	(0.00619)	(0.00416)	(0.00649)	(0.00396)
Weighted Community SC	-0.00345	-0.00435	-0.00423	0.000601	0.000355	0.00126	0.00241	0.000355	0.000598
(cty_SC_w)	(0.00892)	(0.00897)	(0.00909)	(0.00937)	(0.00943)	(0.00956)	(0.00601)	(0.00943)	(0.00612)
Community SC (sum)	0.0191**	0.0199**	0.0201**	0.0125	0.0127	0.0114	0.00611	0.0127	0.00652
(cty_SC)	(0.00933)	(0.00936)	(0.00906)	(0.00980)	(0.00984)	(0.00952)	(0.00628)	(0.00984)	(0.00610)
Community Cognitive SC									
tr01	0.340***	0.345***	0.344***	0.530***	0.531***	0.528***	0.140	0.531***	0.147*
	(0.132)	(0.132)	(0.132)	(0.138)	(0.139)	(0.139)	(0.0887)	(0.139)	(0.0887)
tr02	-0.475***	-0.479***	-0.481***	-0.382***	-0.383***	-0.385***	-0.0372	-0.383***	-0.0426
	(0.113)	(0.113)	(0.113)	(0.119)	(0.119)	(0.119)	(0.0763)	(0.119)	(0.0763)
tr03	0.113	0.109	0.119	-0.0780	-0.0791	-0.0718	0.0536	-0.0791	0.0596
	(0.0824)	(0.0825)	(0.0824)	(0.0866)	(0.0867)	(0.0866)	(0.0555)	(0.0867)	(0.0554)
CDD participation (between 2014 and 2007)									
CDD_h (binary)	-0.103	0.00405		-0.201***	-0.171		-0.0902*	-0.171	
	(0.0695)	(0.131)		(0.0730)	(0.137)		(0.0468)	(0.137)	
CDD_h_sum			-0.0381			-0.116**			-0.0540*
			(0.0467)			(0.0491)			(0.0314)
CDD_c^{14} (community)		-0.131			-0.0356			-0.0356	
		(0.135)			(0.142)			(0.142)	
Spillover	-0.0206	0.109	-0.00300	-0.0959*	-0.0606	-0.0689	-0.0987***	-0.0606	-0.0853***
(1—CDD_h) X CDD_c^{14}	(0.0494)	(0.143)	(0.0461)	(0.0519)	(0.150)	(0.0484)	(0.0333)	(0.150)	(0.0310)
Interactions (Treat X Social capital (time-differenced)									
CDD_h · h_SC	-0.0194*	-0.0193*		0.00735	0.00739		0.00757	0.00739	
	(0.0117)	(0.0117)		(0.0123)	(0.0123)		(0.00788)	(0.0123)	
CDD_h_sum · h_SC			-0.0112*			0.00565			0.00296
			(0.00583)			(0.00613)			(0.00392)
CDD_h · cty_SC_w	0.0160	0.0185		0.00470	0.00539		0.00681	0.00539	
	(0.0136)	(0.0138)		(0.0143)	(0.0145)		(0.00914)	(0.0145)	
CDD_h_sum · cty_SC_w			0.0106			0.00455			0.0116*
			(0.00888)			(0.00934)			(0.00598)
Control variables (time difference)									
Log (earnings)	0.00555**	0.00554**	0.00550**	0.00595**	0.00594**	0.00587**	-0.000141	0.00594**	-0.000136
	(0.00257)	(0.00257)	(0.00257)	(0.00270)	(0.00270)	(0.00270)	(0.00173)	(0.00270)	(0.00173)
Log (wealth)	0.0182***	0.0181***	0.0182***	0.0267***	0.0267***	0.0265***	0.0131***	0.0267***	0.0132***
	(0.00603)	(0.00603)	(0.00603)	(0.00633)	(0.00633)	(0.00634)	(0.00406)	(0.00633)	(0.00406)
Social Safety Net	0.289***	0.292***	0.294***	0.220**	0.221**	0.222**	-0.0876	0.221**	-0.0851
	(0.0944)	(0.0944)	(0.0944)	(0.0992)	(0.0992)	(0.0992)	(0.0635)	(0.0992)	(0.0635)
Observations	2,150	2,150	2,150	2,150	2,150	2,150	2,150	2,150	2,150
R-squared	0.044	0.045	0.044	0.033	0.033	0.032	0.015	0.033	0.015

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6. Conclusion

This paper examines the constructability of synergy through social capital accumulation in Indonesian CDD. It assesses the extent of state-society synergy in Indonesia by testing the effects of synergy on material/subjective wellbeing and other intermediate variables. We constructed a DID sample to establish causality between CDD and various outcomes. This study finds evidence of synergy in Indonesian state-led mobilization efforts through CDD programs. It finds that Indonesian CDD (the PNPM, in particular) increased the material and subjective wellbeing of individuals. However, these effects were mostly indirect—through various forms of social capital. Community CDD participation status and the spillover effects need to be controlled as omitting them can cause bias, although they turned out to be insignificant in most of the regressions except for women's empowerment in household decision rocesses. Once thses community-level CDD effects are controlled, individual participation in CDD did not improve material/subjective wellbeing as well as other intermediate outcomes. Increased membership enhanced intracommunity trust and facilitated increased access to loans when necessary. Interestingly, CDD participation directly enhanced wives' participation in household decision-making processes, especially those regarding labor force participation and children's education and health. Future research should investigate the long-term effects of this dynamic.

Of course, it must be emphasized that the DID framework used in this paper allows only for the limited incorporation of community-specific features. Individual-(or household) and community fixed characteristics are cancelled by differencing to obtain the DID estimates. DID methods can test the constructability of synergy through social capital but not the ways in which constructability varies by endowment. Future research should assess how the impacts of CDD vary across different population segments. When it comes to Indonesia, which often boasts about its ethnic and religious diversity, the way in which diversity influences its development efforts

constitutes an important issue that should guide policy design.

Appendix

Table A1. Change in community activities by type

Community Programs/Activites (the highest level is the village)	2007 Communities with program (out of 313) presently in a routine manner	2014 Communities with program (out of 309) presently in a routine manner	Change (out of 308 communities)		
			-1 Disappeared	0 Maintained	1 Added
Village cooperative	80/313	133/309	43	169	96
Youth group (Karang Taruna)	208/313	219/309	48	198	62
Village mobile library	70/313	136/309	29	184	95
Neighborhood watch program	228/313	205/309	55	217	36
Community public works	267/313	256/309	37	242	29
Activities associated with P2KP/PPK/PNPM	198/313	263/309	23	193	92
Program Perbaikan Kampung (Kampung improvement program)	133/313	103/309	51	177	80
Water management system (drinking/cooking and bathing/washing)	55/313	164/309	28	201	79
Solid waste management system	45/313	93/309	20	219	69
Infrastructure development program for underdeveloped village (P3DT)	21/313	29/309	21	258	29
Religios activities	299/313	304/309	4	291	13
Medical herb garden (Apotik Hidup)	155/313	189/309	50	172	86
Bina Keluarga Balita (Child development program) 20	231/313	223/309	58	196	54
Bina Keluarga Remaja (Youth/Teen development program)	92/313	108/309	49	193	66
Bina Keluarga Manula (Program Lansia) (Program for ederly)	129/313	133/309	46	210	52
Dena Sehat (Health Fund)	93/313	120/309	48	184	76
Desa Wisma (Family Group)	190/313	220/309	38	199	71
Village savings/loan	123/313	166/309	40	184	84

Table A2-1. Summary statistics of final and intermediate outcomes based on Figure 2.

	2007			2014			Differences	
	Participants[1]	Nonparticipants[2]		Participants	Nonparticipants[3]		CDD effect among participants	Spillover effects of CDD among nonparticipants
	Treated (T1) N=296 cmty=0	Controlled (C12) N=391 cmty=0	Controlled (C13) N=1422 cmty=0	Treated(T2) N=296 cmty=1	Controlled (C2) N=391 cmty=0	Controlled (C3) N=1422 cmty=1	(T2-T1)-(C2-C12)	(C3-C1)-(C2-C12)
Final outcomes								
Household expenditure	16.83696 (0.7437758)	16.61661 (0.9097909)	16.67851 (0 .8364925	17.47241 (0.67477)	17.27725 (0 .7760673)	17.34589 (0.778028)	-0.0319308 (0.0510364)	0.0067438 (0.0465461)
Subjective wellbeing								
sw01	2.949823 (0.6727028)	2.705703 (0.6569195)	2.876196 (0.6362359)	3.01883 (0.7006096)	2.917263 (0.7500055)	3.027926 (0.7880048)	-0.0827222 (0. .0534492)	-0.0598311 (0.0484913)
sw03b	1.903266 (0.4120724)	1.855721 (0.4031885)	1.930397 (0.4142704)	1.968915 (0.4401531)	1.960504 (0.4546513)	1.956078 (0.4682569)	0.0399679 (0.0339696)	-0.079102*** (0 .0305874)
Intermediate outcomes								
Household trust								
tr01	1.832915 (0.2717678)	1.827991 (0.2755263)	1.831095 (0.2852354)	1.735463 (0.3008056)	1.734093 (0.3713033)	1.755222 (0.3231994)	-0.0346031 (0.0290965)	0.0168846 (0.0280718)
tr02	3.02404 (0.3039673)	3.040851 (0. 340044)	3.044115 (0.3000832)	3.087024 (0.4364303)	3.013982 (0.5012961)	3.082794 (0.4670644)	0.0346031 (0.0290965)	0.0168846 (0.0280718)
Household borrowing								
bh00	0.8986486 (0.3023045)	0.7953964 (0.4039285)	0.8720113 (0.3341948)	0.8986486 (0.3023045)	0.6700767 (0.4707874)	0.790436 (0.4071406)	0.0815752** (0. 0307887)	0.0437444 (0.0291336)
bh04	0.0033784 (0.0581238)	0.0076726 (0.0873687)	.0063291 (0.0793315)	0.0439189 (0.2052618)	0.0127877 (0.1125014)	0.0203938 (0.1413929)	0.0264758** (0.011039)	0.0089496 (0.0090719)
bh07	0.2533784 (0.4356823)	0.1508951 (0.3584053)	0.152602 (0.3597299)	0.3716216 (0.4840564)	0.2264416 (0.4186754)	0.2264416 (0.4186754)	0.0444036 (0. .0340734)	0.0150161 (0.0290562)

[1] Participants (CDD=1) are those individuals who participated in CDD between 2007 and 2014

[2] Nonparticipants (CDD=0) are those who did not participate in CDD between 2007 and 2014.

[3] There are two groups among nonparticipants; C3 are those who did not participate in CDD even if CDD programs are implemented in the community and C2 are those who live in a community without CDD programs.

Table A2-2. Summary statistics of (household and community) social capital based on Figure 2

	2007 (cmty=0)			2014			Differences	
	Participants	Nonparticipants		Participants	Nonparticipants		CDD effect among participants	Spillover effects of CDD among nonparticipants
	Treated (T1) N=296 cmty=0	Controlled (C12) N=391 cmty=0	Controlled (C13) N=1422 cmty=0	Treated (T2) N=296 cmty=1	Controlled (C2) N=391 cmty=0	Controlled (C3) N=1422 cmty=1	(T2-T1)-(C2-C12)	(C3-C13)-(C2-C12)
Household Social Capital								
Sum of membership within household	4.929054 (4.026821)	3.496164 (3.596916)	3.5218 (3.312572)	6.706081 (5.416681)	3.496164 (4.121782)	3.727848 (3.564395)	1.570979*** (0 .2109792)	0.2060478 (0.172272)
Community social capital								
Total number of community activity	5.858108 (3.269811)	6.140665 (2.609285)	6.067511 (3.202471)	8.594595 (2.916552)	6.483376 (3.226351)	9.686357 (3.27747)	-0.8823602*** (0.2417604)	3.276136 *** (0.2042842)
Weighted community activity	5.107264 (3.078786)	4.859974 (2.255205)	5.254219 (3.075047)	6.515203 (3.00948)	5.193734 (2.882646)	7.45007 (3.336927)	-0 .7879117*** (0 .2397953)	1.862091*** (0 .2032854)
Community cgnitive social capital								
tr01	1.848374 (.1090247)	1.834509 (0.1230102)	1.841915 (0.1173609)	1.749678 (0 .0894077)	1.718057 (0 .0828422)	1.746458 (0 .0958664)	-0.0032394 (0 .00945)	0.0209955** (0.0082832)
tr02	3.021715 (0 .1024941)	3.047629 (0.1268976)	3.037258 (.089538)	3.079177 (0 .1058406)	3.054254 (0 .1345714)	3.095716 (0 .1128247)	-0.0009958 (0.0086881)	0.0518336*** (0. 0089958)
tr03	2.740502 (0 .1560864)	2.615928 (0.2801719)	2.711804 (0.1939837)	2.863489 (0.1689901)	2.84953 (0.2126071)	2.835482 (0 .2005003)	-0.0006918 (0.0126853)	-0.109924*** (0 .0127336)

Table A2-3. Summary statistics of Wife's participation in intrahousehold decision-making based on Figure 2

	2007 (cmty=0)			2014			Differences	
	Participants	Nonparticipants		Participants	Nonparticipants		CDD effect among participants	Spillover effects c CDD among nonparticipants
	Treated (T1)	Controlled (C12)	Controlled (C13)	Treated (T2)	Controlled (C2)	Controlled (C3)	(T2-T1)-(C2-C12)	(C3-C13)-(C2-C12
	N=96	N=364	N=1422	N=96	N=364	N=1422		
	cmty=0	cmty=0	cmty=0	cmty=1	cmty=0 (no CDD in community)	cmty=1 (CDD in community)		
Wife's empowerment (Intrahousehold decision)								
F: Child education	0.46875	0.4835165	0.5513361	0.6458333	0.5549451	0. .6040788	0. 1243407*	-0.018686
	(0.501642)	(0.5004161)	(0.4975326)	(0.4807706)	(0.4976559)	(0. .4892197)	(0. 0701573)	(0. 0394141)
G: Child health	0.5104167	0.4835165	0.5668073	0.6979167	0.5796703	0.6315049	0.1228024*	-0. 0314562
	(0.5025156)	(0.5004161)	(0.495691)	(0.4615715)	(0.4942913)	(0.4825663)	(0. 0687655)	(0. 0384326)
H: expensive purchase	0.5	0.489011	0.5618847	0.7083333	0.6126374	0.6434599	0. 1267581*	-0. 0420511
	(.5026247)	(0.5005673)	(0.4963301)	(0.4569157)	(0.4878182)	(0.4791458)	(0.0675656)	(0.0384902)
N: Time spent (husband)	0.4479167	0. 4587912	0.4901547	0.6145833	0.5521978	0.5682138	-0.0886076	-0. 0153475
	(0.4998903)	(0. 4989848)	(0.5000789)	(0.4892484)	(0.4979524)	(0.4954993)	(0. 0710216)	(0.0391673)
O: Time spent (wife)	0.4583333	0.5	0.4957806	0.5416667	0.6263736	0.6146273	+0.0355134	-0.0075269
	(0.5008764)	(0.5006882)	(-.5001581)	(0.5008764	(0.4844321)	(0.4868545)	(0.0689559)	(0.0386688)
P: work decision	0.5416667	0.5274725	0.5843882	0.7395833	0.6318681	0.6954993	0.0868056	0.0067155
	(0.5008764)	(0.4999319)	(0.4930006)	(0.4411657)	(0.4829613)	(0.4603575)	(0 .064187)	(0.0359034)

Table A3. : PNPM participation (Binary response analyses)

VARIABLES	(1) Logit ind_CDD participation	(2) Logit ind_CDD participation	(3) Logit ind_CDD participation	(4) Probit ind_CDD participation	(5) Probit ind_CDD participation	(6) Probit ind_CDD participation
Female	0.596***	0.593***	0.595***	0.331***	0.329***	0.331***
	(0.0555)	(0.0559)	(0.0557)	(0.0307)	(0.0309)	(0.0308)
age14	0.0113***	0.0873***	0.0860***	0.00643***	0.0485***	0.0477***
	(0.00202)	(0.0141)	(0.0141)	(0.00117)	(0.00773)	(0.00773)
age_sq		-0.000835***	-0.000830***		-0.000465***	-0.000461***
		(0.000155)	(0.000155)		(8.47e-05)	(8.48e-05)
edu_14	-0.00353***	-0.00337***	-0.0206***	-0.00197***	-0.00190***	-0.0121***
	(0.00109)	(0.00110)	(0.00652)	(0.000598)	(0.000599)	(0.00377)
educ_sq			0.000242***			0.000143***
			(8.98e-05)			(5.23e-05)
yearly_14earnings	-2.34e-10	-7.41e-10	-3.68e-10	-1.28e-10	-3.75e-10	-1.81e-10
	(9.33e-10)	(1.09e-09)	(1.01e-09)	(5.05e-10)	(5.62e-10)	(5.32e-10)
Observations	9,985	9,985	9,985	9,985	9,985	9,985

Robust standard errors in parentheses

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

Table A4. The change in the membership between 2014 and 2007 (Based on the answer to "During the last 12 months did you participate in …….?")

	Men					Women				
	PNPM14=0		PNPM14=1		Difference	PNPM14=0		PNPM14=1		Difference
Change in: (between 2014 and 2007)	Number of participants (2014)	Mean (standard error)	Number of participants (2014)	Mean (standard error)	T-statistic (p-value)	Number of participants (2014)	Mean (standard error)	Number of participants (2014)	Mean (standard error)	T-statistic (p-value)
Total number of community activities	1568	0.1428571 (0.04555057)	222	1.13964 (0.125332)	7.6791*** (0.0000)	2251	0.4091515 (0.0289547)	175	1.588571 (0.160293)	10.4346*** (0.0000)
Arisan	1568	0.0350765 (0.0111428)	222	0.225225 (0.0288684)	0.3980 (0.3453)	2251	0.079076 (0.011523)	175	0.1657143 (0.0372249)	2.0966** (0.0181)
Community Meetings	1568	-0.0382653 (0.0147381)	222	0.1171171 (0.0396046)	3.7077*** (0.0001)	2251	-0.0133274 (0.0086345)	175	0.08 (0.0408771)	2.8286*** (0.0024)
Cooperatives	100	-0.03 (0.0171447)	9			127	0.0472441 (0.0219596)	10	0.3 (0.1527525)	2.8538*** (0.0025)
Voluntary Labor	943	-0.0159067 (0.0189431)	134	0.119403 (0.0561)	2.4820*** (0.0066)	1317	0.0387244 (0.0124588)	114	0.2280702 (0.0557724)	4.1701*** (0.0000)
Neighborhood or village improvement schemes	349	0.0830946 (0.0337803)	56	0.3035714 (0.0915936)	2.3978*** (0.0085)	502	0.0537849 (0.0204858)	48	0.25 (0.0759105)	2.7923*** (0.0027)
Neighborhood security	711	0.2587904 (0.0164367)	88	0.5 (0.0536056)	4.7882*** (0.0000)					
Providing drinking water	1393	-0.488155 (0.0157447)	202	0.029703 (0.0377374)	1.7937** (0.0365)					
Solid waste removal	1568	0.0299745 (0.0043076)	222	0.0585586 (0.0157941)	2.2164** (0.0134)					
Women's Family Welfare Organization (Wanita PKK)						2251	0.1559307 (0.0076483)	175	0.4228571 (0.037451)	9.0957*** (0.0000)
Community health post (Posyandu) J						2251	0.1434918 (0.0073907)	175	0.3085714 (0.0350168)	5.8447*** (0.0000)
Health Fund	152	0.019736 (0.087269)	14	0.1428571 (0.0970523)	1.2421 (0.1080)	218	0.0550459 (0.0257388)	27	0.333333 (0.1193525)	3.3071*** (0.0005)
Village savings and loans	315	0 (0.0127186)	53	0.1132075 (0.0439387)		452	0.0132743 (0.0088373)	41	0.3170732 (0.0735761)	8.2881*** (0.0000)

Table A5. Dep. Var: level in borrowing – 2014 information

VARIABLES	(1) Probit h14_bh00	(2) Logit h14_bh00	(3) Probit h14_bh04	(4) Logit h14_bh04	(5) Probit h14_bh07	(6) Logit h14_bh07
Social capital						
h_SC	0.0444***	0.0699***	0.00505	0.0158	-0.00380	0.0156
	(0.0111)	(0.0182)	(0.0279)	(0.0504)	(0.108)	(0.166)
cty_SC_w	-0.0320**	-0.0602**	0.226***	0.480***	-0.352**	-0.677***
	(0.0154)	(0.0268)	(0.0812)	(0.154)	(0.156)	(0.240)
cty_SC_sum	0.0409***	0.0744***	-0.192***	-0.382***	0.371**	0.718***
	(0.0150)	(0.0261)	(0.0734)	(0.132)	(0.148)	(0.254)
CDD participation						
CDD_h (binary)	0.457***		-0.549		16.54***	
	(0.122)		(0.600)		(1.751)	
CDD_h_sum		0.602***		-1.261		38.85***
		(0.186)		(1.033)		(6.241)
Interaction terms						
CDD_h · h_SC	-0.0435*		0.0571		-2.529***	
	(0.0243)		(0.0869)		(0.151)	
CDD_h_sum · h_SC	0.0205		0.0476		5.208***	
	(0.0280)		(0.113)		(0.170)	
CDD_h · cty_SC_w		-0.0400		0.161		-5.053***
		(0.0256)		(0.179)		(0.570)
CDD_h_sum · cty_SC_w		0.0354		-0.00201		10.65***
		(0.0441)		(0.0862)		(0.998)
Control variables						
Log (earnings)	-0.000322	-0.000153	-0.0108	-0.0268	-0.140***	-0.277***
	(0.00452)	(0.00775)	(0.0208)	(0.0414)	(0.0516)	(0.0928)
Log (wealth)	0.0134	0.0256	0.0242	0.0481	1.031***	2.035***
	(0.0105)	(0.0186)	(0.0558)	(0.0884)	(0.341)	(0.649)
Observations	2,157	2,157	146	146	146	146

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A6-1. All households : Wife's response in male-headed households (Respondent: Wife of male household head)

Decision category	Decision pattern 2007 (n=1989)			Decision pattern 2014 (n=3275)		
	Wife	Joint	Husband	Wife	Joint	Husband
Food (A1)	38.41	21.82	33.23	41.47	18.43	33.50
Routine purchase (B)	39.37	22.78	33.48	45.20	12.04	36.98
Your clothes (C)	41.43	40.52	16.09	59.20	14.55	23.32
Your spouse's clothes (D)	18.70	45.30	33.74	28.27	17.05	51.93
Children's clothes (E)	14.63	52.24	14.48	33.77	19.65	25.64
Children's education (F)	8.70	74.31	5.58	22.25	50.21	14.46
Children's health (G)	7.94	78.98	5.23	23.20	55.38	12.71
Large purchase (H)	8.55	6.27	8.40	18.15	55.07	19.38
Time husband socializing (N)	23.73	52.64	23.08	36.37	30.32	32.73
Time wife socializing (O)	22.22	57.92	19.41	34.35	36.98	27.96
Whether husband/wife works (P)	13.78	75.87	9.35	24.18	57.11	17.35

Table A6-2. All households : Husband's response in male-headed households (Respondent: male household head)

Decision category	Decision pattern 2007 (n=2029)			Decision pattern 2014 (n=3275)		
	Wife	Joint	Husband	Wife	Joint	Husband
Food (A1)	33.76	23.11	35.44	34.71	18.51	40.74
Routine purchase (B)	35.58	24.20	34.40	36.39	12.86	44.87
Your clothes (C)	17.35	41.89	38.74	24.23	15.47	57.54
Your spouse's clothes (D)	34.25	48.25	14.93	51.25	17.28	28.96
Children's clothes (E)	13.85	53.33	14.00	26.96	20.70	31.41
Children's education (F)	5.32	74.17	8.43	14.23	50.11	22.23
Children's health (G)	6.06	78.31	7.20	11.02	56.08	23.98
Large purchase (H)	8.23	75.21	9.51	17.50	54.94	20.39
Time husband socializing (N)	20.21	52.83	26.61	16.26	25.75	20.42
Time wife socializing (O)	20.40	57.71	21.54	34.01	29.72	35.76
Whether husband/wife works (P)	10.15	72.06	16.51	19.17	53.23	26.42

Table A6-3. All households : Wife's response in female-headed households (Respondent: female household head)

Decision category	Decision pattern 2007 (n=91)			Decision pattern 2014 (n=26)		
	Wife	Joint	Husband	Wife	Joint	Husband
Food (A1)	43.96	21.98	30.77	42.31	15.38	30.77
Routine purchase (B)	42.86	21.98	34.07	53.85	11.54	34.62
Your clothes (C)	41.76	51.65	5.49	61.54	19.23	15.38
Your spouse's clothes (D)	14.29	52.75	31.87	23.08	19.23	57.69
Children's clothes (E)	17.58	56.04	8.79	30.77	26.92	19.23
Children's education (F)	5.49	75.82	4.40	23.92	30.77	19.23
Children's health (G)	4.40	70.22	4.40	26.92	42.31	23.08
Large purchase (H)	5.49	82.42	6.59	34.62	42.31	11.54
Time husband socializing (N)	21.98	52.75	24.88	26.92	26.92	46.15
Time wife socializing (O)	24.18	54.95	20.88	23.08	50.00	26.92
Whether husband/wife works (P)	10.99	76.92	12.09	23.08	53.85	23.08

Table A7. level analysis – Dependent Variable: Material/subjective wellbeing

VARIABLES	Material wellbeing Log household total expenditures			Subjective wellbeing					
				Perceived current step (1: poorest – 6: richest) sw01			Current family life (1: less than adequate – 3: more than adequate) sw03b		
Social Capital (level of social capital)									
Household SC (h_SC14)		0.0195***	0.0184***		0.0161***	0.0158***		0.00693***	0.00627**
		(0.00404)	(0.00400)		(0.00423)	(0.00424)		(0.00255)	(0.00256)
Weighted Community SC		0.0169	0.0312***		-0.0111	-0.00298		-0.000586	0.00131
(cty_SC_w14)		(0.0110)	(0.0111)		(0.0115)	(0.0117)		(0.00696)	(0.00709)
Community SC (sum)		0.00459	-0.0249**		0.0136	0.000235		0.0120*	0.00562
(cty_SC14)		(0.0110)	(0.0114)		(0.0115)	(0.0121)		(0.00695)	(0.00729)
Community Cognitive SC									
tr01			-0.404**			-0.264			-0.137
			(0.173)			(0.183)			(0.110)
tr02			0.0143			-0.177			0.133
			(0.139)			(0.148)			(0.0892)
tr03			-0.716***			-0.320***			-0.148***
			(0.0841)			(0.0891)			(0.0538)
CDD participation (between 2014 and 2007)									
CDD_h_sum	0.0981***	0.0462	0.0513	0.0276	0.0255	0.0304	0.0176	0.00787	0.00832
	(0.0294)	(0.0530)	(0.0522)	(0.0305)	(0.0554)	(0.0553)	(0.0184)	(0.0334)	(0.0334)
CDD_c^{14} (community)		-0.0142	0.0491		-0.0125	0.0176		-0.0518	-0.0363
		(0.0805)	(0.0797)		(0.0842)	(0.0845)		(0.0508)	(0.0510)
Spillover		0.000323	-0.00157		0.0841	0.0882		0.0108	0.00730
Spillover		(0.0798)	(0.0786)		(0.0835)	(0.0834)		(0.0504)	(0.0503)
$(1-CDD_h)$ X CDD_c^{14}									
Log (earnings)	0.0130***	0.0115***	0.00973***	0.00466*	0.00321	0.00230	0.00153	0.00112	0.000743
	(0.00238)	(0.00238)	(0.00235)	(0.00248)	(0.00249)	(0.00250)	(0.00150)	(0.00150)	(0.00151)
Log (wealth)	0.112***	0.104***	0.104***	0.0936***	0.0882***	0.0889***	0.0482***	0.0447***	0.0444***
	(0.00706)	(0.00710)	(0.00700)	(0.00734)	(0.00743)	(0.00742)	(0.00443)	(0.00448)	(0.00448)
Social Safety Net	0.0314	0.0571	0.0980	-0.0903	-0.0729	-0.0595	-0.158***	-0.148***	-0.135**
	(0.0857)	(0.0849)	(0.0837)	(0.0890)	(0.0888)	(0.0888)	(0.0538)	(0.0536)	(0.0536)
Observations	2,148	2,148	2,148	2,148	2,148	2,148	2,148	2,148	2,148
R-squared	0.132	0.152	0.181	0.078	0.088	0.094	0.062	0.073	0.078

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

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